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## НОВЫЕ МЕХАНИЗМЫ И ПРИНЦИПЫ ИНТЕЛЛЕКТУАЛИЗАЦИИ И СОЦИАЛИЗАЦИИ МЕЗОЭКОНОМИКИ В УСЛОВИЯХ РАЗВИТИЯ ИННОВАЦИОННОЙ МОДЕЛИ ВОСПРОИЗВОДСТВЕННОГО ПРОЦЕССА

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### Аннотация.

Воспроизводство самого рабочего – это комплексное развитие личности как расширенное воспроизводство в смысле владения знаниями, роста творческих способностей и выхода на новые высоты этики и морали. Инновации как квинтэссенция текущей и грядущей стадий научно-технического прогресса в большинстве технологически развитых стран с рыночной экономикой выводят промышленность на такую стадию, когда социализация становится главной особенностью производства, поскольку социальный прогресс сегодня неотделим от развития личности и определяется им. Данная статья отражает научные результаты становления теоретической и методологической базы формирования инновационной мезоэкономики и основных компетенций малых инновационных фирм, полученные в ходе работы по гранту Российского фонда фундаментальных исследований № 16-02-00191/17-ОГОН.

## NEW MECHANISMS AND PRINCIPLES OF INTELLECTUALIZATION AND SOCIALIZATION OF THE MESOECONOMY UNDER DEVELOPMENT CONDITIONS OF THE REPRODUCTION PROCESS INNOVATIVE MODEL

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### Abstract.

Reproduction of a worker itself stands as a comprehensive development of the individual, as expanded reproduction in the sense of knowledge possession, growth of creative abilities and morality increase of a worker. Innovative scientific and technical development, in most advanced market economies, brings production to a stage where socialization becomes its main feature, since the social progress is defined by the development of personality. This paper shows theoretical and methodological base of formation of innovative mesoeconomy and core competencies of small innovative firms and is an output of the science project of the Russian Humanitarian Scientific Foundation (Project № 16-02-00191/17-OGON).

### 1 Introduction / Введение

Socialization of the reproduction process, with the matter of a specific essential feature of the mesoeconomic growth innovative model under conditions of modern stage information technology revolution, is inseparably connected with a radical change of human position in the production process [1]. Radical intensification of human capital as a factor of production process under conditions of innovative scientific and technical development is manifested in the creative participation of a worker in production process, where worker serves as the main productive force and the subject of institutional relations, and in the social sphere, where the employee undergoes transformation of social relations, formation and the development of personality [2]. The level of socialization of national production is determined by the aspect of employee highlighted in a number of productive powers such as personal development; fully disclosed intellectual, moral, creative qualities; possession of the production process and becoming the purpose of production itself (not production agent) [3].

## 2 Теория / Theory

Reproduction of a worker itself stands as a comprehensive development of the individual, as expanded reproduction in the sense of knowledge possession, growth of creative abilities and morality increase of a worker. Innovative scientific and technical development, in most advanced market economies, brings production to a stage where socialization becomes its main feature, since the social progress is defined by the development of personality. The category of «Socialization of the economy» was actively used in the early 20<sup>th</sup> century [4].

In Western economic literature, the problem of socialization in the context of the development of the productive forces and production methods are considered for a long time [5]. The idea of «socialization of the economy» is most fully presented in J. Galbrate works [6]. He proceeds from the principle that the set of institutional economic relations should not change from formation, but it should change constantly as the productive powers of society.

J. M. Keynes focused on the socialization of economic life, including investment, which is perceived as a way to state socialism [7]. Herewith he assumed a gradual transition: «In addition, the necessary measures of socialization can be introduced gradually, without breaking the established traditions of society». Y. Schumpeter also gives a lot of attention to the socialization. He titled it «an objective historical movement trend to socialism» [8].

The development of the productive powers of the entire mesoeconomic system under new conditions of information technology (IT) revolution evolves its social direction with the inevitable necessity. In the developed countries IT revolution more practically proves the link between mesoeconomic and social problems and the inability to solve the first excluding second [9].

Qualitatively new level of productive powers and its distinctive features emerge through the current status of the advanced fields of science, technology and production. On the one hand it is characterized by opening the possibility to transfer the management process of material production system to technical devices (machines), and changing way of the relationship itself to nature as habitat, the main condition of production, on the other hand. With the extensive application of information, communication and radically new technologies of a new industrial management brings the social side of labor to the fore.

Technological quittance of the workers and their elimination out of production are not new subjects. Marx, following Hegel, pointed out that man, with the use of the machines, is constantly «eliminated» from the direct production; his human, more precisely animal force, in production more often replaced by the natural forces [10].

The need for technological quittance of the workers is commonly determined by the fact that the main stage of world IT revolution has approached. It is a production stage, which includes practical implementation of the newest automation production technologies on the basis of computerization, robotics, micro process application; provides tremendous savings of all resources and improvement of their quality.

However, in the socio-economic literature, this topic is discussed mainly by changes in the matter, industrialization and intellectualization of labor [11]. The most interesting in this respect is, in our opinion, the work of N.V. Markov [12].

Still, there is no necessary and explicit emphasis on the fact that the indicated processes occur during extensive type of mesoeconomic growth too.

## 3 Методология и данные / Methodology and Data

All previous technological modes of production (instrumental mode and machine mode, which is the current one) based on the technological connection of man and of the instruments of labor by their «close» direct connection. At all stages of the development of technology and the productive powers, prior to automation, man was strictly included in the technological process as a operator of certain technological function. Productive process has been performed only while the man himself remained its direct participant. In the crafts sector there was a craftsman with a set of multipurpose tools; in the manufactory sector there was a worker, who, with the help of specialized tools, manually performed one partial operation; in the machine mode of production again there was and there is a man, who supplements the machine by performing partial, so-called machine functions [14]. Even in the manufactory

sector, the tool plays the role of the servant; in the machine mode of production, subordination of a worker to the machine is constant.

Technological subordination of a worker to the machine is completed by complex mechanization and partial automation, becoming the technological essence of the reproduction process extensive type. Completion process divides human capabilities in two aspects: physical labor (rigid functions of the physical and spiritual production potencies) and scientific and intellectual labor (as the concentration of creative spiritual production potencies).

A worker becomes a living appendage of extensively developed machine system. Machine, as the embodied power of knowledge, becomes the dominant element of the productive powers and overmasters a man in the process of labor. The material element of the productive powers overmasters the human productive power in the direct act of production.

The functional matter of labor is determined by the type of equipment and technology, subjects of labor (the degree of mechanization and automation of production), that have direct technological communication with the man in the process of labor man.

The matter of labor is characterized by a set of those technological functions which man performs in the process of labor in combination with technique. These functions may prescribe the execution of creative operations requiring intellectual abilities effort, and also execution of rigid operations such as physical and intellectual monotonous works.

Man, as a source of development of the large machine production, at the same time appeared to be its obstacle, since this method of production mode, in a greater extent than any other modes of production, technologically subordinates, defalcates, and overdrives the subjective productive power as a man, bringing down to a level of simple labor power [14].

Solving of collective worker technological liberation from the condition of the appendage of extensively developed machine device problem is seen in the deep quantum leap in the development of productive powers on the basis of scientific and technical progress achievements and the formation of a new model of mesoeconomic growth. This is a deep social significance of scientific and technical progress in innovatively capacious stage of intensive mesoeconomic growth on the field of highly developed market relations.

Functional purpose of the technology and human, on the basis of materialized achievements in scientific and technical progress under conditions of formation innovatively capacious stage of intensive mesoeconomic growth, is fundamentally changed and radically transformed. Position of a man and his role in the production, matter and character of his work, all physical and intellectual activities become rather diverse.

Any changes in the instruments and subjects of labor acquire the deep social and historical meaning only when measured by human scale, where «the whole human personality and its capabilities» principle [15] elevates a person to the new social height.

Approach to the analysis of equipment and technology through the process of labor, in which man and technology exist in inseparable functional unity, has important methodological significance. It allows scientific revealing of the development technology pattern, nodes, major historical stages of the development and matter of labor qualitatively which is qualitatively transformed depending on the level and state of the equipment. Qualitative transformations in technology, emerging in the course of scientific and technological progress, mean the beginning of the new large historical period in the development of the productive powers. It is a notable that the technological essence of scientific and technical progress stands as an automated technological mode of production. Its essence is the following: instead of working machine there is a technical device that qualitatively converts the functional matter of labor and whole technological mode of production, thereby, becoming the technical basis for the socialization of national production. As a rule, under conditions of a complex of the automated production, technological process goes on independently, without direct inclusion of a man. Worker only provides objective of production and corresponding hardware (maintenance) programme, and if necessary, carries out its sub alignment and control.

Different functional capabilities act as a qualitative watershed between mechanization and automation, between the existing traditional working machine (for example, common lathe) and forming (and existing) automatic device (for example, lathe with numerical program control). In other words, equipment implemented a new «function of labor», compared to the working machine, can be considered as the «radically new» equipment. In the process of production, or more precisely, in the real labor

process it is necessary to ensure that certain operations, previously performed by man, then were transferred to technical device and implemented in it.

The essence of qualitative changes in modern productive technology is presented in three aspects: the transition to the use of non-mechanical principles in the production; the penetration in depth of a substance; the involvement of «molecular, atomic and subatomic levels of the substance». This leads to the development of so-called basic technologies, which will constitute the material basis of the modern mesoeconomy.

The use of innovative technological principles is highly effective in creating flexible automated production works. With the help of these principles one technological process could combine mechanical processing of details with automatic welding, thermal hardening, changing of the crystal structure of matter, automatic control, automatic change of processing rate and etc. High technological and social efficiency is achieved due to these aspects.

The distinctive feature of the newest production technologies is that they expand the scope of non-equipment machinery on the basis of its synthesis with technology. The mechanical impact on a subject of labor is replaced by using physical, chemical, biological (biotechnology), and other properties of matter and the organism. All these facts concerning growing process of replacement of extensively developed instruments of labor through the application of natural resources processes on the basis of the newest technologies.

#### 4 Заключение / Conclusion

Concluding the essence analysis of the innovative instruments of labor, deep qualitative transformations in the production and intensive type of mesoeconomic growth, it is necessary to emphasize that under the influence of these processes a new, adequate to the intensive type of mesoeconomic growth, technological mode of production is formed.

The use of automated equipment, which consists not only of the fourth level of the developed machine device, but also of technical systems including non-equipment machinery and technology applied to the subjects of labor in non-mechanical ways, is impossible to the traditional workers. This automated equipment can only be used by highly qualified workers of intellectual work.

These workers are impossible to train without social conversion of mesoeconomic and household sector, and without them automation «won't do». Consequently, the intensification of innovative processes is deprived of its material basis.

In conclusion, the analysis made in this paper allows us to mark the following: firstly, the criterion of a qualitatively new state of the equipment is its impact on the qualitative changes in the functions of the matter of labor; secondly, automation cannot be reduced only to this functional aspect - in addition to the automation of functions of labor, it provides four main directions, leading to technological release of the worker from the condition of the appendage of traditional machines; thirdly, to be a qualitatively new and provide technological release to the worker, automated equipment is partially or fully released from the structure of the traditional equipment.

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