

## NEW SYSTEM OF PRODUCTIVE FORCES AND ASIAN COUNTRIES

The productive forces of any society consist of three components: natural resources, human labor and capital, or tools and technology. The modern fourth industrial revolution is preceded by the first industrial revolution, which began in the second half of the eighteenth century in England, the second industrial revolution, which began in the last third of the nineteenth century, and the third industrial revolution, in the second half of the twentieth century. For the first three industrial revolutions, the main socio-economic process was industrialization. The current fourth industrial revolution is undergoing a process that is different from that observed in past phases of industrial revolutions. It is not so much the expansion of the possibilities of humanity as the replacement of ways to obtain the benefits that people have learned to produce before. In addition to the concept of industrial revolutions, there is another periodization of technological progress and its impact on the economy developed by groups of scholars associated with Kondratiev school of thought. This is a system of technological modes. Technological mode is a set of technologically related industries, from the extraction of natural resources and training of personnel to non-productive consumption. Academician Sergey Glazyev identifies five technological modes, starting from the industrial revolution of the XVIII century to the first half of the XXI century and describes all technological modes in a single scheme. The concepts of technological modes and stages of the industrial revolution coincide in assessing the significance of changes in technological development in the first half of the XXI century. The timing of the onset of new stages of the industrial revolution or the formation of new technological modes can change under the influence of processes occurring in the economy. It can be noted that the problem of automation of production as

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the most important for socio-economic development was noted by economists in the middle of the twentieth century. The formation of large transnational companies and their transfer of production to developing countries and the formation of a catch-up model based on exports from less developed countries with cheaper labor to more developed and richer countries have forced labor-saving technologies to compete with cheap labor in developing countries, and for several decades they were losing to cheap labor. Now, it is changing rapidly. At the present time, several factors cause the need to turn to the analysis of technological changes in production. First, significant changes are taking place in many technologies and industries at the same time, and secondly, new technologies have already been formed and are successfully developing. Third, the scale of the impact on society is potentially very large and diverse. Different aspects of the emerging system of new productive forces are analyzed in the monograph. The view of the leading audit and consulting companies on the key issues of development of new productive forces is presented. Four directions are considered: the emergence of a leading group of breakthrough technologies, the merger of the real and virtual worlds, the problems of introducing new technologies and the position of the leading countries of the East in the technological race of the fourth industrial revolution. The position of Asian countries as leading exporters of digital equipment is depicted. By the beginning of the third industrial Revolution (1970-2010), Asian developing countries had a rather modest position in international division of labor as industrial producers. However, they have been able to find their niche in the third industrial revolution and successfully integrate into the international division of labor as ICT goods manufacturers. From the beginning of the 1970s, TNCs began to shift manufacturing of consumer electronics – TVs and radios – to developing Asian countries. By the beginning of the 1990s, major exporters of consumer electronics were Singapore, South Korea, Taiwan, Singapore, Malaysia and Hong Kong. From the 1990s shifts

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in production from developed countries to developing countries of Asia included such sectors as manufacturing of computer, and later, telecommunications equipment. Developing countries of Asia,

primarily China, have become top world manufacturers and exporters of digital equipment. Leading exporters of ICT products also include the Republic of Korea, Singapore, Taiwan and Malaysia, and export of telecommunications equipment from Vietnam is growing rapidly. Developing countries of Asia produce a significant part of value added in the ICT goods industry. Their own large transnational companies that can enable advancement along the path of digital transformation have emerged in Asian countries (and in recent years – primarily in China). In order to develop the fourth industrial revolution technologies, a country does not need to produce digital equipment itself, these goods can be imported, and the main sources of import are a rather narrow group of countries and corporations. Main suppliers of digital equipment to the world market are Asian countries.

Special attention is given to machine-tool industry, the development of which is one of the most important conditions for industrial and technological growth is the development of the machine-tool industry. Automation of production today has reached unprecedented heights. Thanks to the introduction of new technologies, production efficiency is significantly improved. The global machine tool market today is characterized by growing competition in the high-tech equipment segment. If earlier the leadership undoubtedly belonged to the European countries, today China, with its high growth rates, makes us doubt: what will happen tomorrow?

Another new technology envisaged is 3D printing.