

Innovative Transformation and Transformational Potential of Socio-Economic Systems

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Abstract: The article reveals the specific character of the study and management of innovation of transformation and transformational potential of socio-economic systems in contemporary conditions, which are characterized by the presence of turbulent changes that cause necessity to find new forms, methods and ways to ensure the sustainable development of these systems and their balanced socio-economic growth. The ability of the socio-economic system towards sustainable development is defined by a set of parameters, factors and conditions, though the most important characteristic of the system is the availability of its transformational potential, which in a formalized form is a set of local indicators that are considered integrally.

Key words: Sustainable development • Socio-economic system • Innovative transformation • Transformational potential • Innovations • Major economic cycles • Innovation wave • Innovation process

INTRODUCTION

The changes, currently taking place in the national and international public and economic structure, are not spontaneous, incidental, or unforeseen. In contrast, the transformation in development of the national socio-economic systems and the World System in general is a logical consequence of the changes that began to form in the previous stages of evolution and accompanied a change in technological mode [1]. Describing the development of socio-economic systems of macro- or micro-level, it is worth noting that three types of forces are at the heart of their progressive advance from past to present: the natural, social and economic forces [2].

The development occurs due to the ever growing complexity of parameters and elements of the socio-economic systems, which should be regarded as the accumulation and subsequent transformation of the qualitative characteristics of the elements, making up the system and the processes in this system.

Though not all kinds of development are rational and objective, i.e. are characterized by stability (the ability of

the system to preserve the basic properties and the structure of self-organization in the course of change of evolutionary stages [3]). Ensuring sustainability of socio-economic systems requires particular strategic resources and special impetuses.

In the current context, knowledge is the main strategic resource; the knowledge transformation into individually or socially significant result, which is of practical use, is the main impetus for sustainable development of socio-economic systems. On this basis, the changes, taking place in society and the economy are defined as the transition from traditionalism and the industrialization to the information society and knowledge-based economy.

Existing regularities, defining the status and development of the World System as a whole and the national socio-economic systems, are such that the knowledge and scientific advances are becoming an increasingly important resource, much more important in some cases, than material, natural and financial resources that form the basis of traditional social and economic relations.

The main factor that qualitatively transforms the socio-economic space in the last few decades is a factor of scientific and technological progress and innovation factor. In fact, the scientific and technological progress and innovation are the phenomena of the same order. Considering process-view of these two concepts, we can say that the innovation is the logical continuation of the technological progress. The presence of these phenomena in the economic and social development suggests that the ongoing transformations of the small and large systems can be described as innovative transformations. The core of the innovative transformations of socio-economic systems lies in the fact that knowledge (basic, applied and organizational) is used as a strategic resource of developments and changes. The knowledge is embodied in the unique ideas and solutions aimed at the best and the most optimal satisfaction of individual or social needs, both current (having actual expression) and latent (hidden or deferred).

The process of innovative transformation of small and large socio-economic systems is directly correlated with the economic macro-conditions and the interchangeability of small and major economic cycles (which have a wave nature and therefore are often referred to as the short and long economic waves). The relationship of economic cycles and scientific and technological progress in the implicit form has been noted by J.Schumpeter [4] and subsequently developed explicitly in the works of Nikolai Kondratiev in the first half of the XX century.

At that, N. Kondratiev emphasized two primary factors that ensure the formation of capital resources; this is industrial infrastructure and a trained manpower. Renewal of these resources occurs under the influence of scientific and technological progress against the background of innovations and inventions, that is, through the innovative process taking place at a given level of socio-economic system and also having a wave dynamics nature.

It should be noted that the associativity of the innovation wave and the economic cycle, although occurring coevolutionarily, is characterized by syncretism. In the economic dimension, the peak in increase of business activity proceeds in parallel with the wave increase. On the contrary, in an innovative dimension, increase in scientific, technical and technological activity, as well as knowledge-based processes occur in proportion to the wave decrease, when the results of the

previously implemented innovations no longer meet the individual and/or public demand and the socio-economic development is increasingly instantiated by extensiveness and simple reproduction. Therefore, the associativity of the innovation process and the economic cycle in terms of co-evolution and syncretism is characterized by the presence of trigger effect.

The paradox of innovation and, consequently, trigger effect consists in the fact that in the economic recession phase the innovative activity reaches the highest level. Figuratively speaking, during a period of economic depression and at the same time the bottom of a long economic cycle and the associated innovation wave, the social and economic mind is, firstly, looking for the ways to adapt to the new conditions. And, secondly, the social and economic mind, or rather its progressive part, is looking for the ways of counter-adaptation, i.e. to such methods of organization and development that will ensure sustainability of the system through the accumulation of new qualities and transition of the system to a new evolution stage owing to anticipation of upcoming changes.

According to A. Akaev [5], a trigger effect, or rather its presence in the economic cycles and innovation waves, associated with them, was identified for the first time in the research of Gerhard Mensch [6], who showed that a phase of economic depression triggers special mechanisms (in terms of synergetics, this is a mechanisms of self-organization) forming a new phase or cycle of the innovation process.

A powerful cluster of innovations is formed by the emergence of upward phase of the economic cycle (the recovery phase). Formation of this cluster has a diffusive nature, integrating social and peculiarly economic innovations, because these two subsystems are inseparably linked and changes in one of them objectively causes changes in other subsystem.

Diffusion of innovations in a random mode is formed into a cluster along the upward phase of the major economic cycle. This in turn means that for the efficiency of the practical application of the innovation wave diffusion, the first half of the major economic cycle is the most favorable. From the empirical point of view, the same can explain an unprecedentedly high business activity of the micro-level (aiming for innovations commercialization) during the upward phase of the economy and the unprecedentedly high knowledge processes (aiming for innovations production) during the economic depression.

Taking into account that innovation theory represents solutions designed to meet the current and latent individual and public goods, we can assume that the innovation process actually cannot be of all kinds, though must have a key trend or mainstream, conditioned by the relationship of social and economic innovations and determining the quality and the specificity of the system transformation. A. Akayev defines the innovative mainstream as main street innovations, while M. Hirooka [7] specifies them as infra-paths.

Main street innovations or infra-paths are trans boundary processes that do not terminate with the change of the economic cycle (the completion of the current technological mode) and the transition to a new phase of socio-economic development. But at that, a global technology shift occurs during the transitive period (the period of transition from one cycle to another and the change in technological modes). According to V. Ivanter [8] and N. Komkova [9], this shift must be used in order to intensify the national, regional, or local socio-economic growth, i.e. to ensure a breakthrough innovation of the system rather than "business as usual" development.

On the one hand, break through innovation, in terms of the development characteristics of socio-economic system of both macro- and micro- level, can be considered as a loss of stability, as the equilibrium and sustainable development of the system under these circumstances is impossible in principle. Though on the other hand, the transition to a new status (relative stability in the context of permanent disturbing environmental influences) is impossible without upgrading the quality and here technological progress and innovation process are the basic conditions for such upgrading.

The availability of scientific and technical progress in socio-economic systems development is the result of the accumulation and use of innovative potential, which can also be defined as the transformational potential. This potential represents an aggregate of all kinds of resources, producer's goods and production factors, which are currently available in socio-economic system, or which can be attracted for its development. An innovative or transformational potential of the socio-economic system of macro- or micro- level includes also its ability to carry out new recombination of resources, producer's goods and production factors in order to obtain a qualitatively new result.

Therefore, the ability of socio-economic system towards the sustainable development is defined as the ability to acquire new qualities (update accumulated qualities) through the efficient use of resources, producer's goods and production factors by means of their irregular recombination, targeted for a particular strategic outcome, which is expressed in the maximization of economic and non-economic benefits, as well as in the preservation of the natural and ecological homeostasis.

The transformational potential of socio-economic systems, as a dynamic performance and an indicator of the capability of these systems, ensures sustainable development through the production and assimilation of innovations. Transformational potential is formed by at least five local potentials:

- The scientific or knowledge-based potential, which is considered in the context of the system's ability to create basic, applied, or organizational knowledge with practical target orientation and coherent strategy for system development;
- The infrastructural production and technical potential, which is considered in the context of the possession of the necessary material and technical base for the creation, testing and implementation of innovative ideas that give the target (specified) result;
- The intellectual, labor and workforce capacity, which is considered in the context of the possession of the human resource pool required for the direct generation of knowledge, as well as the immediate implementation of this knowledge into tangible or intangible product;
- The financial potential together with the investment component, which is considered in the context of the system's ability to generate the necessary flows of financial resources and investments, as well as effectively redistribute them for providing financial and investment support of the innovation process;
- The information and communication potential, which is considered in the context of the system's ability to generate the information flows, ensuring transfer of knowledge, innovation and their practical implementation, which results in technologies.

The above list of local potentials, which forms the transformational potential of socio-economic systems is not exhaustive and may be considered in other contexts.

In particular, some authors highlight two hierarchical levels of transformation potential: strategic and tactical; some researchers believe that in the context of micro-level innovative processes it is worth to consider separately the marketing and commercial potentials [10], etc. Regardless of how broad or narrow is the list of local potentials, comprising the transformational potential of the socio-economic system, it is worth noting that it will be based on innovations (as a result of the knowledge conversion into product needed for best satisfaction of the individual or public requirements).

Based on the above keynotes and statements, we can conclude that the changes, taking place in the national and global economy, as well as in social development, affect all types and forms of social and commercial activity. The processes of globalization, integration, networking and cooperation, which are observed both at the global and local national levels, in many ways put forward new requirements for the organization of business entities, public and academic agents and the executive power. The innovations play the main role in current transformation processes of social, political, technological and economic spaces; in turn, they are the result of enhancing the scientific (in the fundamental and applied aspects) and knowledge-based activities.

The relationship between the innovations and the sustainable development of socio-economic systems of macro- and micro-level in transitive conditions is already objectively evident and does not require theoretical and empirical evidence.

However, the practical achievement of sustainable development requires from the socio-economic system to possess respective potential, which is the integral indicator of system's readiness and ability to produce, implement and spread the innovations in order to achieve the desired target result.

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