

# Chapter 4

## Indicators System as a Measure of Development Level of Knowledge Economy: Application of World Bank Methodology

**Elena Viktorovna Burdenko**

*Plekhanov Russian University of Economics, Russia*

**Svetlana Vladimirovna Mudrova**

*Plekhanov Russian University of Economics, Russia*

### ABSTRACT

*Scientific and technological advances and economic globalization impose new requirements on the organization of domestic economy. Knowledge economy development principles were formulated in order to understand current processes. Special attention was paid to specific features of the knowledge economy. A comprehensive approach proposed by the World Bank was studied under a special Knowledge for Development Program (K4D) to assess country's economic readiness to shift to the knowledge economy model. Countries were ranged based on the Knowledge Economy Index and top-10 countries were selected. Such indices as the Global Innovation Index, the Human Development Index and collections of analytic works also indicate a transfer to the knowledge economy. The development of the Global Innovation Index was studied and top-10 countries having the highest indices were selected. A research was made into the Human Development Index and its dynamics in Russia and in G20 countries was analyzed over the period of 1995 – 2015.*

### INTRODUCTION

Widely used notions of the “new economics”, “hi-tech civilization”, “knowledge society”, “information society” are similar to each other. Today investments in knowledge have been growing at a faster pace than investments in key assets: in OECD countries in the 1990-s they were increasing on average by 3,4% per year against 2,2%. Information technology and globalization result in dissemination of knowledge

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throughout the world. The chapter contains characteristics of the knowledge economy. A methodology drafted by the World Bank was used to assess the country's ability to create, accept and reproduce knowledge. Countries were then ranged based on the proposed methodology. The aim of this chapter is to study factors that determine the economic development of advanced countries. In order to reach this aim, it is necessary to meet the following challenges:

1. Identify characteristic features of the knowledge economy;
2. Study the composition of the knowledge economy indices and knowledge indices;
3. Present a comparative analysis of top-10 countries with the highest knowledge economy index;
4. Study how the global innovation index is used to range countries;
5. Carry out an analysis of global innovators' breakdown by countries;
6. Study the human development index and its transformation in some of g20 countries over the period of 1995-2015.

While carrying out the research, the authors sought to answer the following questions: "Why are some countries more economically developed than other countries? Is it possible for low-performing countries to improve their economic situation? What do their need to do in this case?"

## **BACKGROUND**

As a result of knowledge accumulation as well as the development and ever-growing use of new technologies, the last third of the XX century saw the emergence of a new post-industrial society that appeared to replace the industrial society. Human way of life undergoes profound transformations. Humankind is now based on scientific development and effective technology, new quality of human capital, transformation of the social structure, a higher management level, a more sustainable use of resources, new capabilities in the production connected with these factors, consumption and decrease in costs per unit of resources used for the output of products and services. These circumstances generate together a new synergetic effect that accounts for the development of a new society.

Austrian-American scholar F. Machlup (1962) was one of the first to pay attention to changes in the economic structure. In his book "The Production and Distribution of Knowledge in the United States" (1962) he introduced the scientific notion of the knowledge economy also revealing a critical role of knowledge for the economic innovative development. Such scholars as D. Bell (1973), I. Nonaka (1995), H. Takeuchi (1995), V.G. Kelly (2003), A.P. Mihailov (2003), V.A.Schvedovskiy (2003), A.A. Dynkin (2005), B.A. Lundvall (2007), M. Kastels (2000) and others also addressed the issue of the knowledge economy.

The knowledge economy development principles can be outlined based on the studies that were carried out:

1. **Fixed Capital Is Presented in the Form of Intellectual Capital:** Information technology advances result in the development of the knowledge economy. Any enterprise prefers having intellectual capital that generates the most part of profits as its fixed capital. Intellectual capital may be presented in the form of accumulated knowledge, patents, know-hows. People who possess knowledge and an ability to develop knowledge become carriers of intellectual capital;

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