Indicators of Information and Communication Technology

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INTRODUCTION

Over the past twenty years, technologies using microelectronics for collection, storage, processing, retrieval, transmission, and presentation of data, texts, images, and sound, collectively known as ICT have completely changed all people's activities. The rapid proliferation of ICT and their impact on all spheres of modern life (see Ahmad et al. [2004]) – production processes, the interaction of individuals and organisations with public authorities, the development of social infrastructure, and privacy issues – has stimulated the interest to statistical analysis of the ICT sector's prospects at the national and regional levels. Influence of ICT led to emergence of a new socioeconomic configuration commonly referred to as "Information Society".

BACKGROUND

An Information Society is usually understood as a society that makes extensive use of information networks and technologies, produces large quantities of ICT goods and services, and has a diversified content industry. Both theoretical and practical issues related to measuring different aspect of Information Society has been increasingly addressed by many authors during the last 20 years (see for example Blank, Groselj [2014];

Dolničar et al. [2014]; Billon et al. [2016]). The key three thematic "pillars" related to the Information Society are as follows (Figure 1)*:*
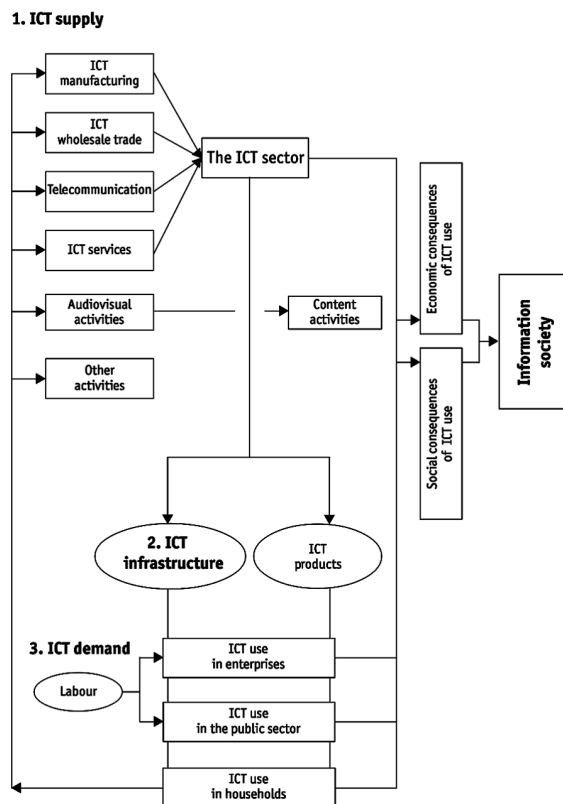
- **ICT Sector and the Supply of ICT:** Which industries it includes, how important they are for the national economy, how many enterprises are involved and how many persons are employed, which types of products and services are produced, and what is the total turnover?
- **Technical Infrastructure:** Including the penetration rates of landline and mobile telephone networks, the number of computers per inhabitant and the number of Internet connections (whether or not a country is ready to become an information-based society).
- **ICT Demand:** Which enterprises and individuals are using ICT products and services? Which technologies are being used, and why? What barriers hamper a country's integration in the global Information Society?

Despite the fact that the Information Society Statistics is a relatively new area, international organisations have already adopted a set of harmonized measurement standards and allied indicators, and put together the necessary methodological foundations. The Organisation for Economic Co-

Figure 1. The Conceptual Model of the Information Society
Source: [Gokhberg and Buegh-Nielsen, 2007].

Table 1. Existing International standards for ICT statistics

Area covered by standards	References
ICT supply	
The ICT sector and content and media sector definition by economic activity in accordance with international classifications	OECD, 2011 UNCTAD, 2009
The ICT product definition by goods and services in accordance with international classifications (CPC, HS)	OECD, 2011 UNCTAD, 2009
Core list of ICT sector and trade in ICT goods indicators	Partnership, 2016
ICT infrastructure	
ITU Telecommunications/ICT Indicators	ITU, 2014 OECD, UNCTAD
Core list of ICT infrastructure and access indicators	Partnership, 2016
ICT demand	
ICT usage by businesses (enterprises) survey	Eurostat, 2016a OECD, 2015 UNCTAD, 2009
Core list of ICT access and use by enterprises indicators	Partnership, 2016
ICT access and usage by households and individuals survey	Eurostat, 2016a OECD, 2015 ITU, 2014
Core list of ICT access and use by households and individuals indicators	Partnership, 2016

operation and Development (OECD), the Statistical Office of the European Union (Eurostat), the International Telecommunication Union (ITU), and the United Nations Conference on Trade and Development (UNCTAD), the Partnership on Measuring ICT for Development (Partnership) play the leading role in this effort (Table 1).

Statistical standards are developed by international organisations' working groups in cooperation with national statistical services, in particular: the OECD Working Party on Measurement and Analysis of the Digital Economy, the Eurostat Working Group on Information Society Statistics, the ITU Expert Group on Telecom/ICT Indicators, the ITU Expert Group on ICT Household Indicators. Use of international statistical standards is usually voluntary; however, to ensure full-scale participation in international data exchanges, and to be able to assess the country's prospects in the context of global trends, most nations follow the international recommendations on measuring ICT.

INTERNATIONAL STANDARDS FOR THE INFORMATION SOCIETY STATISTICS

Information Society Statistics is one of the newest branches of social and economic statistics aimed at studying all aspects of activities related to production of ICT goods and services, proliferation and usage of ICT in the economy, social and public sectors, and private life (HSE, 2014).

Information Society Statistics has the following objectives:

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