



ICT innovations at the platform of standardisation for knowledge quality in PDCA

Živadin Micić^{a,*}, Miloš Micić^b, Marija Blagojević^a

^a Department of Information Technology, Faculty of Technical Sciences Cacak, University of Kragujevac, Serbia

^b Computing Centre, University of Belgrade, Serbia

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ABSTRACT

The paper presents the results of statistical analyses of ICT innovations on the examples of global and local standardisation. PDCA and methodology of statistical research were applied. Relying on the original research, ICT innovations were analysed in the period between 2000 and 2012, along with all areas of human endeavour. Regression equations were presented by explicit mathematical relations and their applicability in time was analysed.

Furthermore, this paper presents unique indices obtained by multicriteria analyses, for a closer determination of ICT innovations and the creation of models of knowledge excellence. The objectives of further development are also given.

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1. Introduction

1.1. What are the issues posed in this study?

The paper deals with the results of comparative analysis of ICT innovations and knowledge based on continuous innovation in ICT subfields on international (ISO, [1]) and local (SRPS, where SRPS is an abbreviation for the standards in Serbia [2]) examples: from the collective to the local and ultimately to the individual. According to International Classification Standards (ICS), the fields of ICT are classified through IT (partially, ICS1 = 35, with 12 subfields) and the field of telecommunications (ICS1 = 33, with 13 subfields).

The paper presents only a part of the overall dynamic comparative statistical analyses of knowledge innovation from the population of all standardised fields of human endeavour. The collective innovations (global, according to ISO, [1]), as well as local “innovations” of SRPS standards (according to [2]) were analysed by way of ICT applications [3], used as examples of ICT innovations. The paper analyses parts of ICT innovations of global and local standardised knowledge in two ICT fields: IT (ICS = 35) with 5853 standardised units, sampled according to ISO and 925 units of knowledge standardised according to SRPS, and the field of telecommunications (ICS = 33) with 194 ISO and 1191 SRPS samples.

PDCA [4,5] and the methodology of original statistical surveys of ICT innovations were applied for the period between 2000 and 2012, on the population of 42,091 ISO and 33,701 SRPS standards (in the beginning of 2012). Index criteria of ICT innovation were determined as well as

ICT range within all other standardised areas. The results of the analysis of multi-year trends and market and financial evaluation point to the amount of innovated elements in PDCA concept at the end of each year of XXI century: 1) from the state of trends and *Planning* (P) of innovations, with the search of relevant databases – *Do* (D), from the innovation of a standardised database of knowledge and *Check* (C), to the improvements of the process and towards the excellence of *Action and Advancement* (A), with the ultimate goal of improving the products.

In the researched areas of ICT (ICS = 33 and 35), a “problem” of local relevance was encountered. The problem is becoming even more highlighted in XXI century. In the period between 2008 and 2011 approximately 92% of SRPS “innovations” were processed which are evident from significant quantitative and time criteria (or indices). The situation is similar in terms of other criteria of “innovation” analysis: price index and value index. On the other hand, in the period of approximately 250 working days (2011), over 630 SRPS innovations appeared on the local level. At the same time, 180 SRPS standards (drafts) are under development.

Particularly significant are the possibilities of solving the “problems” of how individuals could approach innovation units of knowledge bases, especially in environments, institutions and corporations in developing countries.

The focus is on the frequent need for quantitative and qualitative knowledge innovation. Original unique annual analyses that were carried out continuously over a long period (2000–2012) are presented by comparing the trends in IT segments, in order to analyse mathematical relations and “rules”.

Some of the analysis criteria of ICT innovations include development activities of technical committees and relevant subcommittees of ISO/IEC JTC 1 [6]. In terms of high-quality education, significant

* Corresponding author. Tel.: +381 648526170; fax: +381 32342101.

E-mail address: micić@kg.ac.rs (Ž. Micić).

