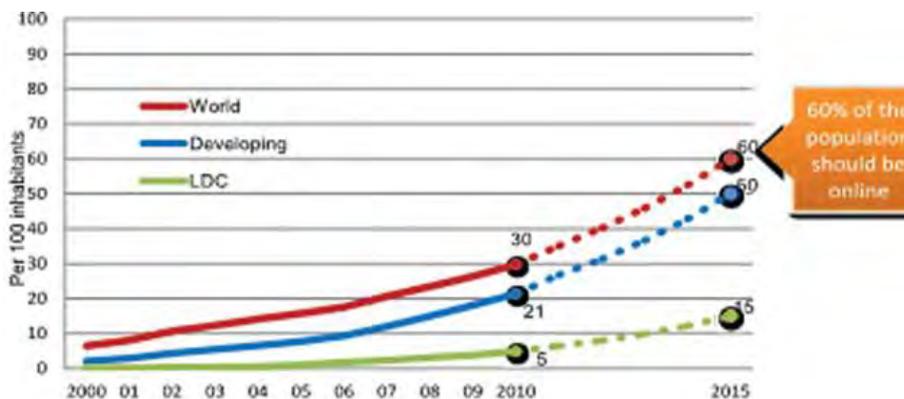


THE IMPORTANCE OF THE ICT STANDARDIZATION AND EDUCATION

The International Telecommunication Union (ITU) highlighted the importance of the ICT standardization through its Broadband Commission.¹ Its first country case studies published in 2012 showcase the links between the broadband connectivity and the UN Millennium Development Goals in partnership with ITU.²

Figure 1 depicts the envisioned growth of the Internet penetration in developing and the Least Developed Countries (LDCs) worldwide.

Figure 1 *Broadband target 2015 (ITU-UN)*



Source: International Telecommunication Union (ITU), Broadband Commission for Digital Development. Information available at: <http://www.broadbandcommission.org/>.

It is evident that the ambitious target of the ITU-UN partnership is to have 60% of the worldwide population online by 2015. The process of ICT standards harmonization proves to be crucial towards achieving this goal.

The rise of the ICT and its standardization is inevitably intertwined with the necessity for Standards Education (SE) in the field. The crucial point within is to understand the strategic value of the standards, the levers how this value is created and the effects in economic and public life. Therefore, a unified and harmonized worldwide SE can guarantee

¹ International Telecommunication Union (ITU), Broadband Commission for Digital Development. Information available at: <http://www.broadbandcommission.org/>.

² United Nations Millennium Development Goals. Information available at: <http://www.un.org/millenniumgoals/>.

long-term ICT sustainability and its application in practice. It is of utmost importance that countries and universities work in this area providing transparent SE curricula ensuring education of new engineers and policy makers that can efficiently cope with future ICT challenges.

The importance of the ICT SE area emphasizes the potential negative consequences if SE is neglected. This can lead to serious setbacks and loss of market influence by the involved stakeholders. Therefore, the SE area is gaining momentum by a plethora of international organizations such as the ITU³, International Standards Organization (ISO)⁴, International Electrotechnical Commission (IEC)⁵, International Cooperation for Education about Standardization (ICES)⁶, Institute of Electrical and Electronics Engineers (IEEE)⁷ etc. Their SE related initiatives range from harmonization of the ICT standards to raising SE awareness via public events (e.g. workshops, seminars etc.) and creation of standard related curricula. This will ensure the leading strategic role of the ICT in the 21st century.

The pioneering steps towards transparent SE worldwide were established in 2001 when IEC, ISO and ITU jointly established the World Standards Cooperation (WSC)⁸. The main idea behind was to strengthen and advance the voluntary consensus-based international standards systems of IEC, ISO and ITU.

WSC also promotes the adoption and implementation of international consensus-based standards worldwide and resolves any outstanding issues regarding cooperation in the technical work of the three organizations. The WSC initiatives comprise public events, education and training.

³ ITU INAAcademy Center of Excellence. Information available at: <http://academy.itu.int>.

⁴ International Organization for Standardization (ISO). Information available at: <http://www.iso.org/iso/home.html>.

⁵ International Electrotechnical Commission (IEC). Information available at: <http://www.iec.ch/>.

⁶ International Cooperation for Education about Standardization (ICES). Information available at: <http://www.standards-education.org/>.

⁷ Institute of Electrical and Electronics Engineers (IEEE). Information available at: <http://www.ieee.org/index.html>.

⁸ World Standards Cooperation. Information available at: <http://www.worldstandardscooperation.org/>.

On an international level, ICES is also strongly committed to facilitating SE by providing guidelines for curricula development and creation of education materials. ICES is a network of individuals and organizations whose mission is to promote education about standardization and improve its quality and attractiveness for all stakeholders.

Europe recently started to promote initiatives in the SE area. The most important aspect is the need for a coherent approach towards SE on a continental level. Europe acknowledges that the possible consequences of neglecting SE in Europe can be summarized as:⁹

- Reduction of the European influence in international standardization;
- Domination of non-European agents in international standardization and
- Europe becomes a follower rather than a leader in standardization issues.

As a result, every EU country must closely follow the SE initiatives in order to guarantee the SE transparency. Currently, European leader in SE is Britain¹⁰ closely followed by Germany and France.

European efforts towards SE and harmonization are best reflected in the joint initiative of the European Committee for Standardization (CEN)¹¹, the European Committee for Electrotechnical Standardization (CENELEC)¹² and the European Telecommunications Standards Institute (ETSI), which formed a Joint Working Group – Education about Standardization (JWGEaS)¹³ with hopes to professionalize education in standardization and increase the number of people who have a fair and positive knowledge of standardization, its characteristics and its added value. This initiative is very important for SEE countries (including Macedonia), as most of them are ETSI and ITU members.

⁹ Hesser, W., and A. Czaya, "Proposals for a coherent approach to standardisation education in Europe, *Educating a New Generation of ICT Standards Professionals, EU Commission Workshop*, Brussels, Belgium, Nov. 2009

¹⁰ BSI Education. Information available at: <http://www.bsieducation.org/Education/default.php>.

¹¹ European Committee for Standardization (CEN). Information available at: <https://www.cen.eu/cen/pages/default.aspx>.

¹² European Committee for Electrotechnical Standardization (CENELEC). Information available at: <http://www.cenelec.eu/>.

¹³ CEN-CENELEC-ETSI Joint Working Group on Education about Standardization (JWG-EaS). Information available at: <http://www.cencenelec.eu/standards/Education/JointWorkingGroup/Pages/default.aspx>.