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TRANSFORMATION OF STN STANDARDS TO EN ISO STANDARDS IN THE FIELD OF ENGINEERING

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ABSTRACT: The paper deals with the ISO standards processing. Standardization, being the basic method of documents formatting, is usually utilized to order and define rules which govern editing of the forms and documents. Moreover, ISO standards are widely applied not just for the purposes of the document editing, playing an important role in achieving the goals targeted by the manufacturing process and modelling the role of particular company segments.

KEYWORDS: standard, ISO standard, STN standard

❖ INTRODUCTION

The market of particular countries becomes competitive on international scale following the extent of ISO standards introduction that acts as a factor that affects the fundamental characteristics of manufactured product. This competitiveness is of great benefit to all suppliers. Recently, standardization has become a fundamental cornerstone in the whole industry, introducing innovative approaches to preventing imperfections of production, taking into account the economic advantage. The need for efficiency of production, the production process transparency is a way of the approaching the success for the companies engaged in the production. Nowadays, this issue addresses the introduction of ISO standards in order to define precisely the conditions under which the product is manufactured. But it is not only the production where ISO standards found its application, playing an irreplaceable role in editing of documents and modelling activities and organizational structure of the company.

❖ THE STUDY - CHARACTERISTICS OF A STANDARD

Standard is a document created on the base of agreement and is approved by a recognized institution that provides rules and guidelines for common and repeated use, for activities or their results so as to achieve an optimum degree of organization in a given context [1]. Standards vary according to the nature, scope and method of dissemination. Standards:

- ❖ cover several disciplines; dealing with all technical, economic and social aspects of human activities and cover all the basic disciplines such as language, mathematics, physics, etc.;
- ❖ are coherent and consistent; standards are prepared by technical committees that are coordinated by specialized institutions that guarantee that barriers between different fields of activities and business are overcome;
- ❖ are the result of cooperation; standards reflect the results of the joint work of all interested parts and are confirmed by the agreement by the relevant representatives: manufacturers, users, laboratories, public administration, consumers, etc.;
- ❖ are a living process; standards based on experience and lead to actual results in practice (products and services, test procedures, etc.); standards represent a compromise between current level and economic restrictions at the time;
- ❖ are currently; standards are regularly revised, or if circumstances dictate, standards evolve along with technological and social processes;
- ❖ have the status of reference documents; in commercial contracts and disputes in lawsuits;
- ❖ are recognized nationally and internationally; the standard is a document that is valid - nationally, regionally or internationally;
- ❖ are accessible to everyone; standards can be bought or studied without restrictions.

As a general rule, the standards are not mandatory, but are used voluntarily. In particular, implementation of standard may be required (e.g. safety, electrical installations, etc.) [1] Standard represents a level of know-how and technology, which makes the presence of industry in the process of its preparation inevitable. Standard is never neutral, this is reference document that is used

specifically in connection with public contracts or contracts in international trade or for concluding commercial contracts. Moreover, standard is used by industrialists as unquestionable reference, which simplifies and clarifies the contractual relationship between economic partners. Finally, it is a document that is increasingly used in law suits.

❖ USAGE OF A STANDARD

Preparation of a standard usually consists of seven main stages depicted in Fig. 1 [3]. Then, standards can be used as:

- ❖ the basic standards introducing terminology, metrological concepts, conventions, marks and symbols;
- ❖ methods of testing and standards for analysis, the characteristics are measured;
- ❖ tools for defining the parameters of the product (product standard) or standards with specifications of services and defining the lowest parameters that must be adhered;
- ❖ organizational standards, dealing with the description of the company objective and its relationships, and modelling the activities (management and quality assurance, maintenance, logistics, project management and systems management of production (organization of production), etc. [2].

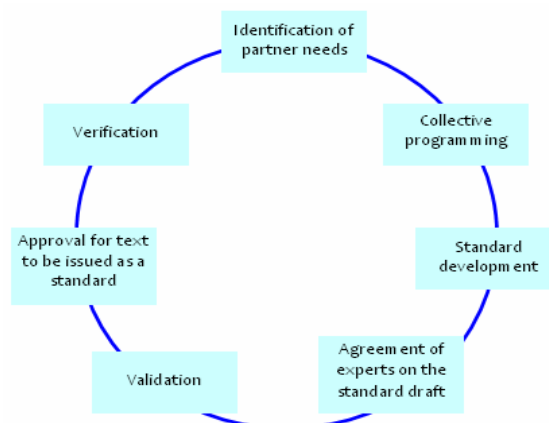


Fig. 1. Main stages of development of a standard

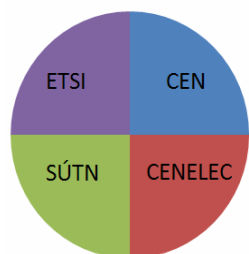


Fig. 2 European institutions for standardization [3]

❖ EUROPEAN STANDARDIZATION INSTITUTIONS

Fig. 2 shows the European institutions for standardization.

SÚTN - SLOVAK STANDARDS INSTITUTE - the main activities of SÚTN are:

- ❖ development, approval, issuance, distribution and sale of STN standards;
- ❖ development and maintenance of the national fund of STN; fund of European, international and foreign standards;
- ❖ providing searches in databases;
- ❖ organization of international cooperation from the post of official National standardization institution (i.e., participation in the development of international and European standards);
- ❖ providing activities of the National Information Centre (NIS);
- ❖ notification of national standards in CEN;
- ❖ issuing of standardization publications and periodicals;
- ❖ providing education for the technical community through seminars and trainings. [1, 4]

ETSI (EUROPEAN ORGANIZATION WORKING IN THE FIELD OF TELECOMMUNICATIONS) is the largest developer and publisher of European standards on electronic communications, which prepares and issues with the approval of the European Commission to promote European Union policies. ETSI participates in the decisions on the further development of telecommunications, radio communications, mobile and other data networks, radio and television digital broadcasting, the Internet and other related areas. Moreover, ETSI cooperates mainly with the European organizations for standardization - the European Committee for Standardization (CEN), European Committee for Electrotechnical Standardization (CENELEC) and International Telecommunication Union (ITU). ETSI is a non-profit and non-governmental European organization which associates hundreds of members from various areas.

CENELEC (EUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION) - Its mission is to develop electrotechnical standards that facilitate to develop the European Single Market - European Economic Area for electrical and electronic goods and services, removing barriers to trade; creating new markets and reduce compliance costs.

CEN - EUROPEAN MULTI-SECTORAL STANDARDISATION ORGANISATION acting in all areas except the electrical and telecommunication fields. The role of CEN is to promote the European economy, social well-being of European citizens and the environment. The main principles of CEN activities can be summarized as following:

- ❖ openness
- ❖ transparency
- ❖ consensus
- ❖ relationship / identity
- ❖ national commitment.

❖ ANALYSE OF TYPES OF STANDARDS

INTERNATIONAL STANDARD ORGANIZATION (ISO) is as the world's largest developer and publisher of international standards. It is a network of national institutes for standardization of 159 countries as

displayed in Fig. 3, founded in 1947 with headquarters located in Geneva. ISO covers standardization in all areas except the electrical. [1] ISO acts as the world leader in the development of international standards. ISO standards are dealing with the requirements that products must comply to be introduced to the global market as well as provide a mechanism for evaluating compliance ensuring that these products meet parameters that are specified in the standards. The result is that suppliers from both developed and developing countries can compete in any market under the same conditions. [6]

These standards can be obtained although are rather expensive as they are protected by copyright and are generally prohibited to copy and distribute them. However, they may be implemented through national standards as follows:

- ❖ translated - maintains everything, including a code of international standard;
- ❖ translated with modifications - text and parameters are modified as compared to the source, the structure of international standard is retained;
- ❖ incorporated - text, structure and parameters of international standards are modified;
- ❖ taken original - very rarely (issued without translation for limited use in a defined group of experts).

ISO standard is published in a paper form, in A4 format - it is one of the ISO standard paper size. It may be up to several hundred pages long. ISO standards are also available for download in electronic form and some are available as part of a collection on CD or in manuals. [5]

STN STANDARDS - These standards are valid in the territory of Slovak Republic. Their position in the legal system is defined by the act on technical requirements for products and on conformity assessment and on change and amendment of some Acts in the wording of Act No. 436/2001 Coll. and Act No.254/2003 Coll. (Act No.264/1999 Coll.). [6] The Act is mainly determining:

- ❖ codification of the method for setting the technical requirements for products;
- ❖ ways of assessment the conformity of product characteristics with these requirements; testing, certification, conformity standardization of products etc.;
- ❖ the rights and obligations for economic subjects (manufacturers, importers, distributors, etc.) in the introducing of products;
- ❖ the rights and obligations of legal subjects and organizations responsible for activities associated with the development, approval and issuance of technical standards.

EN STANDARDS - is the basic document of CEN and:

- ❖ it is required to be taken at the national level along with cancellation the standards that are inconsistent with it;
- ❖ its use is optional;
- ❖ its validity is unlimited and reviewed every five years.

The European standard is a document which that was adopted by one of the three recognized European organizations for standards: CEN, CENELEC and ETSI. EN is available in the three official CEN languages (English, French and German). European standards are a key part of the European Single Market. These technical documents are essential to facilitate European trade and therefore have high importance among producers from all around the world.

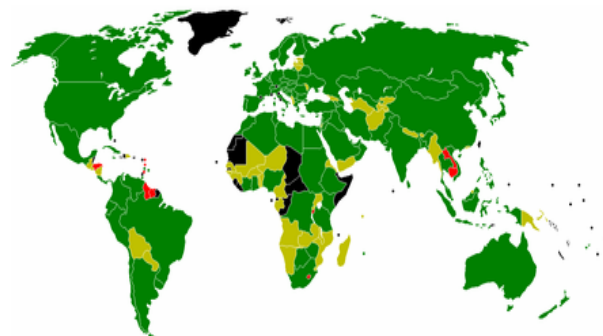


Fig. 3 Map of ISO members: green - members, yellow - correspondent members, red - supporting countries, black - non-members

❖ TRANSFORMATION OF STN STANDARDS TO EN ISO STANDARDS FOR SELECTED MATERIALS

A standard represents a model for specifications or technical solutions which can be traded in the market. Along with our country implementation into the European Union and with the adoption of technical standards there arose some questions of implementation related to the new standardization of materials.

Tab. 1. Steel Class 11

STN steel nomenclature	EN or EN ISO steel nomenclature	Material number W. Nr.
11 109	11SMn30	1.0715
11 110	10S20	1.0721
11 120	15SMn13	1.0725
11 140	35S20	1.0726
11 321	DC01	1.0330
11 343	S195T	1.0026
11 373	S235JRG1	1.0036
11 375	S235JR(G2)	1.0038

Tab. 2. Steel Class 12

STN steel nomenclature	EN or EN ISO steel nomenclature	Material number W. Nr.
12 010	C10E	1.1121
12 020	C16E	1.1148
12 024	C22E	1.1151
12 030	C25E	1.1158
12 031	C30E	1.1178
12 040	C35E	1.1181
12 041	C40E	1.1186
12 042	35B2	1.5511
12 050	C45E	1.1191
12 051	C50E	1.1206

Tab. 3. Steel Class 13

STN steel nomenclature	EN or EN ISO steel nomenclature	Material number W. Nr.
13 030	20Mn5	1.1133
13 141	28Mn6	1.1170
13 180	70Mn4	1.1244

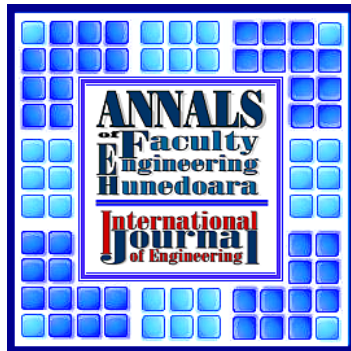
In Table 1 - Table 3 are given examples providing the comparison of steel standardization under the corresponding original STN standard and current standard EN, respectively EN ISO standard.

❖ CONCLUSIONS

In the study, structure of national and international systems of standards and process of transition between them is given. Standards are in frequent use in manufacturing in order to increase efficiency and productivity and are regularly updated. Using of a standard creates conditions for the regular audit of its relevance by the supervising organization and allows determining the time when it is necessary to adapt the standard for new needs. Finally, it should be noted that this analyse of the transition of materials labelling standardization is necessary part of such processes as the EU enlargement, since it facilitates the nonverbal communication within the unified market.

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