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COMPARATIVE ANALYSIS OF STANDARD DEVELOPMENT PROCESS OF ISO, CEN AND NATIONAL STANDARD OF KAZAKHSTAN

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Abstract

Every day, millions of businesses and organizations use standards. As the number of places where standardization is used increases day by day, there is a need for analyzing the standard developing organizations. Nowadays there exists many organizations that develop standards. The process of development may differ from organization to organization. Our lives are safer, easier, more comfortable, and more efficient with the help of standards. Standards can be classified into three categories: international standards, regional and national standards. There are a small number of research examining various standard developing organizations by categories. So, the main aim of this paper is to provide a comparative analysis of the standard development process in three different categories as International Organization for Standardization (ISO), the European Committee for Standardization (CEN), and the national standard developed by Kazakhstan to improve standard development quality and efficiency in Kazakhstan. The study will provide similarities and differences among standard developing organizations in terms of their stages, estimation time, and the structure of development.

Keywords: Standard,standard development process, comparative analysis, ISO, CEN,Kazakhstan, national standards, international standards

Introduction

Standard is a regulatory and technical document that establishes a set of norms, rules, requirements for the object of standardization that is formed by consensus and authorized by a recognized organization [5].

The process of standard development is an important area of research as it plays a big role in our life and society. Almost every area of our daily life is regulated by standards. The purpose of standards is to establish minimum requirements for product or service quality, provide safety and save natural and energy resources.

There are three main levels of standardization: international, regional and national. In this article, we have provided the comparative analysis of these three main levels of standardization and considered their process of development of standards by their stages and structure.

The rest of this paper is written out as follows. The second section goes over some background research on the process of standard development. The ISO standardization process is explained in Section 3. Section 4 describes the standard development of CEN. In Section 5, we

provide the national standard development process of Kazakhstan, and finally, we sum up our analysis that was made in this research.

Literature review

There have been a small number of works and researches on the subject of standard development done. This part will look at the previous works that have been done by other writers. A variety of comparative analysis approaches have been used.

J.Li in his work [10] established a standard development mechanism of three countries such as the Russian Federation, the United States of America, and the United Kingdom. This research clearly describes the stages of standard development in three different countries. Three various organizations of each country were taken in this study. Exactly, Federal Agency on Technical Regulating and Metrology of Russia, ANSI organization of USA, and BSI of UK. The author in his work concluded, that the process of development of standards can be distinct in every country or organization.

While J.Li [10] made research comparing three countries the authors Gao. Y and Zhao. W [4] made a study over the peculiarities of the Russian Federation's standardization procedure. The overall system and mechanism of standardization, classification of standardization documents are presented in this work.

The standards can be applied in many domains such as education, medicine, technology, food, IT security, etc...Some of the researchers made a comparison of standard developing organizations in the field of information security management [11], medical devices [1], medical devices for dentistry [2]. The authors Susanto et al [11] considered ISO27001, BS 7799, PCIDSS, ITIL, and COBIT standards in the field of information security management and provided a broad comparison of big-five standards. While Deliversky et al [2] proposed European and International standards of medical dentistry.

Kozhuhov [8] in his research analyzed the composition, organizational structure, and development stages of international standards such as ISO and IEC. Whereas Johnson et al [7] studied the similarities and differences of the process of development of IEEE and IEC standards.

Another work of J.Li [9] examines the standards systems in China, the United States, and the United Kingdom in terms of standards bodies, scope, and function to facilitate the development of new standards systems and reform in standardization mechanisms of China.

Z.Xianghua [13] presented comparative research of standard development organizations such as

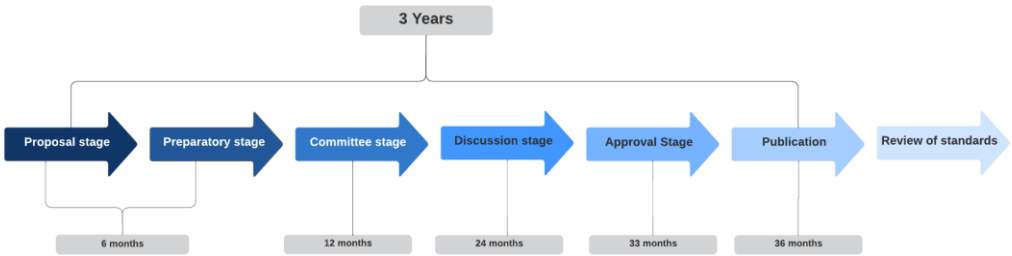
IEEE, ASTM, W3C, IETF, and the top ten organizations of China. This work compares the Chinese standard development organizations with foreign organizations in terms of their organizational structure and standard development procedures. As a result, the Chinese social organization's standard development method is rather easy, and there is a lack of innovation.

As we see from our literature review there is a lack of studies done in this area and there are no works that considered the comparison of the national standard development process of Kazakhstan with other organizations.

Standard development process of iso

An international standard is a standard that has been adopted by an international organization. A standard is a document that specifies product qualities, implementation guidelines, and characteristics of manufacturing processes, as well as job or service performance. Terminology, symbols, packaging, marking and regulations for their use, can be included in the standard. The main international organizations that carry out activities in the field of international standardization are ISO and IEC.

Created in 1946 by twenty-five national standards organizations International Organization for Standardization(ISO) is a non-governmental organization consisting of 167 members from national standard organizations. The main goal of ISO is the development of international standards for the development of international trade and the expansion of international cooperation. The scope of ISO concerns standardization in all areas such as engineering, chemistry, ores and metals, information technology, construction, medicine and health care, the environment, and the quality assurance systems. The standard development process of ISO consists of 6 stages which are developed by a technical committee and experts. [6] The main description of this process is described below (Figure 1) [6].



(Figure 1) *Standard Development Process of ISO*

1. Proposal Stage: The first step in developing an International Standard is to confirm

that a particular International Standard is needed.

2. Preparatory Stage: At this stage, various revisions of the working drafts may be accepted.

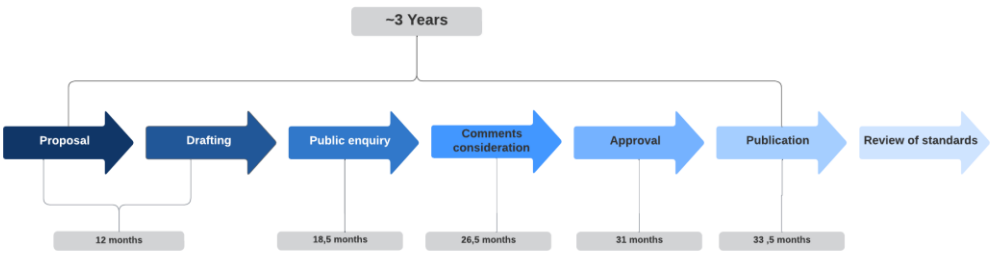
3. Committee Stage: As soon as the first committee draft is ready, it is registered by the ISO Central Secretariat. The committee draft is sent to committee members to comment on it and vote on it.

4. Discussion Stage: During the discussion phase, a draft for discussion within 4 weeks should be circulated by the CEO's office to all national organizations for voting within 5 months.

5. Approval Stage: In the approval phase, the final draft International Standard (FDIS) must be circulated by the CEO's office within 3 months to ISO, to all national bodies for voting within 2 months. 6. Publication: The secretary sends the final paper for publication at this point. The overall standard development process of ISO lasts for 3 years. 7. Review of standards:Every five years, a standard is revised. After that, the decision is made to confirm, revise or withdraw the ISO standard.

Standard development process of cen

The European Committee for Standardization (CEN) is an organization that brings together 34 European nations' National Standardization Bodies. CEN is a framework for developing European Standards and other technical papers covering a wide range of goods, materials, services, and processes. The standardization process of CEN takes 6 stages. The steps of this process are shown below in (Figure 2) [3].



(Figure 2) *Standard Development Process of CEN*

1. Proposal Stage: Any interested organization can give a proposal to develop a new European Standard.

2. Drafting Stage: After approval of a standard proposal, the proposal moves on to the drafting stage, which is based on reaching a consensus.

3. Public Enquiry: Once an EN draft has been completed, it is made available for public comment (CEN Enquiry)

4. Comments Consideration: When the public enquiry is completed, the votes and comments on the standard are analyzed.

5. Approval Stage: At this stage, the outcomes of voting are determined.The European standard (Euronorm) is considered adopted if it is not voted for by less than 80% of CEN members. The adopted standard is introduced into the national standardization systems of all member countries, including those who voted "against".

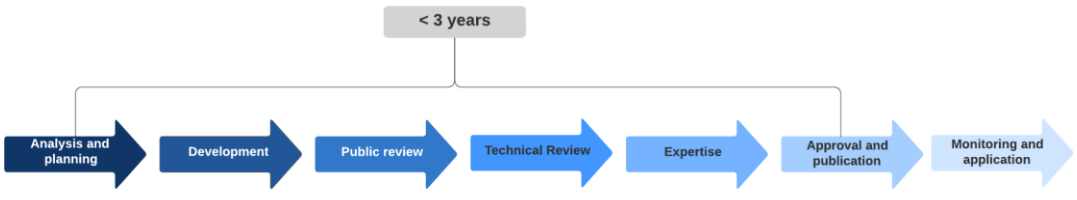
6. Publication: Final standards are sent to publication. The standard developing process of CEN lasts for approximately 3 years or 33,5 months.

7. Review of Standards: A European Standard is reviewed at least five years after it is published to verify that it is still current. The EN is confirmed, modified, revised, or withdrawn as a result of this review.

National standard development process of kazakhstan

The legal basis for standardization in the Republic of Kazakhstan was first established by the Law of the Republic of Kazakhstan "On Standardization and Certification", adopted in 1993.

In 1999, the Law "On Standardization and Certification" was revised taking into account the development of Kazakhstan and market reforms, and a new Law of the Republic of Kazakhstan "On Standardization" was adopted, which on June 10, 2003 was substantially amended and supplemented. This law regulates public relations in the field of standardization, defines the legal framework for the State Standardization System and measures to protect the interests of the state and consumers in matters of product quality, processes (works) and services through the development and application of regulatory documents on standardization. Standardization documents are developed in accordance with ST RK 1.2 "National Standardization System of the Republic of Kazakhstan. Procedure for the development of standardization documents".The standard development process of Kazakhstan is described in (Figure 3) [12]



(Figure 3) *Standard Development Process of Kazakhstan*

1. Analysis and planning: Analysis of a new project is done in this stage.

2. Development: Standardization documents are being developed at the second stage.

3. Public Review: Public discussion is carried out following ST RK 1.2 in the information system of technical regulation within 60 (sixty) calendar days from the date of placement of documents on standardization.

4. Technical Review: When the public review is completed, the technical committee makes a review for standard.

5. Expertise: At this stage, the results of the technical review are defined and the expertise in all fields is done.

6. Approval and publication: After expertise of the standard, the standard is approved and published on the website. The development of standard in Kazakhstan must take less than 3 years [12]

7. Monitoring and application: Final standards are monitored and their applications of it are checked.

Results of comparison

In Table 1 the comparison table of standard development process of three different categories of standardization are

TABLE

	ISO	CEN	Kazakhstan
Governing bodies	·General Assembly ·Council ·Technical Management Board ·Central Secretariat	·General Assembly ·The administrative Board ·The presidential Committee	·Government of the Republic of Kazakhstan; ·Authorized body; ·State bodies within their competence; ·National body for standardization;
Number of stages	7 stages	7 stages	7 stages
Estimation time	3 years	~3 years	must be <3 years
Systematic review	every 5 years	every 5 years	every 5 years

Table I - comparison table

illustrated. In the comparative analysis the structure, number of stages, estimation time and systematic review were considered. From this table we get that the structure of ISO, CEN and Kazakhstan are different and each institution has it's own fixed structure. But the number of stages and systematic review time are identical to each other, while the time taken for development of standard are approximately same in all three organizations.

Conclusion

In this we did a substantial research on analysis of standard developing organizations which are classified by international , regional and national categories. Our job in this paper was to compare the process of standard developing of ISO, CEN and Kazakhstan and their structure. According to the results, that we have we can say that every organization has its own process of development and structure of organization. Some stages of development can be the same with each other, but we can't say that the process of standard development is identical to each other. Basically, the number of stages in all three organization are equal. But the content of stages vary from each other. From this mechanism we conclude that there are many steps, models can be used to develop the standards.

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