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## Standards as databases

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**O**ver the last few years, ISO committees have increasingly begun to use databases to store and maintain certain content from the standards they develop. Essentially, such content is a collection of items which can be dealt with individually, such as terms and definitions, graphical symbols and similar discrete entities.

A preliminary analysis of such initiatives undertaken by the ISO Central Secretariat staff in mid-2005 revealed that around 20 ISO committees had either set up databases, were in the process of doing so or had expressed an interest in storing items from their standards in this form. The initiatives range from extracting elements from standards and storing them in databases to creating an environment in which the whole standards development process itself, including key decision stages such as balloting, could be supported by the database environment.

Since the different committees developed the initiatives independently and without consultation, the lack of coordination has led to very different outcomes in terms of the database structures and features.



In order to better understand these developments and arrive at guidelines for stronger coordination, ISO's technical management board (TMB) decided in June 2005 to establish a special group.

The first meeting of the group (known as the TMB *ad hoc* group on standards as databases) was held in Geneva, Switzerland, in November 2005 with the participation of and/or contributions from 15 committees from ISO, one committee from the International Electrotechnical Commission (IEC), four member body representatives, as well as staff members of the ISO Central Secretariat and the IEC Central Office. The committees included plastics, health informatics, optics and photonics, safety of machinery, geographic information, industrial automation systems, agricultural electronics, small tools, information technology and horizontal fields such as terminology and graphical symbols.

**“ISO committees have increasingly begun to use databases to store and maintain certain content from standards.”**

During this first meeting, committees made presentations demonstrating how they use databases, confirming that they were already widely used independently of the particular subject field in which committees were operating. The commonality between these developments was that whenever standards contained partially or exclusively

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a “collection of items” – which could be isolated and treated individually – databases could be used as an efficient tool to maintain or develop standardized content. The group noted that currently databases are used to store the following types of items:

- Terms and definitions;
- Graphical symbols;
- Product properties;
- Reference data (codes, datasheets, reference values applied in tests, signals, etc.).

**Maintenance of the content of standards**

Under current ISO procedures, the following options exist for the maintenance of the content of standards. A committee may decide to:

- Revise an existing standard following its systematic review or a committee-decision;
- Publish an amendment to an existing standard;
- Produce a corrigendum to correct errors in a standard;
- Establish a maintenance agency with the mandate to continually update the content of a standard.

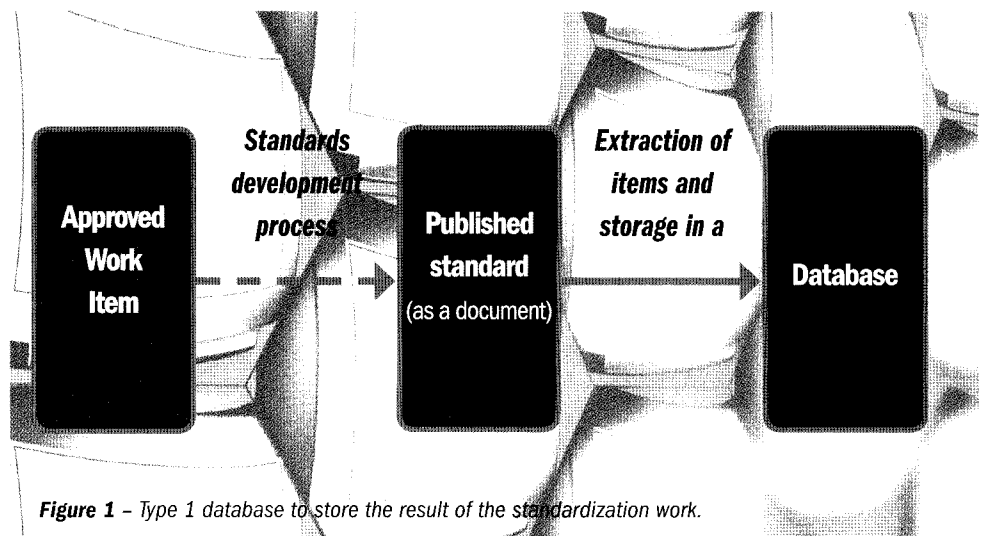
The IEC has relinquished the systematic review and replaced it with a maintenance process, which requires

the establishment of a maintenance team to keep the standards up-to-date. Every newly published standard contains a pre-determined withdrawal date.

**Types of database uses**

In relation to the standards development process, databases are used essentially in two types of instances:

**Type 1:** To store the result of the standardization work: after conclusion of the “traditional” standards development process, items are extracted from standards and stored individually in a database (see **Figure 1**).



**Figure 1** – Type 1 database to store the result of the standardization work.

Such a database may contain the content of one or more individual standards. Its primary use is to maintain and update the content of standards, which would normally result in the publication of a revised version of the standard or of an amendment.

**Type 2:** To support the development process itself: individual items at various stages of their development are stored in the database. The development stage of each item is expressed through a status identifier (e.g. proposed, under review, approved, etc). In such cases databases contain either simple voting

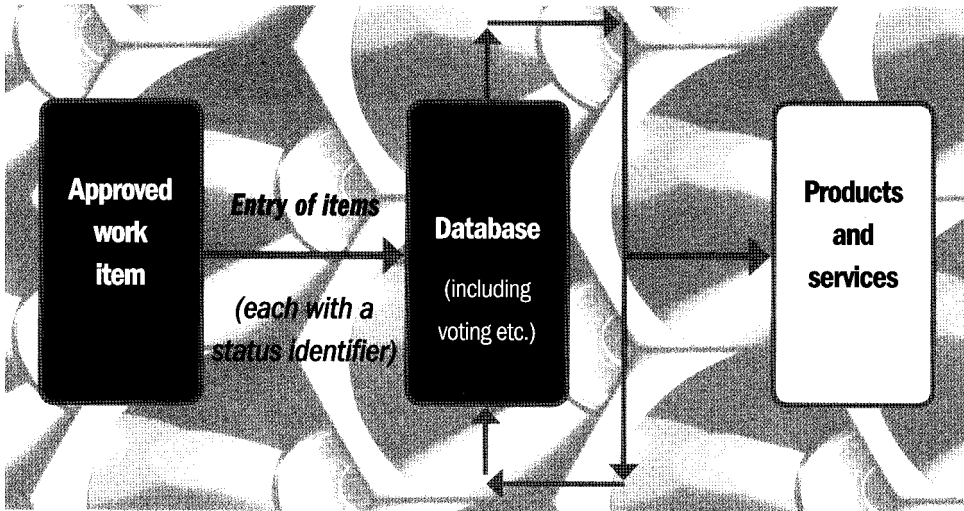


Figure 2 - Type 2 database to support the development process itself.

features or are connected with balloting applications to allow authorized individuals to express their views on the items under review (see Figure 2).

Once the development process for a set of individual items is concluded, they receive the status of “approved”. In this form they may represent a product and/or could be the subject of a service that addresses the needs of final custom-

ers, such as subscription services, access of databases by remote IT-applications by companies, etc.

It should be noted that the use according to type 1 may evolve in the future to use type 2.

### Potential implications for standards developments in the future

It is evident that the increased use of databases in the development and maintenance of standards may have important implications for:

- How standards are developed and maintained, e.g. the database-centred approach could become more common in the future;
- The structure of standards. The existence of a standard as a *document* could become one form of presentation amongst others;
- The development of new business models derived from new types of products and services (e.g. IT-applications accessing standardized content based on subscription models);
- The adoption of standards by regional or national standards bodies.

The participants in the first meeting of the TMB *ad hoc* group felt that a new approach to standards development was emerging, which potentially could have a major impact in the future. It would also allow a more timely maintenance of the content of standards.

The work of the TMB *ad hoc* group has just started. For the first phase, the group decided to review the existing IEC procedure, as well as the system of stage codes used to identify the development stages of standards projects. It was found worthwhile to review the work already done in IEC with a view to sharing experiences and avoiding duplication of efforts between the two organizations. ■

**“Databases could be used as an efficient tool to maintain or develop standardized content.”**

### ISO 12100 Terms and definitions

English	Français	Deutsch	Other languages
<b>3.28</b> <b>safety function</b> function of a machine whose failure can result in an immediate increase of the risk(s)	<b>3.28</b> <b>fonction de sécurité</b> fonction d'une machine dont la défaillance peut provoquer un accroissement immédiat du (des) risque(s)	<b>3.28</b> <b>Sicherheitsfunktion</b> Funktion einer Maschine, wobei ein Ausfall dieser Funktion zur unmittelbaren Erhöhung des Risikos (der Risiken) führen kann	cz: bezpečnostní funkce da: sikkerhedsfunktion el: Ασφαλής κατάσταση ή ασφαλής λειτουργία es: función de seguridad et: ohutusfunktsioon fi: turvatoiminto hu: biztonsági funkció is: it: funzione di sicurezza ja: 安全機能 ko: 안전 기능, 중대 안전 기능 lt: saugos funkcija lv: drošības funkcija nl: veiligheidsfunctie no: sikkerhetsfunksjon pl: funkcja bezpieczeństwa pt: função de segurança ru: Функция безопасности sk: bezpečnostná funkcia sl: varnostna funkcija sv: skyddsfunktion / säkerhetskritisk funktion tr: güvenliлік fonksiyonu zh: 安全功能

**Example: Terminology database**  
(maintained by ISO/TC 199, Safety of machinery)