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STRATEGIC BUSINESS PLAN (SBP)

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3, SC3C, SC3D	Sweden	2014-11-20

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Title of TC

Information structures and elements, identification and marking principles, documentation and graphical symbols

A Background

TC 3 is one of the first Technical Committees created by IEC. In the field of installations, systems and product engineering TC 3 deals with information structures, documentation and document content including graphical symbols as well as graphical symbols for use on equipment.

The term "information structures" is used to convey the message that the management of information generally is today a dominating aspect of the work compared to earlier focus on manually prepared documents.

After a decision by SMB in 2012 TC 3 has taken over the tasks from the committee TC 16, which was closed after its final plenary meeting at Oslo 2012-10-01. The areas of work taken over from the former TC 16 are included in the list below. As TC 16 was a technical committee with a horizontal safety function within IEC, this classification has now been assigned to TC 3.

The following areas are being dealt with:

- Rules for structuring (of objects, documents and documentation) and rules for identification systems
- Formal (computer interpretable) classification and identification of properties (data element types) of objects and their environment
- Formal definition of concepts associated with objects within their life cycle
- Information models for documents and documentation
- Graphical symbols for diagrams
- Rules for the preparation and presentation of the information content of documents
- Rules for management of document and documentation
- Basic and safety principles for man-machine interfaces
- Graphical symbols for use on equipment
- Marking of conductors and terminals in electrical systems

The work is allocated to the Technical Committee and its two Sub-Committees SC 3C and SC 3D.

B Business Environment

B.1 General

With regard to the external business environment, the work is greatly influenced by the following factors:

- **Documentation is part of any delivered product, system or installation**.
- Documents and information from different sources need to be integrated.
- Multi-disciplinary environment.
- **The whole life cycle of a product, system or installation needs documentation**.
- Information technology changes the products, systems and installations
- The growth in usage of e-commerce with the development of new data dictionaries and increasing requirements for interoperability.
- The requirements on globally valid safety rules related to man-machine interfaces

B.2 Market demand

The traditional documentation and symbols standards (e.g. IEC 60617, IEC 60417 and IEC 61082) are widely used.

The customers include, but are not limited to; consumers, engineering companies, manufacturers, software developing companies (CAx, document management, product data management, product life-cycle management, etc.), consultants, academia, and other Technical Committees (TCs and SCs) in IEC.

As an example of the latter, known users of IEC 60417 DB (graphical symbols for use on equipment) are at least: SMB, TC 2, TC 3, SC 3C, TC 9, TC 13, TC 18, TC 21, SC 21A, SC 22E, TC 23, SC 23A, SC 23B, SC 23C, SC 23E, SC 23G, SC 23H, SC 23J, TC 26, TC 27, TC 29, SC 32B, TC 33, SC 34C, SC 34D, TC 35, SC 37B, TC 38, TC 40, TC 44, TC 47, SC 47E, SC 48B, TC 57, TC 61, SC 61B, SC 61E, SC 61H, SC 61J, TC 62, SC 62A, SC 62D, TC 64, TC 69, TC 72, TC 74, TC 76, SC 77A, TC 78, TC 80, TC 82, TC 85, TC 91, TC 94, TC 95, TC 96, TC 97, TC 100, TC 101, TC 105, TC 108, TC 116, SC121A, SC121B JTC 1, JTC 1/SC 31, JTC 1/SC 35, JTC 1/SC 37.

TC 3 found that other TCs required a guide on the best way to include the requirements of the documentation standards into other standards. Such a guide is published as IEC/TS 62666. In addition subcommittee 3C found that other TCs require guidance to follow the best way to include the graphical symbols for use on equipment into other standards as described in IEC 62648.

Some standards of TC3 are classified as “horizontal”, which means that the standard is prepared for the purpose of other TCs as well as for the industry outside of the TC/SC environment

An example: IEC 60417 DB and IEC 60617 DB are used as a reference in at least the following 23 member countries: Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Ukraine, and United Kingdom. The same is starting with IEC Component Data Dictionary (IEC 61360 DB).

An example of use as support for regulations and legislation: Many of the standards produced by the TC3 and its SCs have become European (EN) standards and are referenced from other EN standards that are harmonized with European directives.

General rules for marking, identification and actuation principles related to products play an important role, particularly in relation to the man-machine interface. Growing world-wide trade requires that the safety rules for electrical equipment and components are compatible. Many parties involved in the design and manufacturing of electrotechnical products require a consistent set of safety regulations and standards. Users of electrotechnical products require that in addition to the safety aspect the ergonomic aspects of the use of the product are to be considered too. This statement includes a high-level requirement for the development of safety standards.

Information technology related standards (e.g. IEC 61360, IEC 81714, IEC 82045, ISO 10303-210, -212) manifest themselves as functional standards, i.e. standards serving a utilitarian purpose such as providing the possibility to communicate among CAD (Computer-Aided Design), CAE (Computer-Aided Engineering), CAM (Computer-Aided Manufacturing), PDM (Product Data Management), EDM (Electronic Document Management) and other related systems. They influence the daily work (of a design engineer, etc) only indirectly. The end-user demand is for the functionality in their tools, not for the standards. These standards establish a potential source for the development of highly efficient

engineering tools and methods. Relatively few CAx suppliers may satisfy the specified functionality: the standards themselves will therefore never be sold in any great number, but nevertheless be even more important to the industry than the traditional ones. Furthermore, they cannot be properly produced without the application know-how.

There is a demand for standards to be distributed electronically, to an increasing degree in networks. The “collection of item” standards, for which databases have been set up, have met this demand through subscription of web access by industrial users.

The present market conditions as stated above are quite different from what they were 30 years ago. In the early 80’s there was a demand for well specialised and sector narrow standards for which industry readily provided experts in order to set up the necessary standard.

Today, on one hand, many of the necessary standards have been set up and need only maintenance: a task, which is less rewarding than setting up and has an administrative-like appearance. On the other hand, moving from the product-oriented to the system-oriented standardization approach (and the influence from the use of IT) leads to combine together standards that were formerly separated and possibly inconsistent. The required integration does not necessarily attract the participation of companies' experts, who feel less concerned, but brings closer together administrative-like structures in charge of the standards.

In the area of properties to characterize products IEC 61360 and its corresponding standard ISO 13584 (*Industrial automation systems and integration – Parts library (PLIB)*) provide requirements for computer sensible descriptions of product concepts and their properties i.e. *Data Element Types (DETs).* The DETs are collected in reference dictionaries such as IEC 61360 DB, which is also known as *IEC Component Data Dictionary (IEC CDD)*. As a joint effort of IEC CO and IEC SC 3D an extended and more powerful version of the IEC CDD was developed and released in 2012.

Increasingly, there are new business opportunities for the direct usage of standards as industrial product catalogues that can be based on reference dictionaries and checked against standards. In France a number of large companies led by the country’s automotive industry, are developing an experimental standard with AFNOR, the ISO member for France. This standard makes use of the standardized reference dictionaries where applicable and is compliant with PLIB.

In Germany, PLIB and IEC 61360 standards are extensively used by DIN, the ISO member for Germany, and industrial consortia. ecl@ss is the most widely used dictionary in Europe for product properties and classifications. It is supported by major European companies and covers many industrial areas. The dictionary has become PLIB compliant and is planned to base their product property specifications on international standard reference dictionaries such as IEC 61360 DB.

The PROLIST® group works on process control and electrical equipment of process plants. PROLIST relies on the standardized dictionary for transactional engineering processes, such as electronic requests for quotes or electronic bids. Large plant owners and their suppliers have started to implement the processes. Currently, IEC SC 65E prepares proposals to add content to the IEC 61360 dictionary starting within the area of measuring instrumentation with intended extension for low voltage equipment for e.g. motor drives.

In Japan, the ISO 13584 and IEC 61360 data models are widely referenced as the basis for e-procurement and e-engineering predominantly in the electric-electronic domain as well as electric machinery and electric measurement domains. The dictionaries developed and maintained include: the ECALS dictionary of JEITA, the JeMarche dictionary of the Japan Electrical Manufacturers Association (JEMA) and ISO 13584-501: Reference dictionary for measuring instruments – Registration procedure of JEMIMA.

Are the publications used for IEC schemes?

Presently the standards are not explicitly used in IEC schemes, but the standard on *Generic Specification of Information on Products* (GSIP) can become a supporting standard, as well as the rigorously defined data element types in IEC 61360 DB. There is a demand from industry that other product-TCs also identify DETs related to their field of activity. The awareness of this demand is, however, far from being sufficient within the relevant TCs but projects together with e.g. IEC/TC 121 and IEC/TC 111 are going on to define DETs.

To support this task, Technical Specification, IEC/TS 62768, was prepared as a guideline for product committees to specify the source descriptions in their own standard with a minimum of additional workload and also to specify the information to be submitted to SC3D for inclusion in the IEC CDD.

Competing standards

In the area of graphical symbols for diagrams: “Old standards” (National standards as well as other practices not being formal standards) never really die since they are preserved in text books used at schools and universities and thus promoted to the next generations. A similar preserving tendency is apparent in CAD-systems delivered with symbol libraries of old origin: users of the systems apply them instead of creating proper ones.

In the area of graphical symbols for use on equipment: Some IEC standards developed by product committees independently of SC3C, which should be aligned with IEC 60417 DB taking into account IEC 80416-1. In the area of data element types: Specifications developed by RosettaNet and ECALS.

B.3 Trends in technology

Information technology has changed the way of working. The move to computer-based documentation has practically been completed with respect to the *production* of the documents. Focus today is on a fully electronic *management* and *distribution* and *use* of documentation, as well as *the information needed* to generate the documentation automatically.

Computer networks are being used not only as a means for distribution of ready-made documents, but also as a tool in the design process, among co-operating partners. This includes different suppliers as well as the customer and other organisations and institutions that are involved in the engineering and manufacturing of products. The application of information technology makes it possible to change the working method from sequentially oriented to concurrently oriented. To reach this functionality, it is essential that the information is not only computer processible (i.e. the data is in such a format that it can be read and stored by a computer). The information also has to be computer *interpretable* (i.e. the data has to be in such a format that a computer can *take action* based on the content). The trend today to use, for example Content Management or product Lifecycle Management systems requires these standards.

With regard to the internal work of the committee the use of regular IT-tools is fully implemented, and the intent is to improve the working procedures further.

Many of the standards produced consist of principle or methodological parts and “collections of items”, where this principles and methods have been applied. This is for example true for: graphical symbols for diagrams, (IEC 60617 DB), graphical symbols for use on equipment (IEC 60417 DB), document kind definitions (IEC 61355 DB), and data element types for electric components (IEC61360 DB).

The principal and methodological parts can easily be dealt with in accordance with the normal standardization procedure and with long maintenance cycles. The “collection of items”, however, has appeared to be desirable to manage in databases with web access. With an adapted procedure (“work flow”) a database allows for standardization “item by item”, with the result that such items can be standardized much quicker. Appropriate procedures were elaborated some years ago and have been used for IEC 60617 DB as well as for IEC 60417 DB, IEC 61360 DB and IEC 61355 DB standards. The practical use of these procedures has shown some deficiencies which are actually addressed by a Taskforce set up by TC3.

The introduction of standards in database format has changed the view of what a standard may be. For standards maintained in databases the content of such a database is the “real standard” and possible regular publications, on paper or CD-ROM, are just printouts taken at a certain time.

Based on the availability of standards in database format, industry members are requesting data bases allowing the presentation of the content in different languages. The Japanese variants of IEC 60617 since June 2012 and IEC 60417 since January 2013 have proven that it is manageable if the content is being provided and maintained by the responsible National Committee. This allows new business opportunities to National Committees concerning the publication of standards in database format as well as for industry when downloading items in different languages. Japanese National Committee has already implemented their national languages in the databases and other National Committees, e.g. the Finnish are preparing translations for implementation of their national languages.

B.4 Market trends

Traditional documentation and symbols standards have focused very much on what things should look like to a human (*"human-to-human communication"*). Now it is becoming more important to look at the meaning, and to express this in such a formal way that also a computer can make use of it (*"human-to-machine communication" and machine-to-machine communication*). The work on information models and on data element types has this focus.

It might need to be stressed that these two groups of consistent standards are both needed.

There is a rapidly increasing worldwide demand for computer-sensible information, coming from original information providers (OIPs), value added producers (VAPs) and equipment producers (EPs) for a variety of business functions for management and exchange of technical product information.

There is also an increasing need for human interfaces which are independent of language from the perspective of both manufacturers and end users. Graphical symbols play a valuable role by enabling the identification of the status of equipment, the functional control of equipment, instructions and the handling of equipment independently of language.

There is a strong trend towards also using graphical symbols on screens and displays, e.g. on touch screens. In this respect, consistency must be assured between the hardware and software interface. ISO 80416-4 has been jointly developed with ISO/TC 145 to provide guidelines for adaptation of graphical symbols for use on screens and displays (icons). In accordance with this standard all graphical symbols should be used for hardware and software interfaces with the same meaning.

In the light of the increasing functionality and complexity of contemporary equipment coupled with the reduction in size, graphical symbols are an essential component of the human interface. Generic and basic graphical symbols can be used effectively in many different fields of application.

An area of application where graphical symbols on screens are typically used is process supervisory display systems used by e.g. system operators. The symbols used in this kind of system-human interfaces are often dynamic meaning that they can change shape, colour or other appearance to represent different stages of the object it symbolizing. Additional to traditional system-human interfaces may modern type of documents in electronic form present this kind of dynamic behaviour. However, there has been a lack of standardization regarding both the presentation of symbols in a dynamic form and the definition of the represented states of an object Therefore TC 3 established a project team with the task to prepare a standard including rules for "Representation of states of objects by graphical symbols". The final draft of the standard has been approved and the standard IEC 62744 is prepared for publishing. Safety principle is of special interest in the proposed standard. Standardized forms for presentation of safety related stages are important for operators and other viewers of the graphical symbols.

B.5 Ecological environment

Documentation methods have no direct impact on the ecological environment, although there may be some indirect effects: the use of IT-tools and electronic distribution of documents has a potential for decrease of the paper consumption and physical transportation of documents.

Additionally, in the lifecycle of equipment and systems in the fields of electrical, electronic and related technologies, graphical symbols to indicate special treatment and handling play an important role for taking care of the ecological environment.

In the light of the increasing requirements of environmental sustainable production and usage of energy, the concept of Smart grid has become more in focus. This concept includes many different functions and high demands for efficient exchange of information. TC 3 basic standards for modelling and structuring of systems and plants have appeared to give useful support for modern communication concepts, e.g. IEC 61850 series of standards for communication in power systems. Awareness and understanding of the communicated information is essential for the concept. Edition 3 of the standard for designation of signals is under preparation in cooperation with TC 57 for better coordination with this kind of communication standards and for more general use in plant design.

The exchange of information in a Smart grid concept also put high demands on the identification and comprehension of the relevant information. The data element types (DET) as defined in IEC 61360 DB

intends to be used in any exchange of product data for undoubted understanding both by humans and by computerized systems, receiving and acting on the information.

C System approach aspects

The concept of “system approach” is primarily associated to the building of technical equipment, but can also be applied to more abstract systems.

Therefore are at least two system aspects that need to be considered:

1. The object (product, technical system or installation) to be documented is to be seen as a system which more and more often contains components and equipment (hardware and software) from different technical areas. This requires that the applicable documentation rules are similar or at least harmonized among those areas, in order to obtain a coherent overall documentation.

This calls for co-operation with other bodies, especially in ISO, working with documentation.

2. The documentation standards *per se* need to form a *documentation system*, in which the components (the standards) are “modules” that can be applied generally and seamless in the documentation processes. This system includes standards from IEC as well as from ISO.

Another example of this is the common information model between IEC 61360/ISO13584 ensuring interoperability across a wide range of technical dictionaries.

D Objectives and strategies (3 to 5 years)

D.1 Rules for structuring and for identification systems

The maintenance of existing standards in the 81346 (earlier IEC 61346, but now a series of International Standards developed jointly with ISO TC 10), IEC 61666, IEC 61175 is the most important in this area.

Additional parts of the 81346-series are planned to be published by ISO/TC 10. It is important, for full harmonization between the parts, that all parts of the series will be coordinated as a joint work between IEC/TC 3 and ISO/TC 10. A coordination team, CORG 81346, between IEC/TC 3 and ISO/TC 10 has been established.

IEC 61175 is in the final step of the process of being revised. The designation of the standard will be changed to IEC 61175-1. A first edition of IEC 61175-1 is planned for publishing in 2015. This standard will take in consideration requirements coming from standards related to power system communication and the smart grid environment. Additional parts in form of application guidelines for different application areas are foreseen

Part 1 of the standard IEC 62507 on principles and methods for identification systems was published in November 2010.

D.2 Rules for the preparation and presentation of documents

The basic standard in this area, IEC 61082, was published in its second edition 2006. Edition 3 has been prepared published in 2014.

IEC 62079 on instructions was revised and the work was finished in 2012. During the revision work co-operation with ISO/TC 10 was established and a proposal from Japan on instructions for consumer products was included. It was also decided that the standard shall be renumbered and become the first part of a joint IEC/ISO series 82079. The standard IEC 82079-1 was published in August 2012 with stability date 2016. For maintenance of part 1 and development of new parts in the series IEC/TC 3 and ISO/TC 10 has agreed to set up a joint working group. The group was established in mid of 2014.

IEC 60848 on GRAFCET specification language was revised in 2012. Edition 3 of the standard was published in 2013 with the stability date 2017.

D.3 Rules for document and documentation management

The rules for document and documentation management have become increasingly important during the last years because of the introduction of computer based document management systems and content management systems as well as product data management systems.

The 82045 series of International Standards is developed jointly with ISO/TC 10. The first part IEC 82045-1 series was issued 2001. IEC 82045-1 and -2 were reconfirmed 2009.

An area of concern is the relation between “document management” for technical documentation and “records management” dealt with by ISO TC 46/SC 11. There are a number of overlapping topics in these areas, and efforts are being made in ISO TC 46/SC 11 to turn the standards for records management into Management System Standard. The relations between the areas will therefore need clarification and mutual acknowledgement.

IEC 62023 forms a bridge between document management and the structuring principles for products and systems laid down in IEC 81346-1. The standard has been subject for a minor revision. Edition 2 was published in 2011with stability date 2019.

D.4 Graphical symbols for diagrams

The graphical symbols for diagrams are since 2001 maintained as a standard in database format: IEC 60617 DB. The continuous maintenance of this standard is the most important work in this area.

The availability of multi-lingual functionality is of high importance for users and for the National Committees for this database. Japanese variant was realized in June 2012 and Finnish variant is under development.

A project aiming at the formulation of more clear design rules for complex symbols is going on. The team MT 60617 has been set up for this task.

The 81714 series of International Standards is developed in co-operation with ISO TC 10 regarding basic design rules for symbols for use in technical documentation. No major revision work is foreseen.

In this area there are also technical reports issued: IEC/TR 61352 and IEC/TR 61734. No major revision work is foreseen.

A project team with the task to prepare the standard IEC 62744 for presentation by graphical symbols of the dynamic behaviour of objects was established in 2012. The standard is intended to be applicable both for the graphical symbols for diagrams (IEC 60617 DB) and the graphical symbols for use on equipment (IEC 60417 DB). The scope of the standard is described as “Representation of states of objects by graphical symbols”. IEC 62744 is designated horizontal standard. The work on the standard has been finalized and it will be published with the stability date 2019.

D.5 Graphical symbols for use on equipment (SC3C)

The graphical symbols for use on equipment are since a number of years maintained as a standard in database format: IEC 60417 DB. The continuous maintenance of this standard, having the status of a Horizontal Standard is the most important work in this area.

Further to this the development of the database into a multilingual one is of high importance for users and for the National Committees. The Japanese variant was released in January 2013.

Graphical symbols for use on equipment have many times emanated from product committees with various ideas on the design and without knowledge of an overall graphical “language”. One work during the actual period will be to seek coherency of graphical symbols for use on equipment among the IEC deliverables in accordance with Guide 108. IEC 62648, Graphical symbols for use on equipment – Guidelines for the inclusion of graphical symbols in IEC publications was released in 2012 as horizontal standard, on which Product Committees rely, and IEC/TR 62687, Graphical symbols for use on equipment – Terminology to speak common language among committees in the field of graphical symbols.

IEC 60417 covering electrical and ISO 7000 covering non-electrical symbols for use on equipment have been put together in one common database in order to provide one common entry for the market.

The 80416 series of International Standards is developed jointly between IEC SC 3C and ISO TC 145/SC 3. It deals with basic design rules for symbols for use on equipment (including conversion of such symbols to icons). Part 1 of this series, having status of Horizontal Standard, has recently been revised and no major revision is foreseen before 2017. Part 3 of this series has been published with stability date 2017 as well.

D.6 Information modelling for the application of Computer-Aided systems

TC 3 took active part in the development of ISO 10303-210 and -212 which contain so called application protocols in the STEP-series for electronic assemblies and electrical systems and installations respectively. These standards are now maintained by ISO TC 184/SC 4 and no major input from TC 3 is foreseen for the actual period.

Information models are otherwise a kind of descriptive support used where appropriate in other standards developed by TC 3, for example in IEC 82045-2 and IEC 61360-2 which has a common information model with ISO 13584-42

IEC 62507 which is in development on requirements for identification systems is anticipated to contain an information model as well.

D.7 Data element types (SC3D)

The application of defined product properties (Data Element Types (DETs)) makes a specification computer interpretable. The dictionary of data element types, IEC 61360 DB, has been supplemented with functionality for the maintenance, and this standard is therefore now also completely managed through this database. The continuous maintenance of this standard is the most important work in this area.

Due to the increasing amount of items and due to additional features requested by IEC 61360-2 and ISO 13584-42 a joint effort of IEC CO and IEC SC3D was launched to revise the current database and to develop a new version with increased functionality. The new version has provided functions that help to keep consistency of the Data Element Types and additionally allow the creation of localized content.

The content is expected to increase drastically during the coming 3-5 year period. The content is developed in co-operation with other product committees. A major input on data element types for process instrumentation is presently coming from IEC SC 65E.

Because of the way the content of the dictionary (IEC 61360 DB) is intended to be used, a sound business model is critical for acceptance by the market. Presently, the database is freely accessible “for consultation” and a new License agreement, clarifying the rights and obligations when downloading material has been adopted during the last year.

Due to the experience and with the expected volume of entries in the data base further resources are required for the management of the data base. Therefore a solution needs to be found to support the management, operation, and maintenance of the data base. On the long run the need for a maintenance fee paid by the industrial users may arise.

The Data Element Types (DET) specified in IEC 61360 DB are being planned to be used in the standard for “Generic Specification of Information on Products” (i.e. products, systems, installations, etc.) in order to make them computer interpretable, and supporting the configuration of a structured product description.

D.8 Formal definitions associated with objects within their life cycle

The project on “Generic Specification of Information on Products” will be the most important work during the period.

NOTE – “Blank Detail Specification” was used as an initial working name for this project; it has been changed to “Generic Specification of Information for Products” for marketing reasons.

This project will provide generic rules for the preparation of well structured specification documents that make use of the data element types defined in IEC 61360 DB. The structuring will make the documents computer interpretable and also make it possible to follow the development of the specification over the life time of the specified product or plant. This is considered as a project of high priority. It will include several parts, of which the first ones will need to be completed during the coming 3 – 5 year period.

D.9 Multi-lingual functionality in the database standards

The provision of multi-lingual content (and also multi-lingual human interface) is an issue of high importance for all the database standards (IEC 60417 DB, IEC 60617 DB, IEC 61355 DB and IEC 61360 DB).

D.10 Basic and safety principles for man-machine interface, marking and identification

The application area taken over from former TC 16 is covered by six standards. For these standards no major revisions are foreseen during the coming five years.

E Action plan

TC 3

1. Develop a series of standards for “Generic Specification of Information on Products (GSIP)” in line with the project already started. Part 1 on principles and methods of this series is approved as PAS, for Part 2 on the structure of the GSIP a PT has been set up. A subsequent part is planned to contain a generic XML structure. Further it is proposed that “Interoperability between electromechanical and electrical applications in CAx-systems” (see IEC/PAS 62515) will be included in the series. This series should be possible to complete within the 3 year time frame. We need to look into harmonization of DETs being independently originated by different product committees such evolving in a variety of different results for the same issue. This would be crucial for industry;

2. Further development of the 81346 series of standard, “Structuring principles and reference designations”, in liaison with ISO/TC 10/SC 10. This includes coordination of the different parts of the series. It is important that part and two will continue to be base for the series. IEC 81346-2 is in preparation for a new edition in aim to better support even coming parts of the series;

3. For the area of document management: to continue to clarify gaps and overlaps between standards and other specifications provided by other actors and seek co-operation and where possible and necessary: ISO TC 10 and ISO TC 46/SC 11 are seen as primary actors, but there are others;

4. Continuous maintenance of IEC 60617 DB initiated by Change Requests in accordance with Annex SL to IEC specific procedures, ISO/IEC Directives;

5. Enhancement and putting into production of the multilingual functionality in the database IEC 60617 DB in collaboration with respective National Committees;

6. Set up rules and guidelines for application of “combined graphical symbols” in IEC 60617DB and make improvements of the search functionality in the data base;

7. Further development of the 82079 series of standard, “Instruction for use”, in a joint working group together with ISO/TC 10/SC 1

8. Minor revisions of a number of standards;

9. Development of the overall description of the documentation system;

10. Full incorporation of the former TC 16 tasks including monitoring of ACOS activities and provide input when required.

SC 3C

1. Continuous maintenance of IEC 60417 DB initiated by Change Requests in accordance with Annex SL to IEC specific procedures, ISO/IEC Directives;

2. Co-ordination and collaboration with other committees which are developing graphical symbols for use on equipment in their standards to avoid inconsistency among IEC deliverables by following the horizontal standard IEC 62648;

3. Following IEC 60417-JP, enhancement and putting into production of a multilingual database including IEC 60417-FI, IEC 60417-DE and other variants in collaboration with respective National Committees;

4. Maintenance of the 80416 series of International Standards in collaboration with ISO TC 145/SC 3 via Joint WG 11;

5. Maintenance of on-line guidance for applicants of change requests to IEC 60417 DB in accordance with IEC 80416-1;

6. In collaboration with the parent committee and taking into account IEC 62744, to develop families of graphical symbols to be used for "representation of states of objects by graphical symbols.

SC 3D

1. Continuous maintenance of IEC 61360 DB initiated by Change Requests in accordance with Annex SL to IEC specific procedures, ISO/IEC Directives;

2. Collaboration with other committees which are developing data element types in their standards, initially specifically IEC SC65 E and SC 121A;

3. Elaboration of the business model;

4. Implementation of the new version of IEC CDD as a joint effort of IEC CO and IEC SC3D. Improved features are in work for import and export, consistency checking, and sophisticated data structures in accordance to the current versions of IEC 61360-2 and ISO 13584-42. The improved database will allow the National Committees to create localized versions of the database content (multilingualism);

5. Maintenance of IEC 61360 publication series standards in collaboration with ISO TC 184/SC 4 WG 2;

6. Development of IEC 62656 - Standardized product ontology register and transfer by spreadsheets, a standard that enables input, output, and exchange of product classes and properties and their values conformant to IEC 61360, in a tabular form, exemplified by spreadsheets.

F Useful links to IEC web site

- List of IEC Technical Committees and Subcommittees – Select TC 3, SC 3C or SC 3D for IEC official TC/SC Dashboard
- TC 3 web site – Historical documents, Standard in database form, Standing documents, etc
- IEC Collaboration tool – Select IEC TC 3 > TC/SC Meetings for meeting documents

Name or signature of the secretary

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