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WORKSHOP

AGREEMENT

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The CEN ORCHID Roadmap Standardising Information Across the Plant Engineering Supply Chain - Part 1: Direction and Framework

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

The production of this CEN Workshop Agreement, CWA 16180-1 CEN ORCHID Roadmap: Direction and Framework, was formally accepted at the CEN ORCHID Workshop's kick-off meeting on 7th May 2009 in Brussels.

The document has been developed through the collaboration of the key European groups active in plant and product lifecycle information management and standardisation in the oil & gas, process and power industry plant engineering supply chain. These groups are represented as partners in the CEN ORCHID WS project.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This CWA Part 1 CEN ORCHID Roadmap: Direction and Framework has been available on the CEN website for public comments during the period 19 April 2010 to 19 June 2010.

At the ORCHID Open conference held on 19-20 May 2010 in Monheim, Germany this CWA Part 1. CEN ORCHID Roadmap: Direction and Framework was presented to the conference participants and was accepted. From various members of the CEN ORCHID WS and from some outside companies comments have been received that have been addressed.

This CWA Part 1 Direction and Framework has now been agreed by all 39 members of the CEN ORCHID WS project. These are:

Bayer Technology Services
SOASYS Limited
CC3P - Catalogues and Classifications in Public and Private Procurement
University of Groningen
CURE Maintenance Consultants
Pragmetica Knowledge Clout
Stichting ETIM Nederland
eCl@ss e.V.
University of Applied Science Aachen
Corena Deutschland GmbH
BGS Beratungsgesellschaft Software systemplanung AB
LSC Group
BGS Beratungsgesellschaft Software systemplanung AB
Royal DSM, CSHE&M, GMCC Process Control
Jacobs Engineering Group Inc.
Corena Deutschland GmbH
DAMO Tec Oy
Endress+Hauser
Indi Consulting Limited
PLM Consultancy GmbH
Siemens (ICAAMC)
Fluor BV
VTT Technical Research Centre of Finland
VCZ – Ver.d.deutschen Zentralheiz.wirt.e.V.
Paradine GmbH
Fluor BV
BGS Beratungsgesellschaft Software systemplanung AB
Endress+Hauser
PCA
Corena Deutschland GmbH
Shell Global Solutions International
University of Groningen
Stichting USPI-NL
Croon Elektrotechniek BV
Fachhochschule Vorarlberg GmbH
WCS Cataloguing Solutions

FernUniversität in Hagen
LyonedllBasell
CESI/VUB STARLab

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Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN-CENELEC Management Centre.

Introduction

By 1994, the process industry globally had already agreed on the following vision statement:

"Companies in the process industries shall be able to share and/or exchange electronically the information needed to design, build, operate and maintain process and power plants using internationally accepted standards".

Since then, this vision has been reviewed a number of times and found to be valid still.

The interoperability problem

In the plant and product engineering supply chain plant owners & operators, EPC (Engineering, Procurement and Construction) contractors and equipment suppliers and manufacturers collaborate in all lifecycle phases of a product and a plant installation. Many companies are involved in this collaboration. Often a number of plant owners invest jointly in a plant, contracting to a group of EPC contractors and sub-contractors, which in turn order equipment from a multitude of equipment manufacturers and suppliers. It is therefore important that the engineering information about all aspects of the plant can be easily exchanged, shared and understood. This, in practice, is very difficult due to:

1. Each plant of facility in the process/power industries tends to be a “one-off”.

2. The very large numbers and volume of information types and the variety of processes in which they may be used – thus the levels of granularity needs to meet needs of various supply chain members.

3. The high degree of fragmentation amongst supply chain participants of process industry.

4. The variety of IT applications with different configurations being used.

In general, this is called the "interoperability problem" but perhaps it would be better to call it the “Information Interoperability problem”. A different but related problem sometimes also referred to as “interoperability problem” is for different computer applications to work with each other without human interfacing. The interoperability case of machine-to-machine exchange without human interfacing is many times more difficult to resolve than the case whereby two persons exchange engineering information having similar and high-level engineering education, training and experience.

The interoperability problem can only be resolved through using common agreed international information standards. Such standards include both product model information exchange standards such as ISO 10303 (STEP) and ISO13584 (PLIB) and product and plant information integration standards such as the ISO 15926 family.

In 2001, multinational companies operating in the process industry in The Netherlands developed a **Roadmap** for product and plant lifecycle information[1] i.e. the engineering information required to design, build, operate and maintain a plant installation.

The Roadmap distinguishes between internal information maturity i.e. the capacity to manage information within the company and external information maturity i.e. the capability of an organisation to manage the information exchanged with external partners e.g. in projects.

Both internally and externally, the process industry will need to progress through four implementation phases to achieve full interoperability.

[1] Fulfilling the process industry vision. "A Roadmap to competitive advantage by sharing and storing plant lifecycle data. December 2001".

The Roadmap was originally established by a group of senior engineering and information managers from multinationals as well as participants in the project supply chain in The Netherlands.

The objectives of the USPI Roadmap for lifecycle information created in 2002 were:

1. To define what major future steps process industry would take in lifecycle information standards development and their implementation to achieve the common vision and

2. To define who should be doing what to realise these steps.

The core of that work was published as a brochure that has been used in many management teams to communicate issues and approaches to resolve the information interoperability.

In the years 2005-2008, USPI invested significantly in establishing relationships with other international industry standardisation groups. Many of them are located in Europe and some in USA and Asia.
It was clear that there was an absolute need for more critical mass and focus on international standardisation, and it was felt could be best achieved by starting from national strength to European clustering and finally global alignment.

For that reason, the informal ORCHID group was created i.e. a group of some 20 industry representatives from individual companies and from companies participating in the various process industry groups in Europe such as USPI, PROLIST, THTH, eCl@ss, ICAAMC. Groups include equipment suppliers. Companies include plant owners, contractors, equipment suppliers, software and solution providers such as: Shell, Bayer, Basell-Lyondell, Siemens. A full list will be included in the CEN brochure about the project that is planned for publication in June 2010.

To kick off matters the ORCHID Group initially made an inventory of existing standards used by industry. This resulted in the "bubble chart" which visualises the large number of overlapping standard shown in Figure 1.

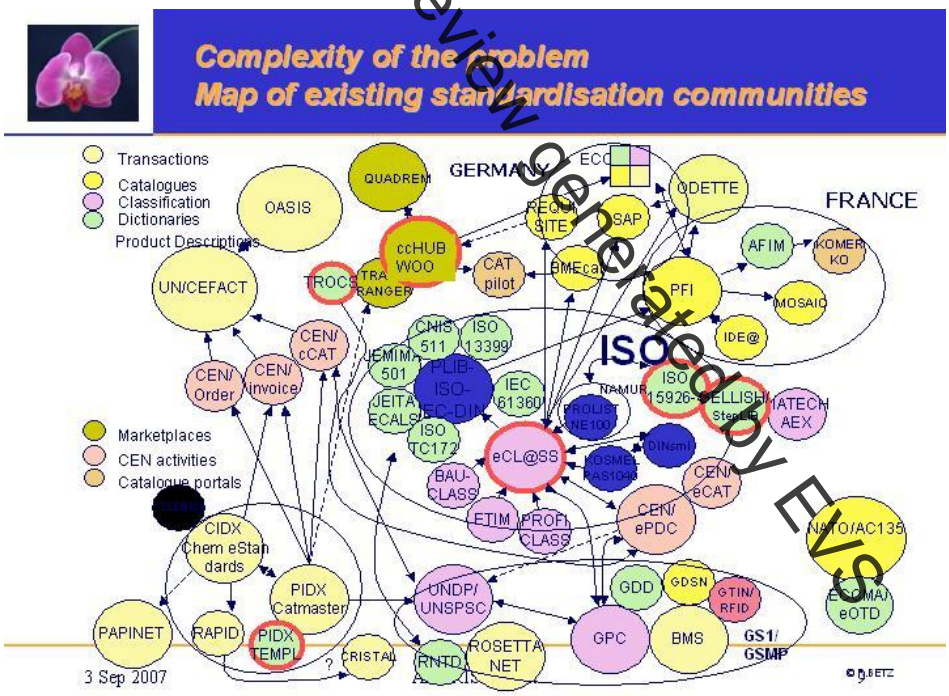

Figure 1 - Bubble chart of standardisation consortia[2]

The Group then agreed the need to have European-wide projects to address these issues. As a result, the formal CEN ORCHID WS project was proposed and approved for funding by the EU in May 2009 and Dalip Sud from Shell elected Chairman.

[2] Courtesy Raymond Betz who created the chart for ORCHID

The CEN ORCHID WS project has produced:

1) An update of the existing Roadmap to fit the current European context. The main adaptations concern the separation between timeframe and the logic of the Roadmap, the inclusion of five key dimensions to assess a company's information maturity and expansion on views of stakeholders.

2) A standards landscape technical advising what the standards of relevance are and how they relate in typical industry exchanges.

3) An implementation guide giving practical guidance on how industry can adopt the Roadmap focussing on the next 2 to 3 years.

1. Scope

This document is part of a family of standards consisting of

- CWA Part 1. CEN ORCHID Roadmap: Direction and Framework (this document)
- CWA Part 2. CEN ORCHID Roadmap: Implementation Guide
- CWA Part 3. CEN ORCHID Roadmap: Standards Landscape

The scope of the various parameters for the ORCHID Roadmap Part 1 Direction and Framework is defined as follows:

- **Stakeholders**
  - The process industry supply chain i.e.: plant owners, EPC contractors, equipment suppliers and manufacturers, service companies, software vendors, standardisation consortia, trade associations.
    This of course is not limited to Europe. It includes process industry globally.
  - Authorities, regulatory bodies

- **Standards**
  - All standards that are relevant for the implementation of the Roadmap in practice.
  - The standards landscape report lists those.

- **Timeframe**
  - The timeframe covered by the Roadmap
    - Up until now covers from about 1994 – 2010
    - From 2010 – 5-10 years further away

- **Normative part of document**
    - Annex A.
    - Annex D.

- **Not in scope**
  - Real time process and asset information i.e. DCS
  - Smart equipment i.e. equipment in the field transmitting intelligent information to a central unit about conditions in the field.
  - Part of transition standards
  - The business process used by supply chain participants to create information
  - Standardisation of process flow scheme designs such as progressed by CAPE. Although this is an important subject, it was not included in the study in order for the project to be feasible.

2. Normative References

This CWA does not make normative references to other standards.