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Business Process Modelling and Standardisation

Introduction

Business process modelling has four main objectives:

1. acquire explicit knowledge about the business processes of the enterprise operation
2. exploit this knowledge in business process reengineering projects to optimise the operation
3. support the decision making activities of the enterprise
4. ease interoperability of the business processes

With the advent of inter-organisational collaboration objectives 2 and 3 depend heavily on the interoperability of business process models. Only if the business process models of collaborating organisations can be linked into a model of the envisioned enterprise can its TO-BE operation be analysed and optimised.

Standardisation will provide the base for the very much needed interoperability. Both the European and the international standards organisations address the subject at very different levels of abstraction, providing architectures, frameworks and explicit standards for different application areas.

Standards on Enterprise Engineering and Integration

ISO and IEC on the international level as well as CEN on the European level have produced a starting set of relevant standards. Currently the work is progressing in joint projects that will lead to additional standards for business process models. More work is still required especially on the human-related aspects like user oriented model representation to the, representation of human roles, skills and their organisational authorities and responsibilities. In addition standardisation is required in the area of business co-operations as well. These standardisation efforts are guided and supported by R&D efforts like the European IST project UEML as well as complemented by independent industry groups addressing particular needs like the OMG and BPMI consortia.

Figure 1 identifies three categories of standards, which relate to the requirements for enterprise reference architectures specified in ISO 15704 using the structure defined in GERAM (Generalised Reference Architecture and Methodologies) developed by the IFAC/IFIP Task Force.

- Framework: the three standards structure elements for quiet different tasks, but are all aimed on improving business process interoperability.
- Languages: the three standards and two consortia efforts provide language for modelling of various points of view. high level enterprise description aimed on ICT aspects (ISO-IEC 15414), e-business (BPMI/BPML), user oriented business process description (CEN/ISO 19440, OMG/RfP) and formal specifications (ISO 18629).
- Modules: the four standards represent a rather arbitrary set. They are all relevant for the subject of interoperability and integration, but there is even less coherence between these, than between those in the other two columns.

A short description of the standards identified in Figure 1 is provided in Table 1. Both the standardisation organisations and industry consortia are involved in different efforts that will enhance the current set of standards. Table 2 identifies some of the ongoing or planned work providing again a short description of the efforts.

Table 1: Standards related efforts in Enterprise Engineering and Integration

Item	Description
BPMI - Business Process Modeling Language	defines the Business Process Modelling Language (BPML) and the Business Process Query Language (BPQL) that will enable the standards-based management of e-Business processes with forthcoming Business Process Management Systems (BPMS).
CEN ENV 13550 - Enterprise Model Execution and Integration Services	Identifies the requirements for a basic set of functionalities needed in enterprise engineering for creating and using enterprise models.
CEN-ISO DIS 19439 - Framework for Enterprise Modelling	Describes the modelling framework that fulfils the requirements stated in ISO IS 15704 identifying a three-dimensional structure with seven life cycle phases, three levels of genericity and a minimum set of four model views.
CEN-ISO WD 19440 - Constructs for Enterprise Modelling	Defines Language Constructs for Enterprise Modelling, supporting the Enterprise Model Phases, View and Genericity dimensions defined in EN/ISO DIS 19439.

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Table 1 (continued): Standards related efforts in Enterprise Engineering and Integration

Effort	Description
IEC/ISO 62264 - Enterprise Control Systems Integration	A multi-part set of standards that defines the interfaces between enterprise activities and control activities
ISO 14258 - Concepts and rules for enterprise models	Defines elements for enterprise modelling, concepts for life-cycle phases and guidelines and constraints for relating the real world to enterprise models through views.
ISO/IEC 15288 - Life cycle management	Identifies a framework for a system life cycle from the conception of ideas through to the retirement of a system.
ISO/IEC 15414 - ODP Reference Model - Enterprise Language	A multi-part set of standards that defines the reference model for Open Distributed Processing (ODP) comprising 5 viewpoints: enterprise, information, computation, engineering and technology.
ISO 15531 - Manufacturing management data exchange: Resources usage management	A multi-part set of standards that provides for the computer-interpretable representation and exchange of industrial manufacturing management data.
ISO 15704 - Requirements for enterprise-reference architectures and methodologies	Places the concepts used in methodologies and reference architectures such as ARIS, CIMOSA, GRAI/GIM, IEM, PERA and EN ISO DIS 19439 within an encompassing conceptual framework.
ISO 15745 - Open systems application integration frameworks	A multi-part set of standards that defines an application integration framework to enable a common environment for integrating applications and sharing life cycle information in a given application domain.
ISO 16100 - Manufacturing software capability profiling	A multi-part set of standards that specifies a manufacturing information model that characterises software-interfacing requirements.
ISO 18629 - Process specification language	Part of a multi-part set of standards that describes what elements inter-operable systems should encompass.
OMG - UML Profile for Business Process Definition	This Request For Proposals solicits submissions that specify a UML™ profile for business process definitions

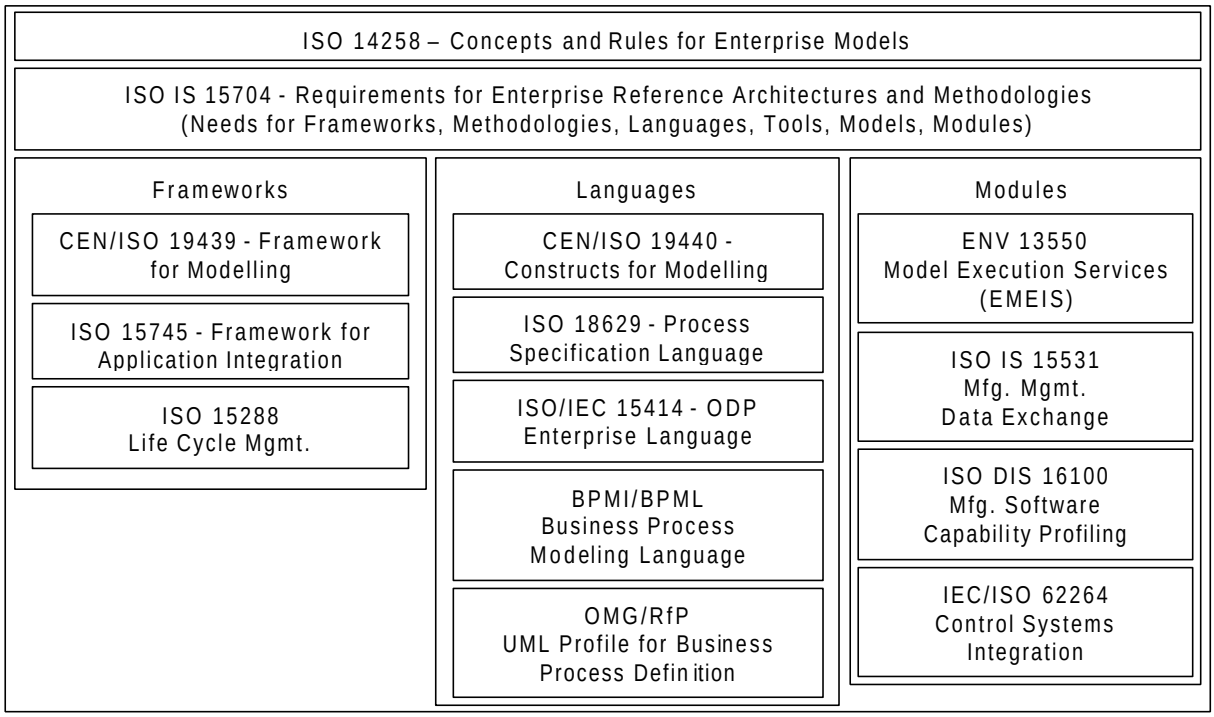

Figure 1: Standards related to Enterprise Engineering and Integration