IES Integrating the Energy System

Technical Framework

<Title>

Vol. 1

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Table of Content

1 About the Document

A **Technical Framework** represents a technical specification, which is integrated into a predefined document structure. Please note that a Technical Framework does not equal a new standard. It rather describes the normalised use and application of existing standards and practices to avoid interoperability issues. Integration Profiles state constraints/recommendations that define how to apply standards and good practice to realise a specific feature of a Business Function in an important interoperability fashion. The Technical Framework is embedded in a business domain overview, which is accessible from the project homepage at http://www.iesaustria.at. The concept is based on the IHE Technical Framework that subdivides a Technical Framework into two part: volume 1 for an informative and volume 2 for a normative description. This document describes volume 1.

The document structure of the Technical Framework is as follows:

Volume 1:

- Business Case Overview (informative)
  - Typical use cases
  - Relevant meta-actors
  - Related standards
- Business Functions (informative)
  - Describe the interoperability issues with the IEC 62559 Use Case Methodology
  - Use case diagrams

Volume 2:

- Integration Profiles (informative and normative)
  - Technical solution for a specific interoperability issue from the Business Function
  - Definition of transactions that are needed
  - Definition of actors that are involved
- Transactions (normative)
  - Specification of actors that shall be implemented
  - Specification of the IT standards and how options/variants shall be used

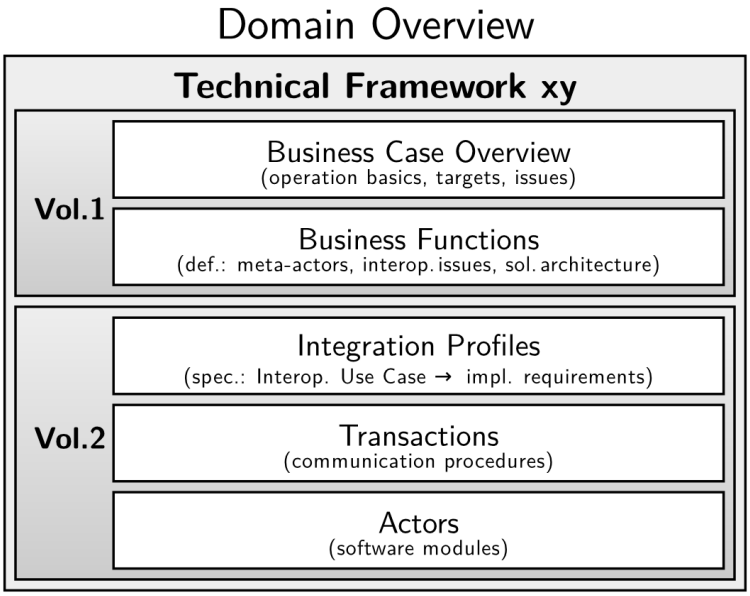

Figure 1: Structure of the Document (IES Technical Framework Template)

2 Definitions

Actor
is a functional software component of a system that executes transactions with other actors as defined in an Integration Profile.

Business Case
is the economic viable application of an idea or technology.

Business Function
is a feature required to be realised for a Business Case to work.

Conformance Testing
is a standalone process to ensure that the implementation conforms to specified standards and profiles, i.e. the implementations outputs and response are checked against rules and patterns.

Integration Profile
is the specification required to realise a part of a Business Function (or combination thereof) in an interoperable fashion (normalised).

Interoperability Testing
is a process to check whether the system interacts effectively with foreign systems, i.e. when different vendors meet to test their interfaces against each other (e.g. Connectathon).

Interoperability Use Case
is a part of a Business Function that relies on data exchange between different actors according to an Integration Profile (i.e. where interoperability is required).

Meta-Actor
joins functional components (actors) in order to fulfil all the functionalities required for a Business Function (IHE grouping). For the Use Case description, it could be a human operator, but typically it is a software component embedded in some device that provides an interface to some communication infrastructure.

Transaction
is the specification of a set of messages (1..n) exchanged between a pair of actors that realise the Use Case specific information exchange (in one or both directions, in a strict or loose order) as specified by an Integration Profile.

Operational Use Case
is a part of a Business Function that describes an activity not involving any data exchange between actors. This kind of use cases are mentioned in the IES Technical Framework, but not considered in Integration Profiles because per se they do not raise interoperability problems.

3 Abbreviations

Each abbreviation used in the technical framework are explained in this section.

IEC	International Electrotechnical Commission
IHE	Integrating the Healthcare Enterprise
SGAM	Smart Grid Architecture Model
TF	Technical Framework
UCMR	Use Case Management Repository
UML	Unified Modelling Language

4 Business Overview

Each technical framework has one business overview. This overview contains the description of a business that has interoperability issues like a Virtual Power Plant or Smart Metering. It is a textual description that can include graphics for a better understanding; additionally, a list with related standards and a short description can be given. Otherwise, no further guidelines are given for this section.

5 Business Functions

The business overview contains at least one business function. At this point, an overview of the business functions is given through a short description. The complete business function is in an external file described with the IEC 62559 Use Case Template or created with a Use Case Management Repository (UCMR). Additionally, the Smart Grid Architecture Model (SGAM) plane can be used to locate the business functions to the domains and zones in the Smart Grid. So, the allocation in the electrical energy conversion chain and energy management processes takes place and gives a better understanding of the functions.

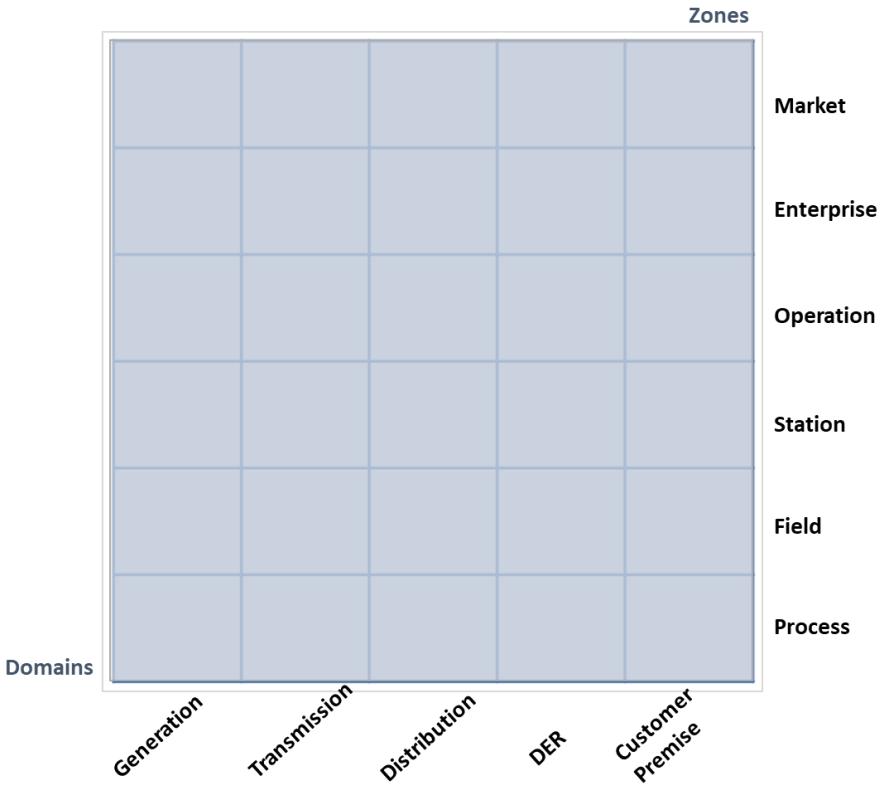

Figure 2: SGAM plane

5.1 Business Function: *<title>*

For each business function a new section is created that includes a textual description of the function and a UML Use Case diagram to show the involved actors, their relations to each other, and their functionalities within the business.

Note: The business functions are described with the IEC 62559 Use Case Methodology; however, the complete Use Cases are stored in a UCMR and only the description and the Use Case diagram are part of the Technical Framework Vol. 1.

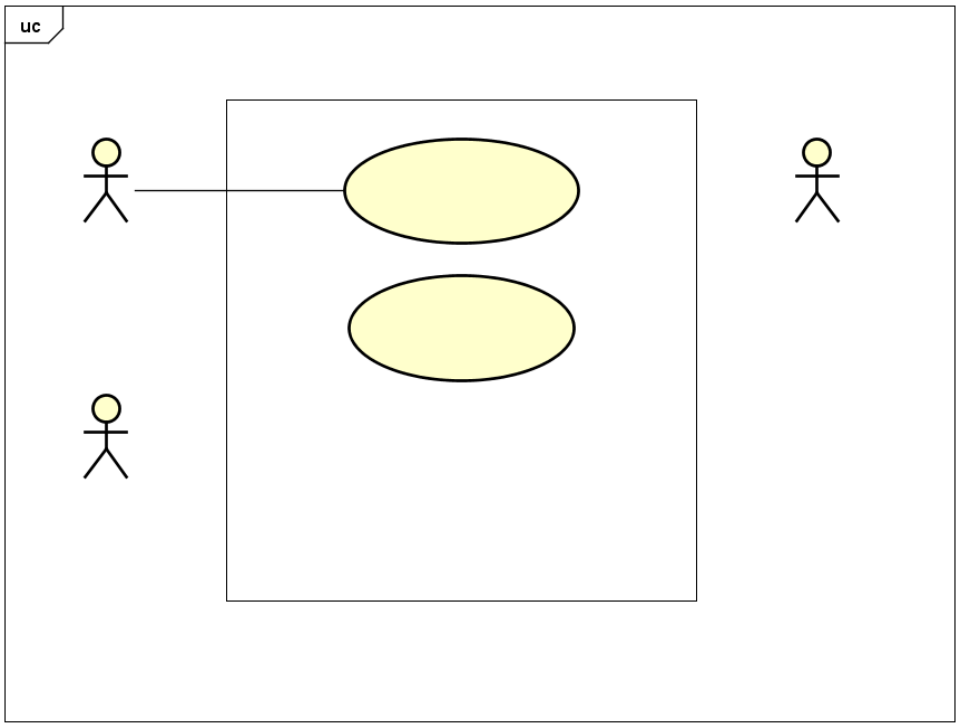

Figure 3: Use Case Diagram

6 Content of Volume 2

The informative view about the business case and functional description of the VPP is specified in this volume; the second volume of the Technical Framework includes the normative description of these with the IHE methodology. This includes the description of integration profiles and transactions, which specifies actors, security considerations, and data models for implementing the business function.

7 References

All references used in the technical framework are mentioned here.

[1] IEC 62559-2:2015: Use Case Methodology – Part 2: Definition of the template for use cases, actor list and requirements list