

IES - Integrating the Energy System

Interoperability is a key factor for the successful transition of the energy system.

The Initiative IES - *Integrating the Energy System* provides a common understanding and a unified framework to develop and reuse solutions for data exchange: interoperability profiles instead of proprietary solutions. The transparency of the process ensures a sustainable investment protection for vendors and fosters competition, increases product quality and performance at lower costs.

The IES-approach

IES implements a transparent, vendor-neutral and cooperative modular process chain to specify interoperability profiles for ICT-systems in the energy sector (see Fig. 1). By initiating a cross-sector knowledge exchange, the initiative IES draws from 15 years of experience and know-how in the healthcare sector, where systems interoperability has been implemented for a long time. In the global organization Integrating the Healthcare Enterprise [IHE](#), manufacturers and users work together in a participatory process to ensure the interoperability of relevant ICT systems. Experiences from the healthcare sector showed that the profiling approach harmonizes the use-cases that software products need to comply. Hence, vendors and customers need fewer resources to integrate new components into an existing IT-landscape.

The three pillars of the IES Interoperability Process

IES accompanies the process of developing "Technical Frameworks" containing the integration profiles (Pillar Profiles), software tools provide interoperability testing (Pillar Tests) and subsequently, the developed "Technical Frameworks" and the results of the successful tests are made publicly available (Pillar Results).

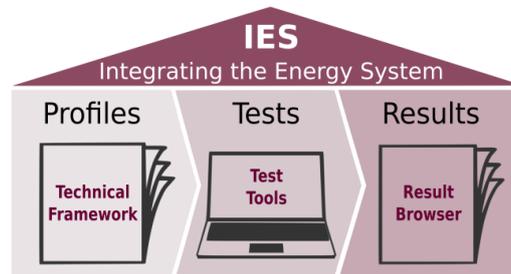


Fig. 1: IES process – the three pillars

Pillar Profiles: What is an IES integration profile?

In a structured document called "Technical Framework", the so-called integration profiles specify on the one hand informative descriptions of the functions and on the other hand a normative specification of the data exchange with existing standards. The document structure is in line with the Smart Grid Architecture Model ([SGAM](#)) which was developed within the European Smart Grid Mandate [M/490](#)

Pillar Tests: What is a test event "Connectathon Energy"?

IES provides a test environment for vendors to test their product interfaces on interoperability and conformity based on the Technical Frameworks. Part of the IES process is the regular organization of test events "Connectathon Energy". There, the implemented integration profiles are tested by manufacturers peer to peer with other vendors. An open source software testbed (Gazelle) is used, providing test management and capabilities for participants supporting the interoperability testing.

Pillar Results: Who can benefit and what are the benefits?

The jointly developed Technical Frameworks are publicly available. These can serve as references for tenders by users or procurers and used by manufacturers for implementation. The successfully tested products are made available in the online accessible Result Browser, which makes the manufacturer more visible. For users or procurers the Result Browser is an important source of information.

The specification of the Technical Framework is the centre of the IES Process (see Fig. 2)

In the first step of the process the Technical Framework is specified by experts starting with a concrete use case, the document structure suits to the Smart Grids Architecture Model (SGAM). According to the process all the specifications are online accessible. Therefore the Technical Framework is the specification for the implementation of the interfaces of ICT systems and for the interoperability testing it serves as basis for the specification of the test tools and the test case definitions.

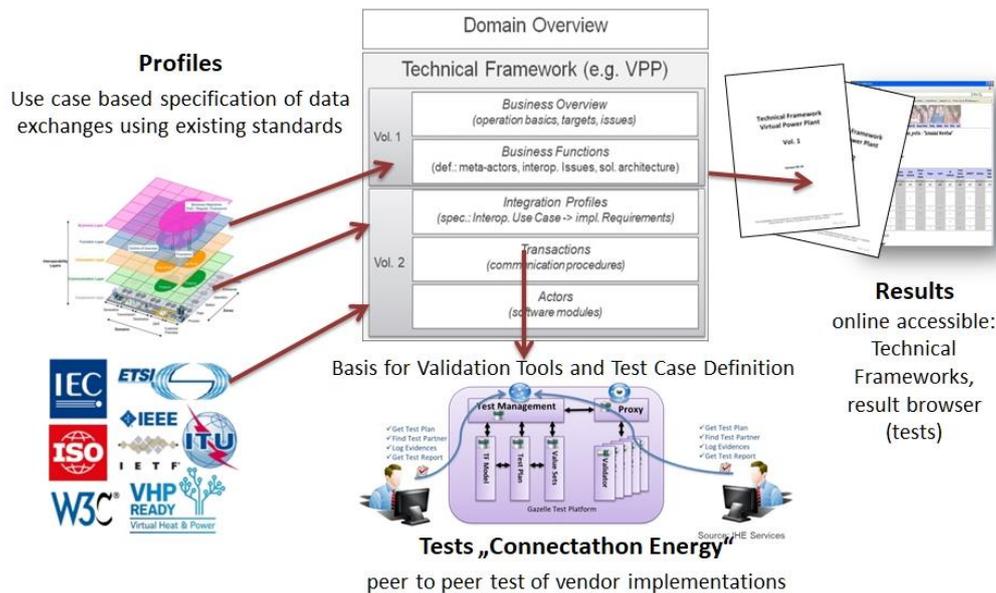


Fig. 2: The IES Technical Framework is the centre of the IES process

Synergies achieved through cross-sector knowledge transfer with the healthcare sector

- Worldwide reference for the successful, established methodology that comes from the IHE
- Synergies through the use of existing profile, e.g. for security
- Usage of the proven test platform Gazelle also for the energy sector

The greater vision: IES Europe

It is important that these harmonization processes take place on an international level to ease implementation and facilitate the required communication of decentralised energy components as demanded by the transition of the energy system.

The Vision IES Europe is already anchored in the SET-Plan Action 4 Implementation Plan 2018, Activity A4-IAO-5 PROCESS CHAIN FOR INTEROPERABILITY OF ICT SYSTEMS. (Download [here](#))

To further expand the IES Idea, the following points need to be addressed next:

- Setup of a transnational organisational structure to coordinate the operative work of the IES process
- Deployment of an annually recurring process that brings together vendors and users of ICT technologies to ensure interoperability in the energy sector
- Start the development of first integration profiles which are relevant on an European level
- Hosting of annual European interoperability test events “Connectathon Energy”, where vendors can test their software on interoperability and conformity with the relevant integration profiles

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