

# Project IES - Integrating the Energy System

Interoperability represents a key factor for the successful transition of the energy system. The research project *Integrating the Energy System (IES)* develops a modular process chain to ensure the interoperability of data exchanges in smart grids and smart energy systems.

## The IES-approach

IES adapts and implements a vendor-neutral and cooperative method to achieve interoperability of ICT-systems in smart grids (see Fig. 1). It is based on an existing method from ICT in healthcare, where interoperability of systems has long been achieved. [Integrating the Healthcare Enterprise \(IHE\)](#) is a global non-profit organisation that engages actors in the health system to achieve interoperability of ICT-systems in healthcare. IHE developed a fair, cooperative and participatory method to engage vendors, manufacturers and users alike. By initiating a cross-sector knowledge exchange, the IES team draws from years of IHE-experience and know-how in the health system.

## The three IES pillars

IES provides the framework for the development of integration profiles based on real world use cases (pillar *profiles*). Vendors use IES software tools to test their software products for interoperability and conformity with relevant standards (pillar *tests*). IES compiles integration profiles into implementation guides called 'Technical Frameworks' and publishes successful test results in an online results browser (pillar *results*).

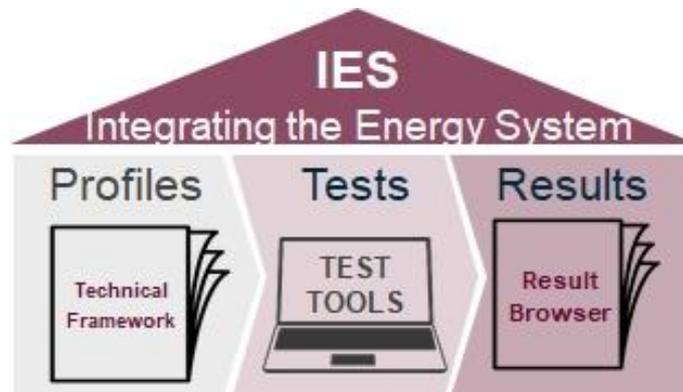


Fig. 1: IES process – the three pillars

The transparency of the process and the publicly available online data base for technical specifications ensure sustainable investment protection for vendors of interoperable products and services. Interoperability fosters competition, thereby increasing product quality and performance at lower costs.

## The greater vision: IES Europe

IES aims at founding a European interoperability initiative *IES Europe* based on international cooperation. IES Europe defined the following objectives:

- Setup of a transnational organisational structure to coordinate the operative work throughout the IES process and organise annual interoperability test events
- Deployment of an annually recurring process that brings together vendors and users of ICT technologies to ensure interoperability in the energy sector
- Hosting of annual European interoperability test events, where users and vendors of interoperable products can test their software for interoperability and conformance with the relevant integration profiles

## European Framework

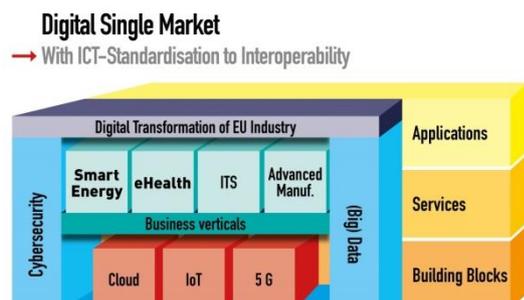


Fig. 2: Digital Building Blocks  
(own figure, based on EU-KOM, ICT Standardisation Priorities for the Digital Single Market, available at: <https://ec.europa.eu/digital-single-market/en/news/communication-ict-standardisation-priorities-digital-single-market>)

The objectives of the IES-project are in line with the targets of the European Commission and its [Europe 2020 strategy](#) to create a cross-sector and cross-border Digital Single Market. The “European Interoperability Framework (EIF) for European public services” recommends formalised cooperation arrangements in interoperability agreements addressing legal, organisational, semantic and technical interoperability. Both the IHE process and the TOGAF-based EIF process represent a proper way to assess and test for interoperability of sector-independent ICT solutions.

### Pillar Profiles: What is an IES integration profile?

Integration profiles specify the normalised use of existing IT- and communication standards (e.g. IEC 61850, IEC 60870-104) in conformance with the [Smart Grid Architecture Model \(SGAM\)](#) developed within the European [Smart Grid Mandate M/490](#). Integration profiles are compiled into detailed technical implementation guides called [Technical Frameworks](#).

### Pillar Tests: What is the test event ‘Connectathon Energy’?

IES provides a test tool for vendors to test their software prototypes and products for interoperability. Tests between different vendors take place once a year and are conducted peer-to-peer in a predefined and structured test environment called [Connectathon Energy](#). IES uses an adapted instance of [Gazelle](#), a test tool that was originally developed to test healthcare information systems for standards-based interoperability.

### Pillar Results: What are the benefits?

Technical Frameworks are publicly available, which ensures their use for procurement processes and implementation activities. Successful test results are published in an online data bank following the example of the [IHE Connectathon Results Browser](#). The result browser serves as a source of information for users and procurement operators.

### Synergies achieved through cross-sector knowledge transfer with the e-health sector

- Worldwide reference for the successful method originated in the e-health sector
- Synergies through use of existing profiles, e.g. for security
- Use of an existing and reliable test platform for the energy sector

#### Project partners

Technologieplattform Smart Grids Austria  
Tiani Spirit GmbH, AT  
FH Technikum Wien (eHealth und RES), AT  
OFFIS e.V., D  
AICO EDV-Beratung GmbH, AT  
Sprecher Automation GmbH, AT

#### Qualifications

Head of consortium, R&I in smart grids, policies  
IHE, EIF, software/data exchange, ICT sec./privacy  
IHE, interoperability, EnergyLab, renewable energies  
SGAM, smart grid standards, interoperability, IHE, EIF  
Software, platforms for testing, ICT standards/security  
EI-Equipment manufacturer, ICT standards, security

#### Project duration

01.03.16 - 28.02.19

#### Project details

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