Agenda

- **Overview of standardization activities and involvement areas**
- **Projects' insights**
  - **PERFoRM, QU4LITY, ConnectedFactories** contributing to European standardization
  - **InterOpera** contribution to the digital interoperability for Industrie 4.0
  - **STAND4EU** contributing to the exploitation of standardization inputs
- **Is standardization only men's business?**
  - Fraunhofer model for standardization activities and networking
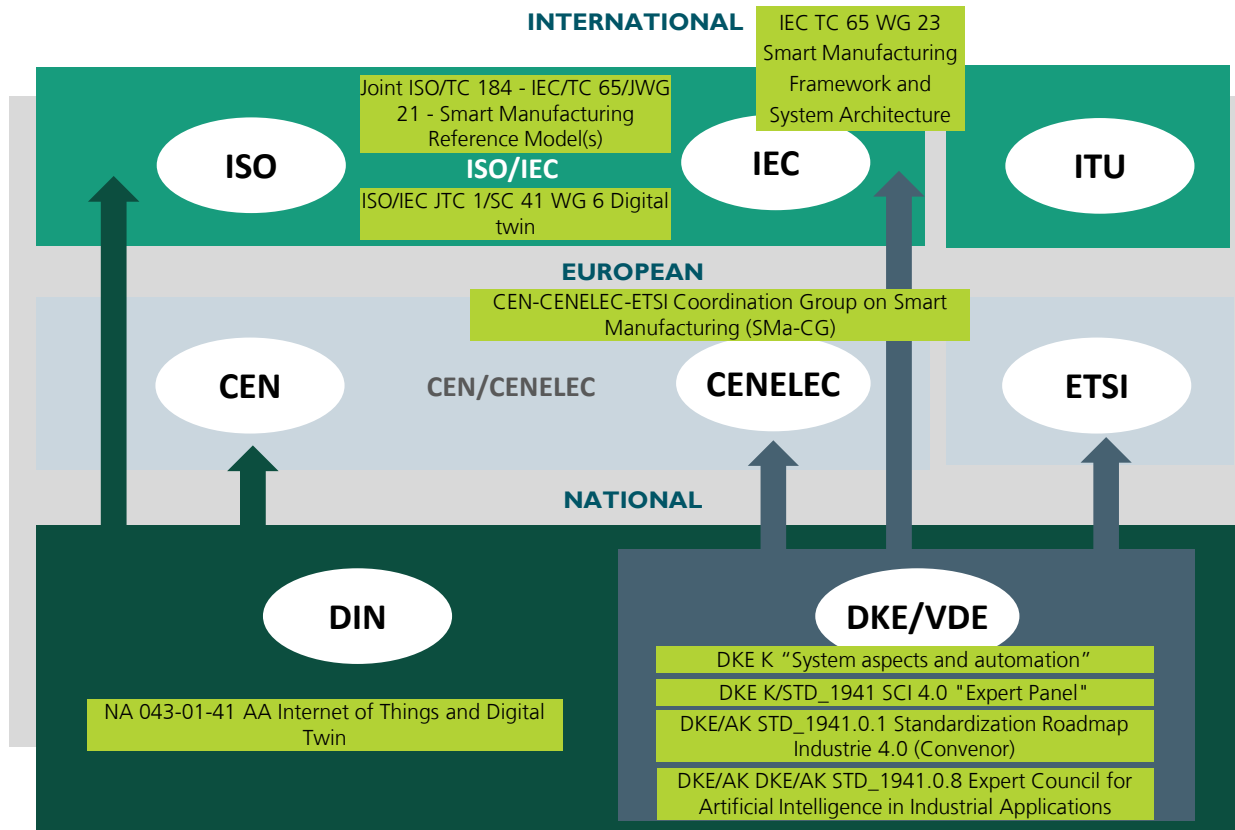 - Industrie 4.0 standardization: personal experience

Leader of the Group „Interoperability for Digital Production"
… at Competence Center DigITools
… at Fraunhofer Institute for Manufacturing Engineering and Automation IPA
… in Stuttgart, Germany

≣ Fraunhofer

Contributing to the core standardization activities for ICT standards
… at national, European and international level

Contributing to digital twin standards

INTERNATIONAL

IEC TC 65 WG 23 Smart Manufacturing Framework and System Architecture

Joint ISO/TC 184 - IEC/TC 65/JWG 21 - Smart Manufacturing Reference Model(s)

ISO/IEC

ISO/IEC JTC 1/SC 41 WG 6 Digital twin

ISO   IEC   ITU

EUROPEAN

CEN-CENELEC-ETSI Coordination Group on Smart Manufacturing (SMa-CG)

CEN   CEN/CENELEC   CENELEC   ETSI

NATIONAL

DIN

NA 043-01-41 AA Internet of Things and Digital Twin

DKE/VDE

DKE K "System aspects and automation"

DKE K/STD_1941 SCI 4.0 "Expert Panel"

DKE/AK STD_1941.0.1 Standardization Roadmap Industrie 4.0 (Convenor)

DKE/AK DKE/AK STD_1941.0.8 Expert Council for Artificial Intelligence in Industrial Applications

IDTA 02002-1-0 Submodel for Contact Information

IDTA 02003-1-2 Generic Frame for Technical Data for Industrial Equipment in Manufacturing

IDTA 02006-2-0 Digital Nameplate for Industrial Equipment

IDTA 02001-1-0 Inclusion of Module Type Package (MTP) Data into Asset Administration Shell

active member

Industrial Digital Twin Association (IDTA)

convenor

German Standardization Roadmap Industrie 4.0

Download (DE/EN version):
https://www.sci40.com/german/normungsroadmap/

Fraunhofer

InterOpera
Development of digital twin standards for Industry 4.0
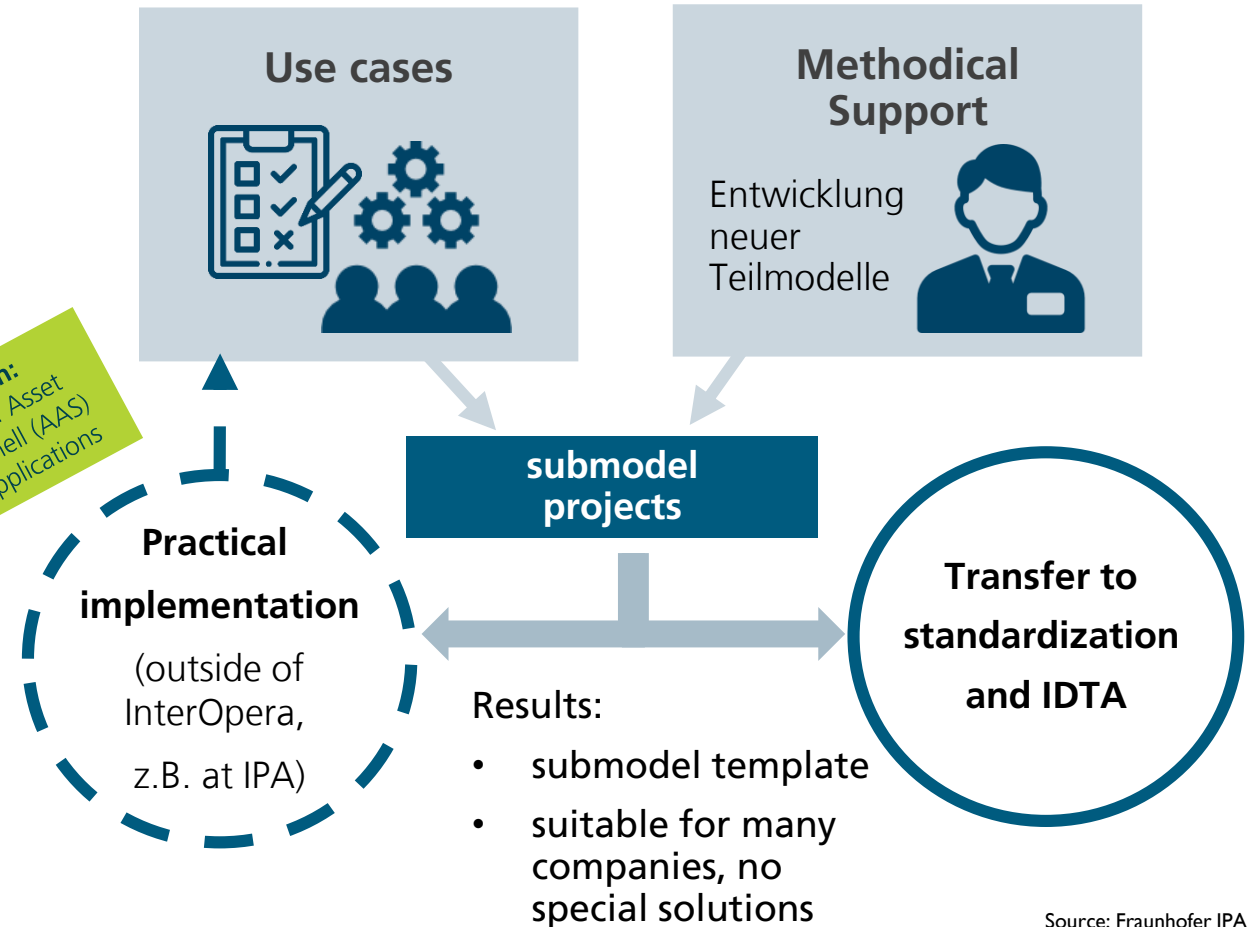
Standardized information models for digital twins

- InterOpera addresses digital interoperability in collaborative value networks of Industry 4.0

- develops ca. 30 standardized AAS submodels / specifications together with industry, research and standardization

- and transfers these to standardization and IDTA

Work based on: IEC 63278 series: Asset administration shell (AAS) for industrial applications

Use cases

Methodical Support

Entwicklung neuer Teilmodelle

submodel projects

Practical implementation

(outside of InterOpera, z.B. at IPA)

Transfer to standardization and IDTA

Results:
- submodel template
- suitable for many companies, no special solutions

PLATTFORM INDUSTRIE 4.0

STANDARDIZATION COUNCIL INDUSTRIE 4.0
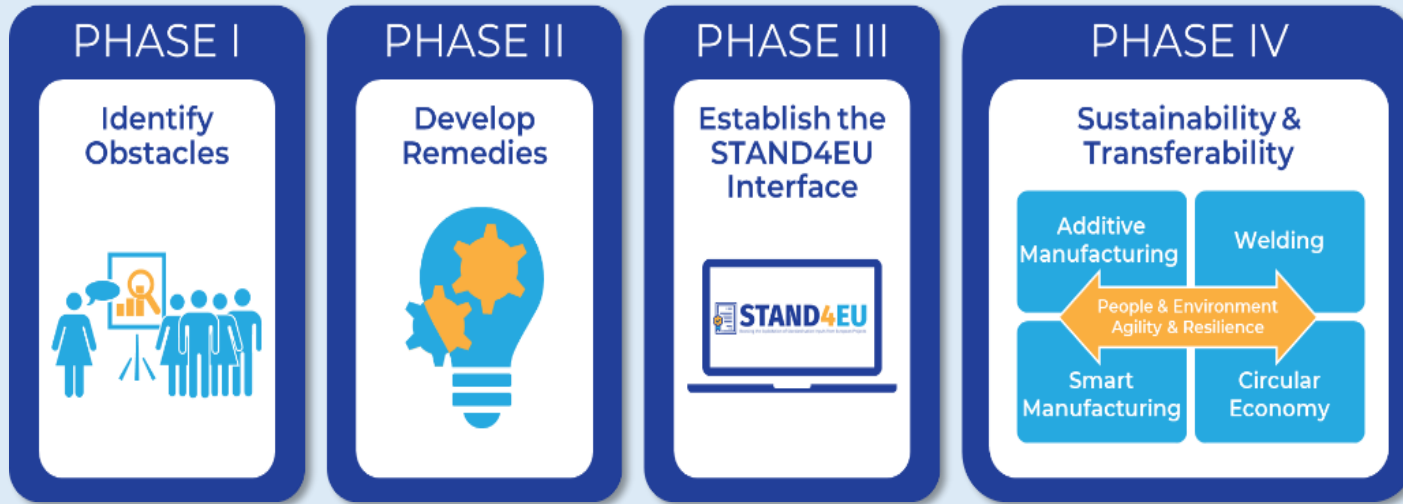
IDTA

Source: Fraunhofer IPA

Fraunhofer IPA

STAND4EU
Boosting the Exploitation of Standardisation Inputs from European Projects

HORIZON-CL4-2021-HUMAN-01-18:Fostering standardisation to boost European industry's competitiveness | Start on 01/09/2022 for 24 months
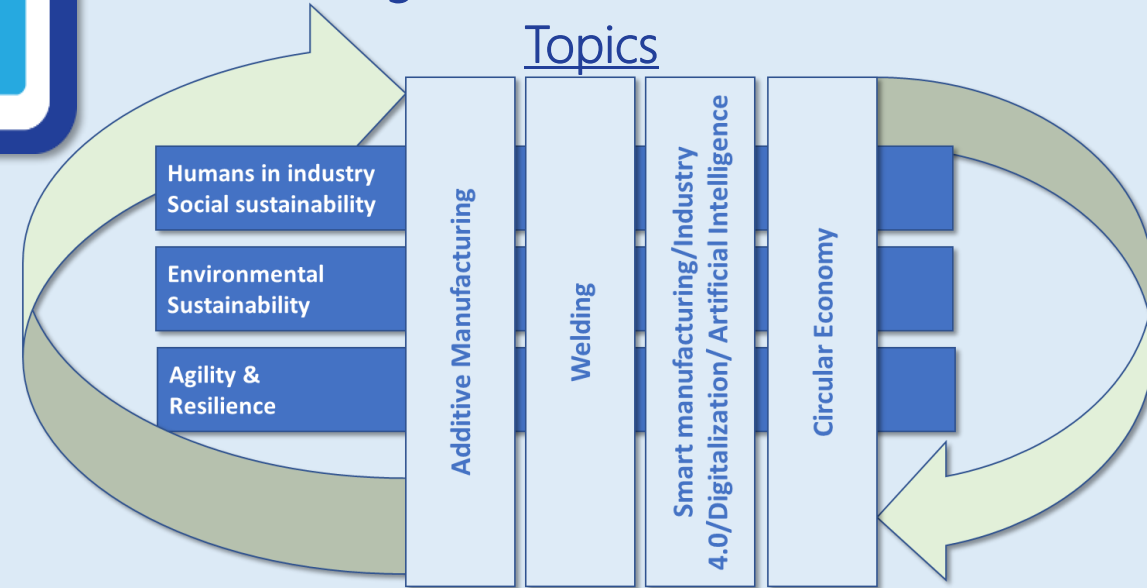
Phases

PHASE I
Identify Obstacles

PHASE II
Develop Remedies

PHASE III
Establish the STAND4EU Interface

PHASE IV
Sustainability & Transferability

Additive Manufacturing | Welding
People & Environment Agility & Resilience
Smart Manufacturing | Circular Economy

Technological Domains & Transversal Topics

Humans in industry Social sustainability

Environmental Sustainability

Agility & Resilience

Additive Manufacturing

Welding

Smart manufacturing/Industry 4.0/Digitalization/ Artificial Intelligence

Circular Economy

Expected Results

- ✓ Standardisation **Obstacles Report**
- ✓ **Remediation Plan** with at least 10 recommendations
- ✓ **Coaching Programme** delivered to R&I projects
- ✓ **Training Guide** addressing standardisation committees
- ✓ **STAND4EU Interface**

EWF | Fraunhofer | Small Business Standards | Brunel University London | CHALMERS UNIVERSITY OF TECHNOLOGY | SIEMENS

Currently analyzing bottlenecks in the standards development processes

STAND4EU
Boosting the Exploitation of Standardisation Inputs from European Projects

Bottlenecks categories in discussion

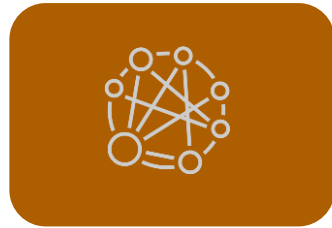|		
Lack of resources and funding	**Lack of time**	**Poor quality of a standard**
Lack of expertise	**Low coordination and lack of processes**	**Complexity of a process and bureaucracy**
Complexity of scope and landscape	**Poor involvement of experts**	**Low motivation and interest**
Poor transferability, low support and missing education propositions	**Low development speed**	**Lack of consensus and conflict of interests**
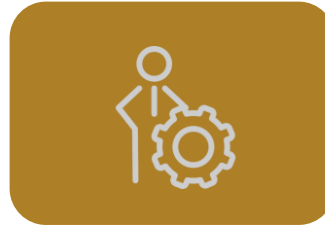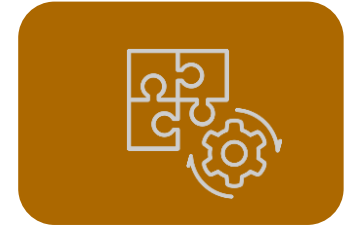
EWF   Fraunhofer   Small Business Standards   Brunel University London   CHALMERS UNIVERSITY OF TECHNOLOGY   SIEMENS

Is standardization only men's business?
Networking support at Fraunhofer

- **Introduction of a network of experts**
  - Exchange on standardization issues
  - Co-design of the Fraunhofer strategy
  - Provision of guidelines

- **Lead Markets**
  - Equipment and mechanical engineering
  - Construction industry
  - **Digital economy**
  - **Energy sector**
  - Healthcare
  - Mobility economy
  - Chemical industry
  - Food industry
  - Aerospace Economy

Fraunhofer-Gesellschaft world wide

~ 530 active researchers
~ 1500 engagements
~ 2500 standard essential patents

NuS Support Tool

Contact

Olga MEYER
Group Leader
Competence Center DigITools /
Interoperability for Digital Production
Phone +49 711 970-1068
olga.meyer@ipa.fraunhofer.de

Fraunhofer IPA
Nobelstraße 12
70569 Stuttgart
Germany
www.ipa.fraunhofer.de

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Sustainable. Personalized. Smart.