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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

ICT Standardisation Priorities for the Digital Single Market



Standards for Industry 4.0

PLATTFORM
INDUSTRIE 4.0



Federal Ministry
for Economic Affairs
and Energy

Federal Ministry
of Education
and Research

Industrie 4.0 In practice The platform Enter search term

YOU ARE HERE: HOMEPAGE INDUSTRIE 4.0 AREAS OF ACTION NORMS AND STANDARDS

Norms and standards

A common language for Industrie 4.0 technologies



L'USINE DIGITALE

Industrie du futur : la guerre des standards a commencé

FRÉDÉRIC PARISOT | INDUSTRIE 4.0, PRODUCTIVITÉ, LOGICIELS & APPLICATIONS | PUBLIÉ LE 18 JUILLET 2015 À 16H55



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Le consortium allemand Industrie 4.0 a choisi le standard OPC UA comme norme de communication entre équipements dans son modèle d'usine du futur. Le standard étant encore peu utilisé en France, nos industriels décideront-ils de suivre les décisions allemandes ou d'opter pour un autre standard ?



DIN

About standards

Innovation and research

DIN & o

2016-01-26

Updated German Standardization Roadmap on Industry 4.0

Now available in English and German

Standards are essential for the successful implementation of Industry 4.0. They provide a common language for ensuring the reliable and efficient interaction of very different systems. Existing standards that lay down this common language - and the need for new standards - are presented in the updated version of the German Standardization Roadmap on Industry 4.0 published today by DIN and DKE. Many core recommendations made in the first version have already been implemented. This second version focusses on human-machine interaction in Industry 4.0, communications, and IT security. The German version of the Roadmap is available at → www.din.de/go/roadmapindustrie40. The English version of the Roadmap is available at → www.din.de/go/roadmapindustrie40-en.

DIN, the German Institute for Standardization and its partner institute DKE - which is responsible for electrotechnical standardization within Germany - presented the new, updated Roadmap Industry 4.0 today. The Roadmap not only gives an overview of existing standards in this area, it also identifies the need for new standards and gives recommendations for action. Describing the need for Industry 4.0 standards from the point of view of German stakeholders, the Roadmap was drawn up by representatives from industry, technical associations, science and research institutions.

NIST

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NIST MENU

PROJECTS/PROGRAMS

Reference Architecture for Cyber-Physical Systems



Summary

Cyber-Physical Systems (CPS) are smart systems that include engineered interacting networks of physical and computational components. CPS and related systems (including the Internet of Things, Industrial Internet, and more) are widely recognized as having great potential to enable innovative applications and impact multiple economic sectors in the world-wide economy. These application areas include energy infrastructures, advanced manufacturing, building control,

ORGANIZATIONS

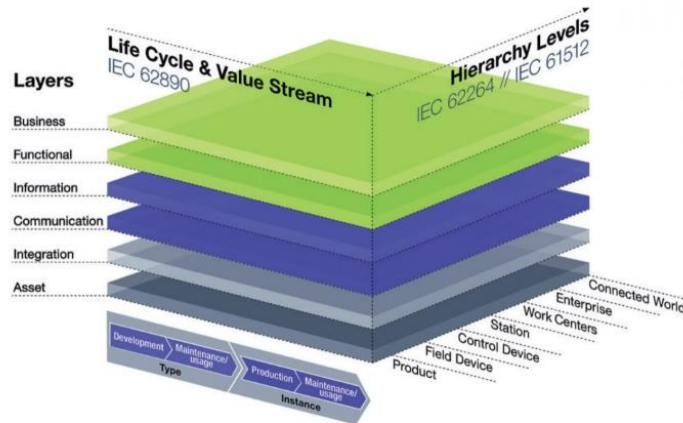
Engineering Laboratory
Engineering Laboratory Office
Smart Grid Program Office



Standards for Industry 4.0



Reference Architectural Model Industrie 4.0 (RAMI 4.0)



Source: Plattform Industrie 4.0

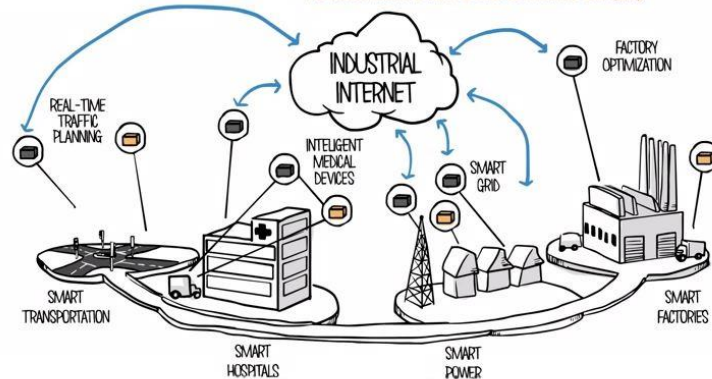


Setting the Standard for Automation™



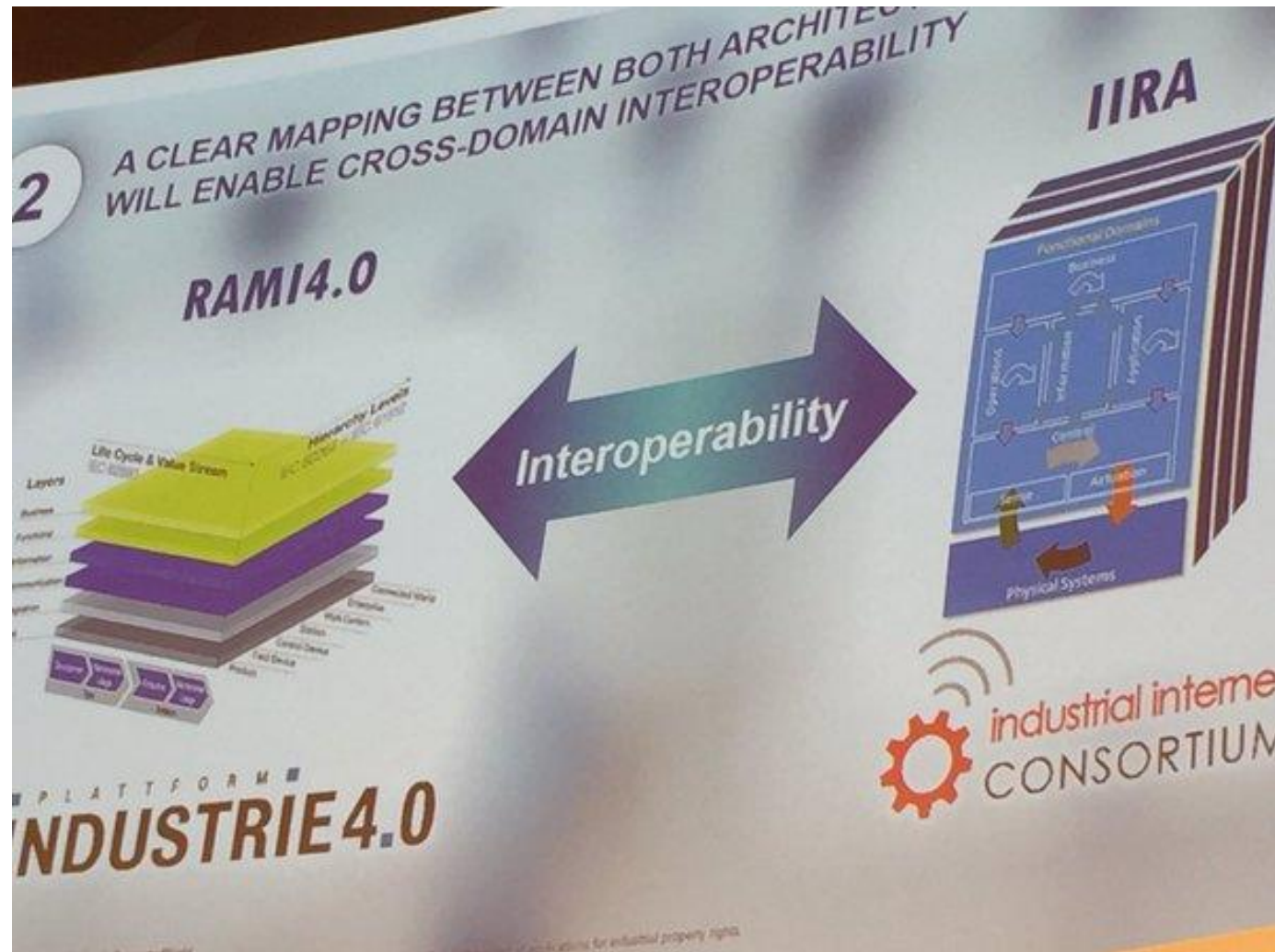
BLUEPRINT FOR THE INDUSTRIAL INTERNET

THE INDUSTRIAL INTERNET REFERENCE ARCHITECTURE (IIRA)





Standards for Industry 4.0: interoperability is key



Tanja Rueckert, Executive VP, SAP



ISO and Industry 4.0/Smart Manufacturing

An ISO SAG (Strategic Advisory Group) “Industry 4.0/Smart Manufacturing” was set-up in August 2015 and completed its work in August 2016

The main outcomes are outlined below.

The ISO SAG “Industry 4.0/Smart Manufacturing”

Recognizing that:

- The domain of Smart Manufacturing concerns numerous ISO committees;
- Coordination between these ISO committees is necessary to ensure a harmonized approach to Smart Manufacturing;
- The Smart Manufacturing landscape concerns many peer organizations with whom coordination and collaboration are necessary;

Recommends the creation of an ISO Coordinating Committee with the name “Smart Manufacturing”



ISO and Industry 4.0/Smart Manufacturing

- 21 ISO TC/SCs are invited to participate in the Coordinating Committee (see next slide), along with representatives of IEC
- The SAG recommends that ISO/TC 184 and IEC/TC 65 – Industrial-process measurement, control and automation – work jointly on **an ISO/IEC standard, bringing the advantages of the RAMI4.0 and the NIST models to an international level** in order to create a unified reference model for Smart Manufacturing
- The SAG recommendations outline specific areas to be addressed by existing ISO or IEC committees
 - E.g.: quantitative security assessment of a manufacturing value chain composed of diversified sub-systems; the need for product data to be described according to the concept of the Common Data Dictionary (CDD) based on ISO 13584-42 / IEC 61360-2; the need for interoperability for mass customized / personalized product development considering “Lot Size 1” and increasingly complex supply chains



Key ISO committees concerned

ISO/IEC JTC 1 Information technology

- ISO/IEC JTC 1/SC 7 Software and systems engineering
- ISO/IEC JTC 1/SC 17 Cards and personal identification
- ISO/IEC JTC 1/SC 27 IT Security techniques
- ISO/IEC JTC 1/SC 32 Data management and interchange
- ISO/IEC JTC 1/SC 37 Biometrics
- ISO/IEC JTC 1/SC 38 Cloud Computing and Distributed Platforms
- ISO/IEC JTC 1/SC 40 IT Service Management and IT Governance

ISO TC 184 Automation systems and integration

- ISO/TC 184/ SC 1 Physical device control
- ISO/TC 184/ SC 4 Industrial data
- ISO/TC 184/ SC 5 Interoperability, integration, and architectures for enterprise systems and automation applications

ISO TC 261 Additive manufacturing

ISO TC 299 Robotics