



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

International Symposium on Measurement and Control Technology & Intelligent Manufacturing

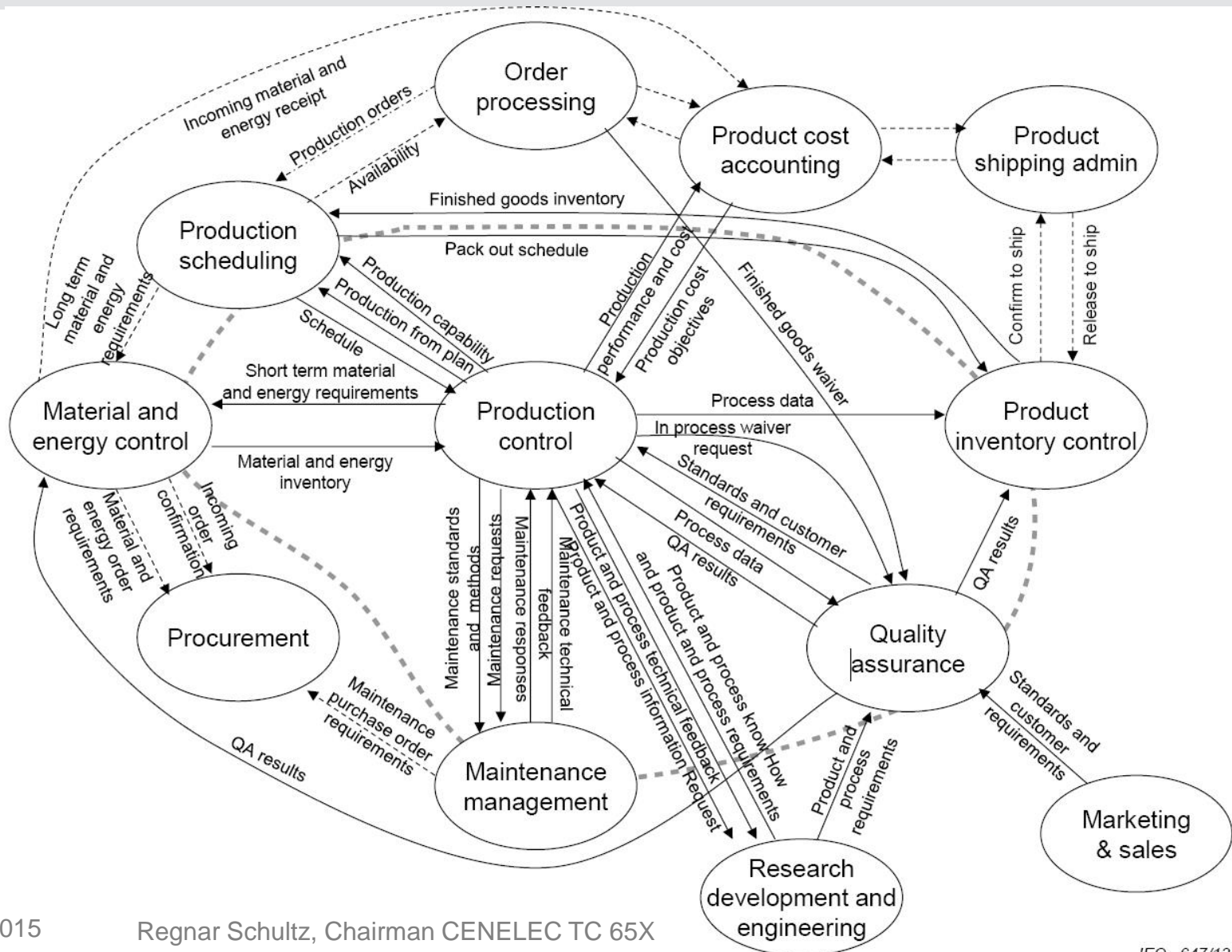
Dalian, China 29 October 2015



**European initiatives
&
IEC activities**

Regnar SCHULTZ – Chairman CENELEC TC65X

Manufacturing functional model



- **Transformation to:**
 - **New level of intelligent production**
 - **Intelligent process handling**
 - **New level of intelligent process integration**
- **Driven by the convergence of manufacturing and ICT**
- **Includes all optimization solutions that may improve the productivity and flexibility, lower waste and pollution, and lower costs in the entire manufacturing lifecycle**

EU Rolling Plan on ICT Standardization

Advanced manufacturing

- **Advanced Manufacturing policy focuses on development and speeding up the uptake of AMT by European industry**
- **Three objectives:**
 - **Accelerate dissemination and commercialization of AMT,**
 - **Boost the demand for AMT**
 - **Reduce skills shortages and competence deficits**
- **Many AMT initiatives in Europe (e.g. DE, FR, UK) and also outside Europe**

- **Standards can play:**
 - **Key role to accelerate the industrialization**
 - **Stabilizing role of research activities**
- **The opportunity is to ensure Europe's technological leadership through the massive integration of ICT into AMT**
- **Amount of communication between machines, sensors and actors is increasing**
- **Machines will more and more organize themselves as well as their supply chains**

- **Standardization is of central importance and the biggest challenge for the success of AMT**
- **Consensus-based standards and specifications form an indispensable basis**
 - **Technical procurement**
 - **Support communication**
 - **Standardized terminology and concepts**
 - **Ensure interoperability**
- **AMT concepts will dramatically speed up if compatible with installed manufacturing base**

- **Proposed new standardisation actions**
 - **Common communications standards M2M**
 - **E-skills standards to take into account the manufacturing skills for future manufacturers**
 - **Review the recommendations for actions in the "German Standardization Roadmap Industrie 4.0"**
 - **Study needed to analyse for revisions of existing standards (communications, M2M)**
 - **Identify existing standards and standardization potentials at an early stage**



IEC Strategic Group Industry 4.0 - Smart Manufacturing - Scope

To provide recommendations for an IEC strategy addressing manufacturing automation that will focus on ensuring real time needs of the manufacturing enterprise are sustained to achieve safe, secure and energy efficient factory operations.

To pursue an architecture for smart manufacturing that will enable it to function as a smart application within a broad IoT environment; and to leverage the adoption of current and next generation technologies to achieve safe and secure factory operations.



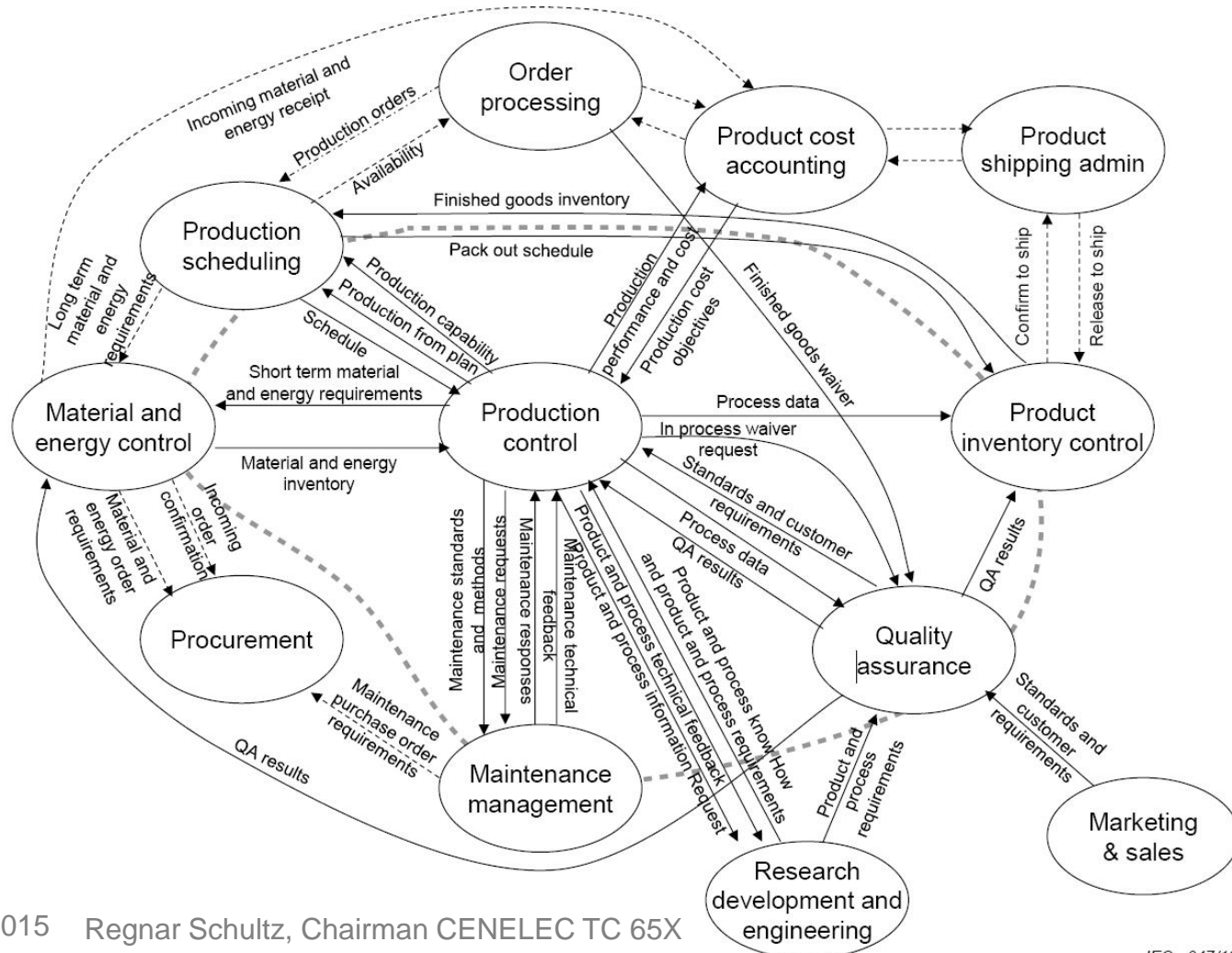
IEC Strategic Group Industry 4.0 - Smart Manufacturing - Tasks

- **Produce a plan for long-term maintenance and use of:**
 - **Common Data Dictionary IEC 61360 DB**
 - **Transfer of the associated private interface tool**
 - **Promote and accelerate the use of IEC 61360 DB**
- **Ask ITU-R to reserve specific spectrums for use within Industrial Automation facilities**
 - **80MHz in the range of 1.4 GHz to 6.0 GHz**
- **Based on the Smart Grid Mapping Tool:**
 - **Allocate resources to mapping tool development for Smart Manufacturing**



IEC Strategic Group Industry 4.0 - Smart Manufacturing – Introduction of

IEC 62264 Enterprise-control system integration model:





IEC Strategic Group Industry 4.0 - Smart Manufacturing - Considerations

- **Other models should be studied**
- **How to organize architectural model on conceptual level**
- **Need to be able to manage the data flow**
- **How to standardize 3- identified types of data**
 - **Public data**
 - **Proprietary data**
 - **Select data (licensable) – shared**
- **Problem for data interfaces is the current number of proprietary systems**



IEC Strategic Group Industry 4.0 - Smart Manufacturing - Cross-communication

- **TCs and SCs relevant to smart manufacturing and industrial automation to be informed of the work in SG8**
- **Collaborate directly with impacted TCs to receive their input**
- **Make recommendation to SMB for TC/SCs involvement in strategy implementation**
- **Receive liaison reports from:**
 - **ISO/TC184 AMT**
 - **IEEE P2413 IoT**
 - **ISO/IEC JTC1 WG 10 IoT**

- Welcome to the new World of:
 - Advanced Manufacturing
 - Smart Manufacturing
 - Intelligent Manufacturing
 - Internet of Things
 - Internet of Everything





IEC Strategic Group Industry 4.0 - Smart Manufacturing - Information

- **Connecting machines, IoT and the Cloud**
Get more information from IEC e-tech:
<http://iecetech.org/issue/2015-05/Connecting-machines-IoT-and-the-Cloud>



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THANK YOU!

