The Age of Modular Production

MODULAR PRODUCTION

VIRTUALIZATION

INTEROPERABILITY

PROCESS INDUSTRY 4.0

TIME TO MARKET

SERVICE ORIENTATION

DECENTRALIZATION

Modular Production

Process Technology

Plant Design

Automation
The Age of Modular Production

Process INDUSTRIE 4.0: The Age of Modular Production

Module Engineering
- Standardised Process Module
  - Modular Process Technology
  - Modular Plant Design
  - Standardised Interfaces

Modular Plant Engineering
- Process Design
- Configure
- Plug
- Produce
- Rearrange

Reduced Time-to-Market
Improved Efficiency
Increased Flexibility

Source: Namur / ProcessNet / ZVEI
Modular Automation with Module Type Package (MTP),
a standardized non-proprietary description of modules for the Process Automation
MTP Project Members, Representatives

Abb
AERZEN
Air Liquide
BASF
Bayer
Bilfinger
Bioengineering
Clariant
Covestro
DKE
E+H
EMERSON
Evonik
FESTO
Finesse
GEA
HIMA
Honeywell
HSU Hamburg
Invite
ISPE
Krohne
Lanxess
Linde
Merck
NAMUR
Outotec
Pepperl+Fuchs
Phoenix Contact
ProcessNet
Proleit
R. Stahl
Rockwell Automation
RWTH Aachen
Samson
Sanofi
Satorius
Schneider Electric
SIEMENS
Softing
Spiratec
TU Dortmund
TU Dresden
TURCK
VDI
VDMA
WAGO
Weidmüller
Werum
Yokogawa
ZETA
ZVEI
Working Groups (Teamwork Namur & ZVEI)

- **Alarm management**
  - WG 2.9.1
  - Members: ZVEI, Namur

- **HMI**
  - WG 2.9.1
  - Members: ZVEI, Namur

- **Diagnosis / Maintenance**
  - WG 4.1.1
  - Members: ZVEI, Namur

- **Technology evaluation, ongoing**
  - WG 1.12.1
  - Members: ZVEI, Namur

- **Condition based Process control**
  - WG 2.3.1 (AK 2.4.1)
  - Members: ZVEI, Namur

- **Roundtable**
  - Namur, ZVEI, ProcessNet, VDMA
Agile Approach of MTP Development

- Requirement specification
- Refinement within Sub-AKs
- Verification and refinement
- Function Definition
- Demos
- Standardization

VDI/VDE/Namur 2658-12
VDI/VDE/Namur 2658-1
VDI/GVC 2776-1-1
Cross vendor live demonstration of automation with MTP