

## **Branch Press Day for ACHEMA 2018**

**March 14, 2018**

### **A View on Process Automation –**

## **Market Development and Technological Trends**

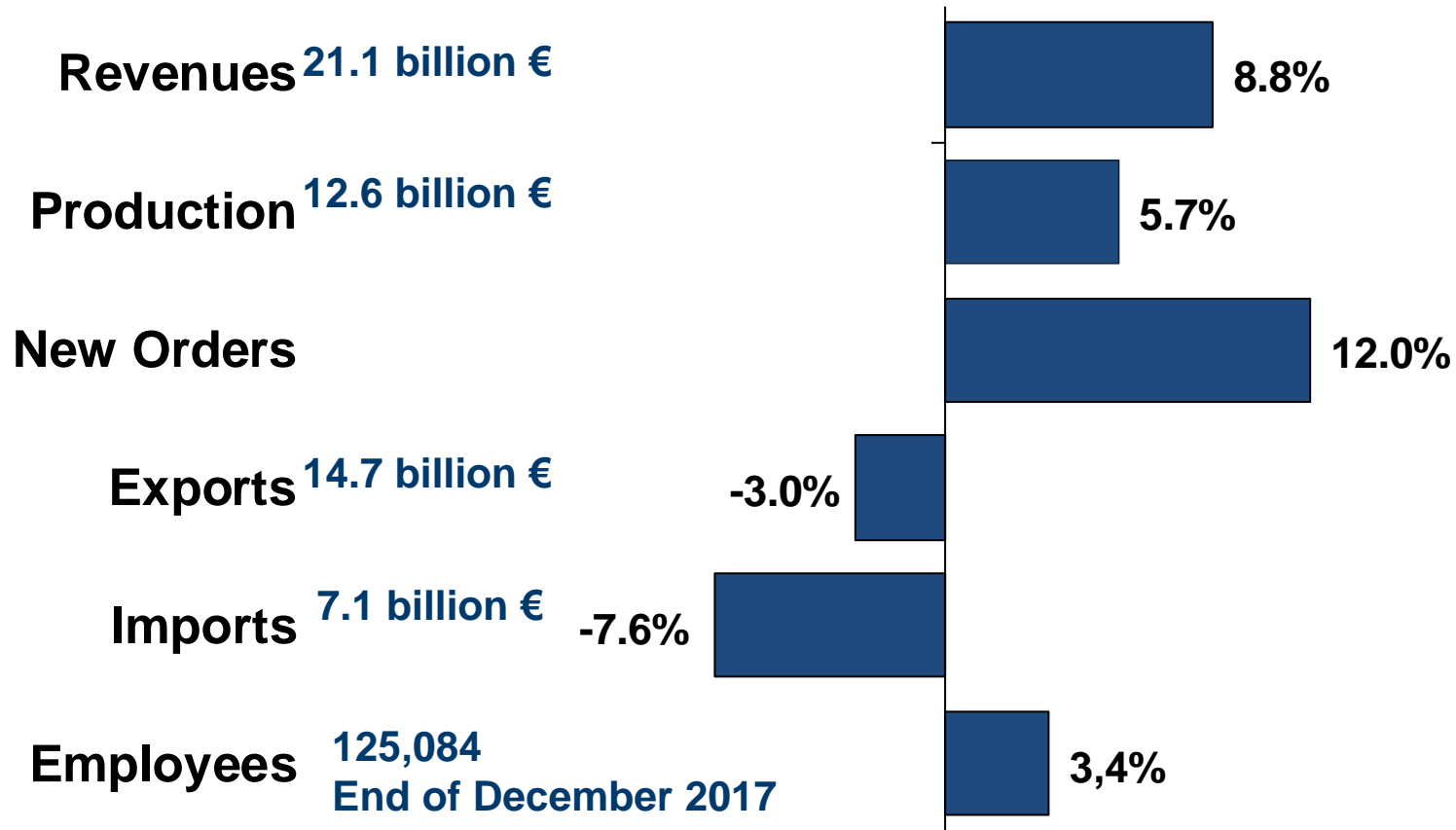
**Nikolaus Krüger**

Member of the Board of the ZVEI Automation Division and

Chairman of the Measurement and Process Automation Section

# Measurement & Process Automation – Germany 2017

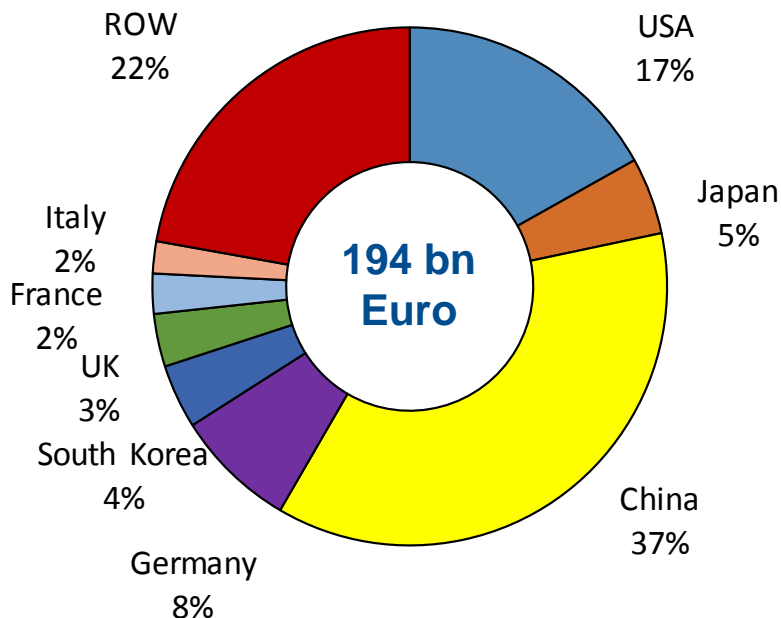
% change on previous year



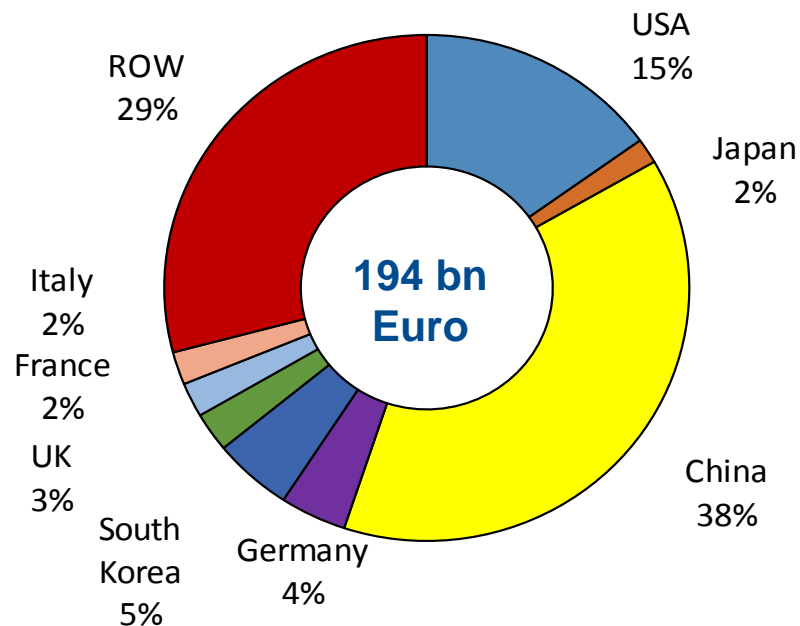
Source: Destatis, ZVEI

# World Market Measurement & Process Automation 2015 (on Euro-Basis)

## Production by Country (%)



## Market Share by Country (%)



Source: Destatis, ZVEI

## Summary Process Automation 2017, Outlook 2018

- **Growthrate Turnover: + 8.8 %**
- **Growthrate Orders: + 12.0 %**
- **Growthrate Export: - 3.0 %**  
**Growthrate Import: - 7,6 %**  
Large export surplus by absolute numbers
- **Dynamic business development with China, USA and Central Europe; mixed development in Middle East, India and Brazil business; Russia still an uncertainty factor**
- **Instrumentation and process analytics doing better than system business**
- **Food and beverages, water, chemicals and pharmaceuticals doing well; Oil & Gas business returns**
- **Outlook for 2018: All reasons to stay optimistic, if geopolitical obstacles do not interfere**

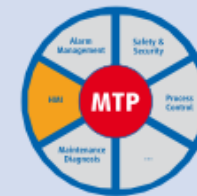
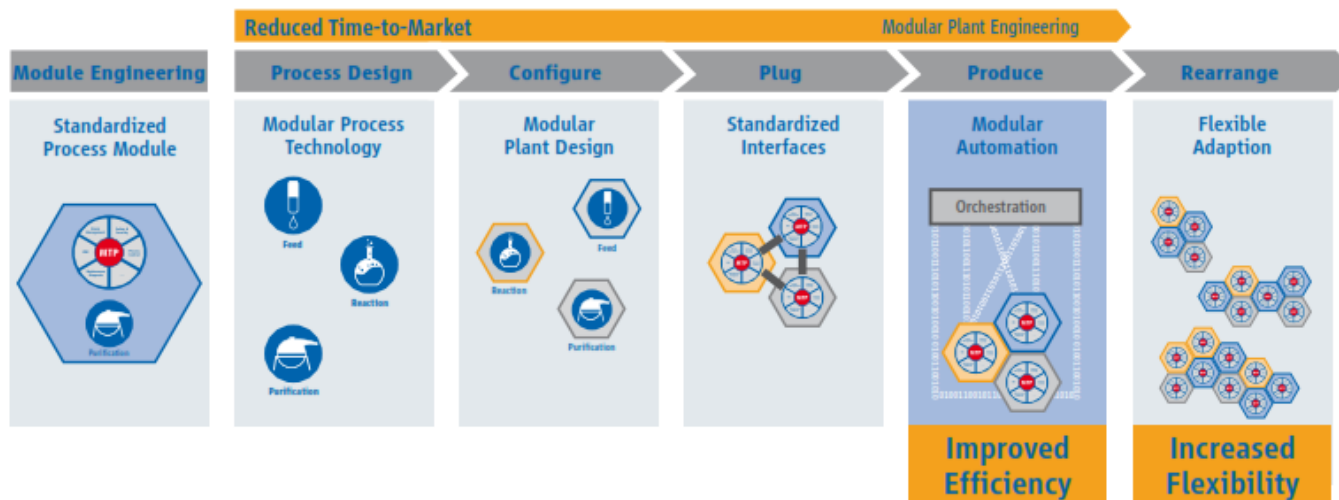
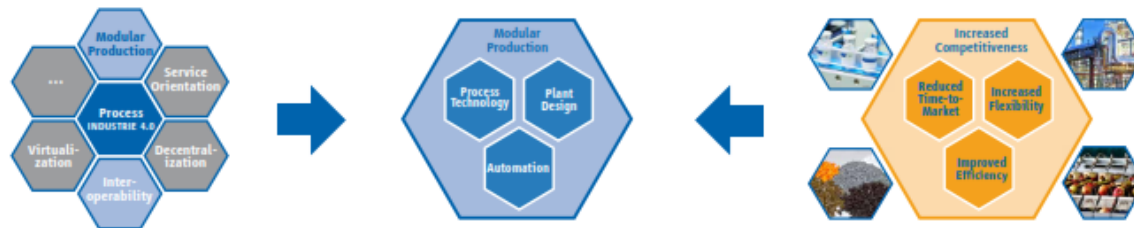


# Modular Production and Automation: A large initiative of companies, associations and universities



# The Concept of Modular Production and Automation

## Process INDUSTRIE 4.0: The Age of Modular Production



Explore the Concept of Modular Automation with Module Type Package (MTP)

New Ways of Standardized Integration of Process Modules and Package Units in Green- and Brownfield Plants



Source: Namur / ProcessNet / ZVEI

# Exhibition show „Modular Production“ of ZVEI, NAMUR, ProcessNet and VDMA at ACHEMA 2018, Hall 9.2., D 41



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# Forum „Automation in Dialogue“ of ZVEI, NAMUR and ARC at ACHEMA 2018, Foyer Hall 11.1 Northwest

## AUTOMATION IM DIALOG

Halle 11.1, Foyer – Nordwest

Diskussionsforum von:

**Automation in Dialog**  
Discussion Panel organized by ARC, NAMUR and ZVEI



Time	Mo, 11.6.2018	Di, 12.6.2018	Mi, 13.6.2018	Do, 14.6.2018	Fr, 15.6.2018
11:00 - 11:45	<b>Presentation</b>	<b>Meet the Experts</b> Breakfast-Talk	<b>Meet the Experts</b> Breakfast-Talk	<b>Meet the Experts</b> Breakfast-Talk	<b>Meet the Experts</b> Breakfast-Talk
	Herausforderungen und Lösungsansätze zur datengetriebenen Zustandsüberwachung von Ventilen – Ergebnisse des Projektes SIDAP Prof. Dr.-Ing. Birgit Vogel-Heuser, TUM	Ethernet goes Process – wie bringt man Ethernet und Explosionsschutz unter einen Hut? Stephan Schultz, R.Stahl	Höhere Energieeffizienz durch Digitalisierung – Hersteller und Anwender diskutieren Use Cases Dr. Eckhard Roos, Festo	Mehr Funktionalität und Diagnose in Feldgeräten – Sinn oder Unsinn aus sicherheitstechnischer Sicht? Dirk Hablawetz, BASF	5G – Was Sie schon immer über die nächste Mobilfunkgeneration wissen wollten Dr. Andreas Müller, Bosch
12:00 - 12:45	<b>Presentation</b>	<b>Toxic Talk</b> Industry Experts in Dialog	<b>Toxic Talk</b> Industry Experts in Dialog	<b>Toxic Talk</b> Industry Experts in Dialog	<b>Presentation</b>
	Process Automation Market - Today and Tomorrow *) Thomas Menze, ARC Moderation: Dr.-Ing. Peter Ebert, inVISION	Homo Sapiens vs. Artificial Intelligence: Who serves whom? *) Moderation: ARC	Chances of Successful Integration and Adoption of the Open Standards - Open Process Automation (OPA), NAMUR Open Architecture (NOA) and Modular Control (MTP) *) Moderation: ARC	Pros and Cons of Industrie 4.0 Compared to Other Initiatives *) Moderation: ARC	Status of Establishing Micro- and Millireactors *) Dr. Joachim Ehrfeld, Ehrfeld Mikrotechnik GmbH Moderation: Dr. Volker Oestreich, CHEManager
14:00 - 14:45	<b>Presentation</b>	<b>Panel Discussion</b>	<b>Panel Discussion</b>	<b>Panel Discussion</b>	
	IT/OT Convergence *) Thomas Menze, ARC Moderation: Dr.-Ing. Peter Ebert, inVISION	Digitalisierung bis ins Feld – mit MTP und NOA modulare und offene Architekturen schaffen Moderation: CAV, Konradin Verlag	5G – Chancen und Herausforderungen für die Industrie Moderation: VDE Verlag	Fiktion oder Vision? Autonome Wertschöpfungsketten in der Prozessindustrie. Ein 8-Augen-Talk von und mit Chief Digital Officers. Moderation: PROCESS	
15:00 - 15:45	<b>Meet the Experts</b> Tea-Talk	<b>Meet the Experts</b> Tea-Talk	<b>Meet the Experts</b> Tea-Talk	<b>Meet the Experts</b> Tea-Talk	
	Wandel der Prozessanalytik vom geduldeten Exot zur Informationsquelle der digitalisierten Automation Dr. Dirk Steinmüller, Knick; Dr. Michael Maiwald, BAM; Dr. Martin Gerlach, Bayer	Security for Safety - erste Erfahrungen Erwin Kruschitz, anapur	Mit Datenanalyse zu höherer Anlagenverfügbarkeit – Was ist heute bereits möglich und was bringt die Zukunft? Dr. Stefan Brüggeman, BASF	Digitale Servicekonzepte im Zeitalter von Industrie 4.0 Jan Kiehne, Siemens; Dörthe Sack, Siemens	



# 2-Wire Ethernet in the Field - Advanced Physical Layer (APL)

## APL Project now hosted by PNO

- Joint cooperation of PNO, FCG, ODVA and 11 Industry Partners
- Phase 1: 10 Mbit/s - IEEE 802.3cg
- Phase 2: 100 Mbit/s
- APL to specify measures for explosion protection (communication and power)
- APL to define test cases and certification criteria

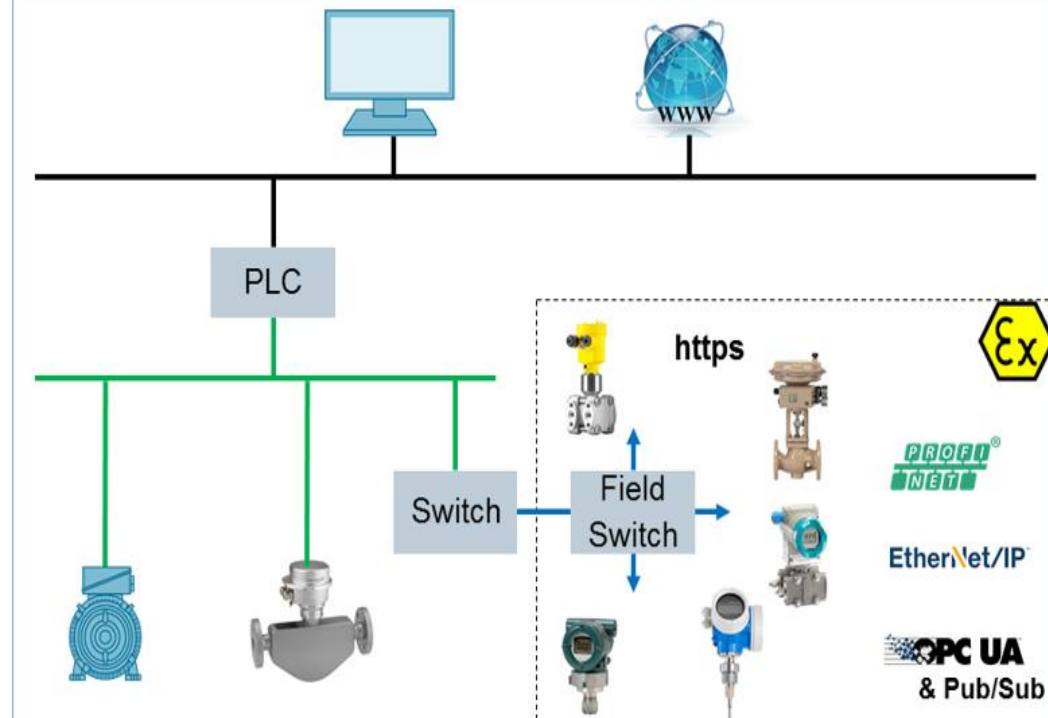
## IEEE 802.3cg Task Force

### Next steps

- Task Force to specify new Ethernet technology
  - 2-wire
  - Up to 1000m
  - @10Mbps
  - for overall industries



## APL enables 2-Wire Ethernet for Hazardous Areas



- Use state of the art automation protocols down to field level
- Prepare devices for online access for future information models (e.g. NOA IM)