International Academy for Production Engineering

65th General Assembly – Cape Town-South Africa, Aug.23-29, 2015

Intelligent Systems for Self-Optimization in Machining ("Intelligent Systems")

Proposal for a new Collaborative Working Group

Supported by: STC-M, STC-C, STC-P

H.-C. Möhring, K. Erkorkmaz, P. Kersting

New CWG “Intelligent Systems”

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New CWG “Intelligent Systems”

Experience

Ability to predict
future situations

Adaptation

Tool clamping and guidance,
process monitoring,
process control

Kinematics

Force sensors

Position / force control

Tool selection,
tool inspection
tool modification

Workpiece clamping,
process monitoring,
process control

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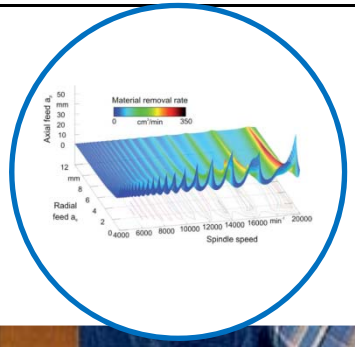
New CWG “Intelligent Systems”

Tool clamping and guidance,
process monitoring,
process control



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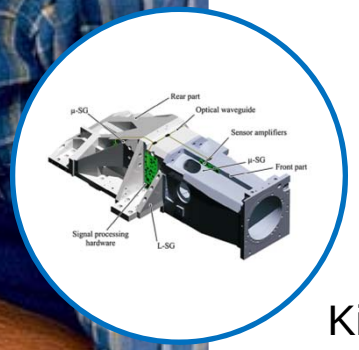

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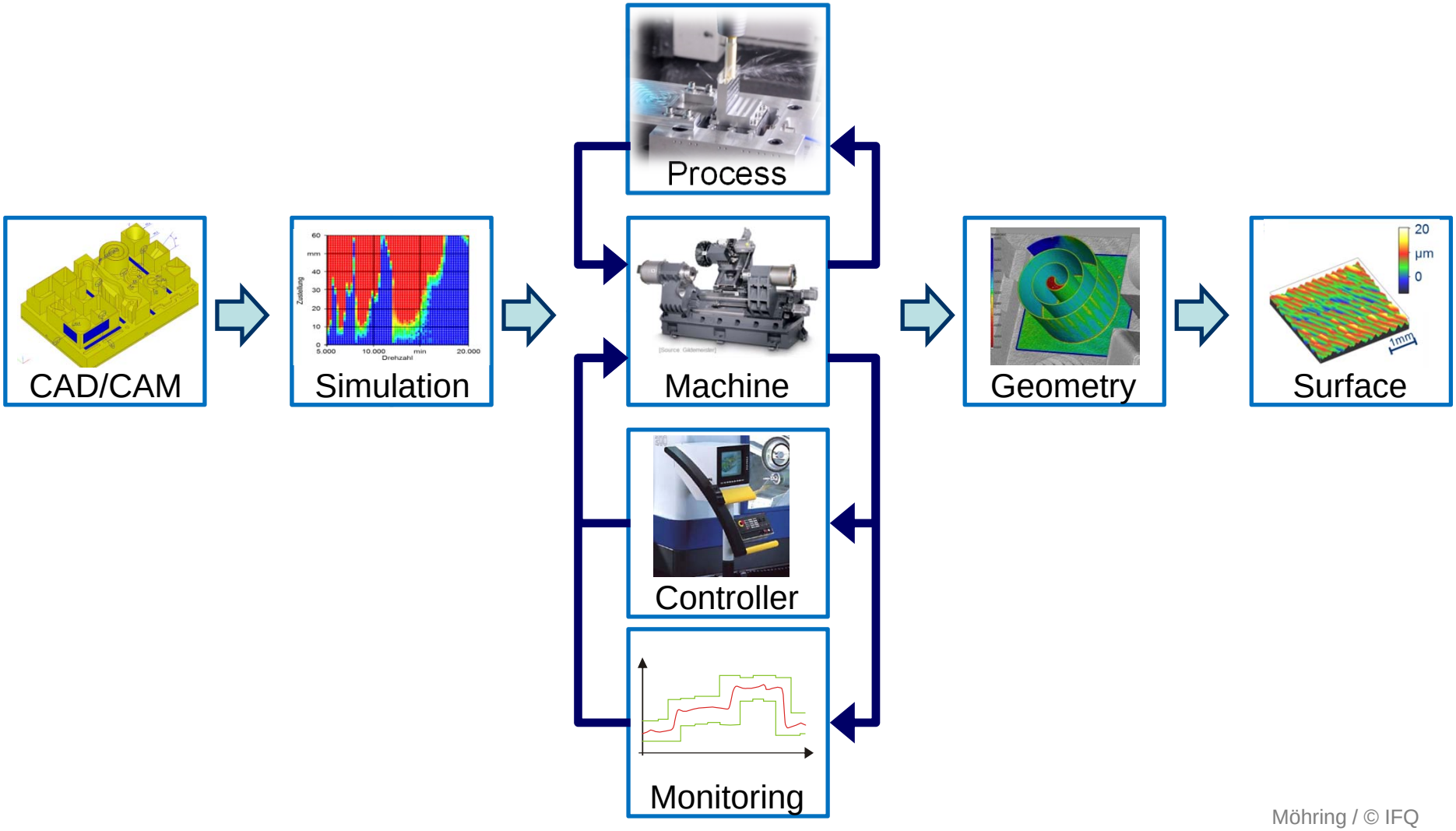
New CWG “Intelligent Systems”



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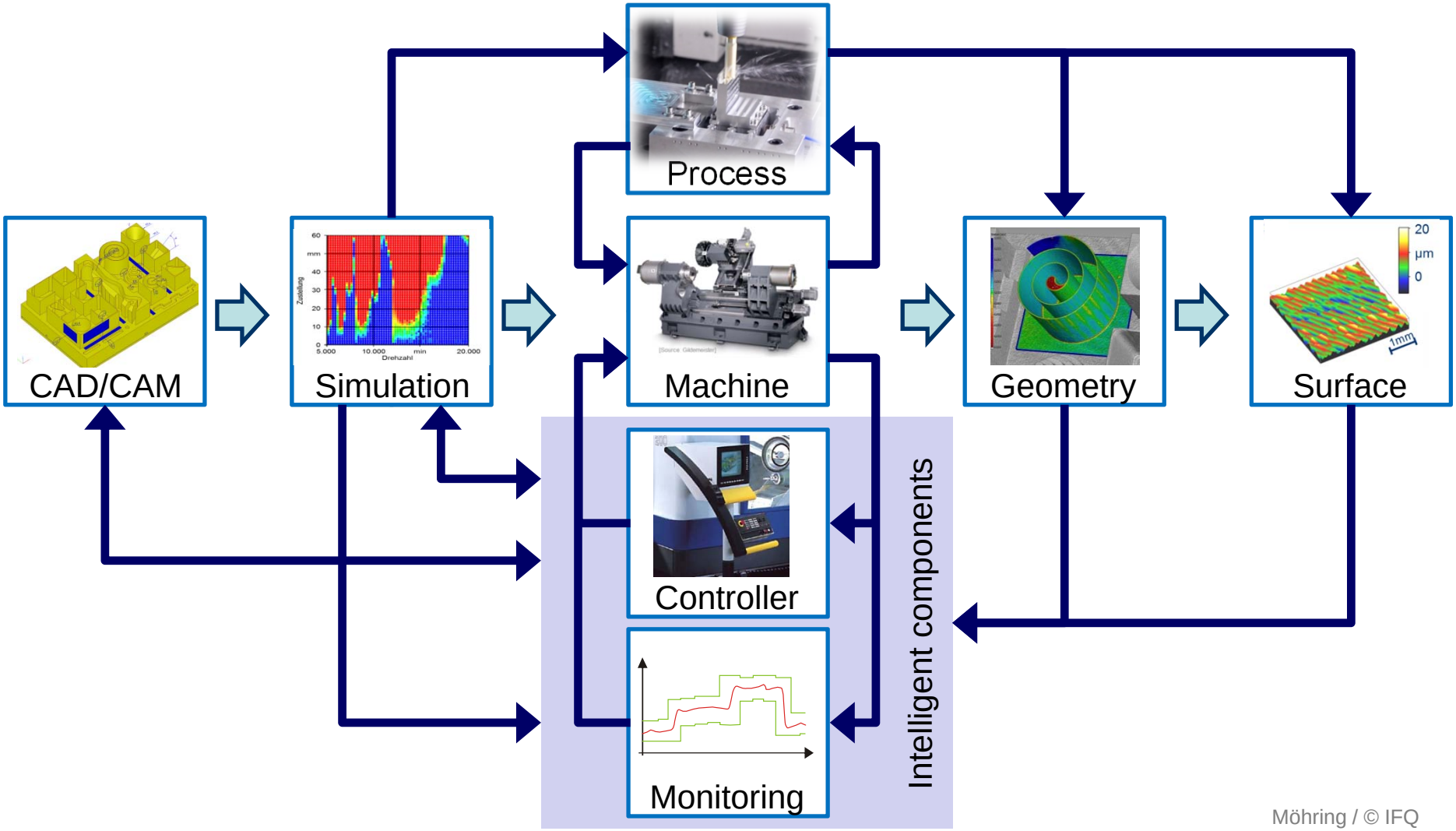

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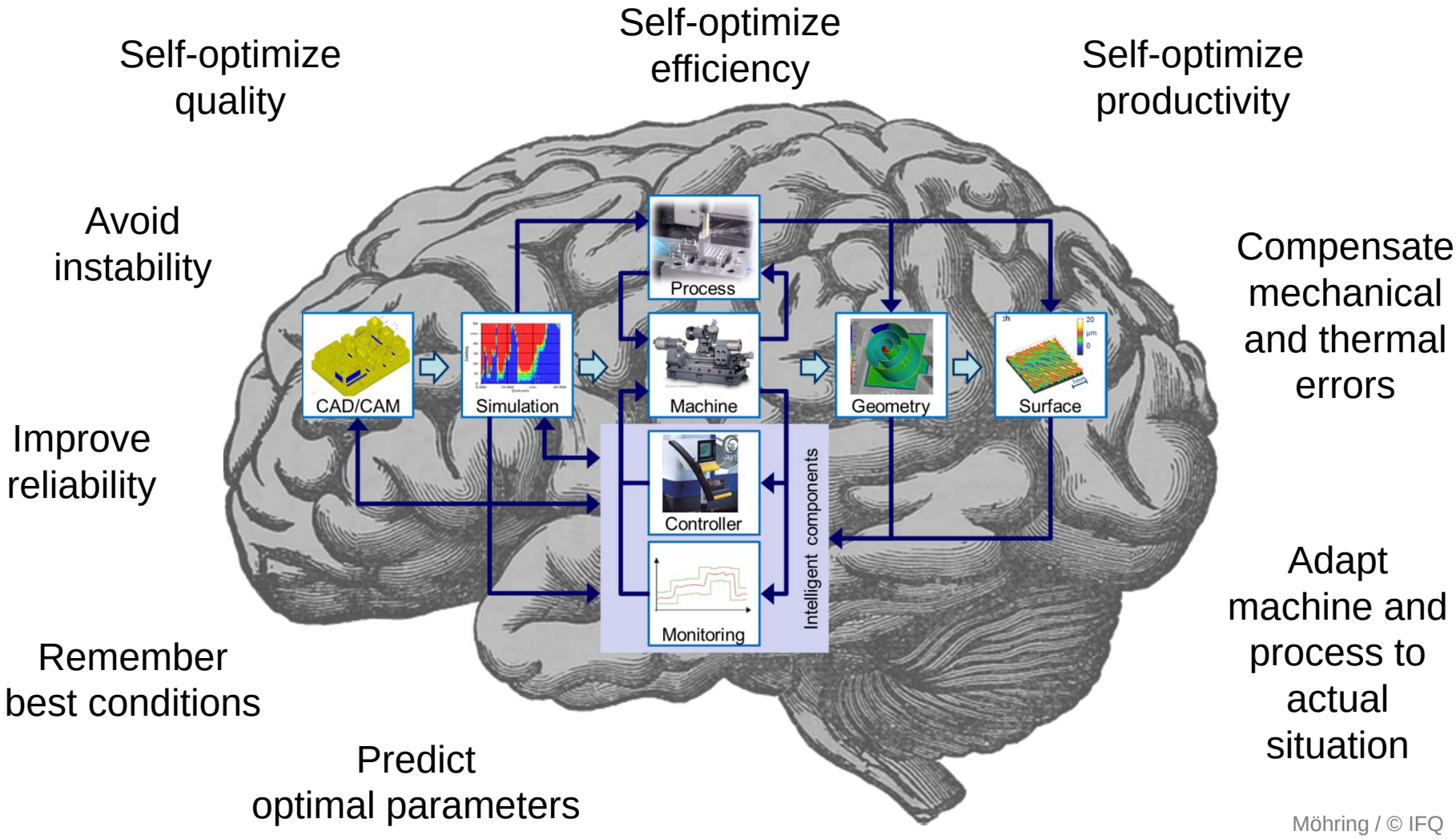

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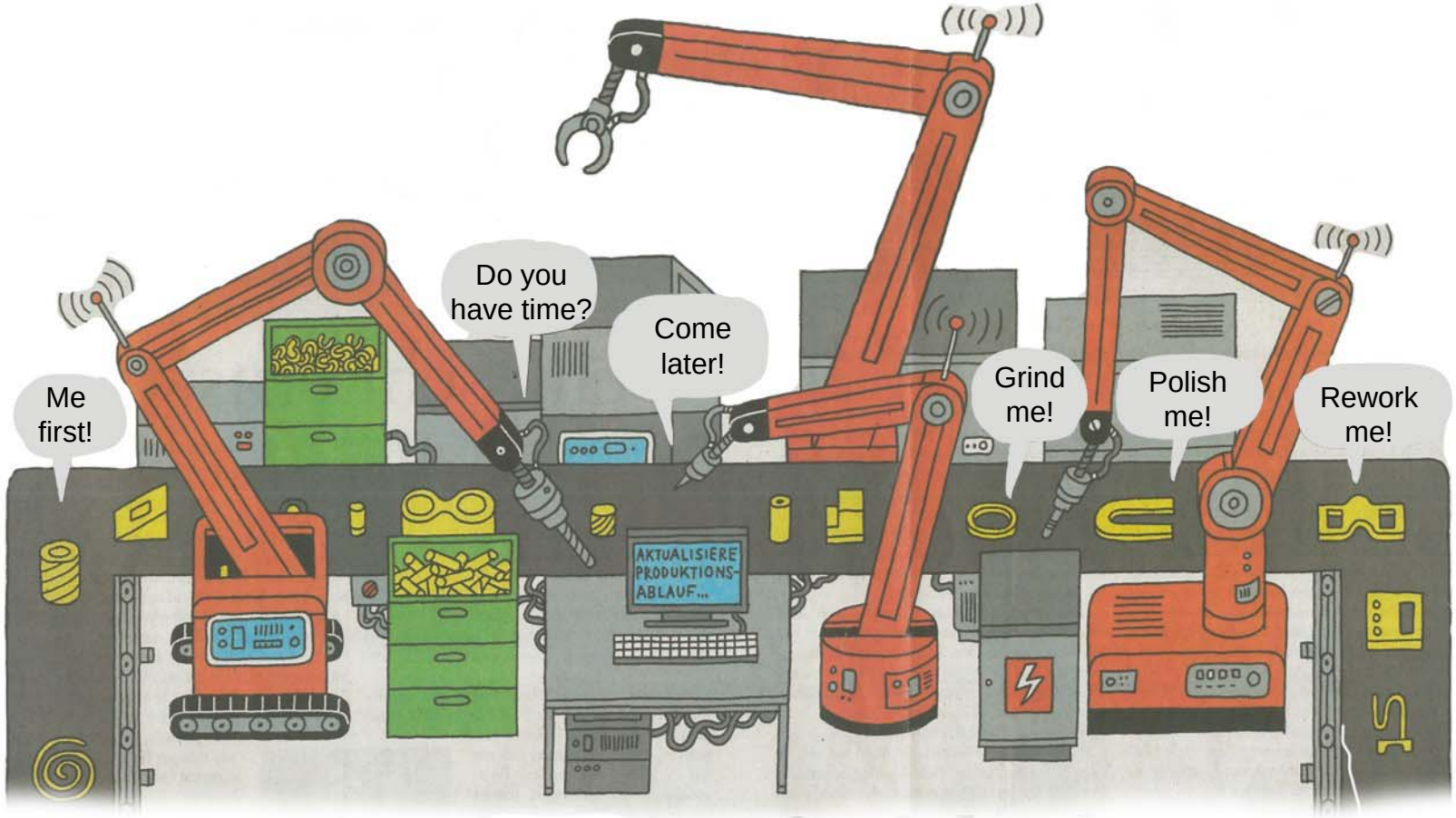

Source: Die Zeit, 23.01.2014

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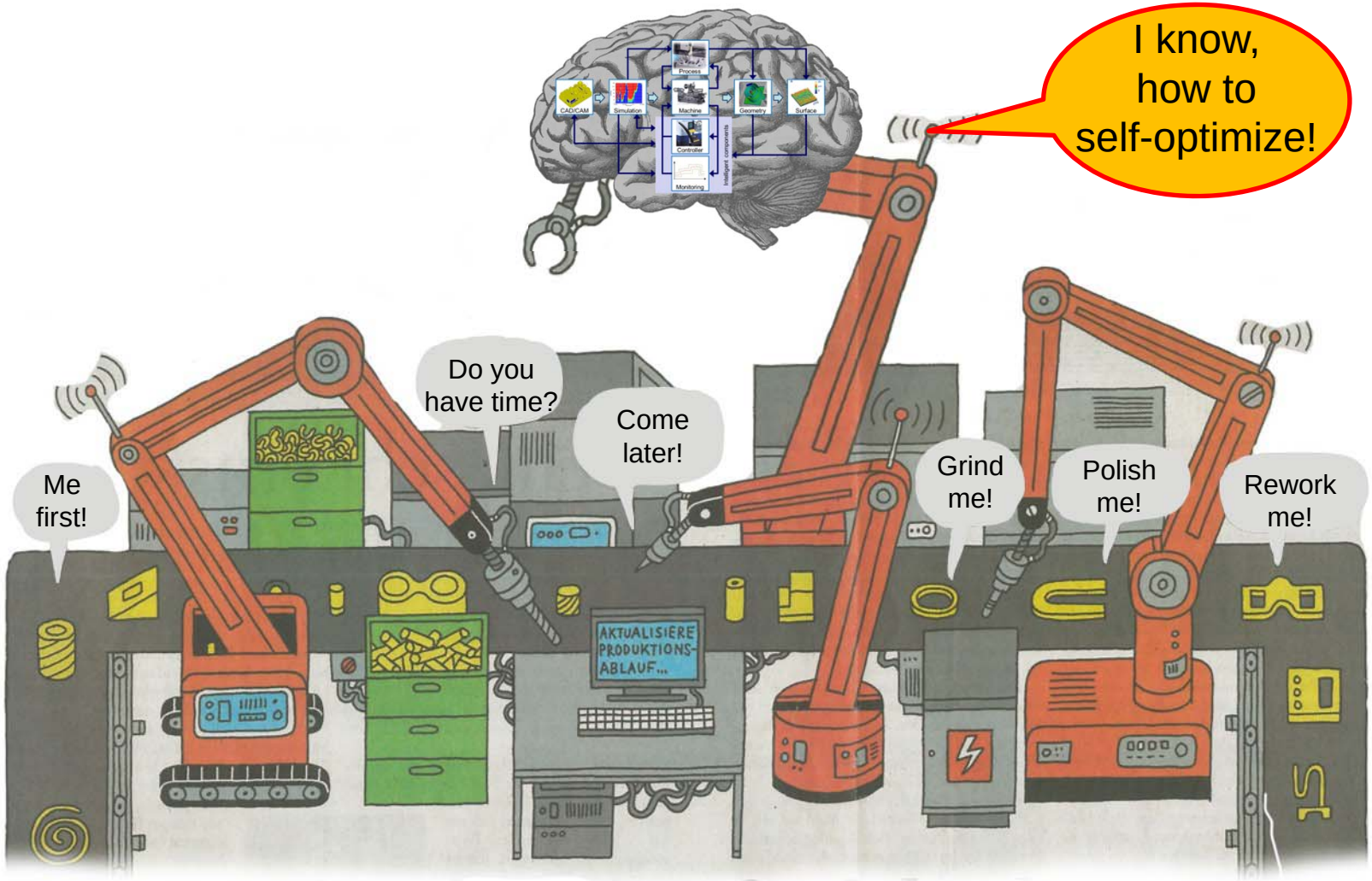

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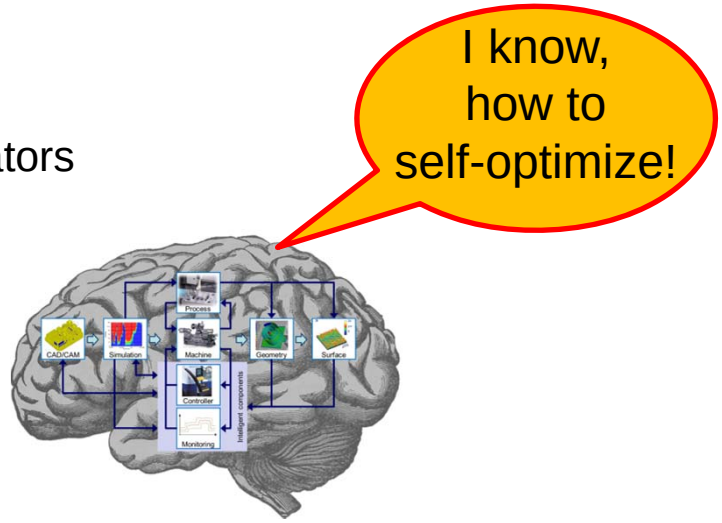
New CWG “Intelligent Systems”

- How to implement „Industry 4.0“ at machine / process level?!
- Exploitation of cyber-physical systems at machine / process level
- Machine control data processing
- Sensor and actuator integrated machines and components:
  - recognition and compensation of error influences
  - machine and process state monitoring
  - process adaptation / optimization and adaptive control
- Sensor integrated materials and structures / smart actuators
- Self-optimizing control strategies
- Data mining
- Integration of process and mechatronic modeling and simulation of process-machine-interactions
- Interdisciplinary scientific and industrial activities



2016 → **2017** → **2018**

Keynote paper

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New CWG “Intelligent Systems”

H.-C. Möhring
OvGU Magdeburg
CIRP AM
(attending CIRP since 2003)

K. Erkorkmaz
University of Waterloo
CIRP Fellow

P. Kersting
TU Dortmund,
Chair of CIRP RA

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