What if … Cognitive IoT Analytics enabled intelligent robots connectivity & real-time anomaly detection

Example: intelligent connected cognitive robotics 4.0 enabling error-less production & intra-logistics while process automation

Understands **natural language**, structured & unstructured data

…**Smart Human-Roboter-eAssistance**

1

…up to **33%** improved productivity

…up to **27%** improved performance

2 Generates and evaluates hypothesis for better outcomes

….**Maschine Learning**

…up to **30%** reduced costs

…up to **31%** improved robots cycle times

Adapts and learns from user selections and responses

3

…**Self-Optimization**

4 Intelligent Connectivity and GPS-based remote Monitoring & Steering

…**Anomaly Detection**

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What if … Watson Dialogue optimized machine maintenance (e.g. after image recognition)

Service Technician

Machine

Problem with Station X determined, the problem is hydraulic/ electric. The cause is (the depth sensor is incorrectly adjusted). It might fail within 48 hours.

Watson

How do I fix it?

Please (readjust the sensor). Follow these instructions: (*R&R: search instructions for readjust the sensor: 7.1.1)*

Which time you would recommend to perform the required procedure?

Tomorrow after 3 pm. Oh, by the way, you can combine it with a recommended preventive measure, cleaning the swivel arm.

Please provide instructions.

Insert the fastener (*R&R: search instructions for readjust the sensor: 6.1.2)*

What if … work safety was improved and jobs became more exciting

- Internet of Things coupled with cognitive capabilities to improve safety

- Imagine your worker would be provided with the information of
  - Optimized system-settings and parameterization of the machinery
  - Compositions and “recipes”

- This would open new
  - Opportunities for the expansion of job rotation
  - Forms of processes as well as workplace and shopfloor designs
  - Space for ingenuity and creativity

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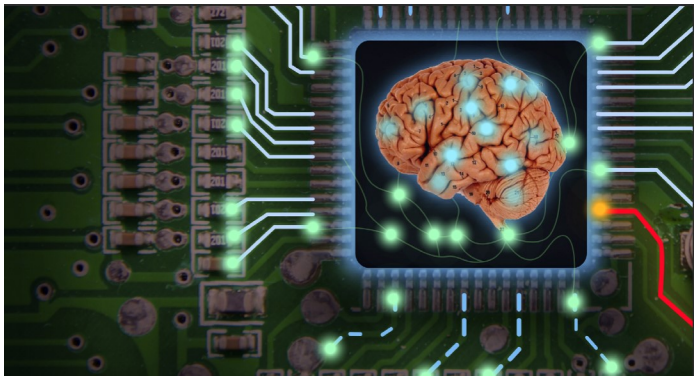
The Cognitive Factory supports humans and thinks with them…

- …while gaining **insights and understanding** about the production system via dynamic visualization of related data as its always current centralized state representation by supporting module switch on/off respectively exchange
- …providing **decision support** based on rules and templates according to predictive maintenance best practices as well as autonomous module functionality
- …during **hypothesis development and verification**, e.g. for identifying and evaluating security-related anomalies (via Security Intelligence)

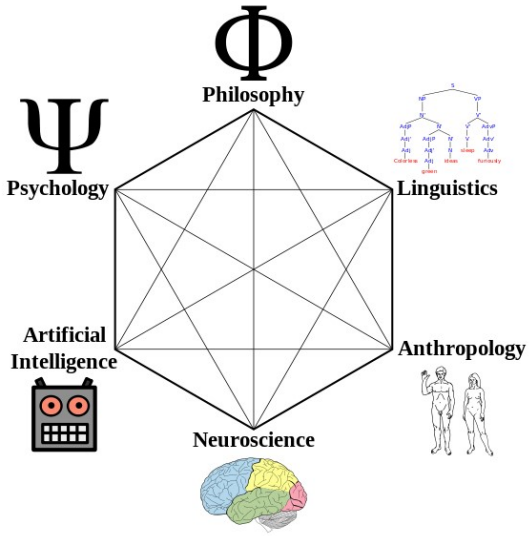


Watson-supported SmartFactory

Impact on professions

Professions & Skills

- Software Engineer
- Data Scientist
- Robotic Scientist
- AI / machine learning researcher



Source: Wikipedia

Skills & Competences:

- Mathematics
- Statistics
- Computer Science
- Cognitive Science
- Neuro Science

Thank you!

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