



INDUSTRIAL APPLICATIONS OF CYBER PHYSICAL SYSTEMS – ROBOTICS AND AUTOMATION

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INDUSTRY 4.0

- The term Industry 4.0 was coined by the German government in 2011 to describe the convergence and benefits of cyber-physical systems (CPSs) in the industry.
- Industry 4.0 requires the interconnection of production machines to communicate with other pieces of equipment or sync with other systems and functions such as MES, procurement, and supply chain.

Benefits:

- Increased productivity and efficiency
- On-demand manufacturing
- Improved data retention for compliance.

APPLICATIONS – SMART MANUFACTURING

- Process and assembly automation
- Robotics working safely with humans (COBOTS)

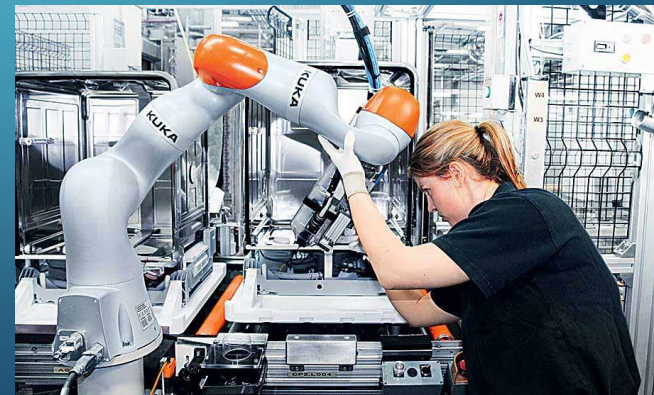
Enhanced global
competitiveness

Greater
efficiency and
reliability

Smart
manufacturing



Source: Reuters



Source: KUKA Robotics Corp.

APPLICATIONS – SMART LOGISTICS AND WAREHOUSING

Using mobile robots, AGV's, and drones in logistics and warehousing to:

- Reduce lead-time
- Improve productivity
- Just-in time delivery



APPLICATIONS – PREDICTIVE MAINTENANCE

Predictive maintenance periodically monitors equipment based on the analysis of collected real time data in order to anticipate eventual problems that may lead to higher costs with corrective maintenance.

Benefits:

- Maintenance costs reduction
- Machine downtime reduction
- Reduce stock of spare parts
- Improve productivity

