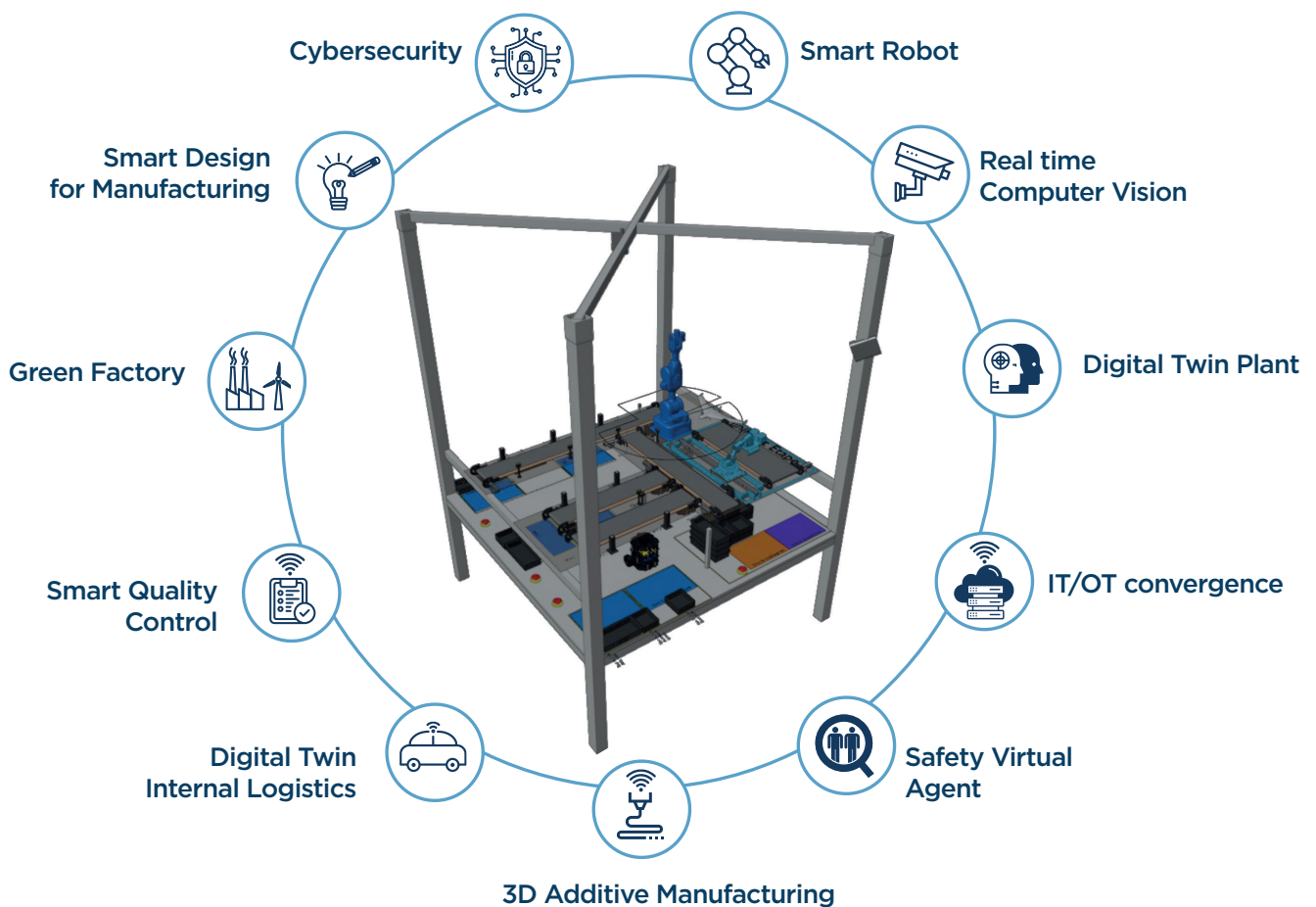# ALTEN
MINI-PLANT 4.0: AI SERVING HUMANS

ALTEN

Today's factories must be more flexible, more communicative and more efficient, while still serving people. With the «Smart Factory 4.0» program, ALTEN is exploring all the fundamental topics of Industry 4.0 focused on the transformation of industrial sites. The technologies deployed are integrated with each other to provide more efficient production from an economic, ecological and human perspective.

Thanks to ALTEN Labs' research and innovation teams, the various technological building blocks of Industry 4.0 are studied through concrete application cases that then illustrate their value propositions.

Cybersecurity

Smart Robot

Smart Design for Manufacturing

Real time Computer Vision

Green Factory

Digital Twin Plant

Smart Quality Control

IT/OT convergence

Digital Twin Internal Logistics

Safety Virtual Agent

3D Additive Manufacturing

3 demonstrations to illustrate the intelligence of Factory 4.0

AI FOR PRESCRIPTIVE MAINTENANCE
- AI predictive analysis of system behavior in the IoT sensor and edge computing
- Alerting of drifts and maintenance prescription via mobile application

5G
CRITICAL INDUSTRIAL IoT

DIGITAL TWIN INTERNAL LOGISTICS
Logistics crisis management by intelligent AGV/AMR fleet
- Real-time AI management of a fleet of AGVs / AMRs
- Prescription of the most efficient scenario in cases of crisis in order to adapt to the organizational changes of the company and to the hazards of logistics flows

5G
HIGH SPEED CONNECTIVITY FOR MOBILE FLEET

GREEN FACTORY
- Real-time monitoring and surveillance of energy consumption
- Real-time monitoring and surveillance of energy production
- Forecasting of energy production and adaptation of consumption according to the flexibility of the plant

5G
INDOOR/OUTDOOR CONTINUITY

3 demonstrations to illustrate the augmented operator and robot

DIGITAL TWIN PLANT & SMART ROBOT
Operator Training and Robotic Programming by Voice Interaction
- Autonomous training via Mixed Reality or Virtual Reality
- Real-time maintenance by the operator assisted by Mixed Reality
- Crisis replay and drift alert via Digital Twin
- No Code» robotics: learning the robot by voice instruction via a virtual assistant
- Flexibility of organization and adaptation of the robot to hazards in order to ensure its task

5G
HIGH SPEED CONNECTIVITY

VIRTUAL AGENT IN SUPPORT OF OPERATOR HEALTH AND SAFETY
- Recognition of risky movements for a preventive management of MSD
- Real-time alert of accident risks by a vision system

5G
HIGH SPEED CONNECTIVITY

3D ADDITIVE MANUFACTURING & SMART ROBOT
Intelligent multi-gripper for robot arm
- Addition of «touch» sense to the robot arm thanks to intelligent sensors developed with new technologies associated with 3D printing (meta-materials)
- Simplicity and versatility of the instrumentation method
- Adaptation of the robot to hazards in order to ensure its task thanks to its «sight» and «touch» senses
- Autonomous correction of the robot in case of shift or loss of an object

5G
CRITICAL INDUSTRIAL IoT

3 demonstrations to illustrate the benefit of using 4.0 technologies in the industry

IT/OT CONVERGENCE AND 5G

- Real-time digital twin
- Cloud/edge/nanoedge convergence for distributed AI
- Ultra high-speed wireless and zero latency management for Industrial IoT
- 5G QoS for Factory 4.0

DIGITAL TWIN CYBER DEFENSE

- Real-time monitoring of equipment status and performance
- Simulation and comparison of information flows with the real world
- Detection of a cyber-attack on the plant's IT/OT
- Securing the human and IT/OT of the plant

SMART DESIGN FOR MANUFACTURING

Smart requirement management for manufacturing
- Requirements writing and formalization with the formal method (PMM®)
- Requirement modeling with Simulink and Papyrus tools
- Establishment of interfaces between virtual and real models
- Automated verification of product and process requirements

≡5G
NETWORK SLICING WIRELESS PLANT

≡5G
CYBERSECURITY

To go further:

Three showrooms to support our customers in the digital transformation of their industry through 5G innovations and their use cases

DEC INNOVATION CENTER
BY SIEMENS

Demonstrators in the field of Manufacturing and Process industries
Automation & Industrial IoT technologies

INNOLAB
BY BOUYGUES TELECOM ENTREPRISES

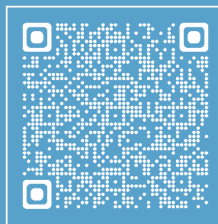5G Demontrators for the Enterprise
Telecom & 5G Technologies

ALTEN LABS
BY ALTEN

Factory 4.0 demonstrators IT/OT convergence and 5G technologies

LEARN MORE ABOUT OUR OFFER

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