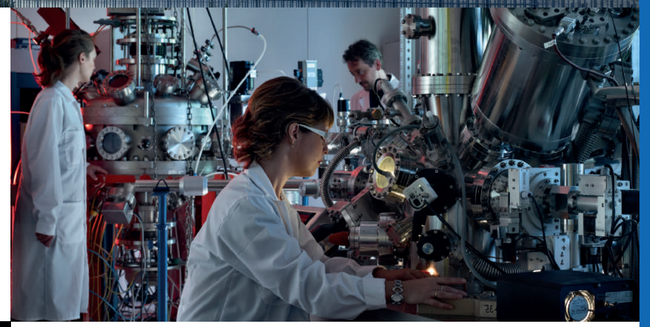
1st ITALIAN RESEARCH INSTITUTE

Top research institute in Italy, ranked at the **1st place for scientific excellence** and for the economic and social impact (ANVUR).

230	250	+100
scientific pubblications	contributions in conferences and scientific pubblication	scientific events organised



WE BELIEVE IN A FUTURE BUILT ON KNOWLEDGE

FBK's mission is **excellence of science** which extend our innovation capability and involve the community and the economy in the circulation of knowledge and technologies (impact).

+100	+400	7
PhD students	researchers	research centers

INTERNATIONAL IMPACT

FBK works with **international big industries** as main partner for **research** & **development** projects but also as a key player for their **innovation focused projects**.

We understand better the needs of the market, and companies can introduce innovation faster in their product cycle.

101	20	42
EU projects in 2016	innovative startups	patents

FONDAZIONE BRUNO KESSLER

FUTURE BUILT ON KNOWLEDGE

SMART DIGITAL INDUSTRY

ARTIFICIAL INTELLIGENCE FOR INDUSTRY 4.0

TRENTINO

FONDAZIONE BRUNO KESSLER

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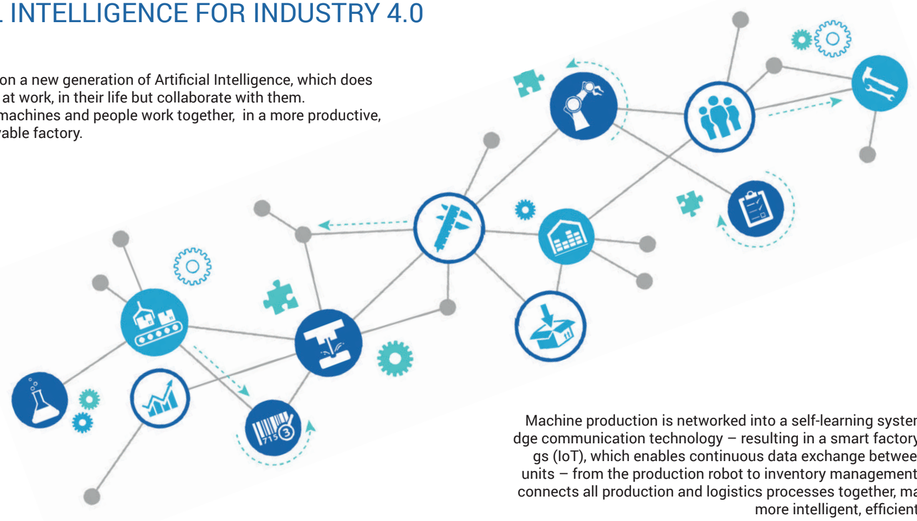
SMART DIGITAL INDUSTRY
ARTIFICIAL INTELLIGENCE FOR INDUSTRY 4.0

FBK built the future on a new generation of Artificial Intelligence, which does not replace humans at work, in their life but collaborate with them.
FBK for AI that lets machines and people work together, in a more productive, safe, pleasant, enjoyable factory.



Machine production is networked into a self-learning system using cutting-edge communication technology – resulting in a smart factory. Internet of Things (IoT), which enables continuous data exchange between all participating units – from the production robot to inventory management to the microchip, connects all production and logistics processes together, making our industry more intelligent, efficient and sustainable.

APPLICATION CASES

Intralogistics enabled by autonomous vehicles cooperating with operators and robots

- Intra-logistic management within plant;
- Enable automated replenishment;
- Support for complex event detections and handling;
- Autonomously reconfigure the internal flow;
- Simplify the Human-robot interaction at line side.

Complex system monitoring for predictive maintenance

- Transform data into actionable insights;
- Leverage model based reasoning and machine learning for data analytics;
- Cloud-based analytics for real-time alerting and mid-term predictions;
- Ensure security of the monitored data.

50 industrial partners

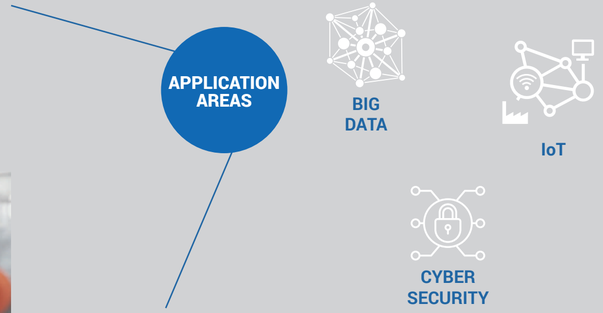
10 industrial projects

20 PoC

AUTONOMOUS SYSTEMS

Development and experimentation: advanced sensing for smart monitoring (e.g. quality control); adaptive control for smart online closed-loop control leveraging on fog computing and IoT infrastructure (2020).on fog computing and IoT infrastructure (2020)

In **production**: design, validation, delivery of (safety & resilient) critical systems for industry 4.0 in the avionics, oil and gas, and railway sectors supported by industrial partners (2018).



PREDICTIVE MAINTENANCE

Development and experimentation: design and implementation of an intgrated platform for big data analytics for diagnosis, prognosis, and predictive maintenance leveraging a decentralised (fog/edge) computing infrastructure (2018).

In **production**:
integrated platform in realistic environments (2020).

STRATEGIC PROGRAM

Model-based design
A technological platform supporting the design, deployment and certification of complex processes and systems.

Vertical Applications
Complex industrial process operations with leading-edge research techniques (DSP, vision, ...) leveraging on proximity (fog/edge) computing and IoT.

Autonomous Systems
Design and development of deliberative, autonomous robotic applications for exploration and monitoring of extreme environments.

Smart Adaptive Operation
Run time integrated solution for adaptive, self-learning decision making supported by simulation, planning, scheduling.

AVAILABLE TECHNOLOGIES TOWARDS INDUSTRY 5.0

Development: interdisciplinary approach for human-aware robotics in complex industrial environments (2018);

Experimentation: integration of techniques for automated planning and control for highly flexible production (e.g., chemical production) (2020)