



***You shape your strategy
We partner to achieve your goals!***

Company Profile with R&D Focus

8th May 2018 Malicious Software and Hardware in Internet of Things - Panel

Reliable as a large company, agile as a small enterprise

Shareholders design the strategy of the Group and are directly involved in market development and management activities, ensuring:

- care for new business opportunities
- close focus on both clients' and partners' needs
- agile decision-making
- long-term perspective

Close to our customers since more than 30 years



IT SOLUTION + PASSION =
FINCONS GROUP



A successful story,
the future is together

Fincons Group Offices



5 offices in Italy (Milan, Verona, Rome, Bari, Catania)

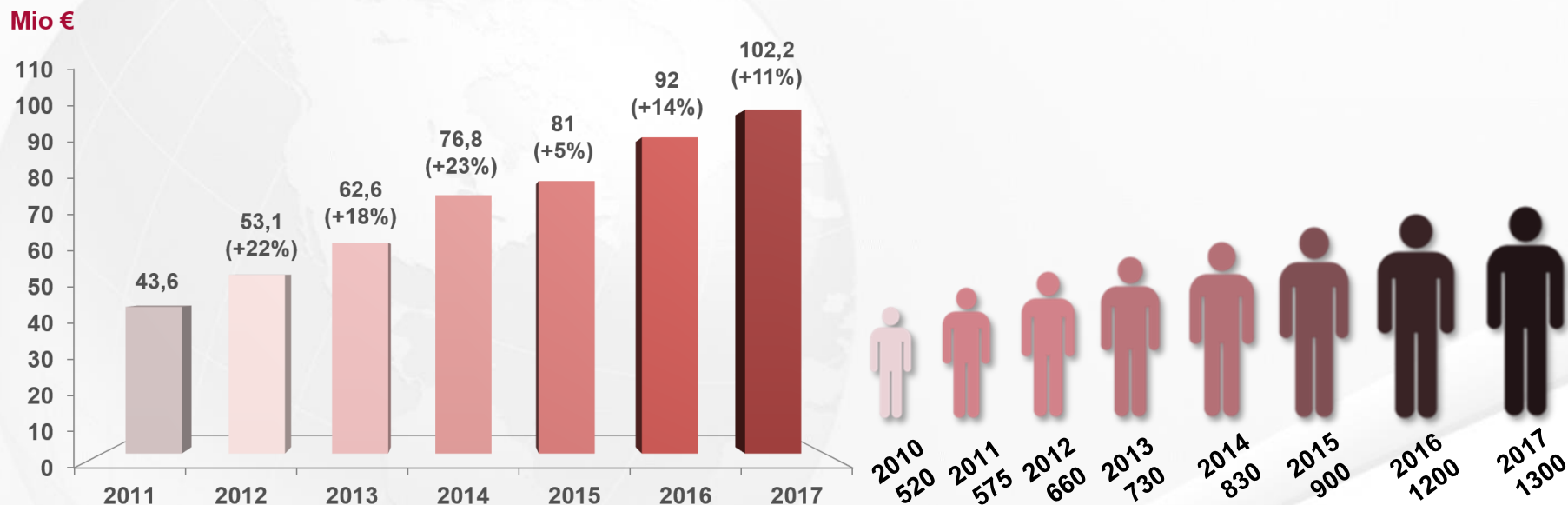
4 offices in Switzerland (Küssnacht am Rigi, Zurich, Bern, Lugano)

1 office in the UK (London)

2 offices in the US (Los Angeles, New York)

Fincons Group Highlights

FINCONS GROUP is a **reliable partner** to design, implement and manage the Information Technology to enable business competitive advantage and a responsive organization.



**A significant growth
maintained over the years**

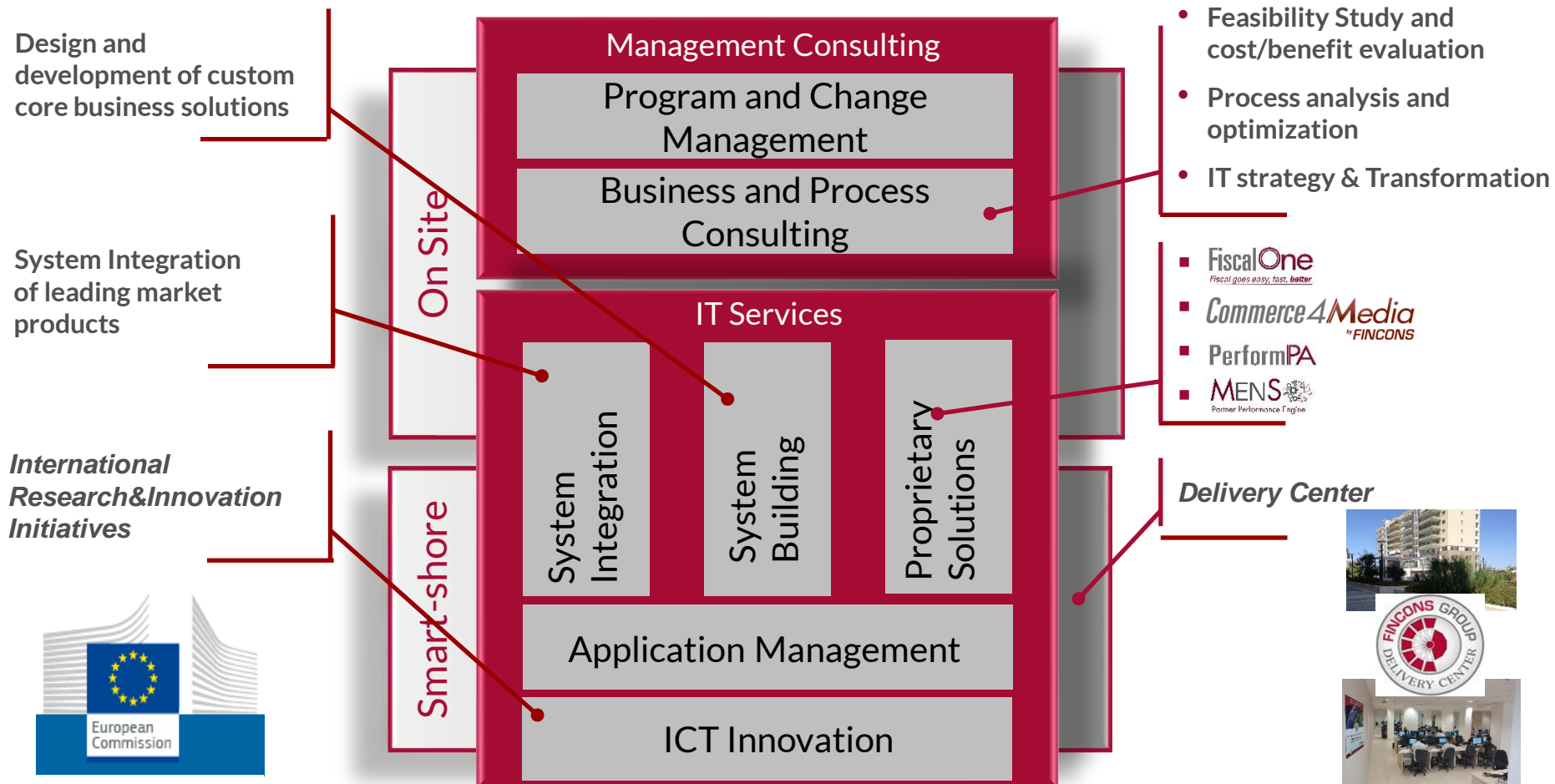
**We are a Group of more than
1300 professionals**



FINCONS
GROUP

Fincons Group value proposition

Our extended offering of professional services allows us to support clients along all different stages of **complex innovation** programs.



HORIZON 2020



FINCONS GROUP

Organization

BUSINESS UNITS

TECHNOLOGIES



ENERGY &
UTILITIES



MEDIA



FINANCIAL
SERVICES



TRANS-
PORTATION



MANU-
FACTURING



PUBLIC
ADMINISTR.

BUSINESS CONSULTING

DIGITAL, WEB & MOBILE

BI, ANALYTICS & BIG DATA

CRM

ERP

***BUSINESS UNITS with industry know-how on different markets
with strong and consolidated competencies***

Fincons Group Pillars

Strong **Business know-how** and a **tailored system integration approach**, supported by a **Smart-shore service model delivery**, make **Fincons Group Offering competitive** and **innovative**.

Business Consulting and process Knowledge



Industry Know how

System Integration Best of breed Solutions



Solutions tailoring for
different industries

Smart-shore IT Service




Fincons Group
Delivery Center

International Business Development and Innovation Lab

To support internationalization strategy in 2013 the Group established the **IBD - International Business Development & Innovation**, a dedicated department aiming to export distinctive competencies in EMEA, leveraging on the group assets and research.


Innovation must be considered as a real process that has to be nourished. The **Innovation Lab** leverages the potential of new technologies to translate them into a competitive offering of effective and valuable solutions.

Openminded, with a clear vision of the future



**Innovation is the key factor of our
success.**

**Now, with the same passion,
we aim to new goals.**



Leveraging international research



Collaboration with Universities and Research centers:

- **Research Centers:** IRT (DE), Fraunhofer (DE), TecNALIA (ES), Forth (GR), ...
- **European network of universities:** Surrey, Lancaster, Plymouth, Berlin, Madrid, Paris Polytechnic, EPFL Lausanne, NTUA Athens, Milan and Bari Polytechnic



Politecnico di Bari

Bari Polytechnic – Fincons Group Research Lab

R&I International Funds:

- **European Funds:** Horizon 2020, Framework Programme 7
- **Swiss Funds:** SERI, CTI
- **UK Government Funds:** Innovate UK
- **Italian Funds:** National (MIUR), Regional (CdP Puglia, Sanità Lombardia)

Recent blue chips



FINCONS GROUP

Fincons approach to R&D: an opportunity to share with clients

Funded R&D Projects and collaboration with research centers and universities

Bring Innovation to our Business Units



Exploit Innovation towards clients



FINCONS ROLE IN R&D PROJECTS

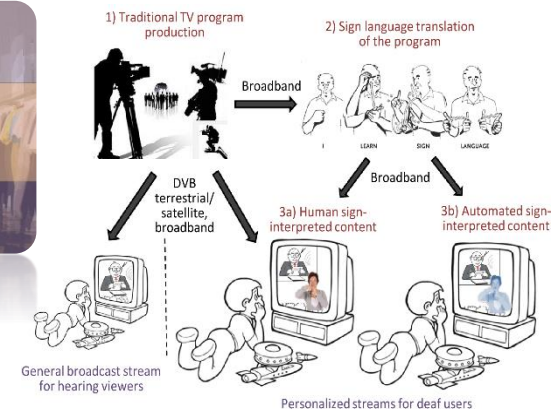
- **ICT Developer / Technology Expert:** we offer strong expertise in all Web / Mobile related technologies, as well as IoT- and CPS- based applications, big-data & analytics, cloud technologies, cyber-security, CRM, HbbTV and omni-channel communication.
- **System Integrator:** we take care of the integration of partners' developments into working system, including all necessary testing activities.
- **Piloting / end-users:** we support end-users in piloting and evaluation activities; we **involve our customers and partners as end-users** in the projects, from different sectors (manufacturing, TV, publishers, energy, etc..).
- **Exploitation and Dissemination:** we contribute actively through participation to conferences and events at European scale; our goal is to **bring R&D results on the market**, so we invest in exploitation activities by involving necessary stakeholder (prospects, customers, marketing actions, etc..)



BROADBAND-BROADCAST CONVERGENCY, CREATIVE INDUSTRY

Innovative R&D Projects in this area:

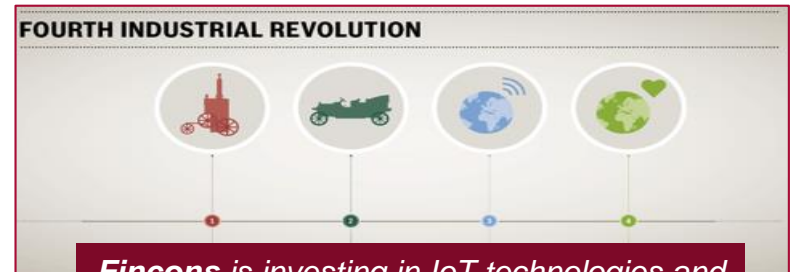
- **FP7 FI-Content:** demonstrating interactive AD effectiveness on HbbTV, through 2nd screen applications.
- **H2020 MPAT:** innovative tools to support the editorial team to create compelling multi-screen experiences and HbbTV applications.
- **H2020 PRODUCER:** enhancing pre- and post-production video content enrichment to enable interactivity and personalisation.
- **H2020 ABC-DJ:** musical branding solutions for the retail sector, in the creative industry.
- **H2020 CONTENT4ALL:** Smart TV content creation and services for the Deaf community



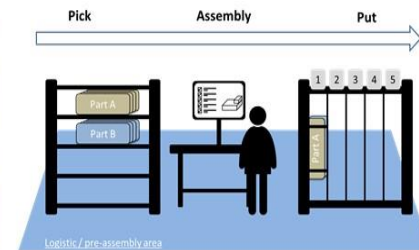
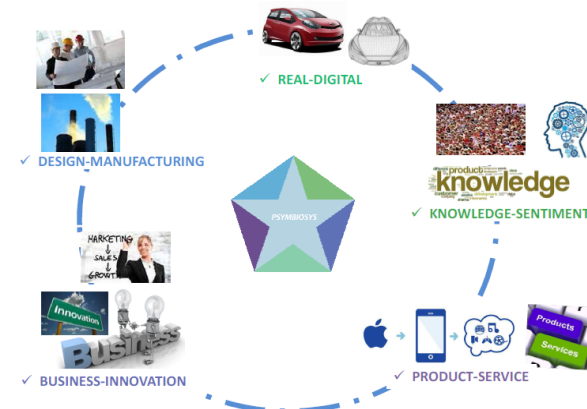
SMART MANUFACTURING & LOGISTICS

Innovative R&D Projects in this area:

- **FP7 FI-Space:** collaborative transport planning and monitoring in manufacturing.
- **H2020 PSYMBIOSYS:** collaboration tools for Product-Service symbiosys in the manufacturing industry.
- **H2020 BEinCPPS:** IoT, CPS and Industry4.0 applications applied to tractors manufacturing.
- **Italian R&D - FINCONS Smart Manufacturing Platform:** IoT-based tools to support Smart Manufacturing processes: preventive & predictive maintenance, AR/VR support, green manufacturing .
- **Italian R&D- H2020 SMART4CPPS:** IoT-based tools applied to luxury textiles manufacturing.



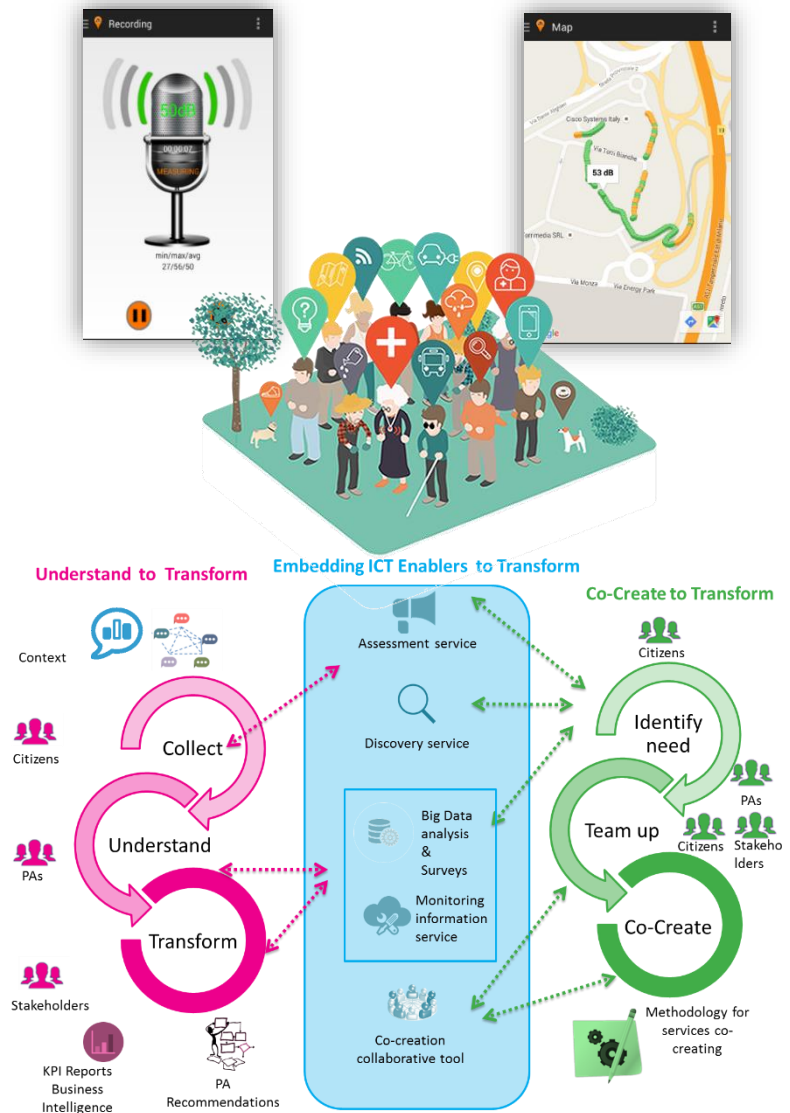
***Fincons** is investing in IoT technologies and their application to the Smart Manufacturing revolution, also known as **Industry 4.0**.*



IoT for SMART CITIES & DIGITAL PA

Innovative R&D Projects in this area:

- **Regional - Energy Router:** IoT for Intelligent Energy Efficiency, applied to micro- nano- grids in Smart Cities.
- **FP7 RADICAL and H2020 SymbloTe:** IoT solutions and social networks for monitoring sound pollution in Smart Cities.
- **H2020 Fiesta-IoT:** cyber-security applied to IoT datasets in Smart Cities and Smart Administration contexts (air pollution, agriculture, etc..).
- **H2020 TagItSmart:** brand protection and product integrity guarantee via smart tags in conjunction with blockchain and Augmented Reality.
- **H2020 CITADEL:** citizens involvement in the co-creation of PA digital services
- **Italian R&D ECOLOOP:** intelligent use of public water in agriculture thanks to IoT



IoT and IIoT: Home and Industrial...

Internet of Things as an *emerging* concept describing a **wide ecosystem** where **interconnected devices** and **services collect**, **exchange** and **process data** in order to **adapt dynamically to a context**. **Internet of Things** is **tightly bound** to **cyber-physical systems** and in this respect is an enabler of Smart Infrastructures by enhancing their quality of service provisioning.



European Union Agency for Network and Information Security
Resilience and security of communication
infrastructure, networks and services



ATTACK SCENARIO

- Against the connection between controller (e.g. DCS, PLC) and the actuators
- Against sensors (modification of the measured values / states, their reconfiguration, etc.)
- Against actuators (suppressing their state, modifying the configuration)
- Against the information being transmitted via the network
- Against the IoT gateways
- Manipulation of remote controller devices (e.g. operating panels, smartphones)
- Against the Safety Instrumented Systems (SIS)
- Malware (e.g. ransomware)
- DDoS attack with (IoT) botnets
- Stepping stones attacks (e.g. against Cloud)
- Human error-based and social engineering attacks
- Highly personalized attacks using the Artificial Intelligence Technologies

THREAT

- Failure of sensor/actuator
- Failure of control system (e.g. embedded controller, PLC, RTU, DCS)
- Compromised safety function / unplanned shut down caused by the Safety Instrumented System (SIS)
- Network outage
- Loss of supporting service (e.g. MES, ERP, CRM)
- Compromise of SCADA/HMI systems
- Robot manipulation causing injuries or long term production outages
- Data leakage (e.g. personal, sensitive information)
- Supply chain data modification
- Loss of Intellectual Property (e.g. business secrets, R&D data, end-product design)

SOLUTIONS

- Endpoint protection methods
- Security evaluation/test of new connected devices prior to placing into production
- Standard Operating Procedures (SOP) that support Industry 4.0 policies
- Restriction of physical access to critical control systems and mission-critical applications
- System / endpoint monitoring, identifying new device connecting without permission
- Secure APIs
- Use of Data loss prevention software
- Utilization of tamper resistant product casing
- Update and patch management policies
- Network segmentation
- IP / Port blocking
- Secure remote access (e.g. VPN, IPSec)
- Packet inspection, intrusion detection)
- Vulnerability and patch management
- DMZ
- Whitelists instead of blacklists on firewalls
- Multi-factor system authentication
- Strong password policy
- Least privilege / need to know principle
- **Role based Access Control**
- Segregation of duties
- Endpoint device blacklisting / whitelisting
- Advanced authentication mechanisms (e.g. biometrics)
- Web application firewall utilization
- IP restriction policy
- Rate limiting on APIs to protect against DDoS
- Patch and update management
- Use of a cryptographic protocol to encrypt any communications (e.g. TLS/ DTLS)
- Testing and vulnerability management
- Account lockout mechanism for cloud-based web interfaces.

From "Survey – Good practices for security of Internet of Things in the context of Smart Manufacturing" (ENISA)

A solution from a H2020 IA: BEinCPPS SeDEM

BE in CPPS

European SME and MidCap Growth & Adoption of Cyber-Physical Production Systems

CPS Application **Technical** Feasibility

CPS **Market** Visibility

CPS **Business** Development Soundness

Convergence of Reference Open EU CPS-IoT-Cloud Platforms for Acceleration of the CPS Application Development Cycle in Manufacturing

Access to Key European **Industrial Advanced Infrastructures** for CPS Experimentation

CPS **Innovation Support Services & Toolkit** for acceleration of CPS application adoption by markets & I4MS Regional Replication

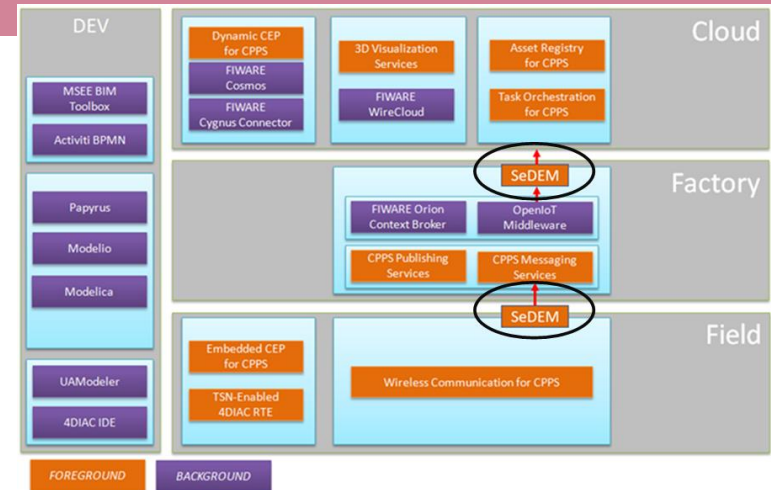
CPPS Solution-Application Provider, Manufacturing SMEs, Advanced Manufacturing Infrastructures, Regional Development Agencies, Competence Centres, Industrial Certification Programmes, Training & Education resources, Industrial Cyber Security initiatives....

BEinCPPS project aims to **integrate and experiment** a FI-based machine-factory-cloud **service platform** firstly intensively in **five selected S3 Vanguard regions**, afterwards extensively in all European regions, by involving local competence centers and manufacturing SMEs.

The final aim of this Innovation Action is to dramatically **improve the adoption of CPPSs all over Europe** by means of the **creation, nurturing and flourishing of CPS and IoT focused Regional Manufacturing DIHs**, made of competence centers, manufacturing SMEs, IT providers and many other stakeholders.

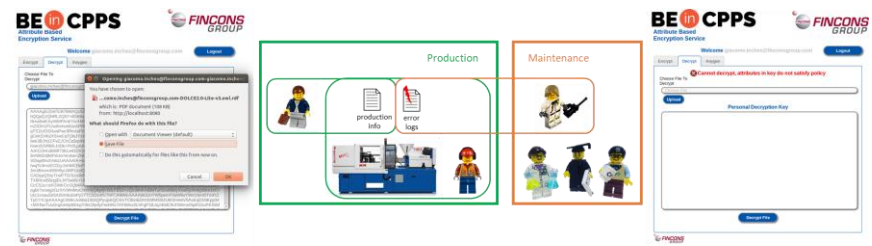
<http://www.beincpps.eu/>

<https://github.com/BEinCPPS/messaging-services-sedem>



SeDEM: Secure Data Exchange Middleware is a publish/subscribe, RabbitMQ based system implementing a **secure pub/sub event exchange** based on **CP-ABE & AES cryptographic techniques** (Java libraries + services)

SeDEM objective is to support **privacy or confidentiality** in **events processing**, for example to **comply with EU GDPR** when **collecting data from sensors**



- **Manager Production** is responsible for the policies
- **Manager Production** can access the **production info**
- **Worker Production** can access the **production info** and the **error logs**
- **Maintenance Worker** can access the **error logs**

RELIABLE AS A LARGE COMPANY
AGILE AS A SMALL ENTERPRISE



*“...let’s work
together...”*



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2016 – now **Innovation Technologist, Fincons Group**
2014 - 2016 Technologist & Developer, Newscron
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2007 - 2008 Werkstudent, Siemens Hoergerate, Erlangen
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