Enabling the Business-Based Internet of Things and Services

IoT Exploitation

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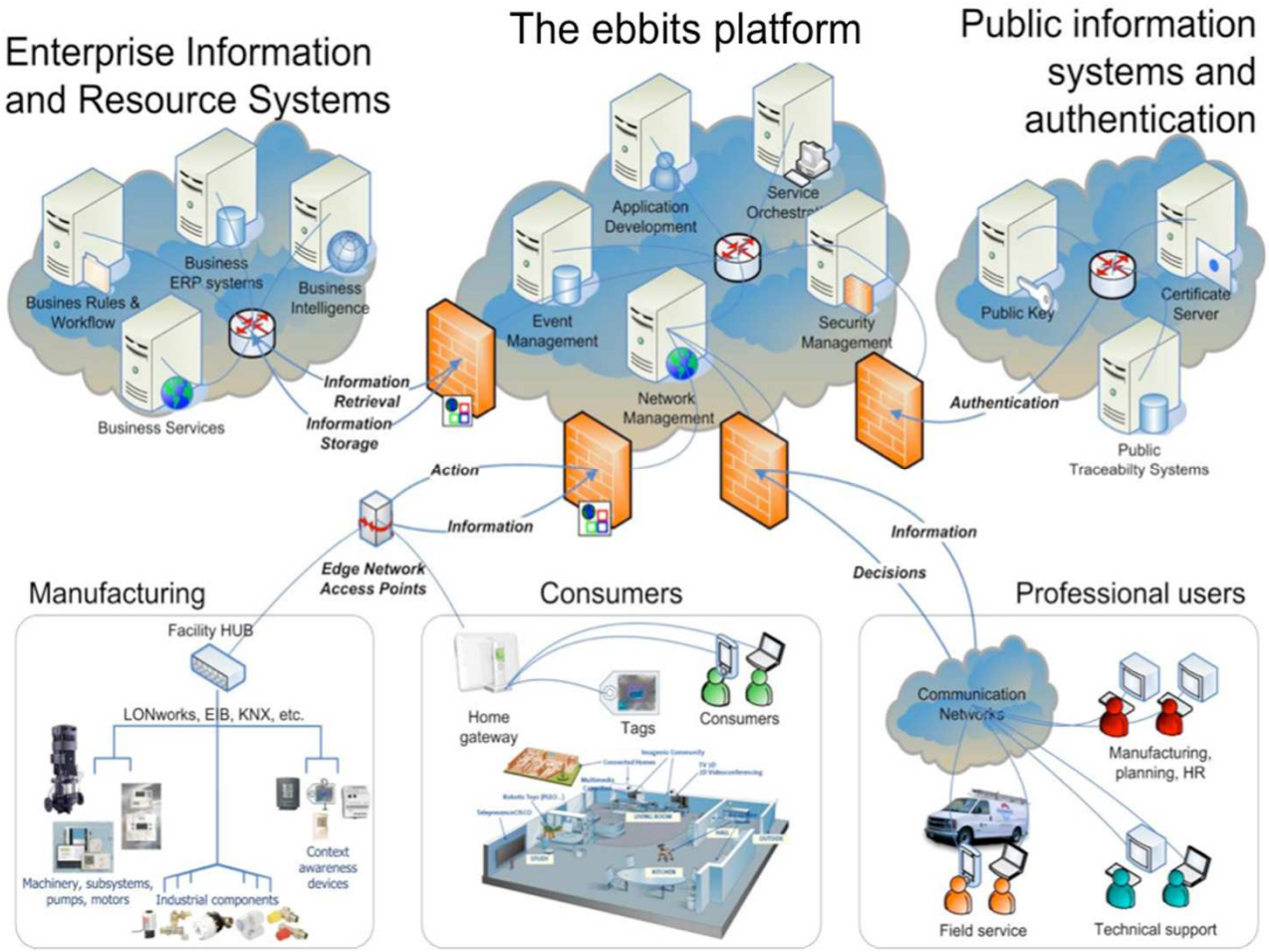
ebbits

European Commission Information Society and Media

Enabling technologies for the Internet of Things and Services



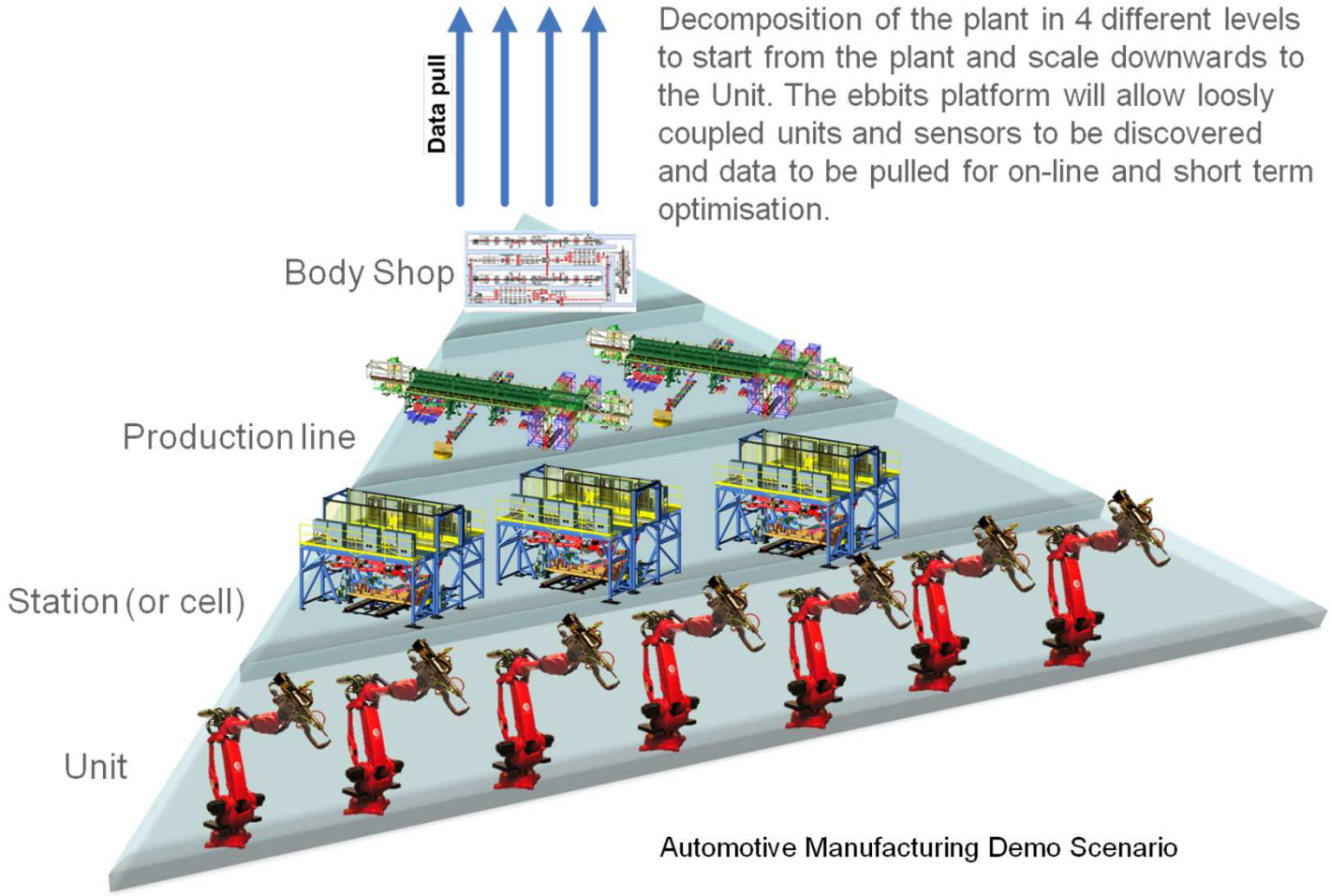
Technical aim

- Develop an IoPTS-based platform that allows enterprises to develop and deploy a new range of business applications
  - Everything is a service and can be integrated into enterprise systems.
  - Physical world data will feed directly and seamlessly into mainstream business systems

Ebbits use cases

- Car manufacturing
  - Energy efficiency of manufacturing processes
  - Predictive maintenance
- Agriculture
  - Food traceability

Manufacturing Scenario



Decomposition of the plant in 4 different levels to start from the plant and scale downwards to the Unit. The ebbits platform will allow loosly coupled units and sensors to be discovered and data to be pulled for on-line and short term optimisation.

Automotive Manufacturing Demo Scenario

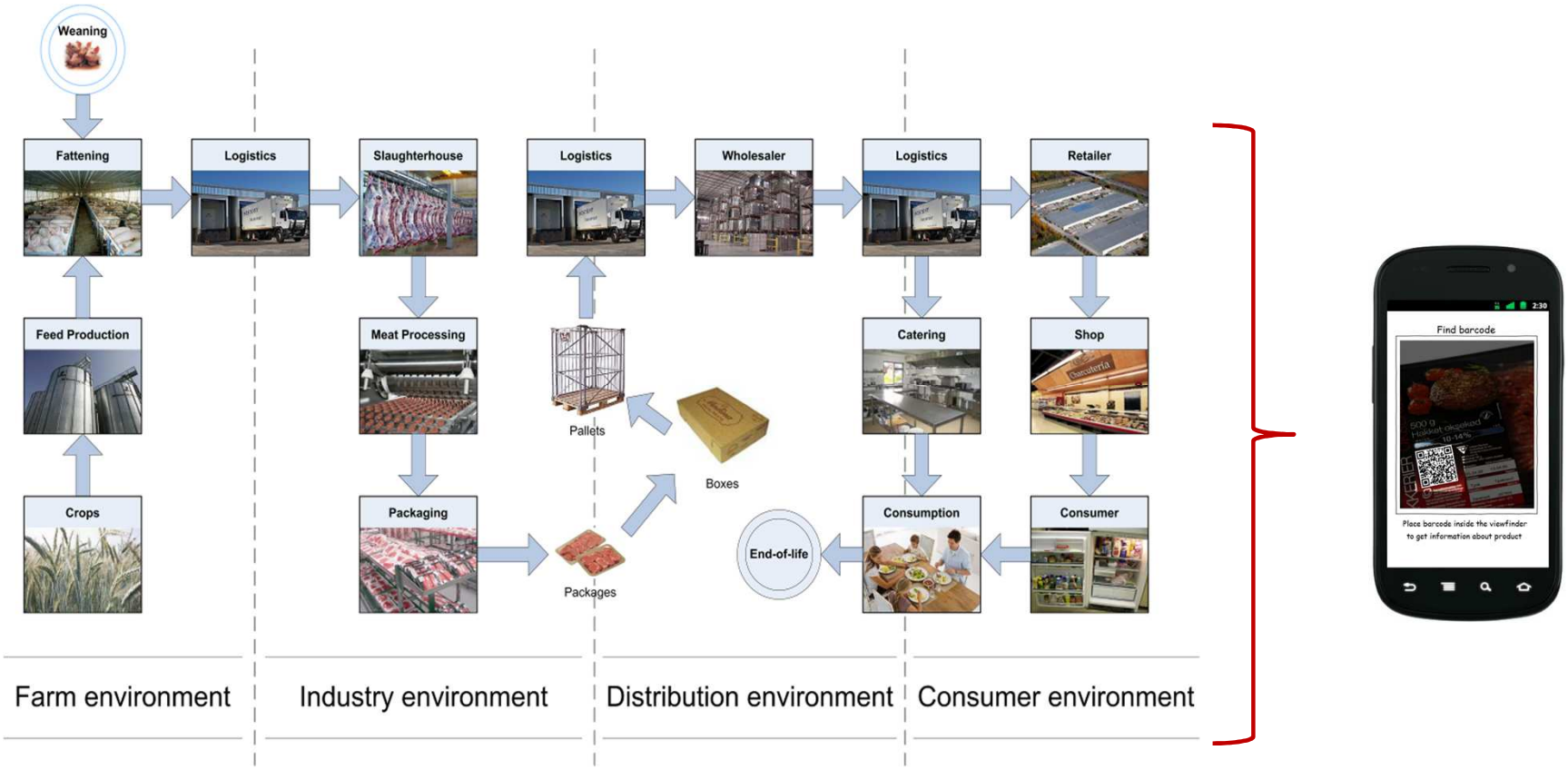
Impact of IoT

- The car manufacturing process is already highly automated
- IoT can add advantages by sensing and monitor the process
  - By collecting new data about the robots and the environment the manufacturing process can be optimised from energy efficiency point of view
  - The monitored data allows better predictions for when robot maintenance is needed

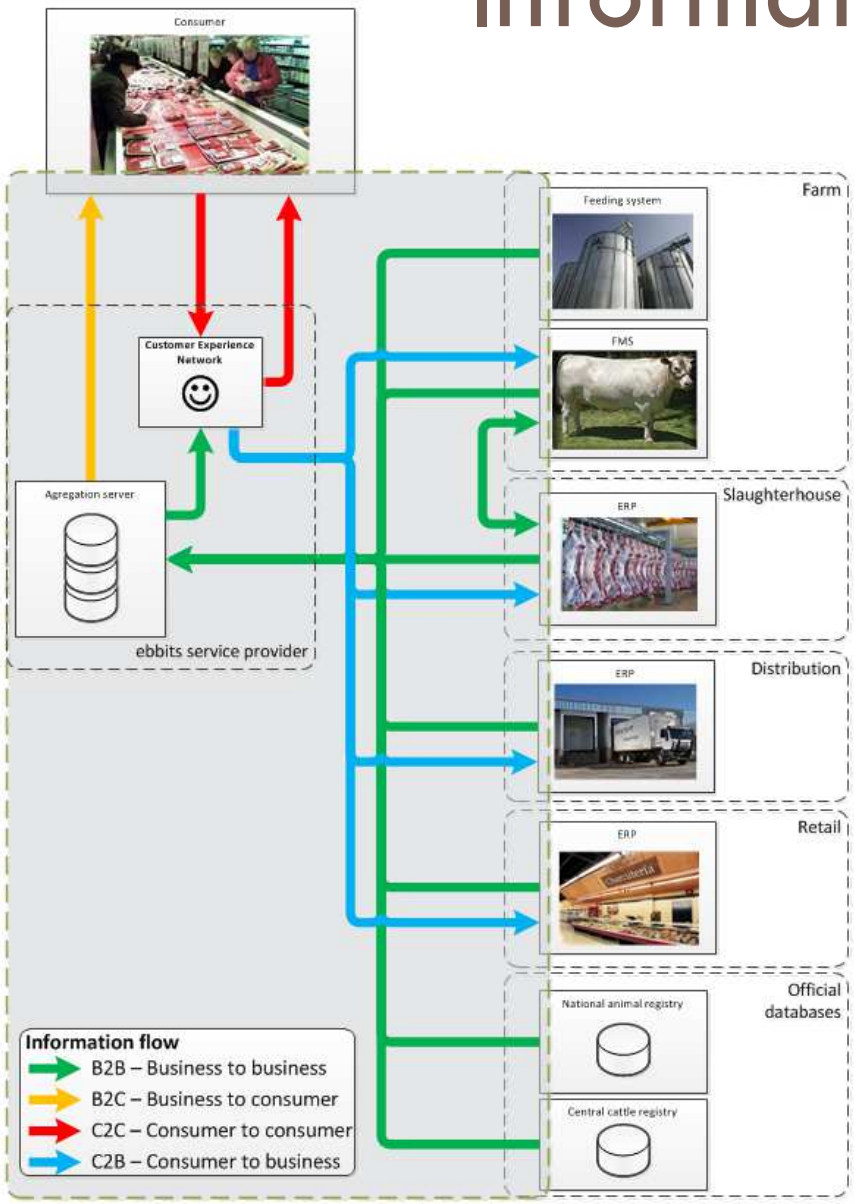
Problems

- Limited options for wired communication.
  - Wireless sensors has to be used
  - Unreliable communication, battery life-time
- PLCs (programmable logic control) provide low level interface
  - Higher level interfaces needed to serve business system layers
- Heterogenous devices and sensors in shop floor
  - Solutions for semantic interoperability needed
- Massive amounts of data and events generated
  - Filtering, transformations, aggregations and annotation of data needed before it can be useful in business system

Traceability scenario



Information Exchange



Impact of IoT

- IoT can add advantage for individual actors in the food chain by sensing and monitoring
  - Farmers can have better control of animals, feeding, medication et c.
- IoT can add advantage to end-consumer
  - Providing comprehensive information for the whole meat product lifecycle.
  - Feedback from end-consumers can be propagated back to different actors.
- IoT can add advantage for authorities
  - Providing means to quickly track food disease outbursts back to the origin
  - Warning system for consumers

Problems

- Several different actors involved in the food chain
  - Heterogenous data generated in different steps
  - Heterogenous system interfaces for retrieval of data
- Not always possible to identify individual animals through all steps in the food chain.
  - Need to seamlessly introduce tagging in the supply chain.

ebbits architecture:

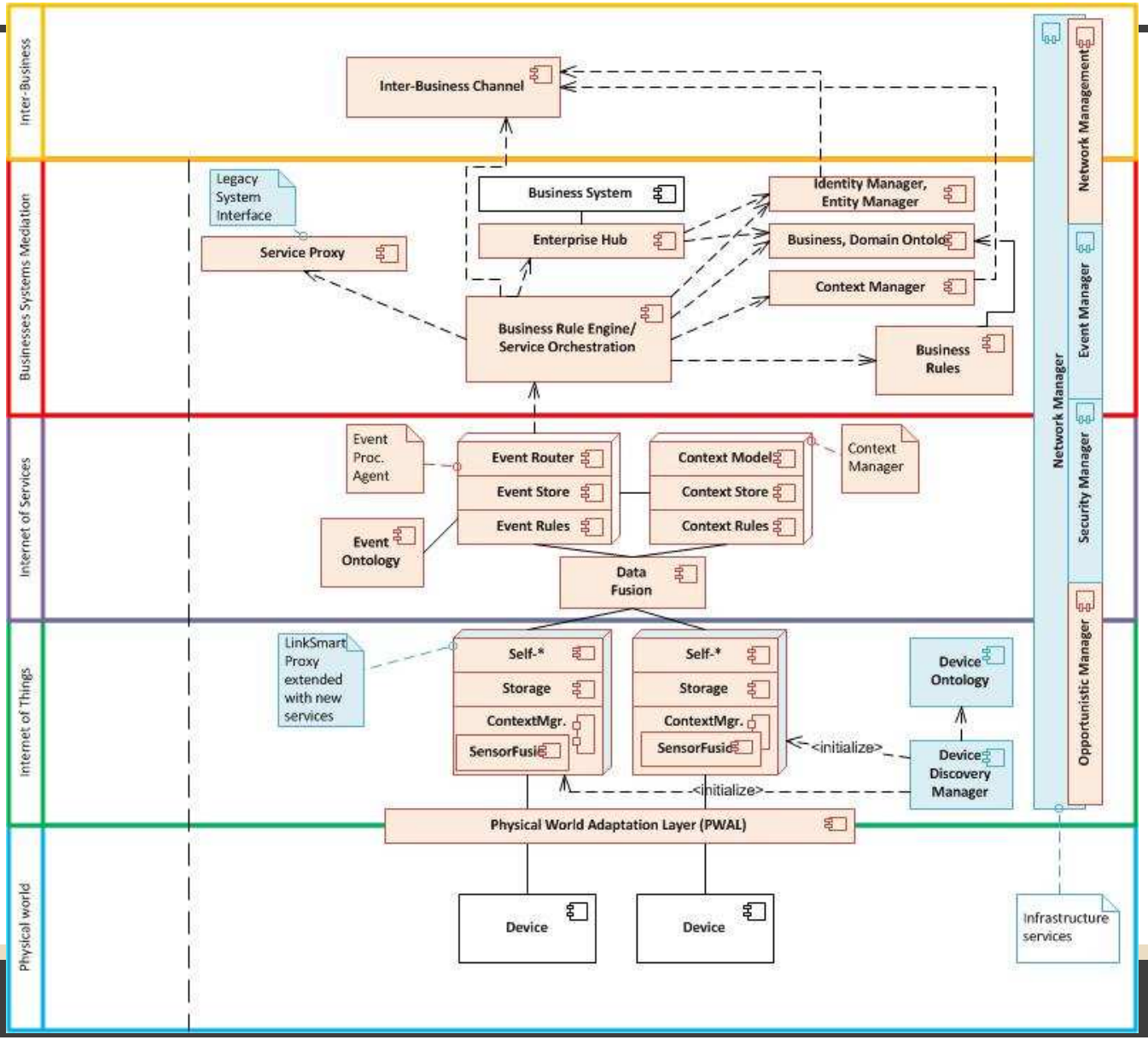
enabling business-based Internet of Things and Services

Business System Mediation

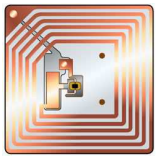
Internet of Services

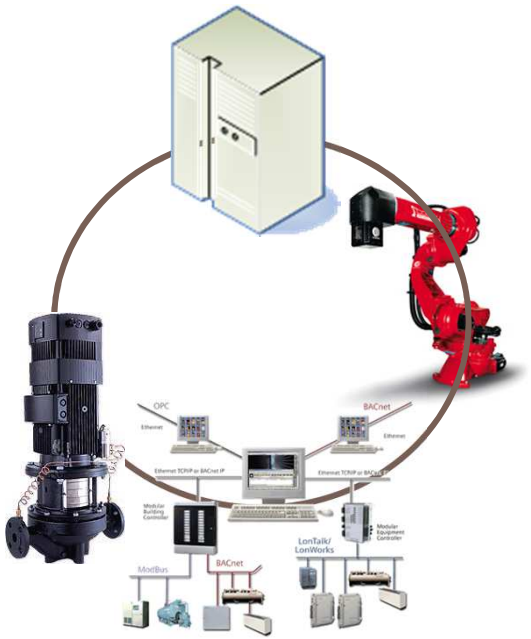
Internet of Things

Physical World



Summary
ebbits is an IoT platform that…

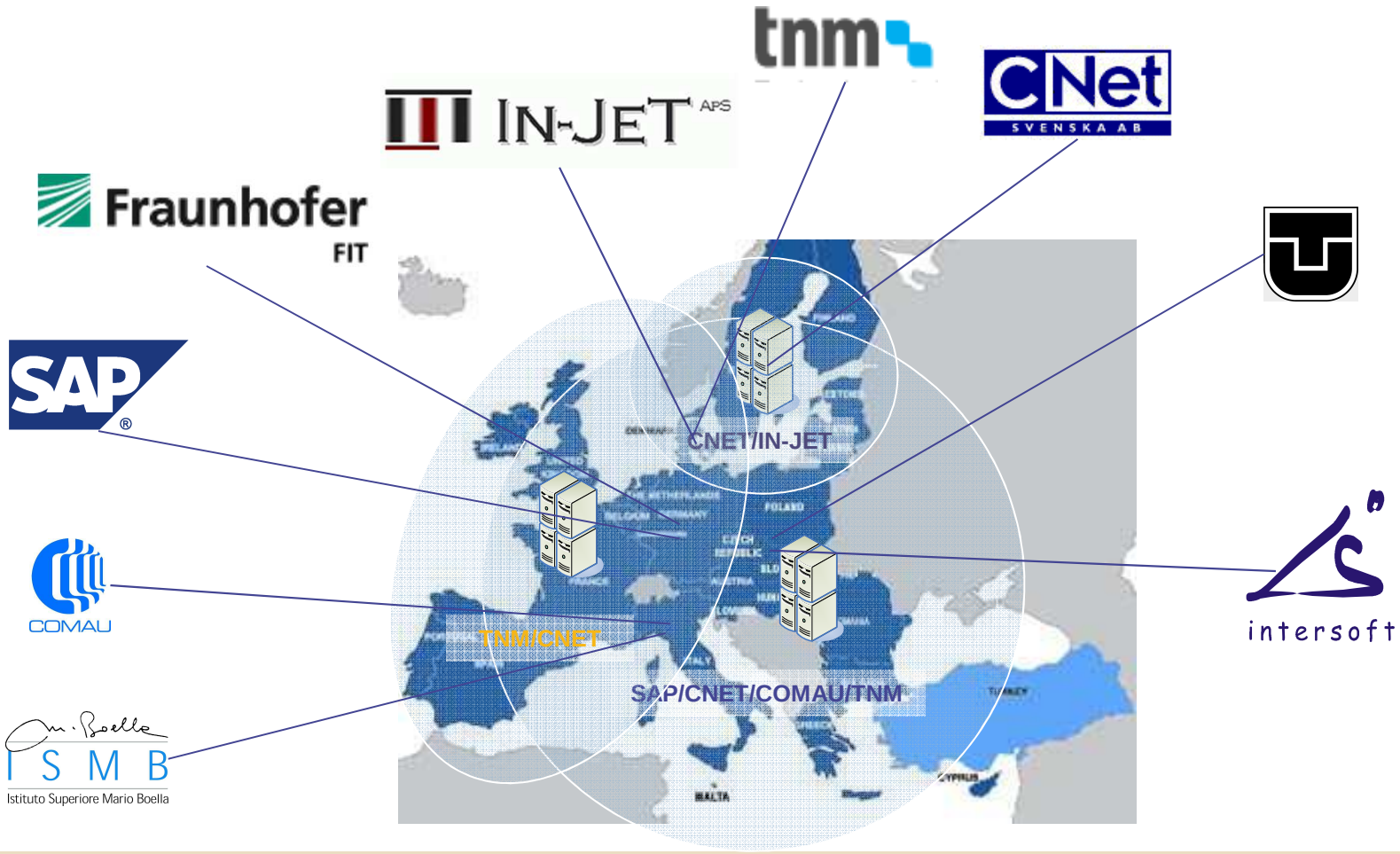




- *enables the "Internet of People, Things and Services (IoPTS)" for business purposes*
- *supports mainstream business applications with connectivity to and monitoring of products in their entire lifecycle.*
- *introduces a Service oriented Architecture (SoA) based on open protocols and middleware, that effectively transforms every device, sensor, tag, etc. into a web service with semantic resolution.*
- *allows for distribution of intelligence between the edge network and the business/process information system*

Ebbits consortium

48 months /9 partners/12,0 MEuro budget, 1091 pms.



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