Implementing Whirlpool I4.0 Strategy

IoT Week 2017

Geneve, June 8th

@WhirlpoolCorp #WhatMatters
WHIRLPOOL CORPORATION | TODAY

Number 1 major appliance manufacturer in the world

Approximately $20.7 billion in sales in 2016

$1 billion investment in capital and R&D centers annually

70 million products sold in more than 170 countries in the world

97,000 employees

70 manufacturing and R&D centers

$1 billion investment in capital and R&D centers annually
OUR PORTFOLIO

*Whirlpool ownership of the Hotpoint brand in EMEA and Asia Pacific regions is not affiliated with the Hotpoint brand in the Americas*
EMEA | WE SHIP OVER 25 MILLION PRODUCTS IN 140 COUNTRIES

- Dish
- Dryers
- FS Cookers
- Hobs
- Hoods
- MWO
- Ovens
- Refrigerators
- Washing Machines
- Washer/Dryer
- Freezers
- Aircons
- SDA

*In 2015
Industrie 4.0
Whirlpool approach
Current state

Many applications were born within the old CIM paradigm. Lot of data islands, barely integrated, very few standards....

Typical Industry 3.0 status
There is more to Industrie 4.0 than its technical dimension. Industrie 4.0 means a paradigm shift in companies’ manufacturing strategies.

Source: Think Act beyond Mainstream The Industrie 4.0 transition quantified - Roland Berger
Each technology requires a differentiated approach according to the perspective they are influencing the more in our specific industry.
5 steps to identify specific use cases for pilots

1. Analyze status quo and identify pain points and opportunities
2. Quantify and assess impact
3. Specify and prioritize
4. Prepare implementation

Implementation plan is based on a piloting program based on quantified use cases
Envisioned future: an integrated solution path
Whirlpool EMEA | FP7 – H2020 projects

BE in CPPS
MAN-MADE

Future architectures toward I4.0

PERFoRM EU H2020 project helps to design and develop future I4.0 architectures, replacing old CIM paradigm, and implementing standard interfaces to integrate legacy systems.
Cyber Physical System on Product Testing

BEinCPPS EU H2020 project: design and development of a CPS Portable Testing station to enable virtualization of laboratory and to unify testing data repository.
Edge computing enabling a more robust IIoT implementation

High Level Logical View (Layered)

Manufacturing Applications
- Secure State Sharing
  - Management Tools
    - Data Management
      - Reconfiguration
    - Virtual Adapter
      - IEC 61499
    - Connectivity Middleware
      - OPC UA
    - CPS Models
      - Virtualization
    - Simulation
      - Plant Description
      - Data Registry
      - CPS Models
      - Simulatio
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