

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



97 000
employees



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



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



70
manufacturing
and R&D centers



OUR PORTFOLIO



KitchenAid



Consul

BRASTEMP

A M A N A[®]

Bauknecht

 **JENN-AIR[®]**

acros[®]

 **INDESIT**

DIQUA 帝度

Hotpoint^{*}



 **Whirlpool[®] Water**

 **GLADIATOR[®]**
by Whirlpool Corporation

affresh

SWASH

*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



HOB'S



HOODS



MWO



OVENS



REFRIGERATORS



WASHING MACHINES



WASHER/DRYER



FREEZERS



AIRCONS



SDA

*In 2015



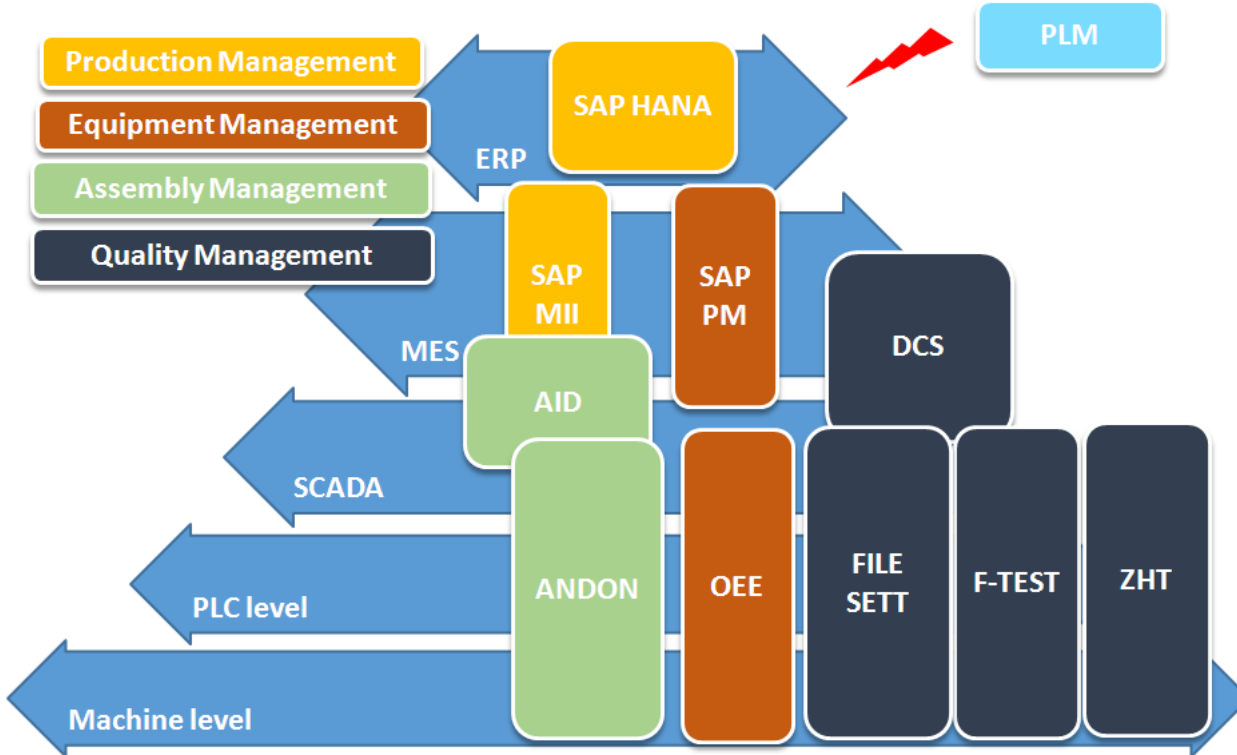
Industrie 4.0

Whirlpool approach



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Current state



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

Typical Industry 3.0 status

Industrie 4.0 in a nutshell

Cyber Physical System

*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

Standard and Reference Architecture

Complex Systems

Broadband Infrastructure

Safety and Security

Organization and Design

Training and Development

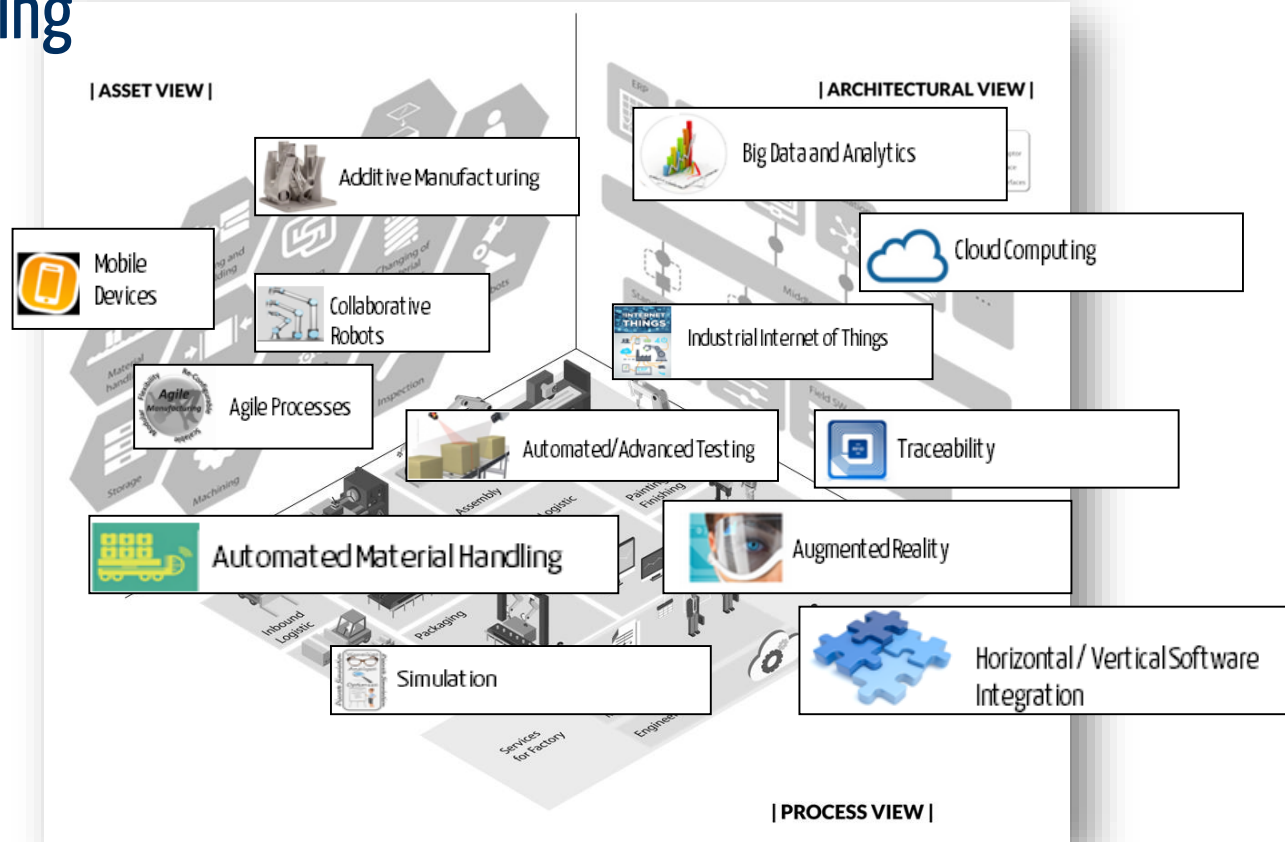
Regulatory Framework

Resource Efficiency



I4.0 technologies mapping

Each technology requires a differentiated approach according to the perspective they are influencing the more in our specific industry



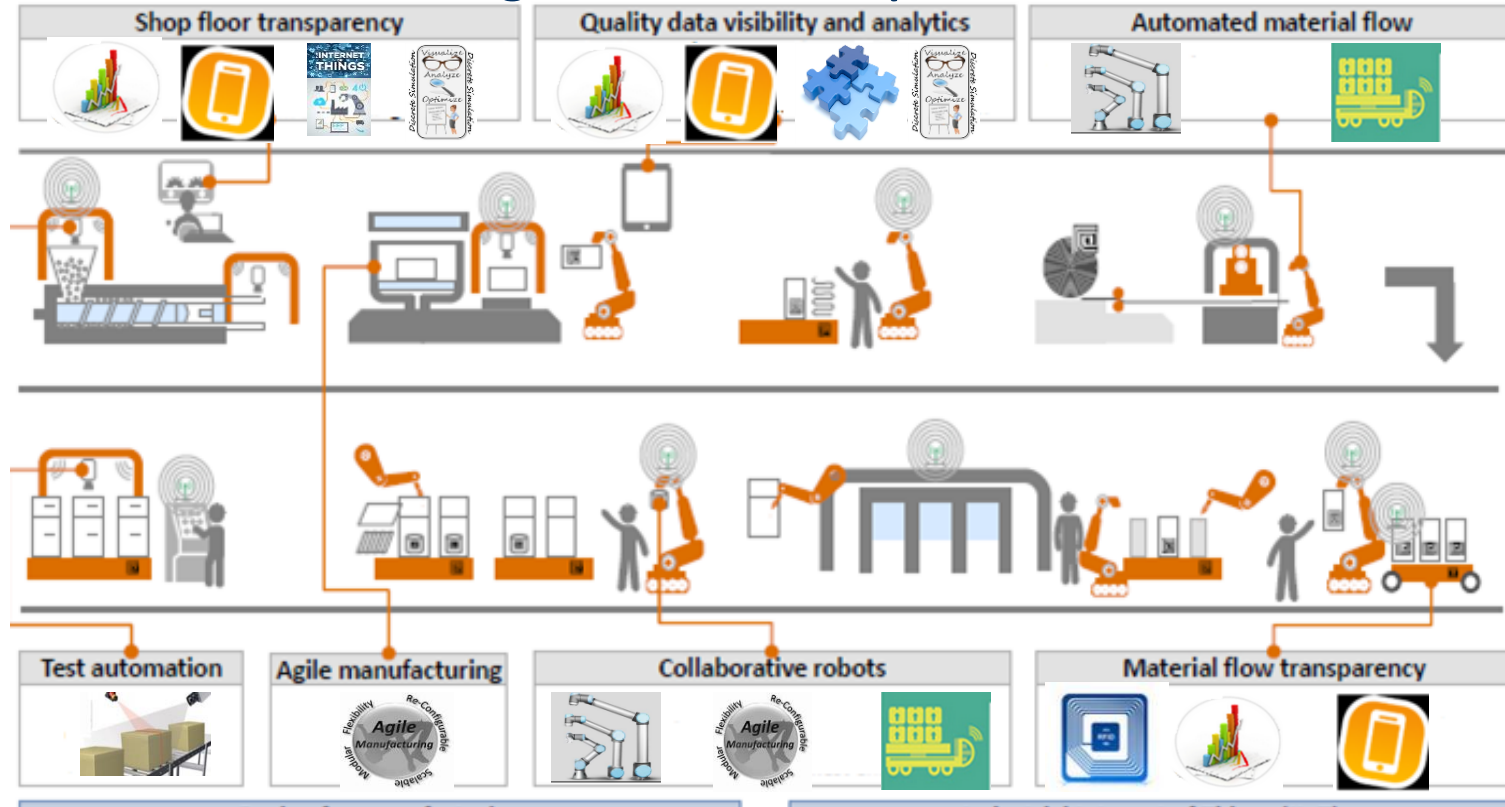
5 steps to identify specific use cases for pilots



Implementation plan is based on a piloting program based on quantified use cases



Envisioned future: an integrated solution path



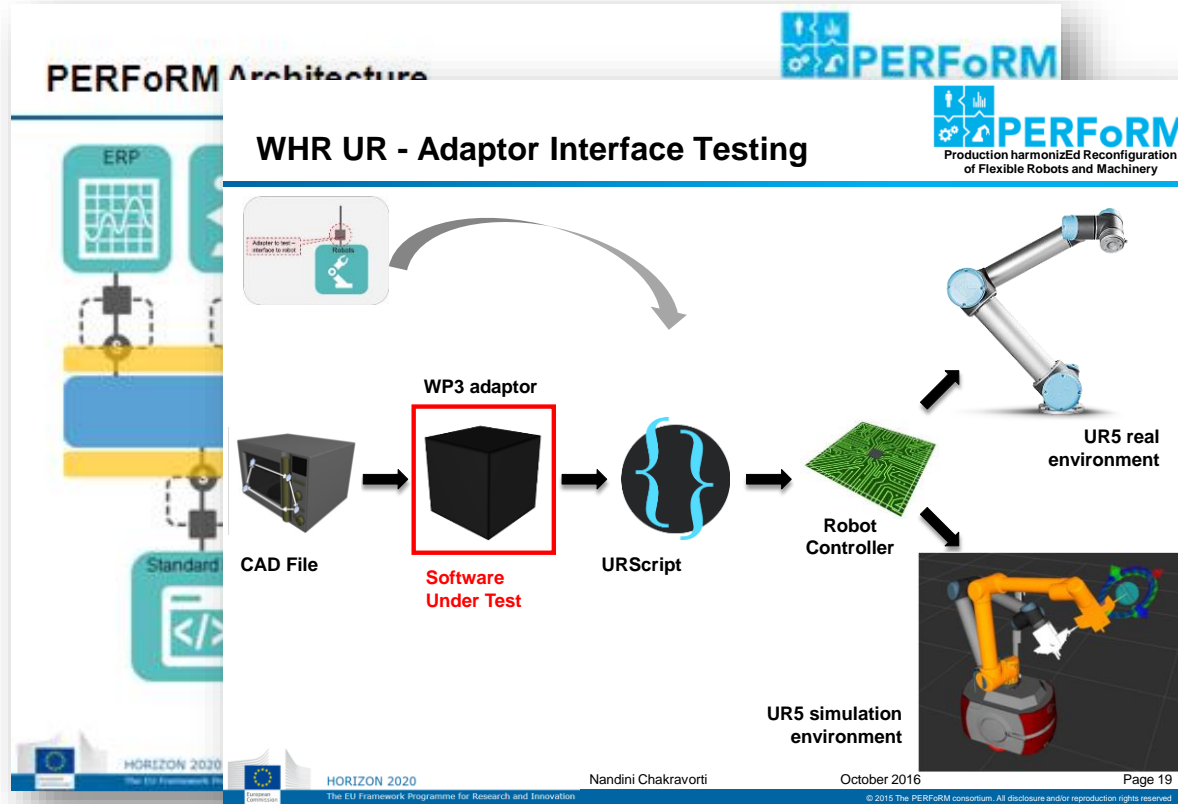
Whirlpool EMEA | FP7 – H2020 projects



2010 2011 2012 2013 2014 2015 2016 2017 2018



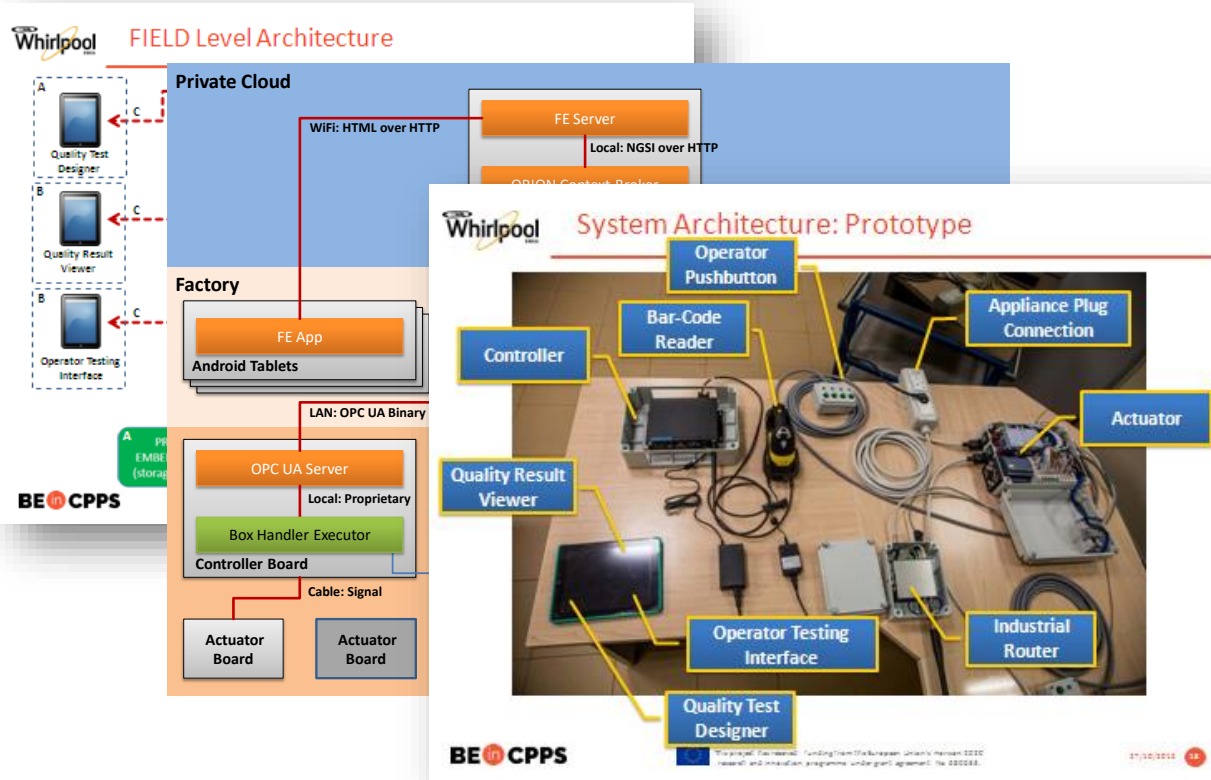
Future architectures toward I4.0



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

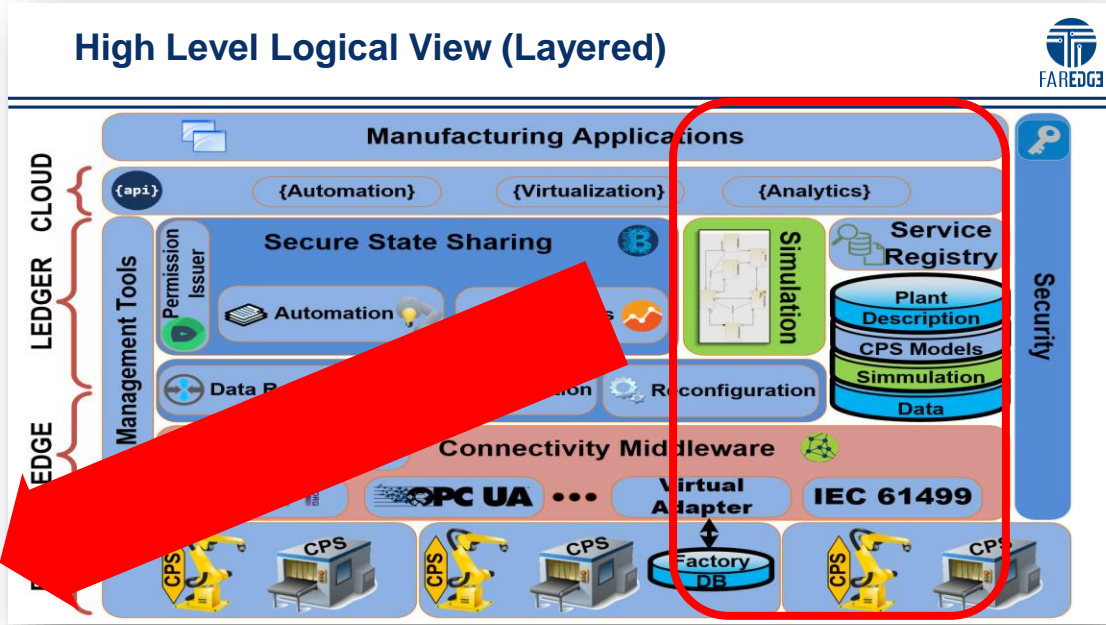
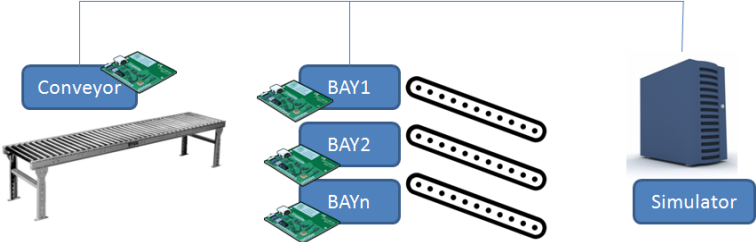
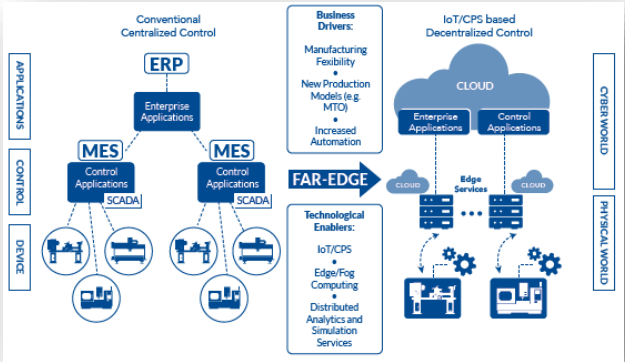


Cyber Physical System on Product Testing



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



Pierluigi Petrali

OPERATION EXCELLENCE – Manufacturing R&D Manager

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