

Digital industry ecosystems

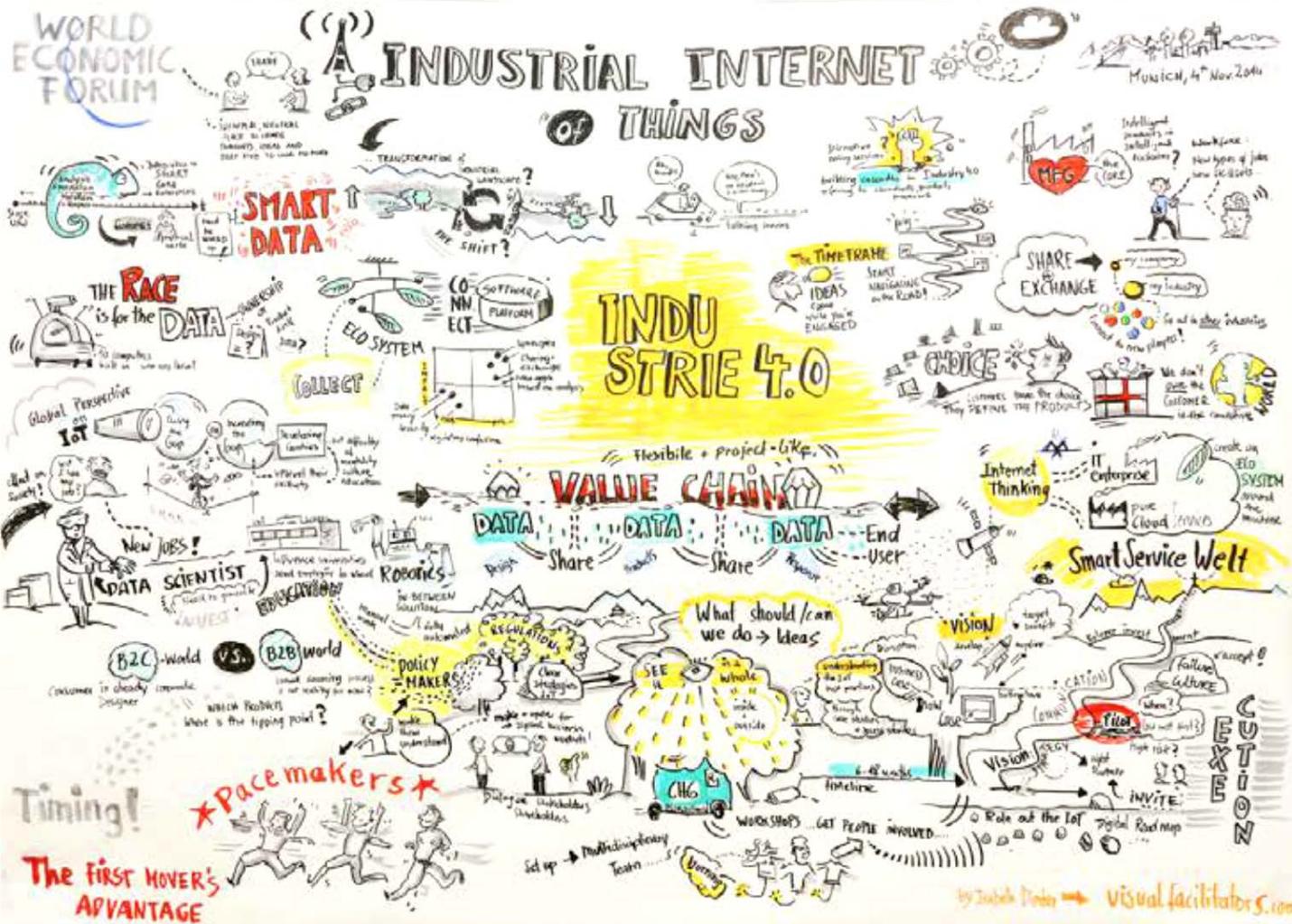
Hype? - trials to get feet back on the ground



Aalto-yliopisto
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Jari Juhanko, AIIC

26.2.2019



WEFUSA Jan 2015, Industrial Internet of Things: Unleashing the Potential of Connected Products and Services

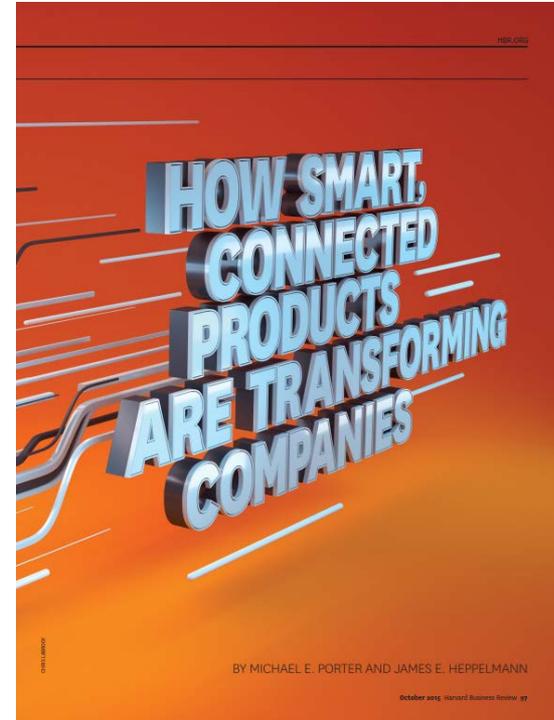
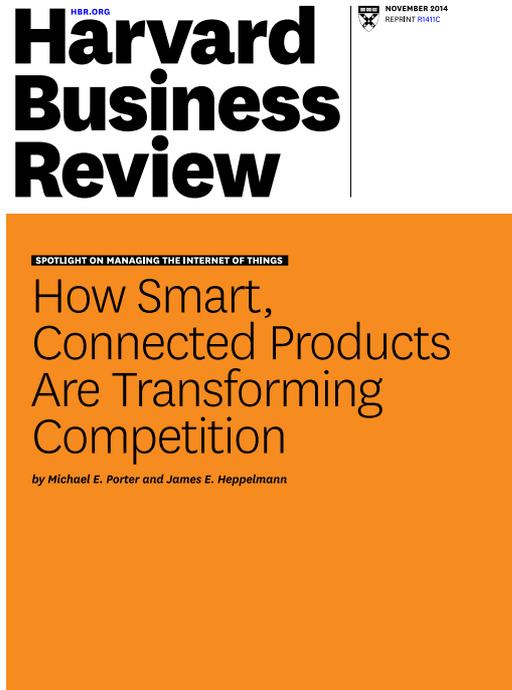
The Industrial Internet, Internet of Things, Internet of Everything are currently really more of an intranet

Most data never leaves a factory or pass company's firewall

Source: MIT Technology Review (2013)

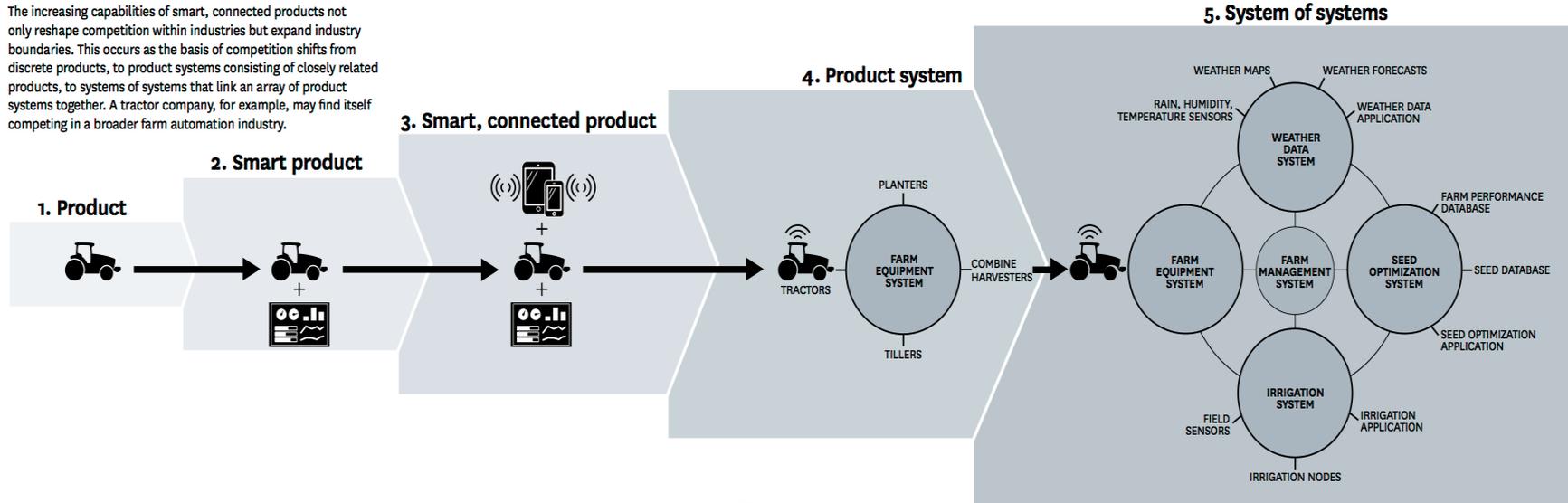


HBR: Porter and Heppelman



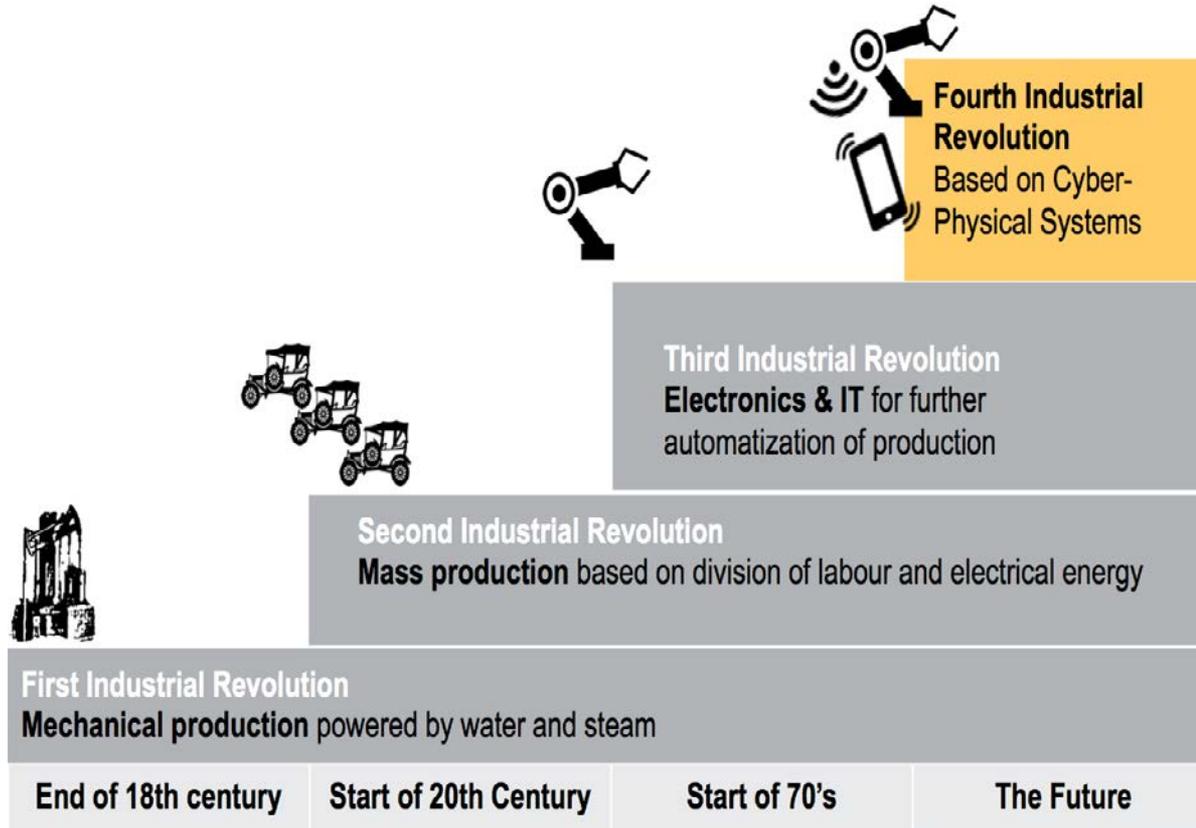
Smart and connected products

The increasing capabilities of smart, connected products not only reshape competition within industries but expand industry boundaries. This occurs as the basis of competition shifts from discrete products, to product systems consisting of closely related products, to systems of systems that link an array of product systems together. A tractor company, for example, may find itself competing in a broader farm automation industry.



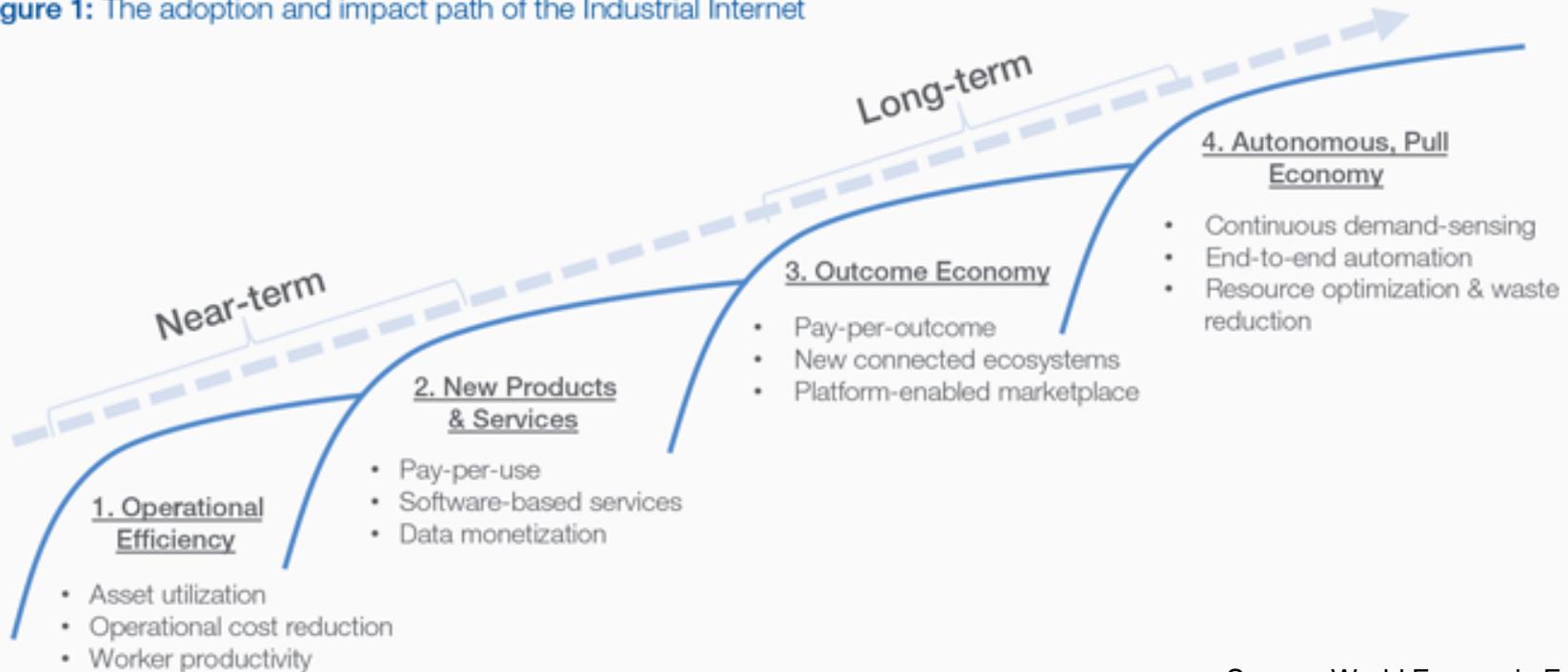
(Porter and Heppelman 2015)

Industrie 4.0



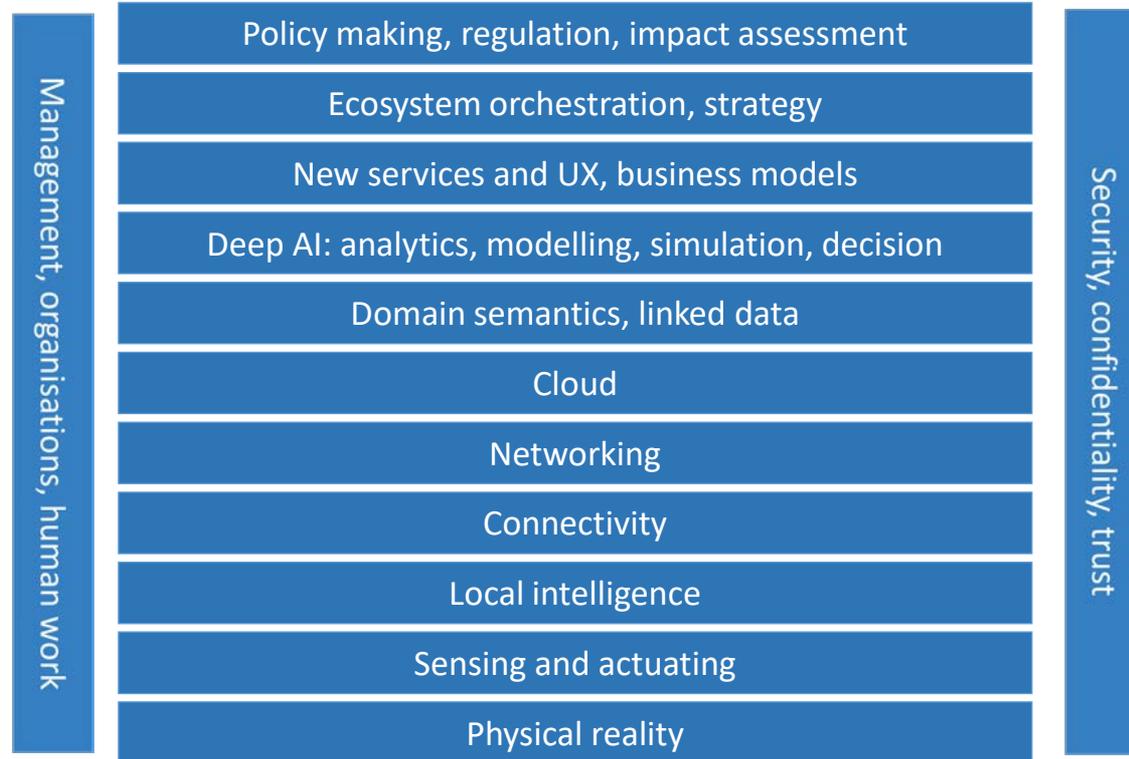
Transforming business models

Figure 1: The adoption and impact path of the Industrial Internet



Source: World Economic Forum

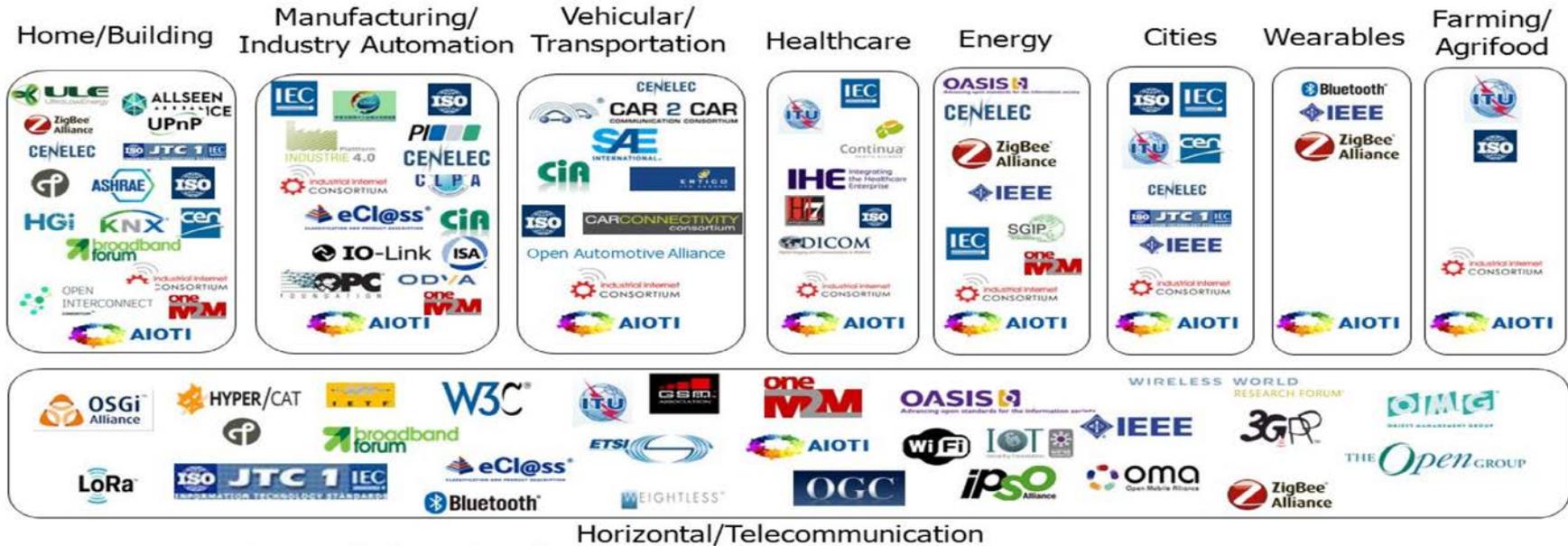
Digitalization Stack



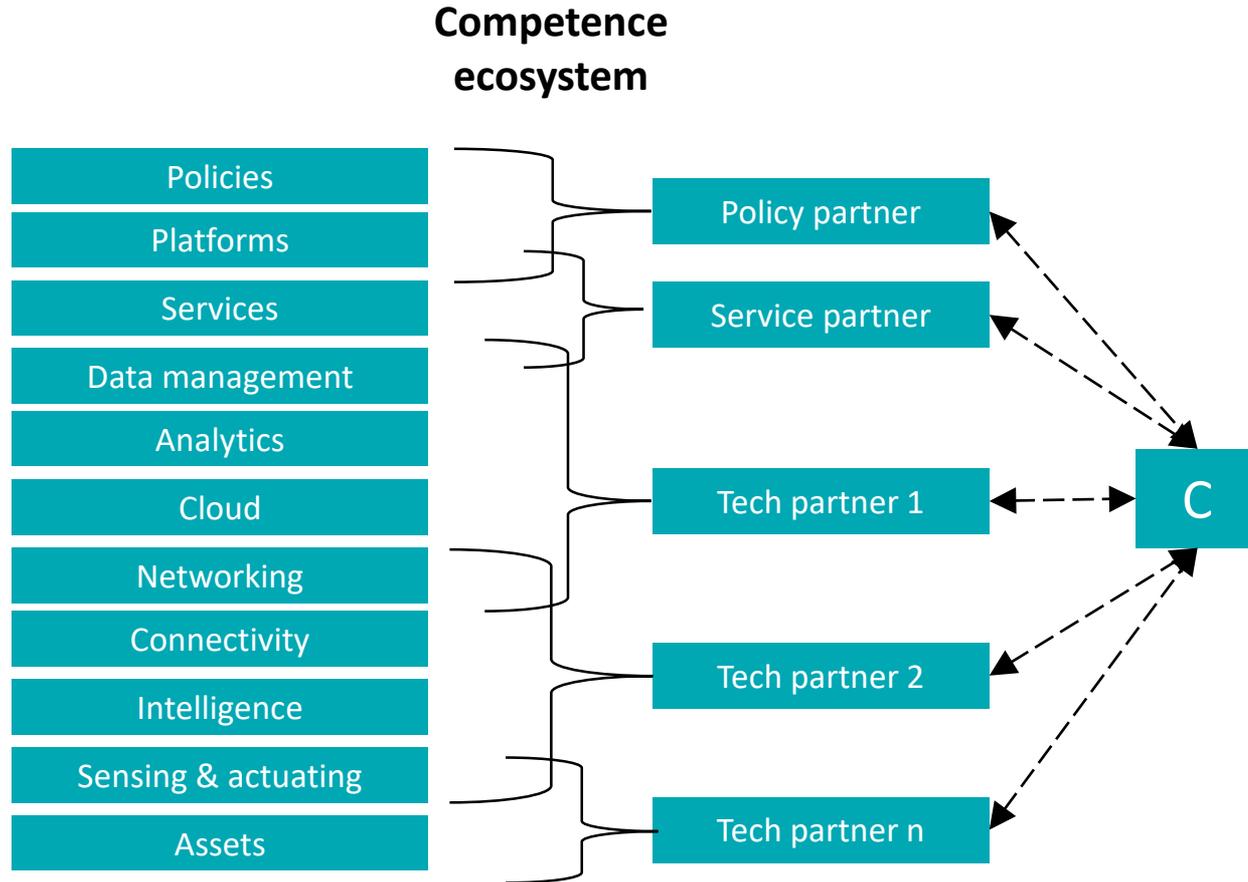
Technology

Technology is available

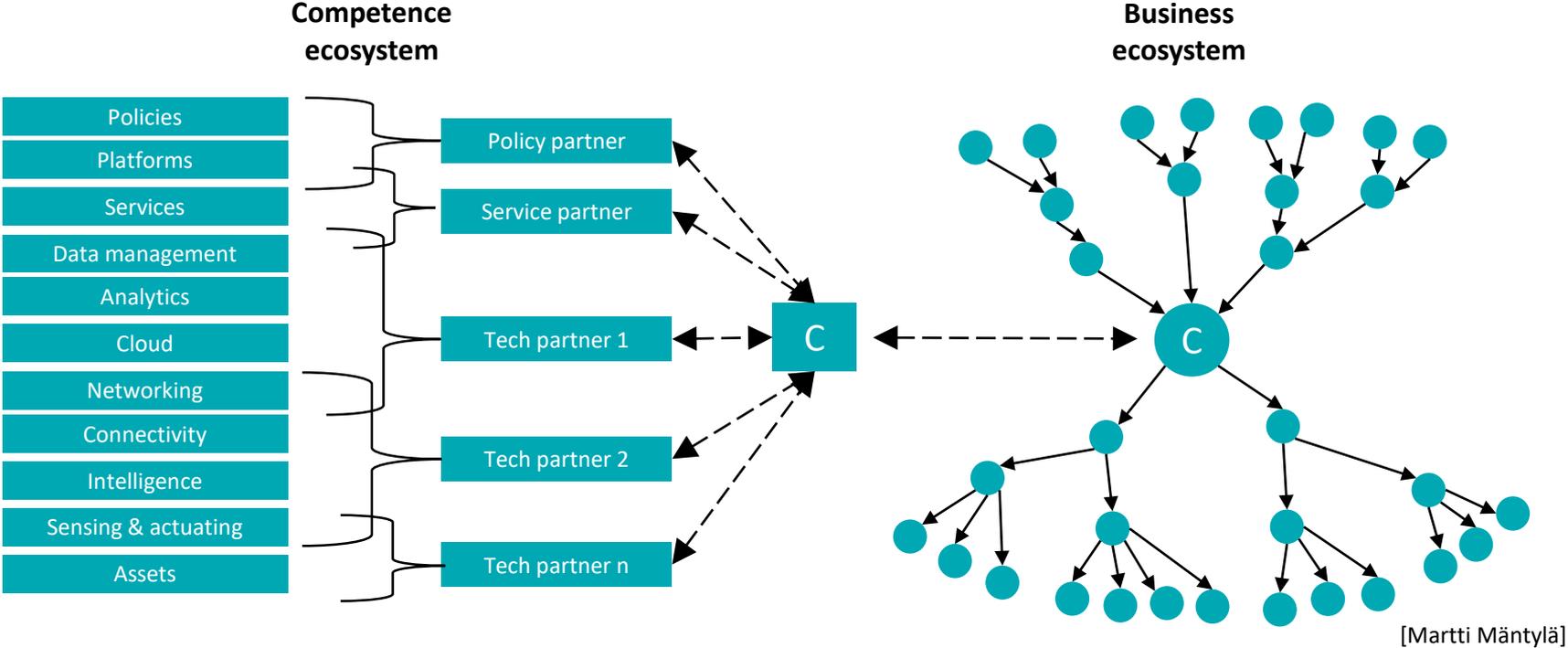
IIoT standardization work is on-going



From Digitalization Stack to Competence Ecosystem



Ecosystem convergence

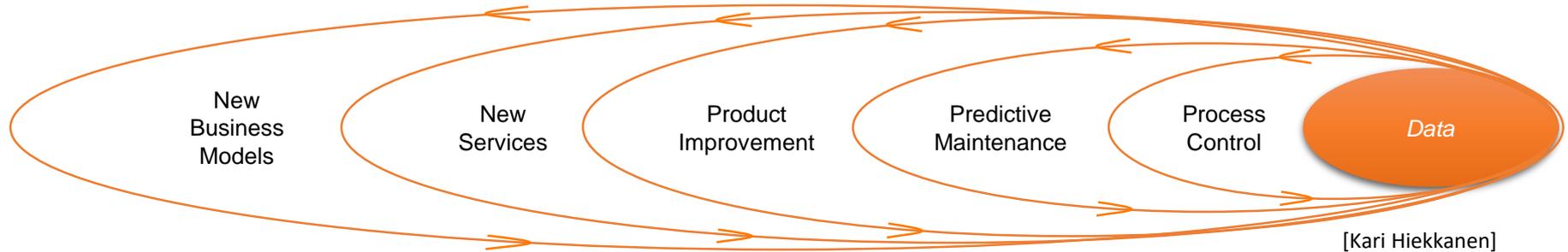


Business Value of Data

"Data is the new oil" [Clive Humby, 2006]

Oil must be refined to fuels, plastics and chemicals to gain a real value

Data is a consumable, which can be used over and over again – multitenant behaviour

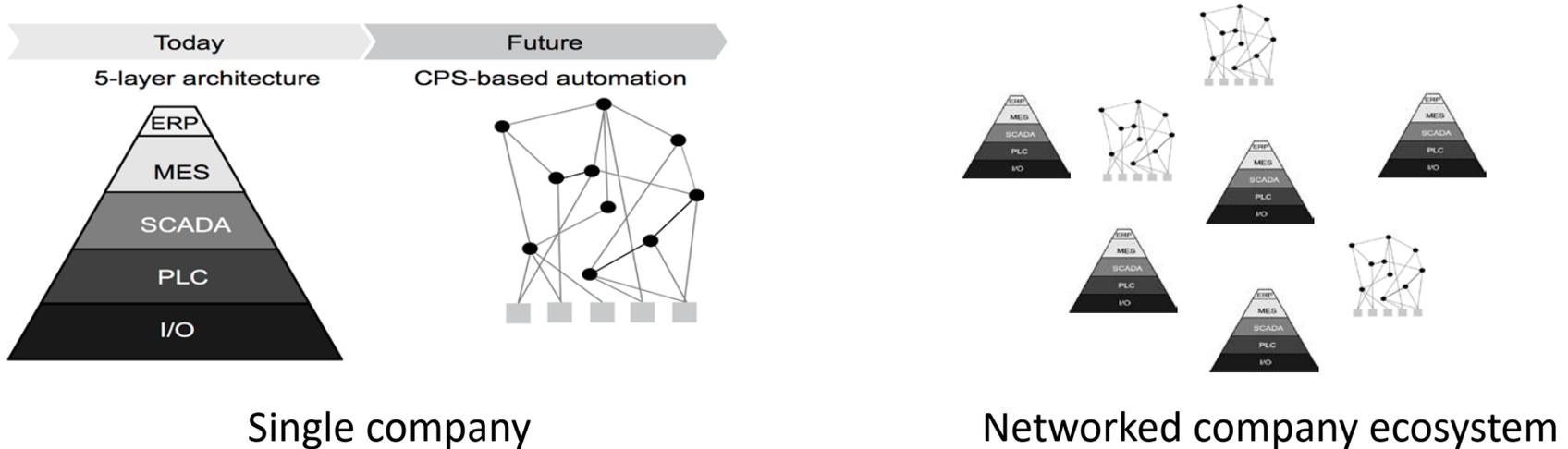


Industrial data systems

Today, "available data" cannot be utilized in daily operations

Data integrity, classification and governed distribution for different stakeholders and different purposes are missing

- R&D&I, manufacturing, sales & marketing, operation, maintenance and other services
- How a 3rd party company can join the ecosystem business and its digital platform?

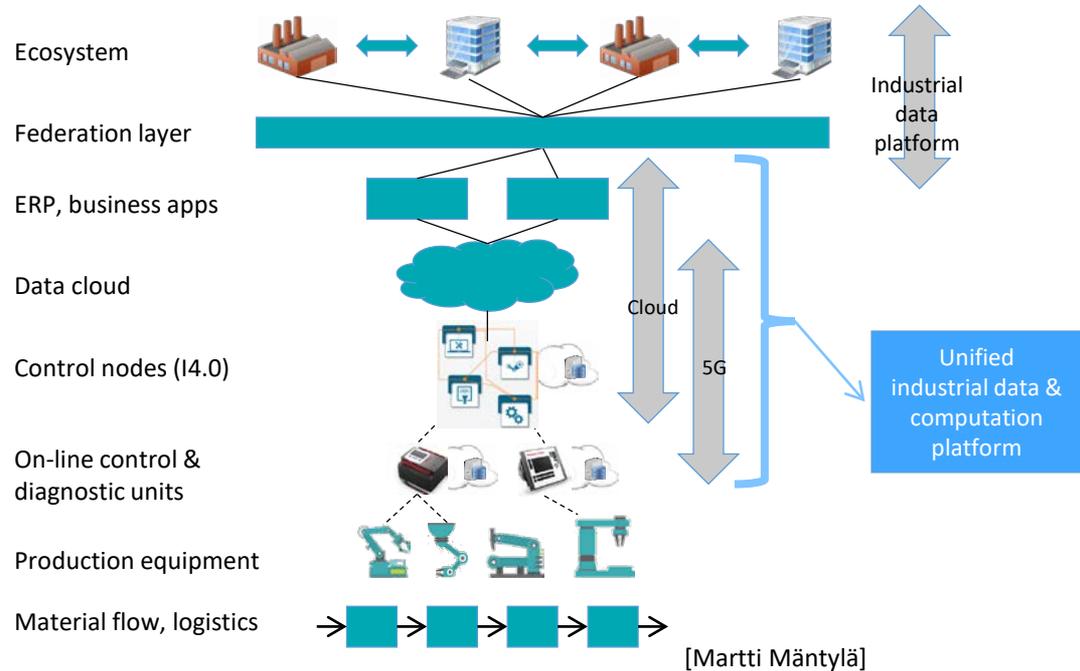


IT/OT Convergence

Convergence of

- 5G communications,
- distributed cloud computing, and
- CPS-oriented control systems

towards a unified industrial data and computation platform

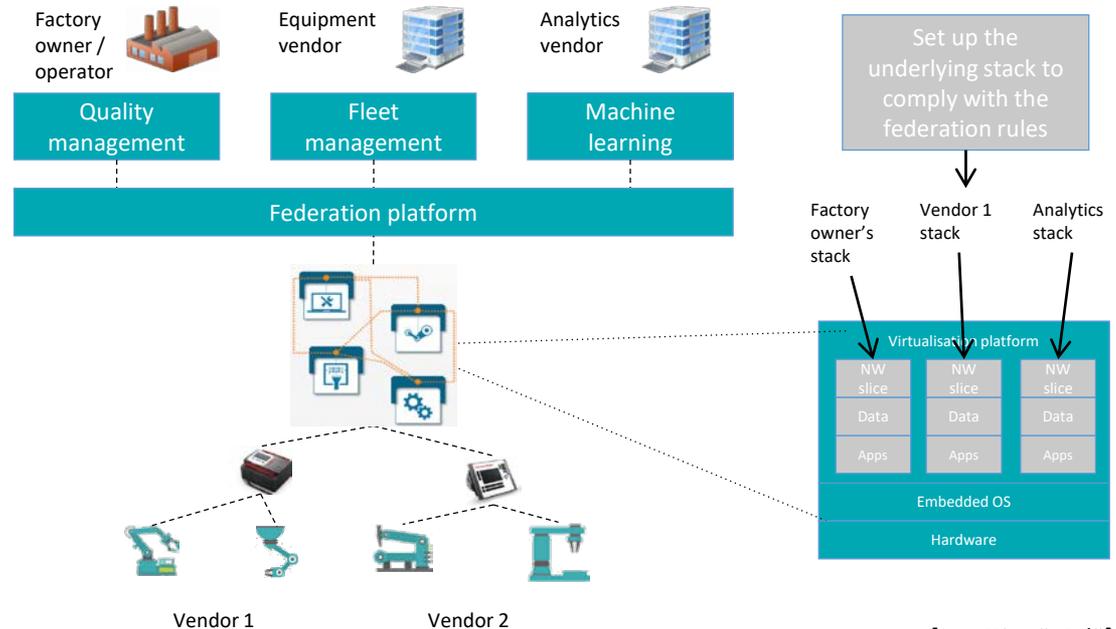


Industrial data platforms

Data federation architecture serving the needs of various stakeholders

- factory operator
- vendors
- service providers
- network operator
- finance, and
- public authorities

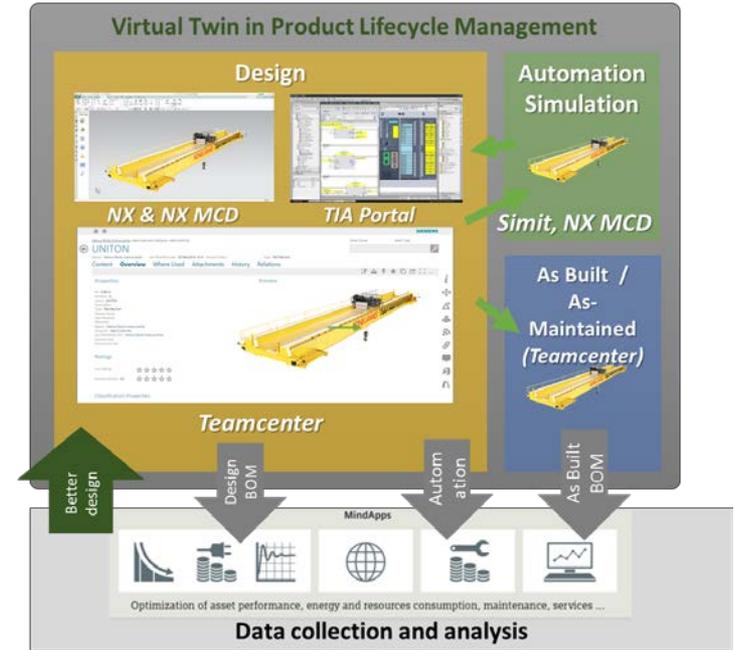
across a wide range business cases and industrial domains



[Martti Mäntylä]

Digital Twin – a use case

How operational data, condition monitoring data and maintenance data benefit the design of next generation products and related digital added value services and performance optimizations ?



DigiTwin project

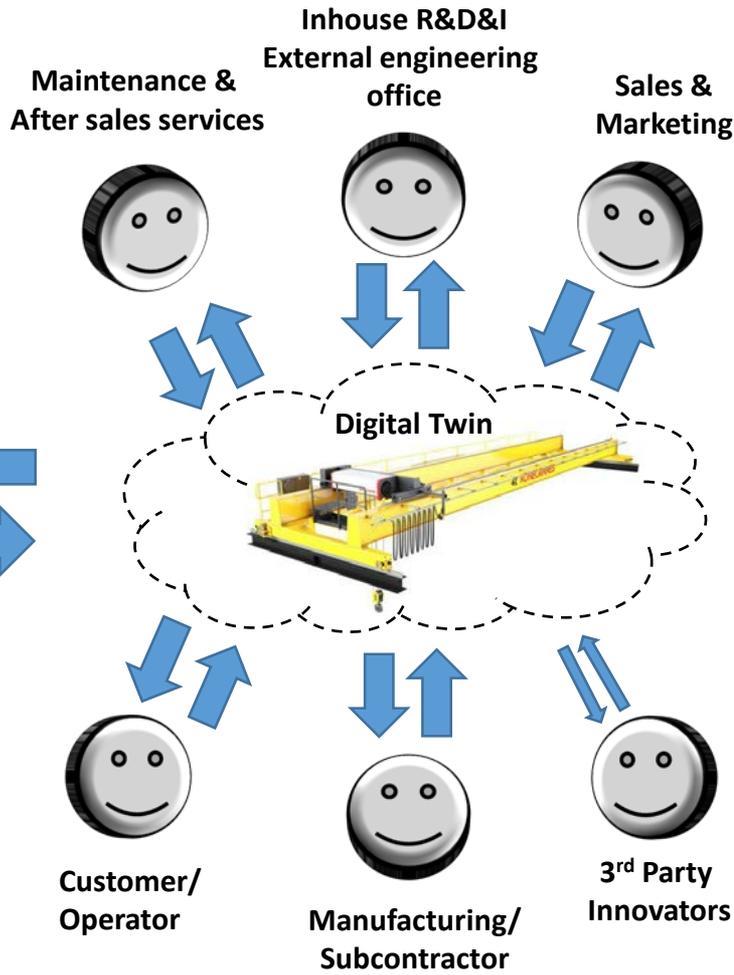
The focus of the research project is in coupling the crane and its digital twin for the whole life cycle.

Physical twin



Project builds demonstrators to prove the industrial value of digital twin concept for all stakeholders

- KONEGRANES[®]
- IDEAL PLM
- RDVELHO
- REMION
- SIEMENS



Key challenges

Worries: Trade secrets, IPR, Security, Data ownership, GDPR ...

- Value – Treat data as a valuable asset
- Classify your data – Levels from strictly confidential to open for anyone
- Digital transformation – From collecting data to data strategy and new business
- Opportunity – Make data available for those who need it
- Decision making – Use of data analytics
- Datability – Share the results

Company policy from CAPEX to OPEX

The screenshot shows a web browser window with the URL industryhack.com/hacks/. The browser's address bar and tabs are visible at the top. The main content area displays a grid of eight hackathon event cards, each featuring a representative image, a title, a partner organization, dates, and a status (e.g., 'Closed').

Hackathon Title	Partner	Dates	Status
Hack the Ship	TallinkSiilo	Feb 12th - Feb 14th	Apply in 25 days
Make Tech Human	Nokia & Fortum	Nov 6th - Nov 8th	Closed
Hack the Gas	Gasum	Oct 30th - Nov 1st	Closed
Hack the Recycling	Lassila & Tikanoja	Sep 25th - Sep 27th	Closed
Hack the Maintenance	Konecranes	Sep 4th - Sep 6th	Closed
Hack the Glass	Iittala	May 29th - May 31st	Closed
Hack the Factory	Fastems	-	-
Hack the Crane	Konecranes	-	-

Industrial Data Ecosystems

INTELLIGENT INDUSTRY
Turning digital into practical

MENU

Intelligent Industry Ecosystem is leading the way towards a new era of networked, information driven and autonomous value systems that flexibly adapt to changing operating environments and user needs.

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Industrial Data Ecosystems



ONE SEA
AUTONOMOUS MARITIME ECOSYSTEM

ONE SEA is a high-profile ecosystem with a primary aim to lead the way towards an operating autonomous maritime ecosystem by 2025.

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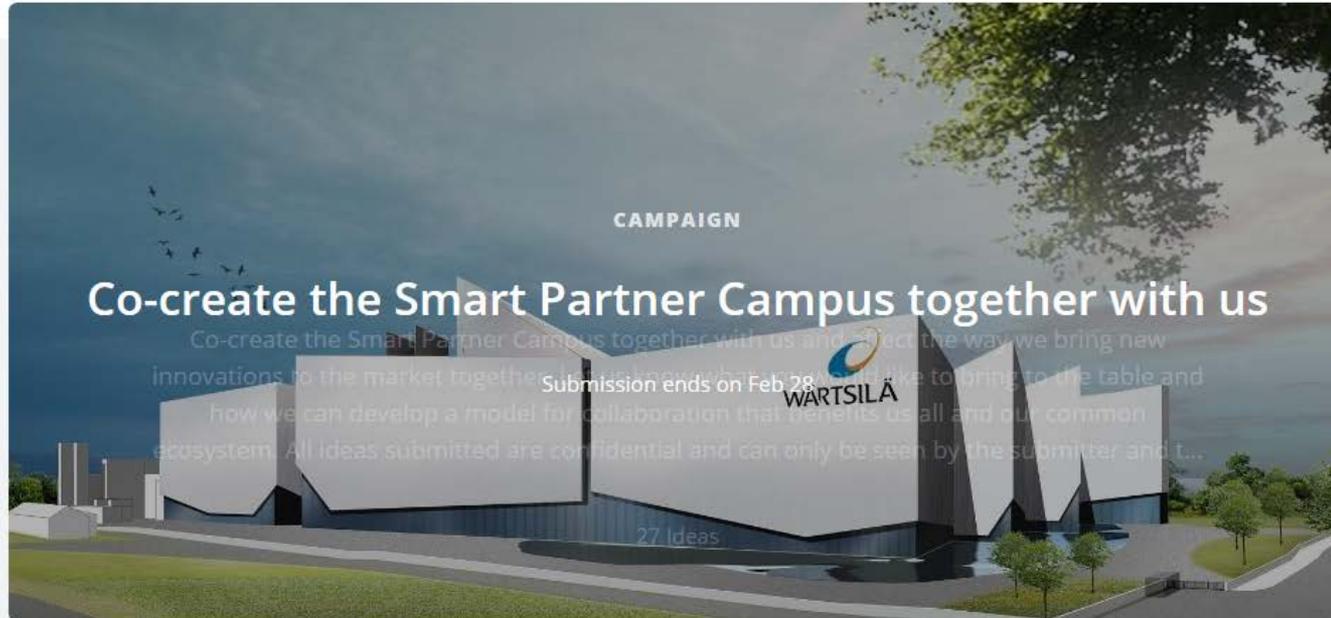
Nokia Innovation Platform BETA

A live development and trial environment for start-ups, industries and other partners to accelerate innovation of IoT solutions through an open, collaborative model.

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Hello Jari,
check out these campaigns



CAMPAIGN

Co-create the Smart Partner Campus together with us

Co-create the Smart Partner Campus together with us and select the way we bring new innovations to the market together. We are looking for ideas on how we can like to bring to the table and how we can develop a model for collaboration that benefits us all and our common ecosystem. All ideas submitted are confidential and can only be seen by the submitter and t...

Submission ends on Feb 28

WARTSILA

27 Ideas

Not “embedding
intelligence in
products” ...

... but rather
“embedding
products in
intelligence”.

Klaus Beetz,
Siemens Corporate Research
EIT manufacturing, CEO