FLEXIBLE FACTORY PARTNER ALLIANCE

Why do we a need Paradigm Shift towards more Flexible Factories?

March, 2018

Prof. Dr. Andreas Dengel

Chair, Flexible Factory Partner Alliance

Customer's changing paradigm

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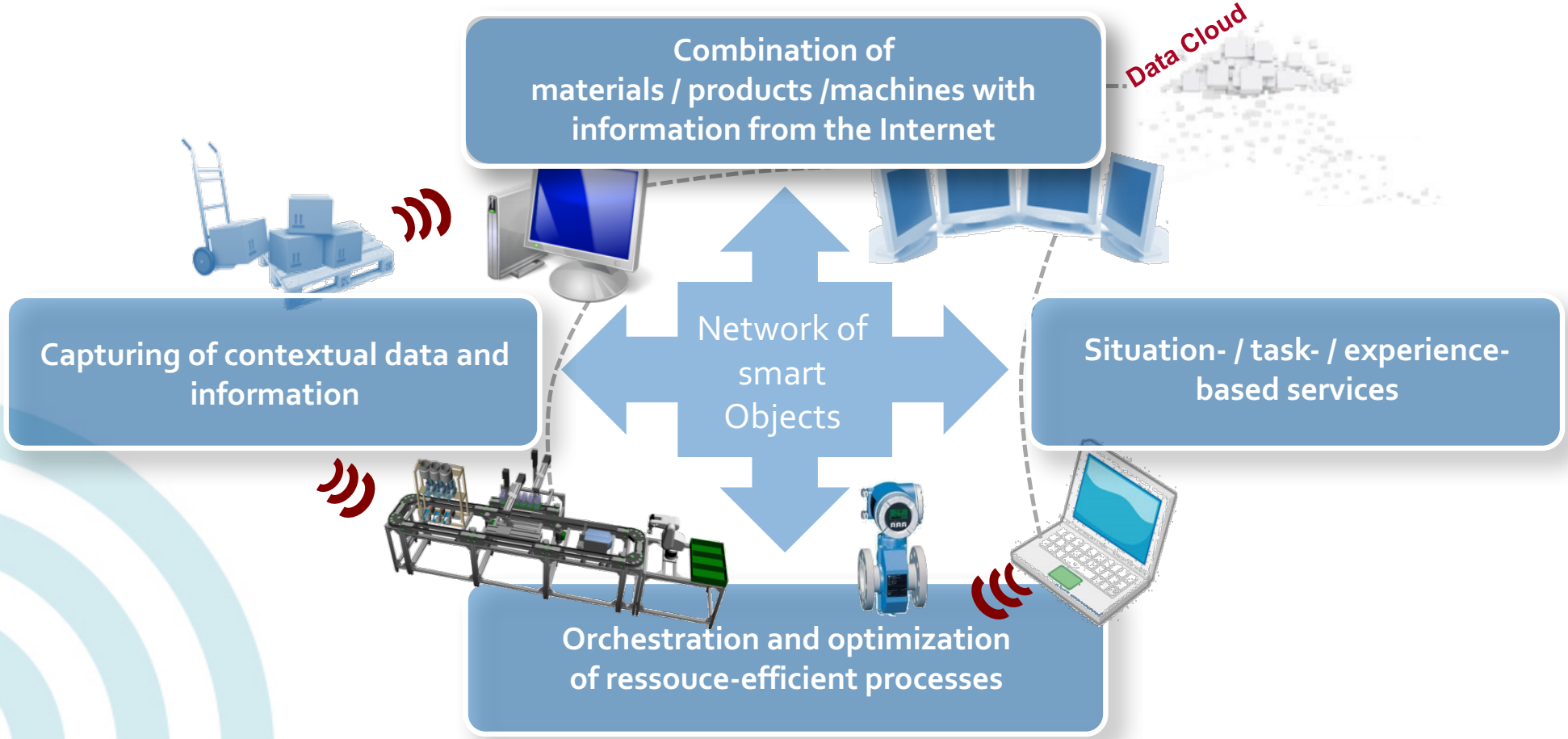
Paradigm of the past

Cheap, cheaper, cheapest!

Paradigm of the future

Order by a mouse click
get YOUR product tomorrow!

The IoT is entering the factory!



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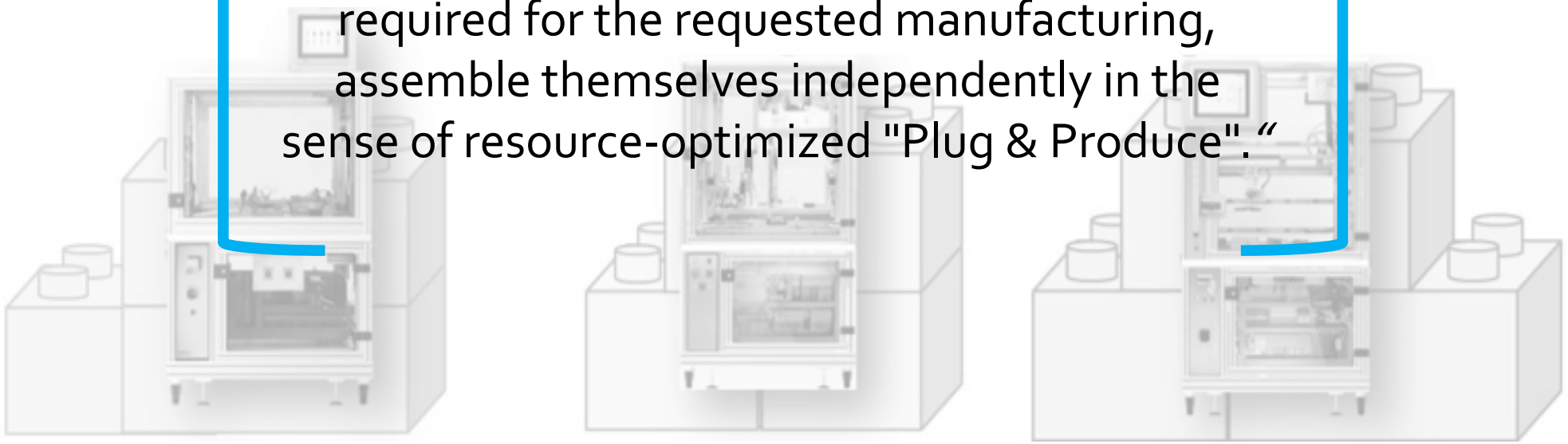
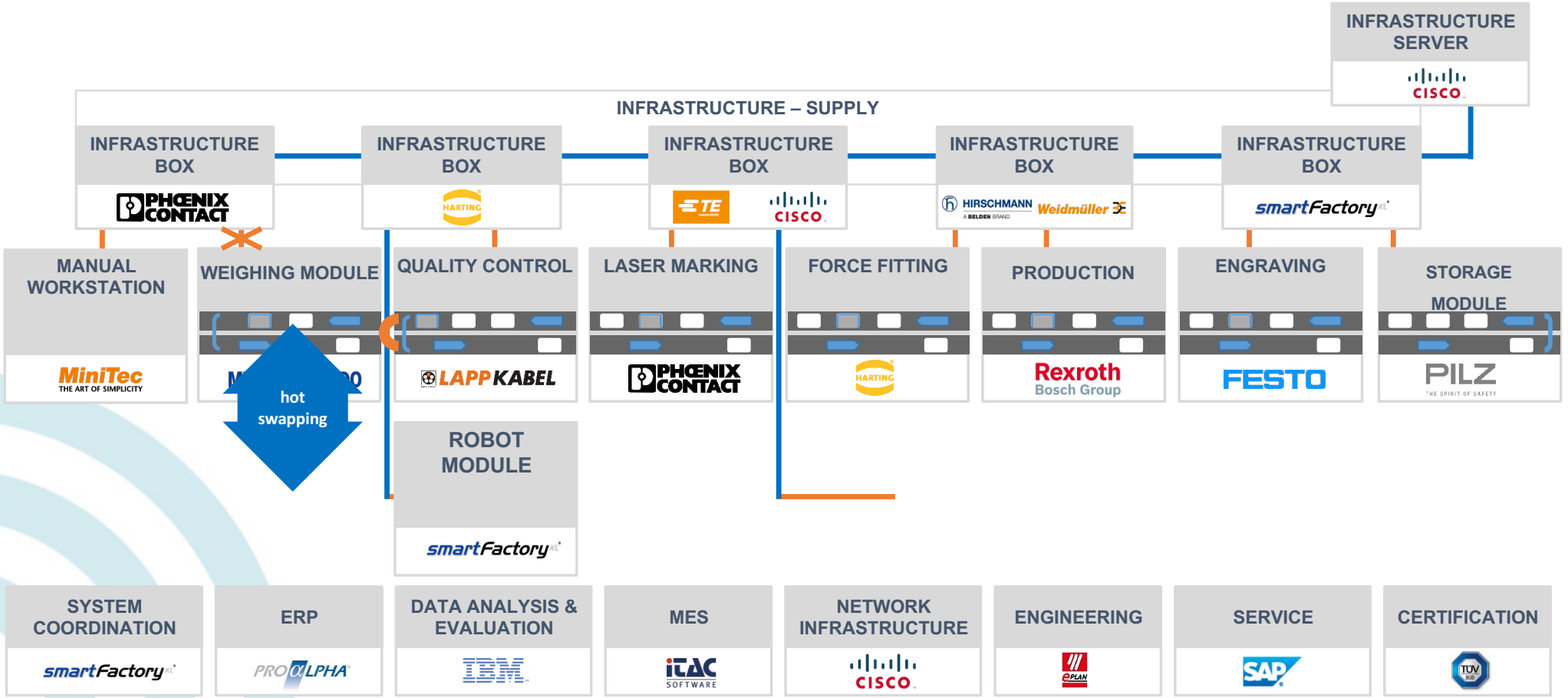
"Mechatronic production lines, which are required for the requested manufacturing, assemble themselves independently in the sense of resource-optimized "Plug & Produce"."



Individual configuration of production lines



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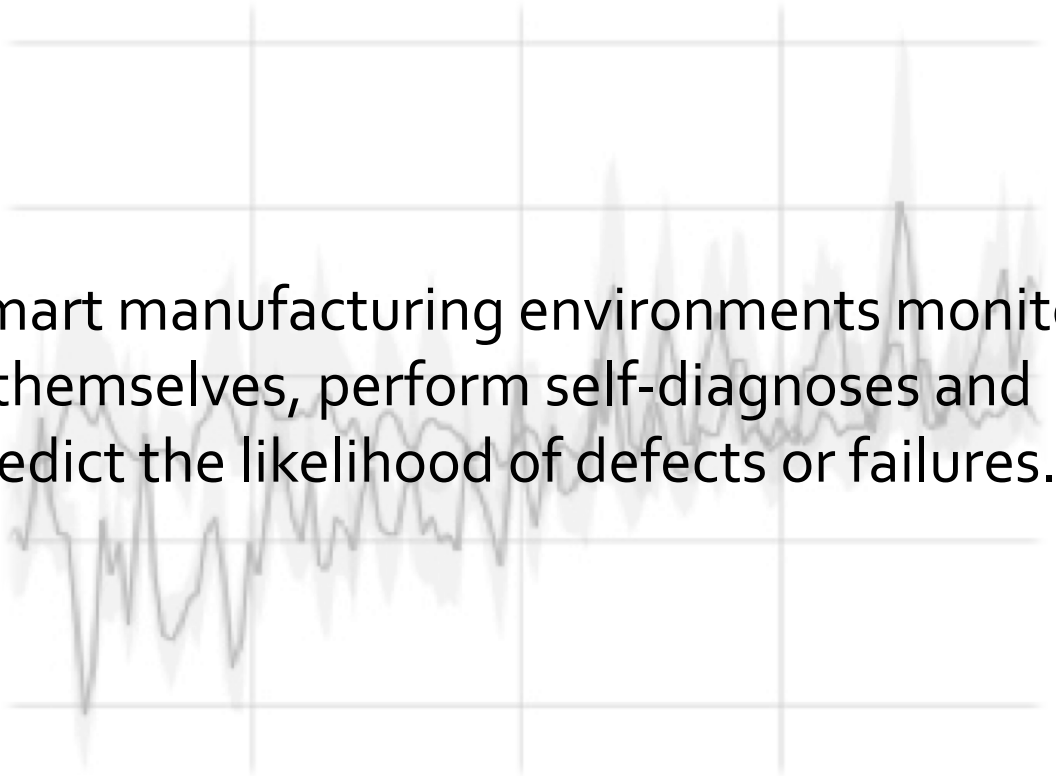
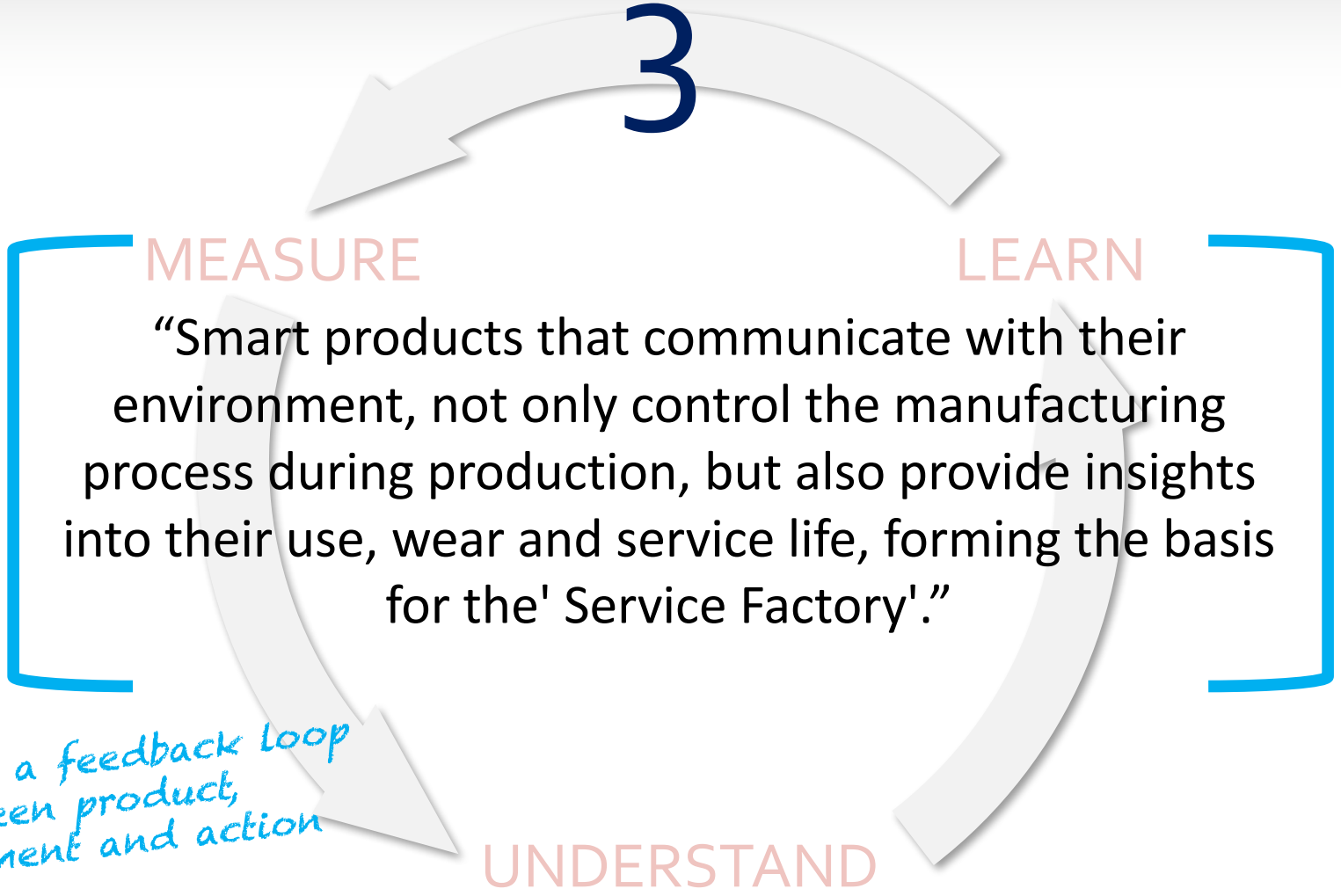


"Smart manufacturing environments monitor themselves, perform self-diagnoses and predict the likelihood of defects or failures."

Highly precise anomaly detection

3



"Smart products that communicate with their environment, not only control the manufacturing process during production, but also provide insights into their use, wear and service life, forming the basis for the' Service Factory'."

It is about a feedback loop between product, environment and action

The Service Factory

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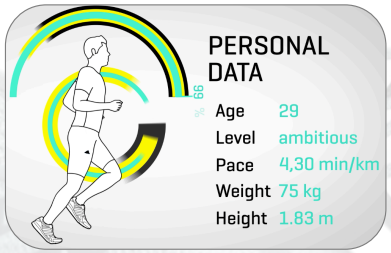
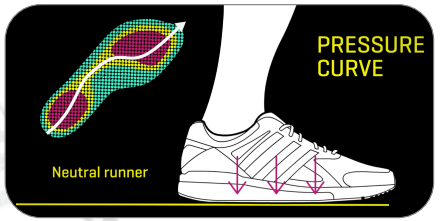
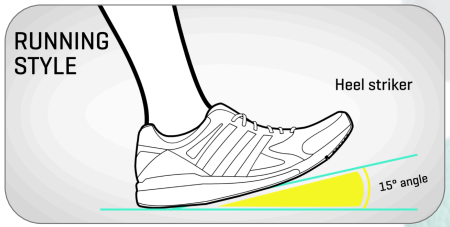
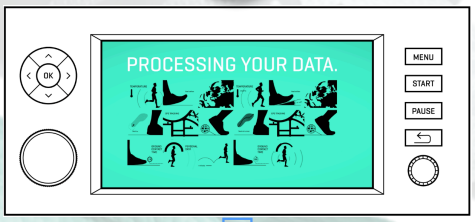
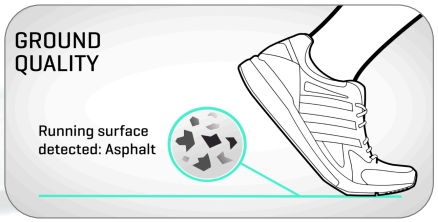
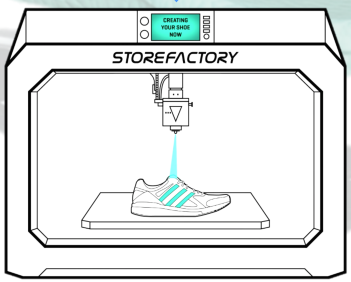












Personalized Recommendation

Rehabilitation

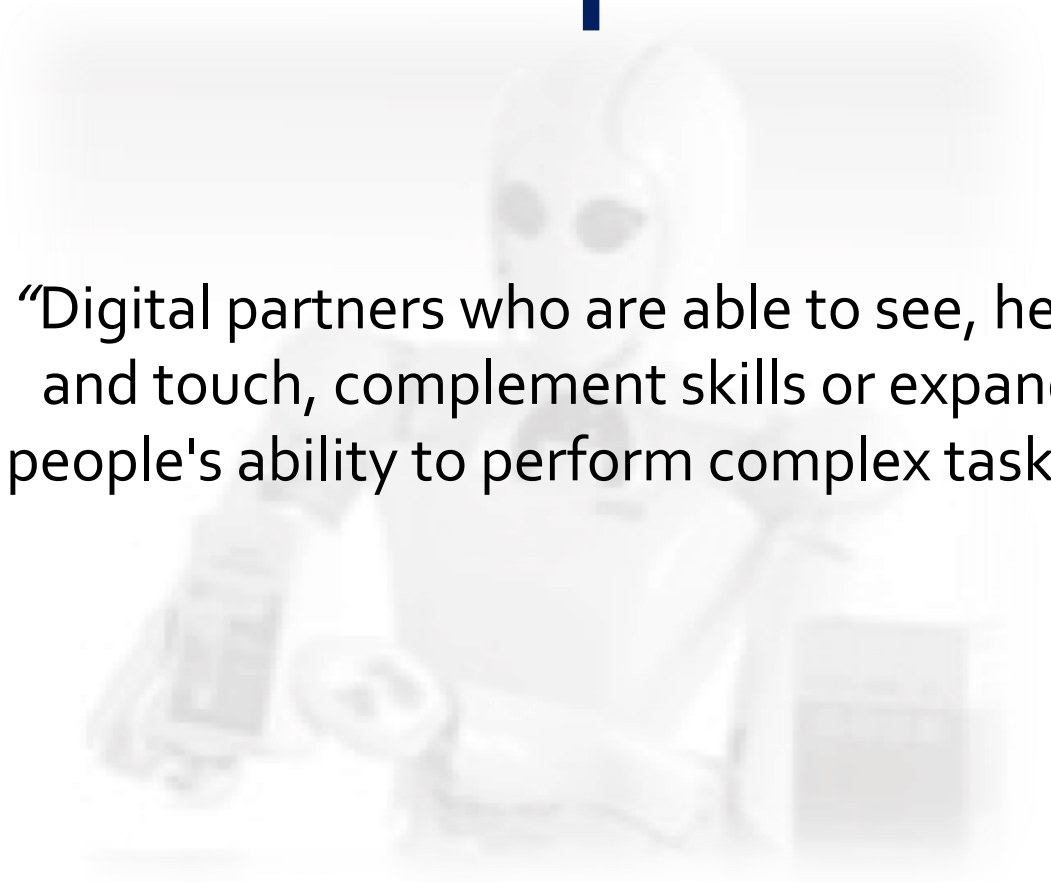
Health Protection

Product Recommendation

User Recommendation

Knowledge is a prerequisite for the production of personal running shoes

4



"Digital partners who are able to see, hear and touch, complement skills or expand people's ability to perform complex tasks."

Artificial Intelligence for Human Activity Recognition

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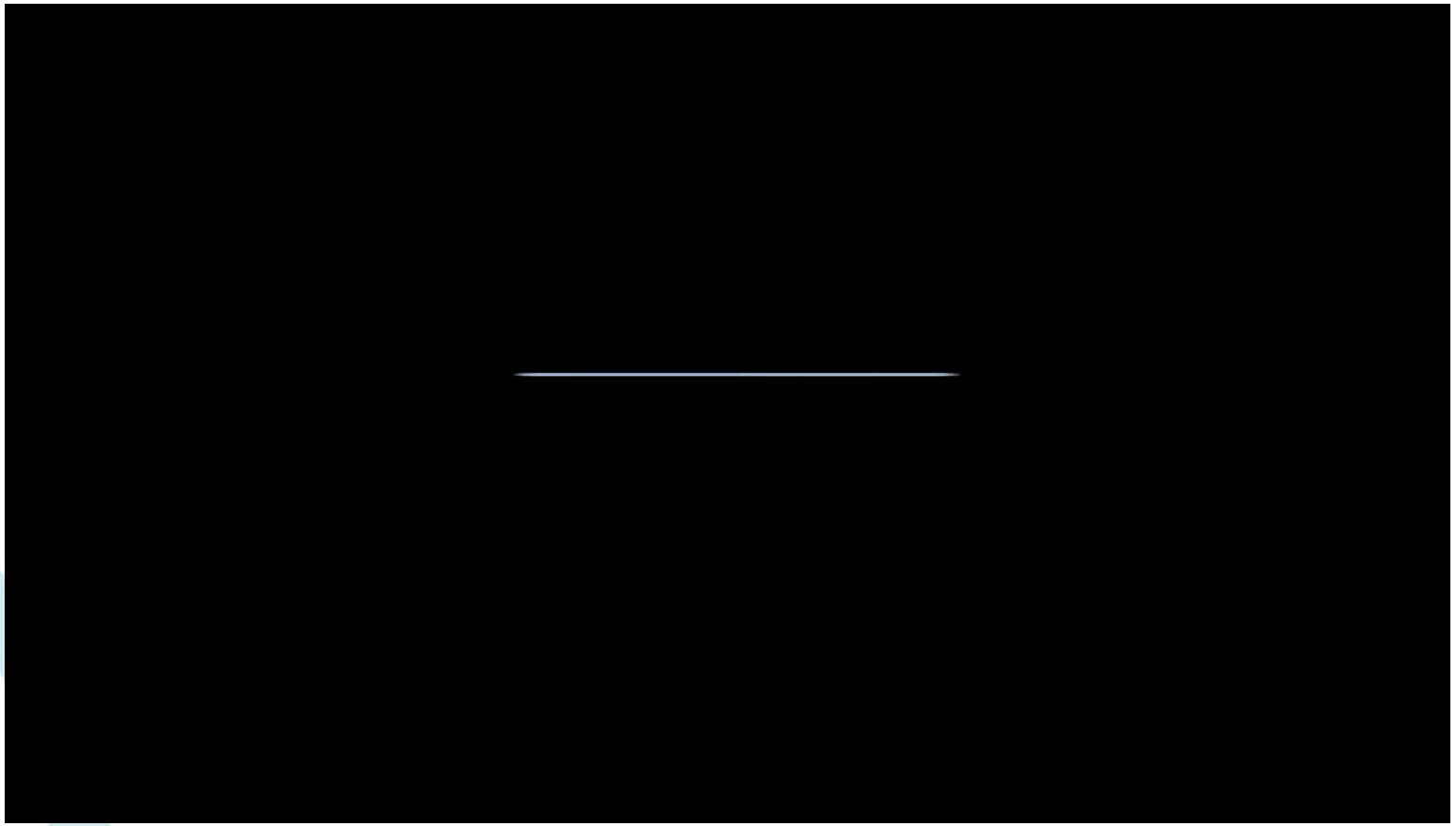

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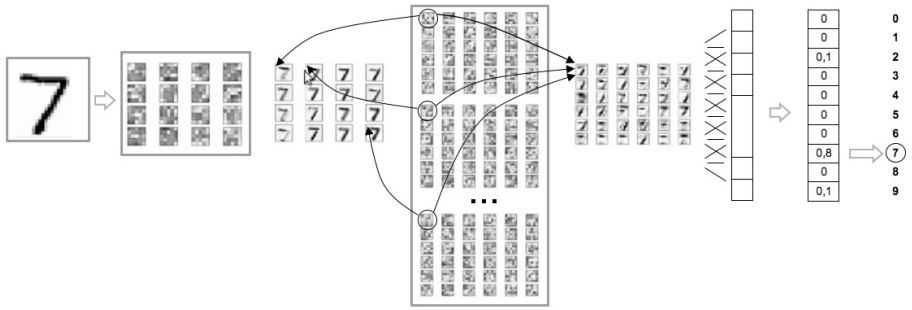
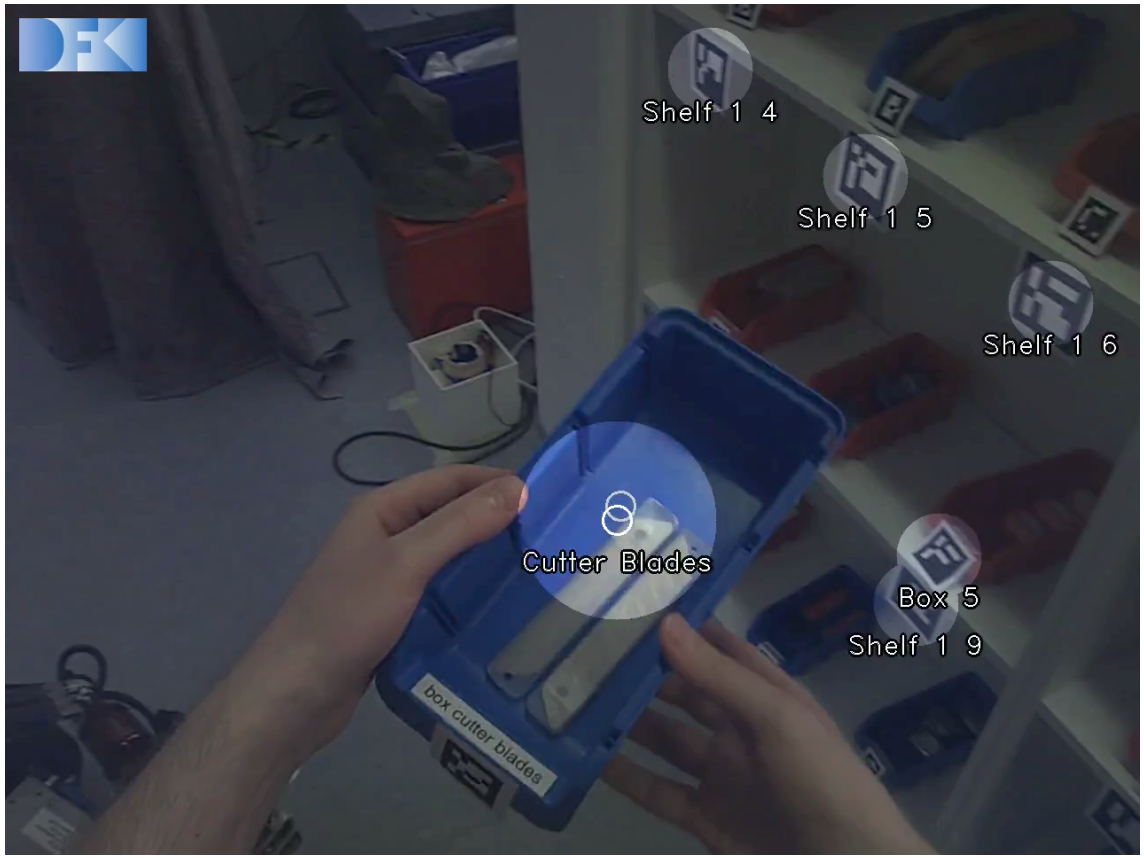
“Programming is a thing of the past; today, smart things are learning to perceive, assess, argue and act more and more independently in their environment.“



Objects relevant in context are just trained to a system



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“Wireless communication is a key technology as well as a central basis for a flexible exchange and distribution of information but also for the control and orchestration of all smart objects involved in the production process.“

Factory IoT Pushing Wireless Utilization in Factories

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Opportunity

In 2025, Factory IoT (Internet of Things) is estimated to offer a potential economic impact more than

$1.2trillion

Expectation

Less cost and less effort are keys for collecting data from work sites for potential factories more than

90%

Trend

Share of wireless nodes for communications in factories is 6%, but is increasing with an annual growth rate of

32%

[1] https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world
[2] http://tech.nikkeibp.co.jp/dm/atcl/feature/15/122200045/120700315/
[3] http://www.automationinside.com/2017/03/industrial-network-market-shares-2017.html

Scenarios for Future Factories with “Wireless”

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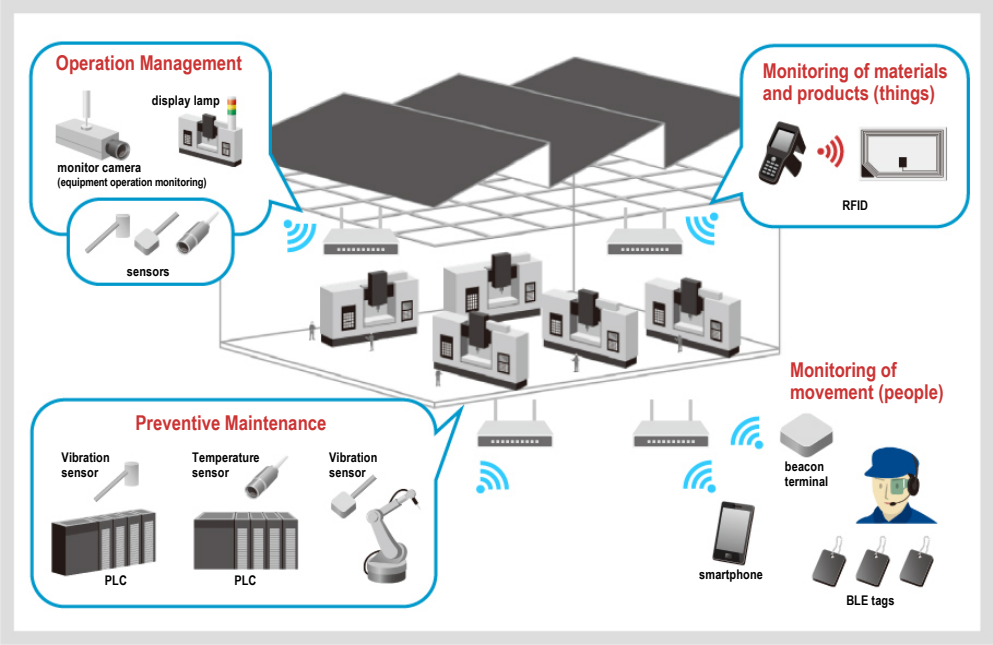
– Advanced factories with wireless devices and equipment to enhance productivity.

Mechanical assembly site



Metal working site

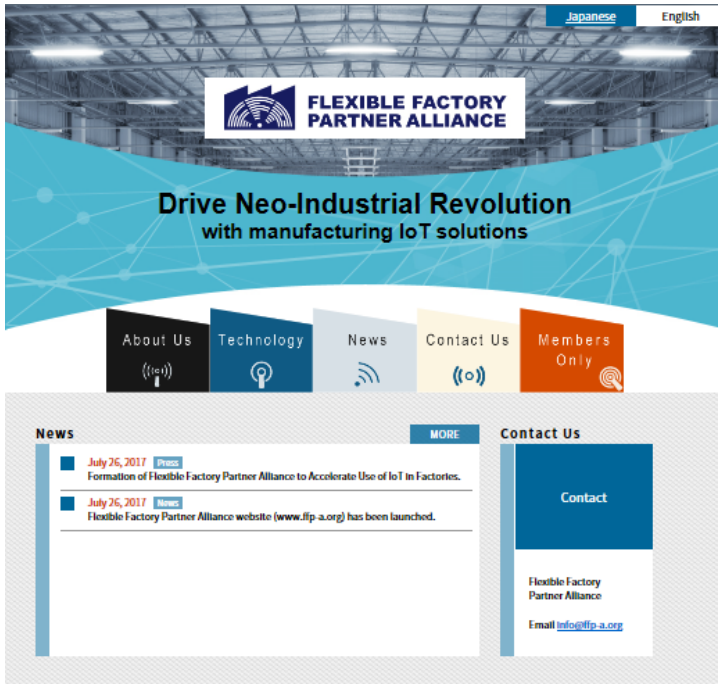
Source: Flexible Factory Project

Flexible Factory Partner Alliance Outlook

FLEXIBLE FACTORY PARTNER ALLIANCE

– *Name: Flexible Factory Partner Alliance*
– *Date of Establishment: 26 July, 2017*
– *Chairperson: Andreas Dengel (DFKI)*
– *Initial Members:*

NICT OMRON ATR
NEC FUJITSU SANRITZ
muratec



Visit our WEB page: ***http://www.ffp-a.org/***

Flexible Factory Partner Alliance Direction

- *The goal is to enable technical and business platforms for enhancing productivity of manufacturing by using ICT including IoT and AI.*

- *We started from resolving problems of wireless communication in factories which are the bottleneck to collect data from factory sites.*

- *International ecosystem will be established consisting of various different types of companies in the industrial sector with support from academia and government.*

Scope of Flexible Factory Partner Alliance

Standardization

– Specification creation
– Proposal to international SDO
– Ecosystem formation

Promotion

– Public relations, events
– Relations among industry, government and academia
– VoC Community

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Certification

– Test specification creation
– Relation with test labs

Interoperability testing

– Golden device authorization
– Events for interoperability testing

Organization

Chair: Andreas Dengel, DFKI
Vice-Chairs: Shinichi Sato, Fujitsu
Satoko Itaya, NICT
Hans D. Schotten, DFKI

Representative Director:
Kenichi Maruhashi , NEC

Secretary-General:
Hajime Koto, NICT

General Assembly Meeting

Board of Directors

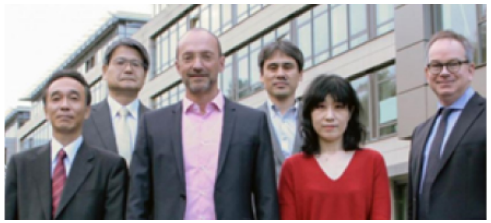
Secretariat

Technical Steering Committee

Marketing Committee

VoC (Voice of Customer) Community (planned)

Officers



Join Us

- *Please contact us if you are willing to contribute to Flexible Factory Partner Alliance with respect to:*
  - *Standardization and promotion*
  - *VoC Community*

- *Flexible Factory Partner Alliance invites participation in VoC Workshops in Japan where difficult cases and problems of IoT in factories are shared finally to find solutions. Please check our website.*

  http://www.ffp-a.org/jp-index.html

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