FLEXIBLE FACTORY PARTNER ALLIANCE

Towards Flexible Factory

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Related Work: Flexible Factory Project

– *Efforts to reveal real problems in factory sites.*

  – *Conducting wireless environment evaluation and wireless packet transmission tests at factories in operation.*

– *NICT research collaborations since 2015.*

  – *Participants:*

    NICT, OMRON, ATR, NEC,
    NEC Communication Systems,
    Fujitsu, Fujitsu Kansai-Chubu Net-Tech,
    Mobile Techno, Sanritz Automation,
    MURATA MACHINERY, Silex Technology.
    Panasonic, Internet Initiative Japan, and
    KOZO KEIKAKU ENGINEERING

  – *Partners:*

    7 factories of 5 companies (as of 2017)

Courtesy of NICT

https://www.nict.go.jp/en/press/2017/03/01-1.html

Risks for Stable Wireless Communications in Factories

FLEXIBLE FACTORY PARTNER ALLIANCE

– Dynamic Wireless Environments Changes

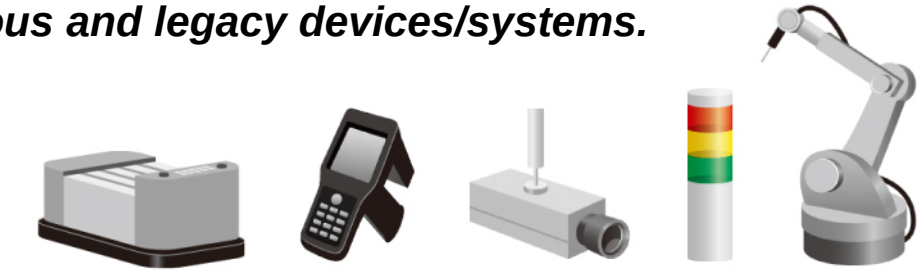
- – **msec to sec:** Motions of materials, parts, products, and carriers in a closed space.
- – **Hours to days:** Retooling, equipment changeover, and system on/off.
- – **Months to years:** Layout reconfiguration, and production-line installation.

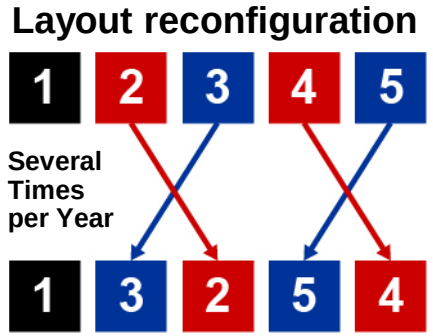
– Diverse Wireless Environments

- – Depending on size and scale of the facilities, existence of obstacles for radio propagation, noises, and the number of deployed wireless systems.

– Independent Wireless Applications

- – Step-by-step installation for each equipment or process flow.
- – Coexistence of heterogeneous and legacy devices/systems.

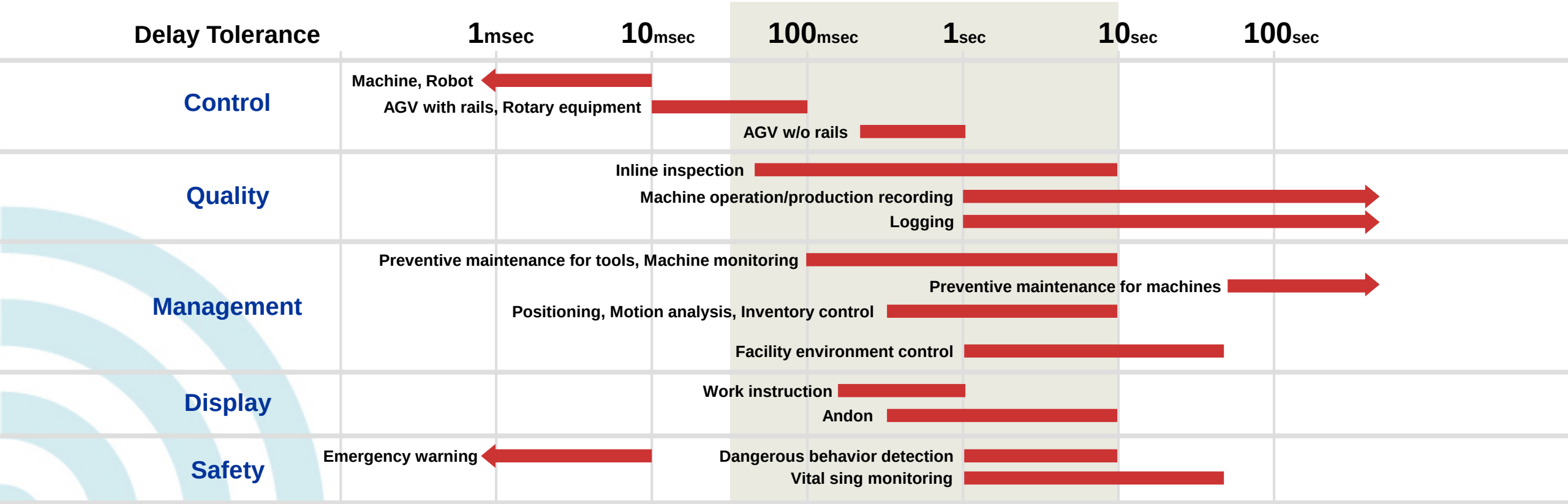




Wireless “Pokayoke”

Wireless Applications in Factories

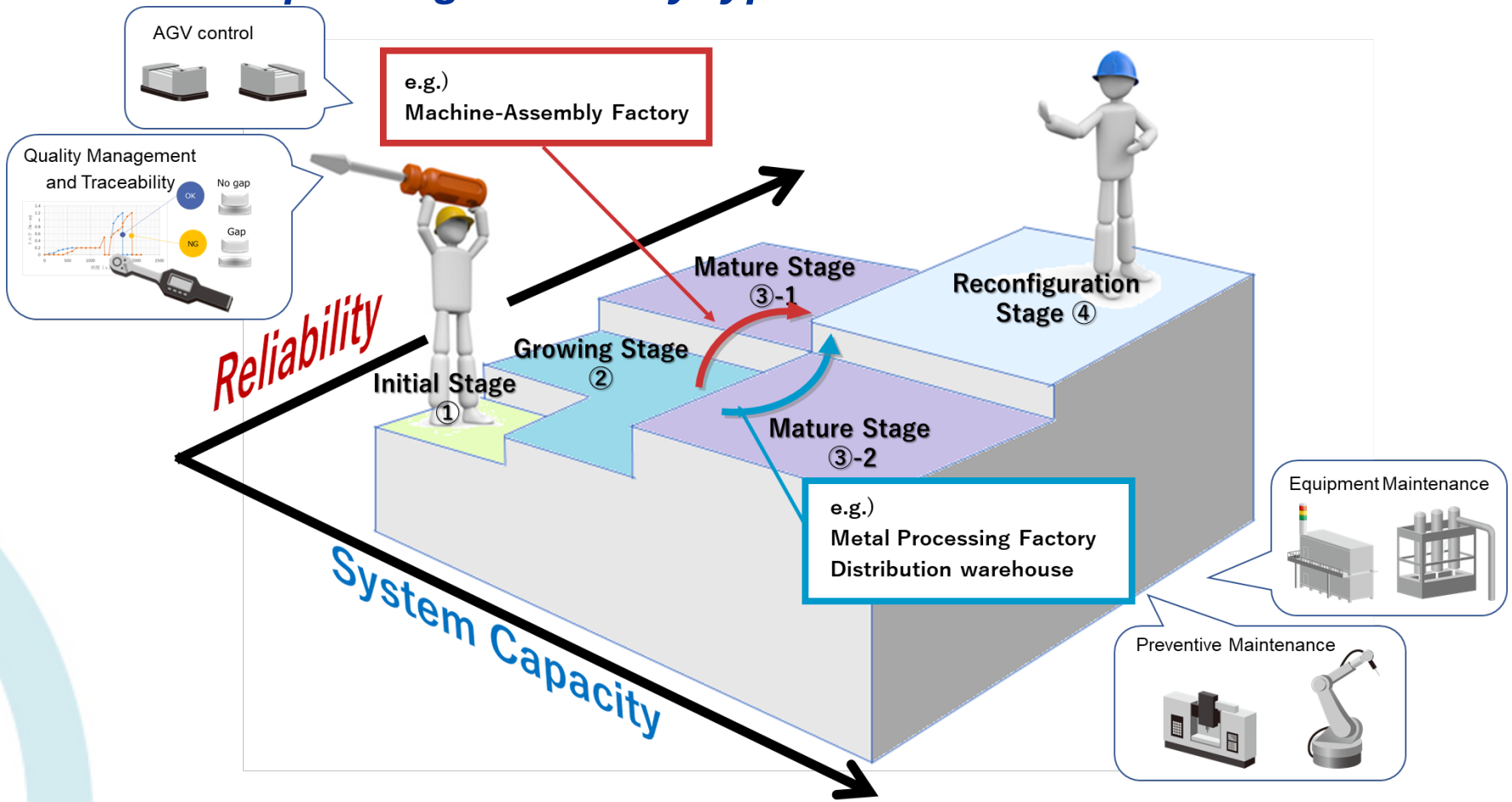
– *Most applications require communications with a maximum delay of 20-100⁺msec for on-the-spot feedback in advanced factories.*



Source: Flexible Factory Project

Wireless Evolutional Stages in Factories

– *Wireless evolutional stage proceeds along with two paths of reliability- and capacity-essentials depending on factory types.*



Flexible Factory Partner Alliance Related Activities

Flexible Factory Project (FFPJ)

Field Experiments

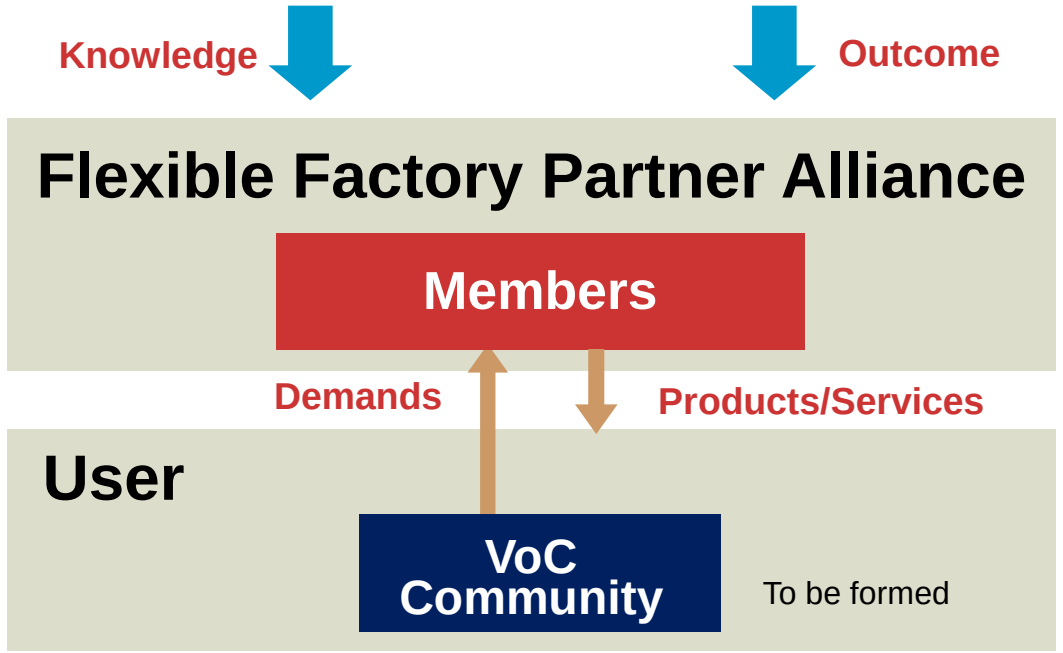
Needs and real problems of wireless communications found in partner factories.

SRF Wireless Platform

Technology Development

Common wireless platform adapting to dynamic/diverse wireless environments.

SRF: Smart Resource Flow



Events

– VoC Workshop : May, 2018

Website http://www.ffp-a.org/

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