

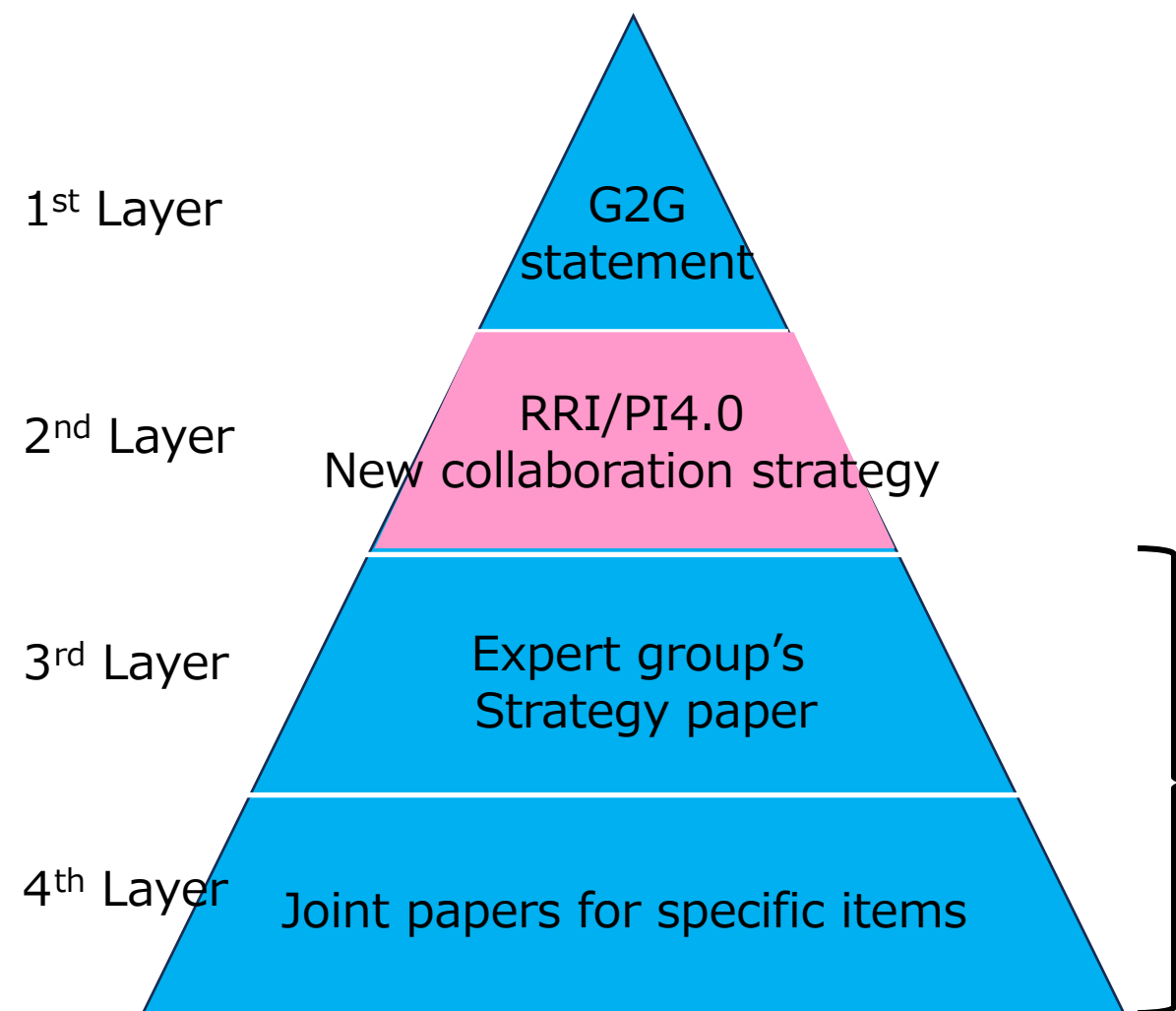
The Robot Revolution and Industrial IoT International Symposium 2025

Japan-Germany Expert Forum

S3-5 How to measure user readiness for Manufacturing Data Space?

Mr. Shinji Oda, Yokogawa Electric Corporation, Principal Strategist, Technology Marketing
Mr. Ingo Sawilla, Trumpf MT SE+Co.KG, R&D Manager Research Head of Manufacturing-X

1. Manufacturing Dataspace expert group
2. What's happening in Manufacturing Dataspace, Example Trumpf – IT/OT convergence
3. Readiness – how to measure it?
4. How manufacturing related Data Flow evolve?
5. Next steps



Collaboration started in 2023

2023 RRI symposium
Activities on Manufacturing Dataspaces in both countries and the outline of the collaboration were introduced.

2024 Hannover Fair
Discussion Paper about perspectives of both countries was published.(*1)

2024 RRI symposium
"User Readiness" was identified as one of the major issues.

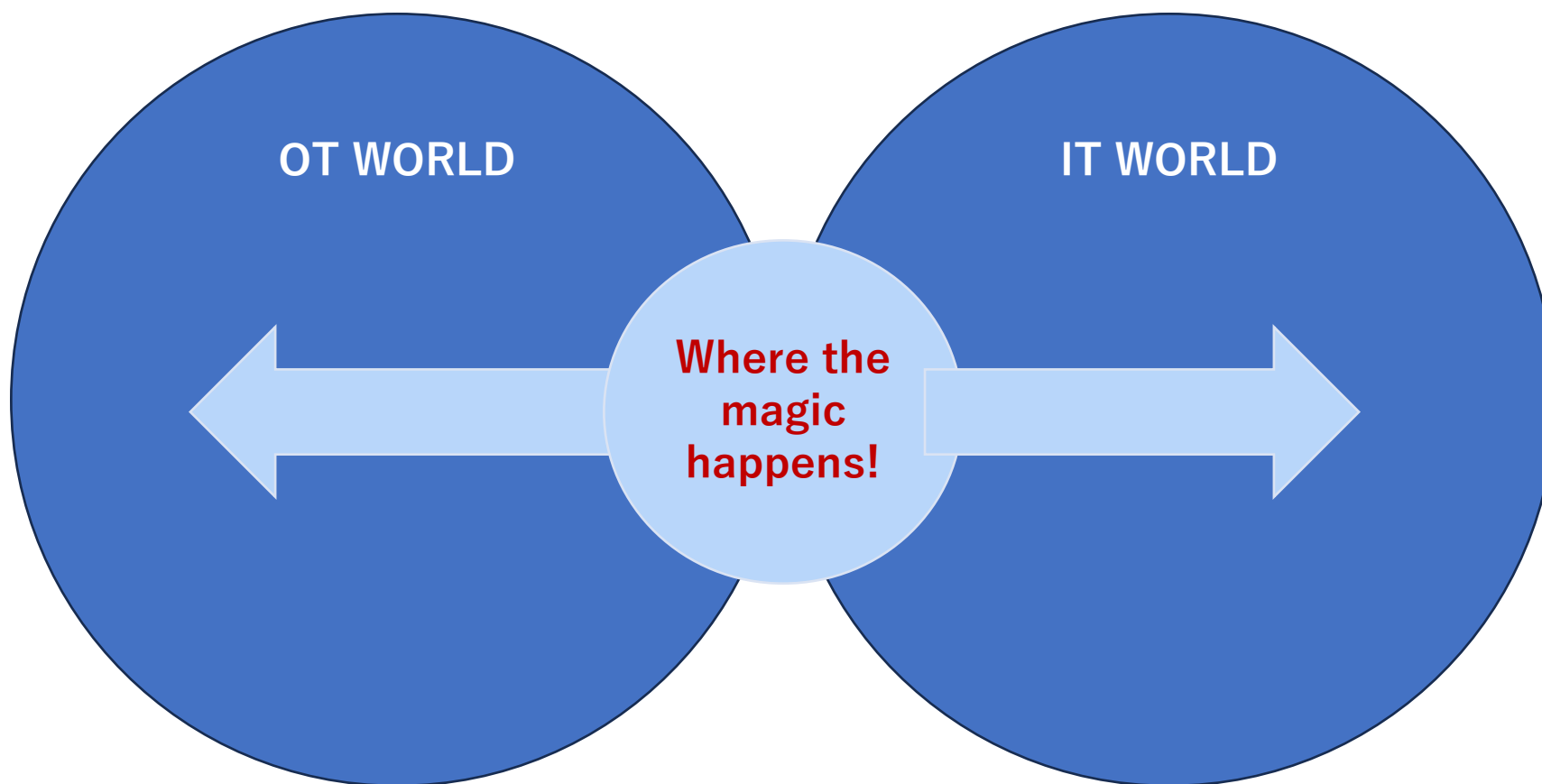
2025 Hannover Fair
"User Readiness" was discussed with DPP use case.



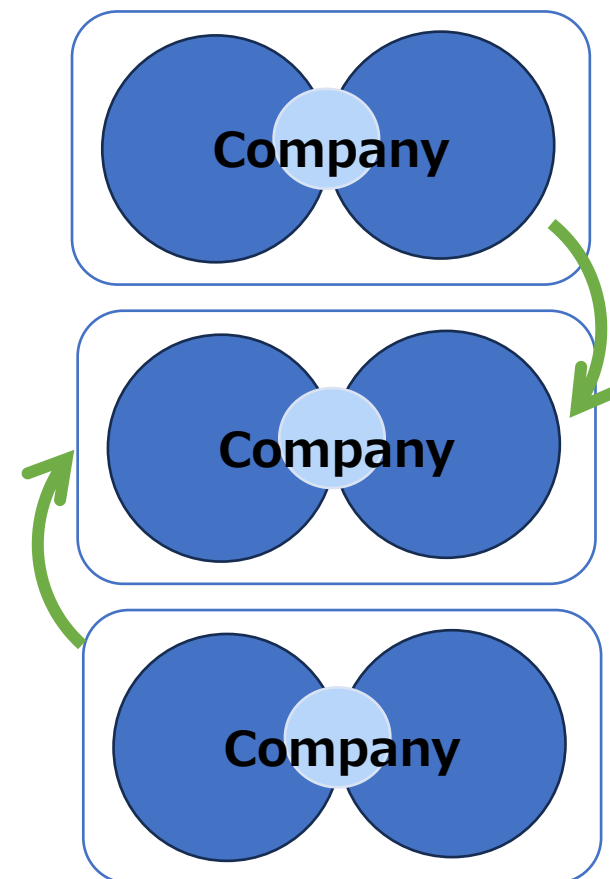
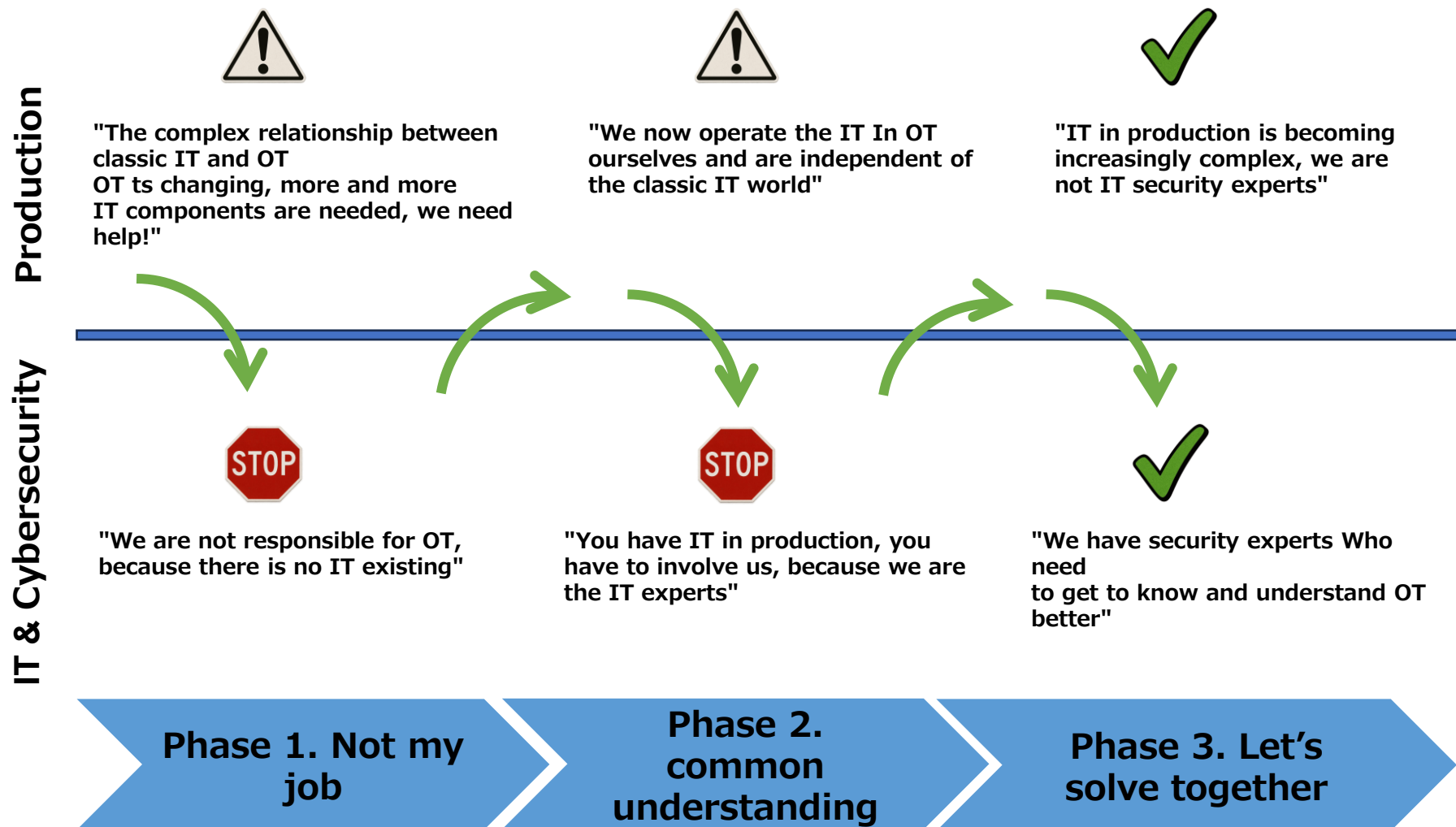


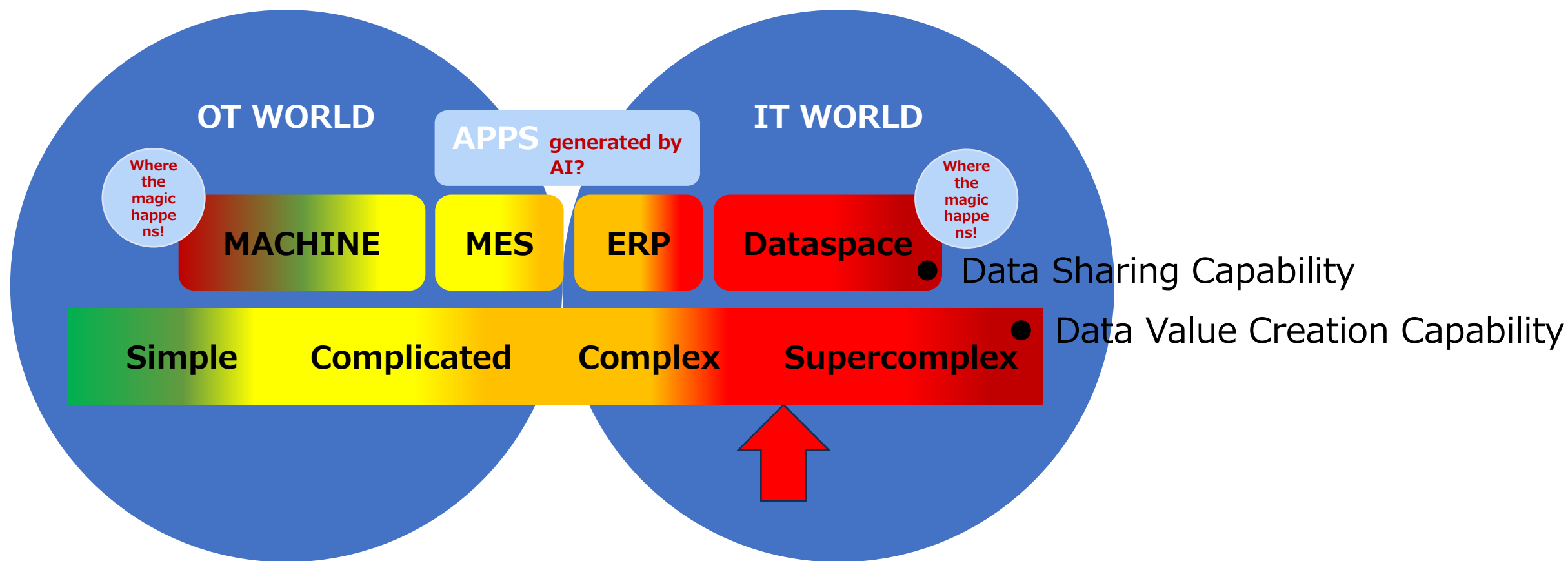
Ask AI about Manufacturing Dataspace Challenges!

- Why I get this picture?



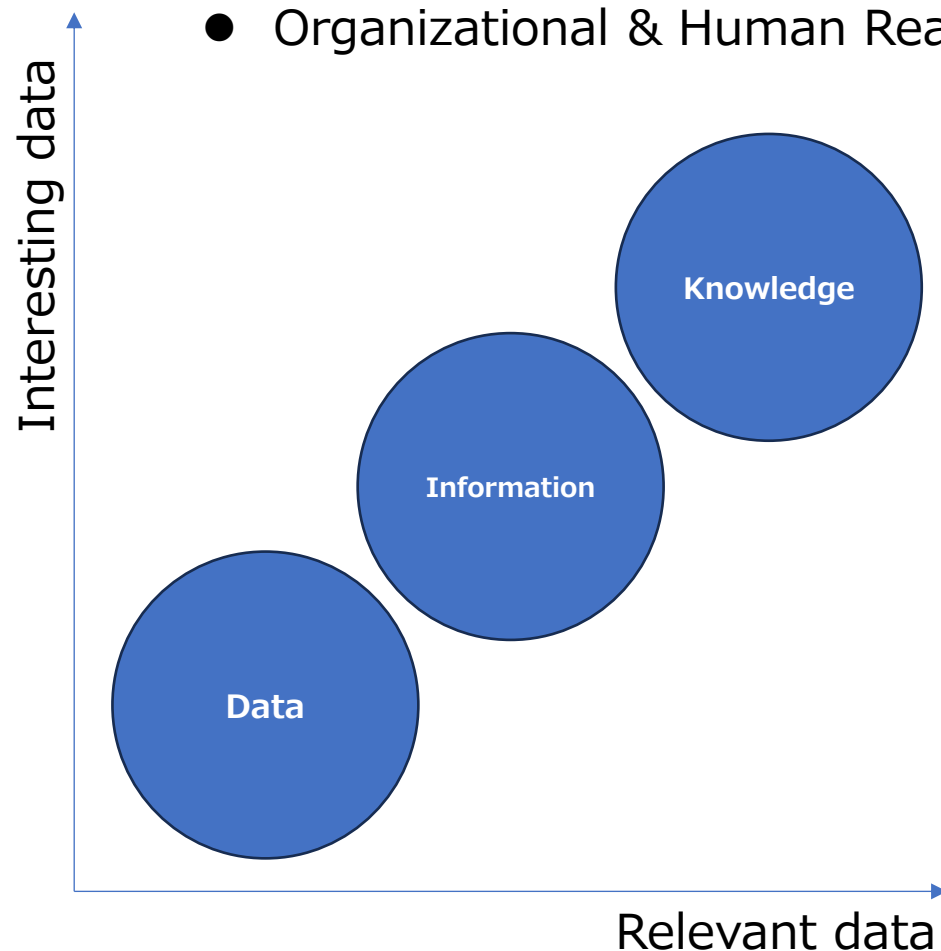
- How to let the magic happen?



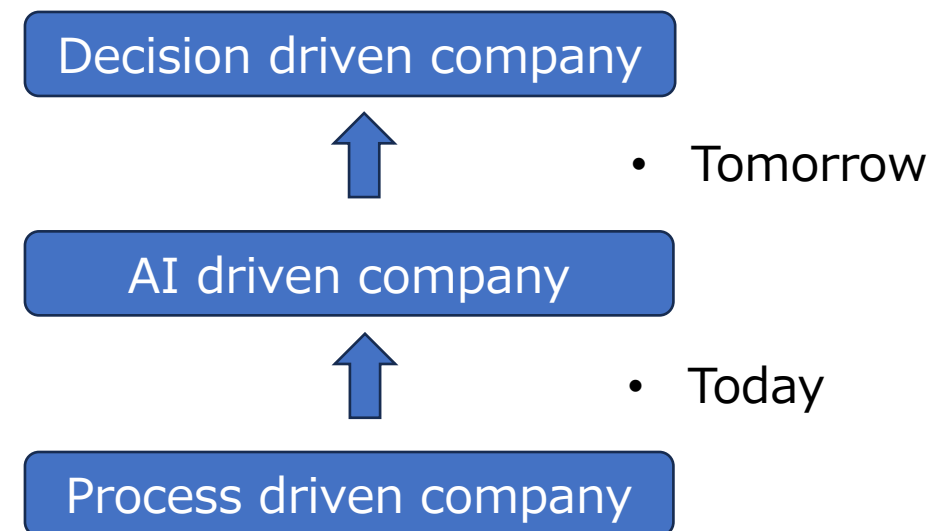


- It is not easy to let the magic happen, because of supercomplexity!
- Transformation of manufacturing systems architecture needed!

- Organizational & Human Readiness

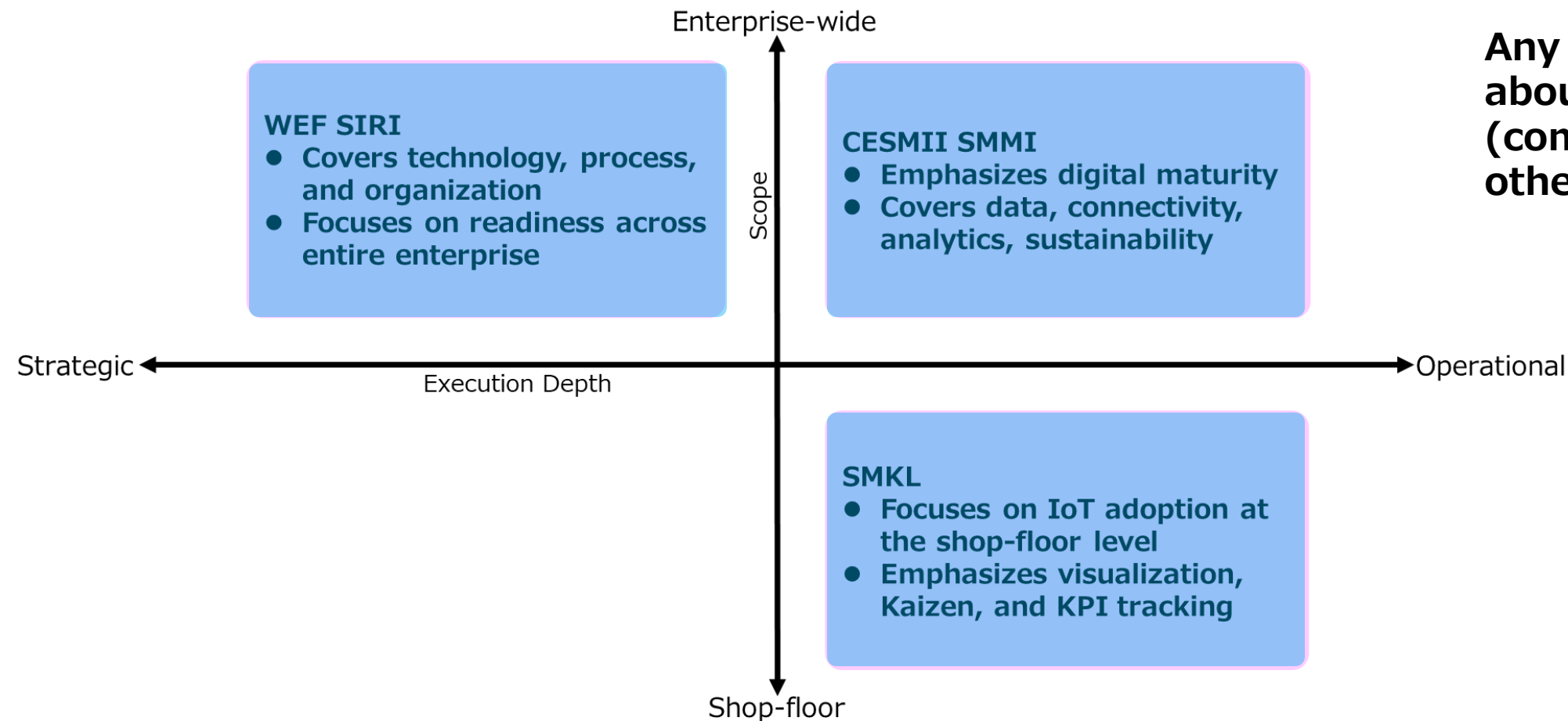


- Why can't we stop anymore?



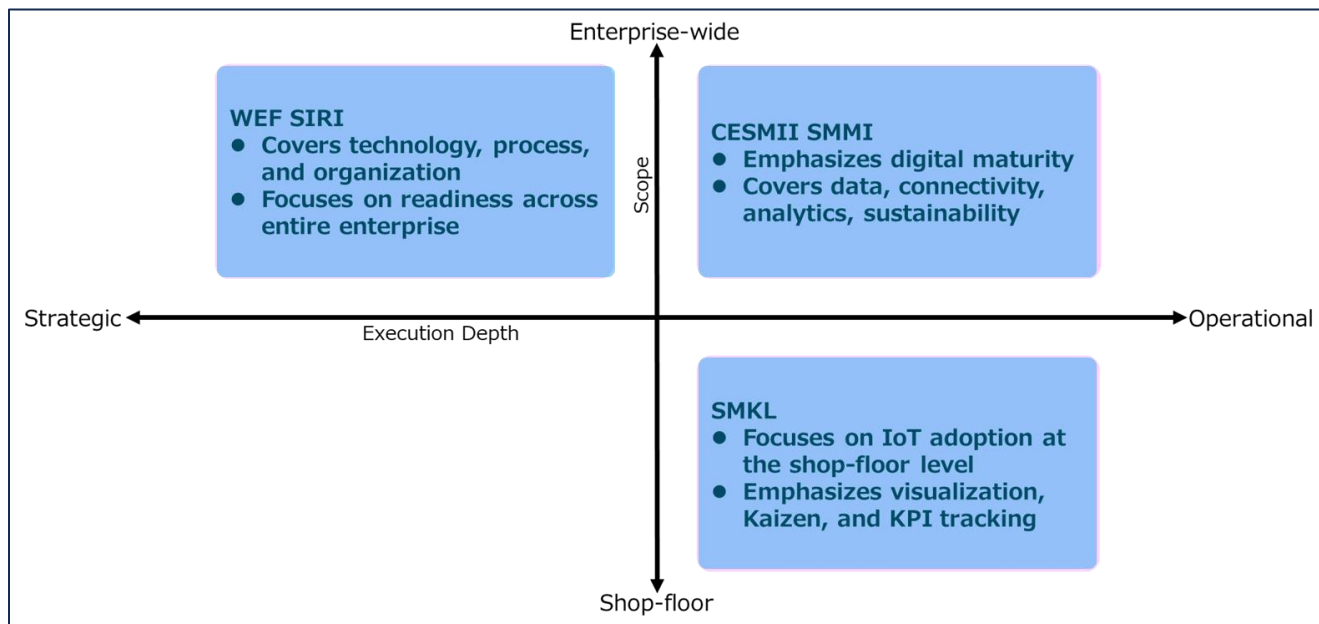
- Organizational & Human Readiness measurement needed?

- How to measure it?
If we cannot measure, we cannot improve it.
- How manufacturing related Data Flow evolve?
Should we assume traditional manufacturing architecture?



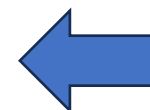
Any additional aspects about to dataspace? (communicating with others/data ecosystem)

WEF SIRI (Smart Industry Readiness Index): https://www3.weforum.org/docs/WEF_The_Global_Smart_Industry_Readiness_Index_Initiative_2022.pdf
CESMII SMMI (Smart Manufacturing Maturity Index): <https://www.cesmii.org/education/roadmap-tools/>
SMKL (Smart Manufacturing Kaizen Level): https://afr.mitsubishielectric.com/fa/af_en/solutions/digital-manufacturing/smart-manufacturing-kaizen-level



Can we integrate the following aspects into this quadrant? Or we need the new quadrant?

- Data Sharing Capability
- Trust & Governance Readiness
- Ecosystem Integration Capability
- Data Value Creation Capability
- Organizational & Human Readiness

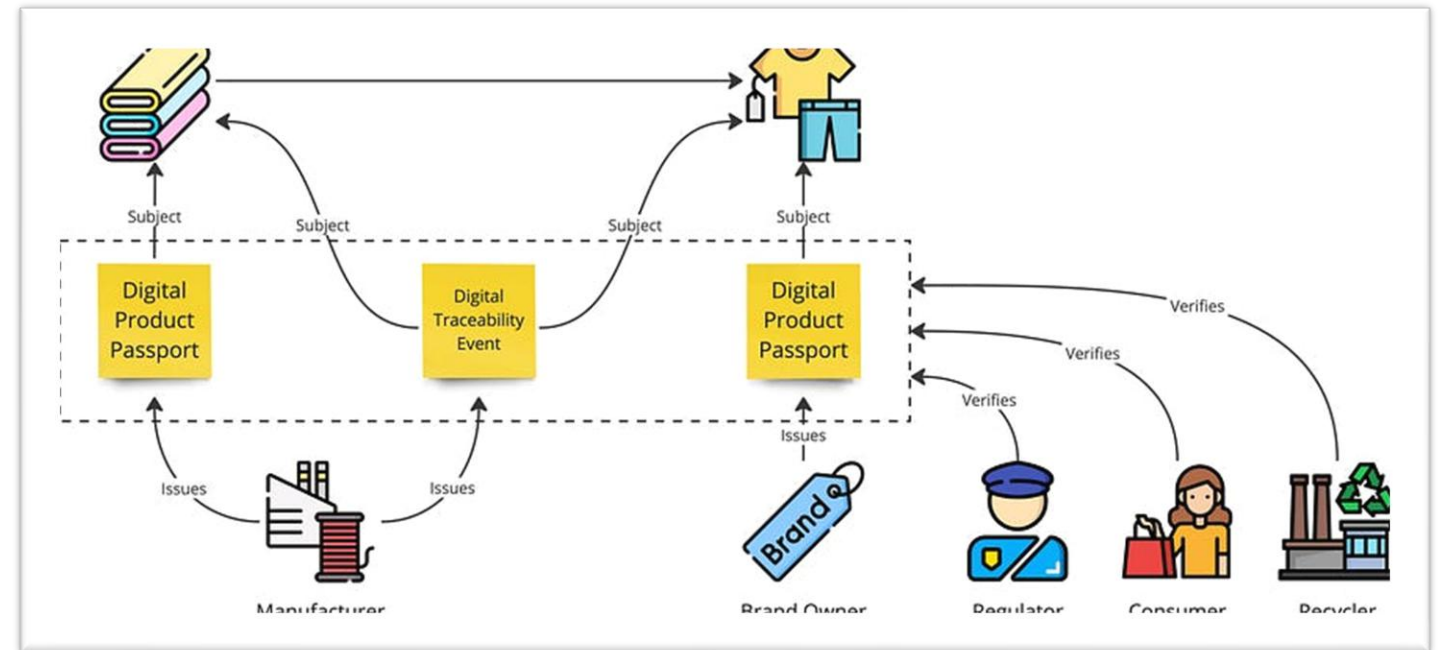


■ Stakeholders

- Manufacturer
- Regulator
- Auditor/inspector
- Consumer
- Recycler

■ Requirements

- **Regulatory Compliance**
 - Digital Product Passports and etc,
- **Product Authenticity**
 - Linking physical products to verified digital records helps combat counterfeiting and confirms product authenticity.
- **Operational Efficiency**
 - Streamline certification and audit processes, reducing costs and improving manufacturing efficiency.
- **Data Transparency and Control**
 - Secure data management while promoting transparency across the supply chain.



<https://medium.com/@nis.jespersen/from-compliance-to-opportunity-c8a7817a9f34>

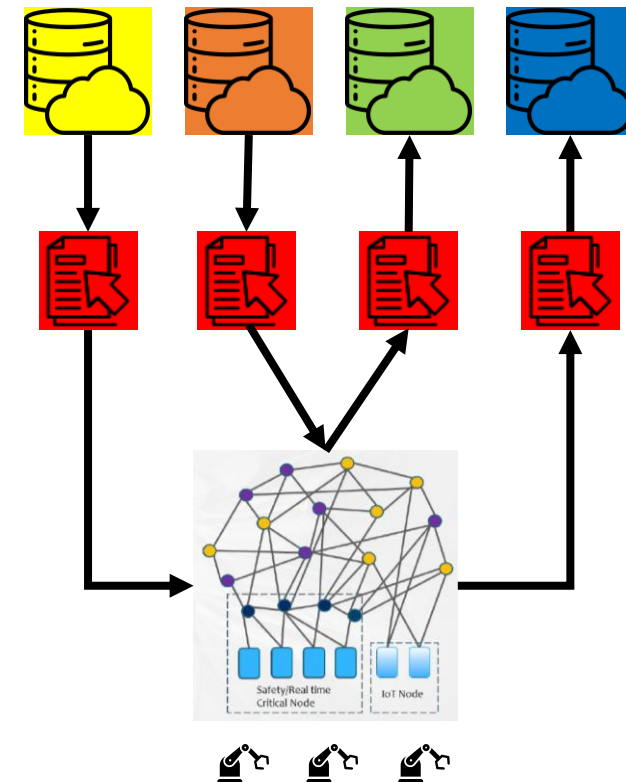
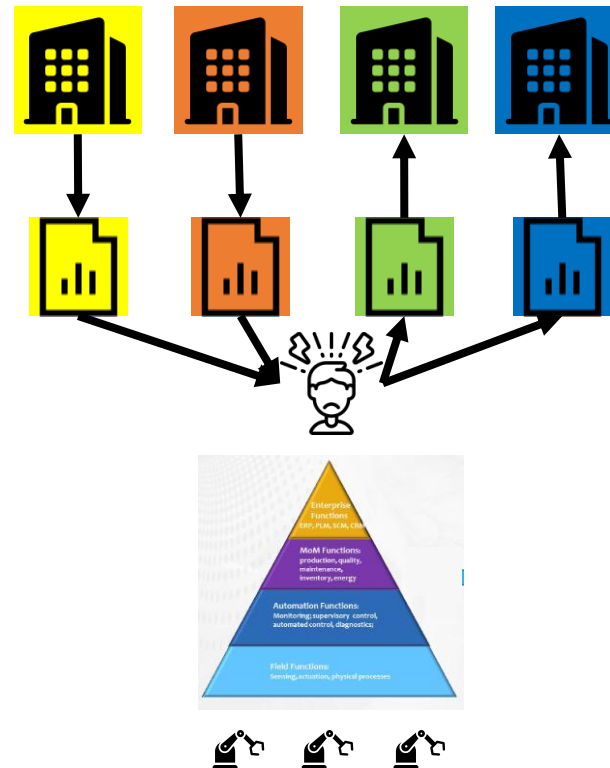
Change of Information Flow

External Data Source

External Information

Mapping to MMS

Manufacturing Management System (MMS)



Aspect	Current State	Ideal State
External Data Source	Direct one-to-one links with external systems	Integrated with appropriate Data Spaces
External Information	Inconsistent format and semantics	Well-structured and semantically consistent
Mapping External Information to MMS	Manual	Automated
System Architecture (MMS)	Hierarchical	Network-based

Next Steps

- Further analysis for manufacturing dataspace readiness
 - How to measure it? (considering internal and external aspects)
 - Manufacturing system architecture transformation
- Recommendation to the industry



Please contact us!



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Thank you for your attention

Danke für Ihre Aufmerksamkeit

ご清聴ありがとうございます