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Revolutionizing IoT Architecture Standardization

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특허청 Korean Intellectual Property Office
주관 국립전파연구원 National Radio Research Agency
TTA IITP KEA kista ETRI

Foundational Architecture

Index

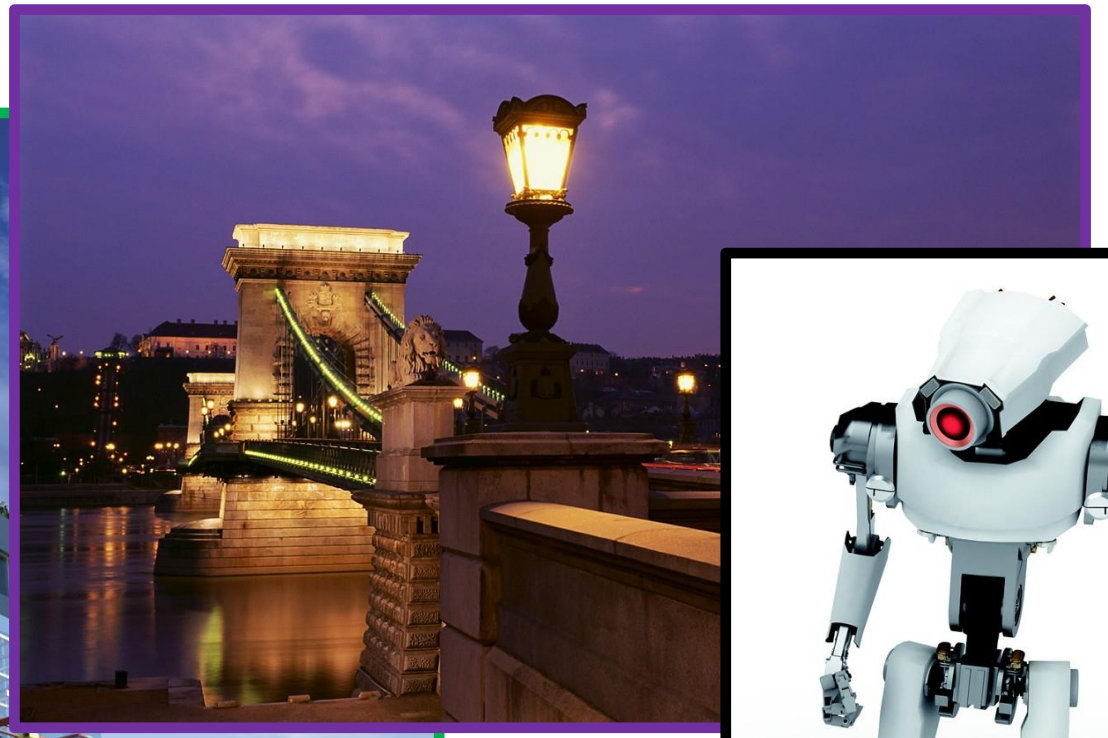
01. About presentation

Ms. Erin Bournival

Distinguished Engineer at Dell Technologies.

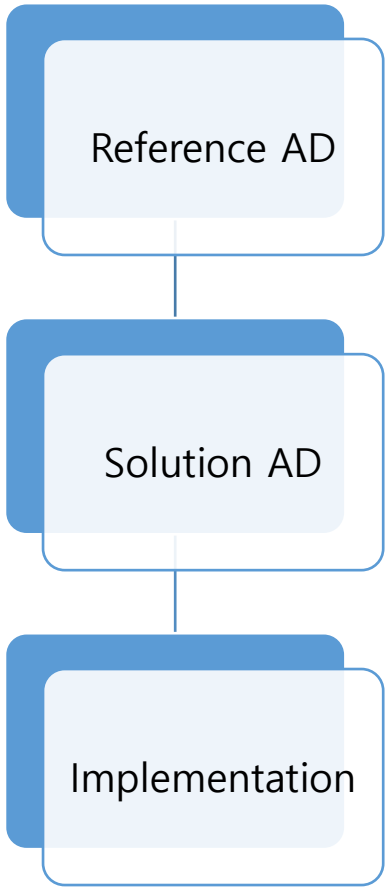
- Convenor, ISO/IEC JTC1 SC41 WG3 on IoT Foundational Architecture
- Chair, US INCITS Brain-Computer Interface Technical Committee
- Vice-Chair and Secretary, US INCITS IoT Technical Committee.

02. System Architecture



03. Descriptions of architecture

04. Building with yesterday's foundations



Reference Architecture Description (RAD)

Solution Architecture Description (SAD)

Implemented System

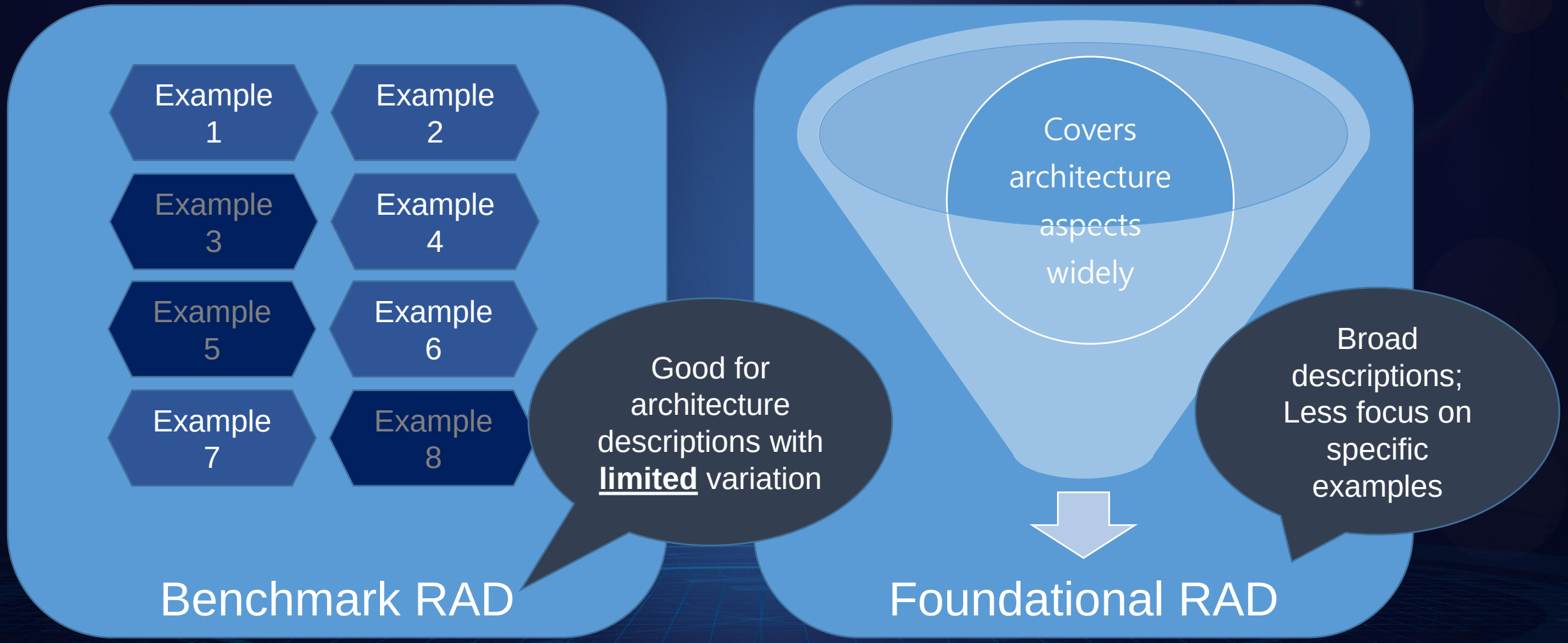
05. Reference Architecture Description (RAD), defined

US Department of Defense (DoD) Definition, paraphrased:

Reference Architecture is an authoritative source of information about a specific subject area that guides and constrains the instantiations of multiple architectures and solutions.

"A RAD is a tool practitioners can use to make it easier to design well-conceived information sharing solutions/systems that meet business goals. "

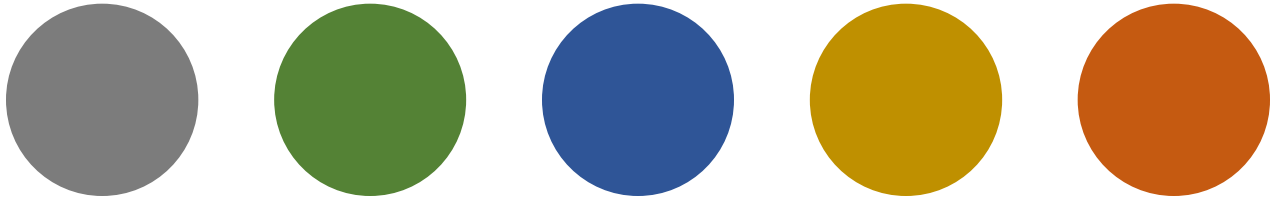
06. RAD Classification



07. Our starting point

RAD - ISO/IEC 30141 Ed1

Frame thinking around the Internet of Things
Explain technologies/concepts
Define/explain commonly used vocabulary



08. Modern World – Modern Challenges

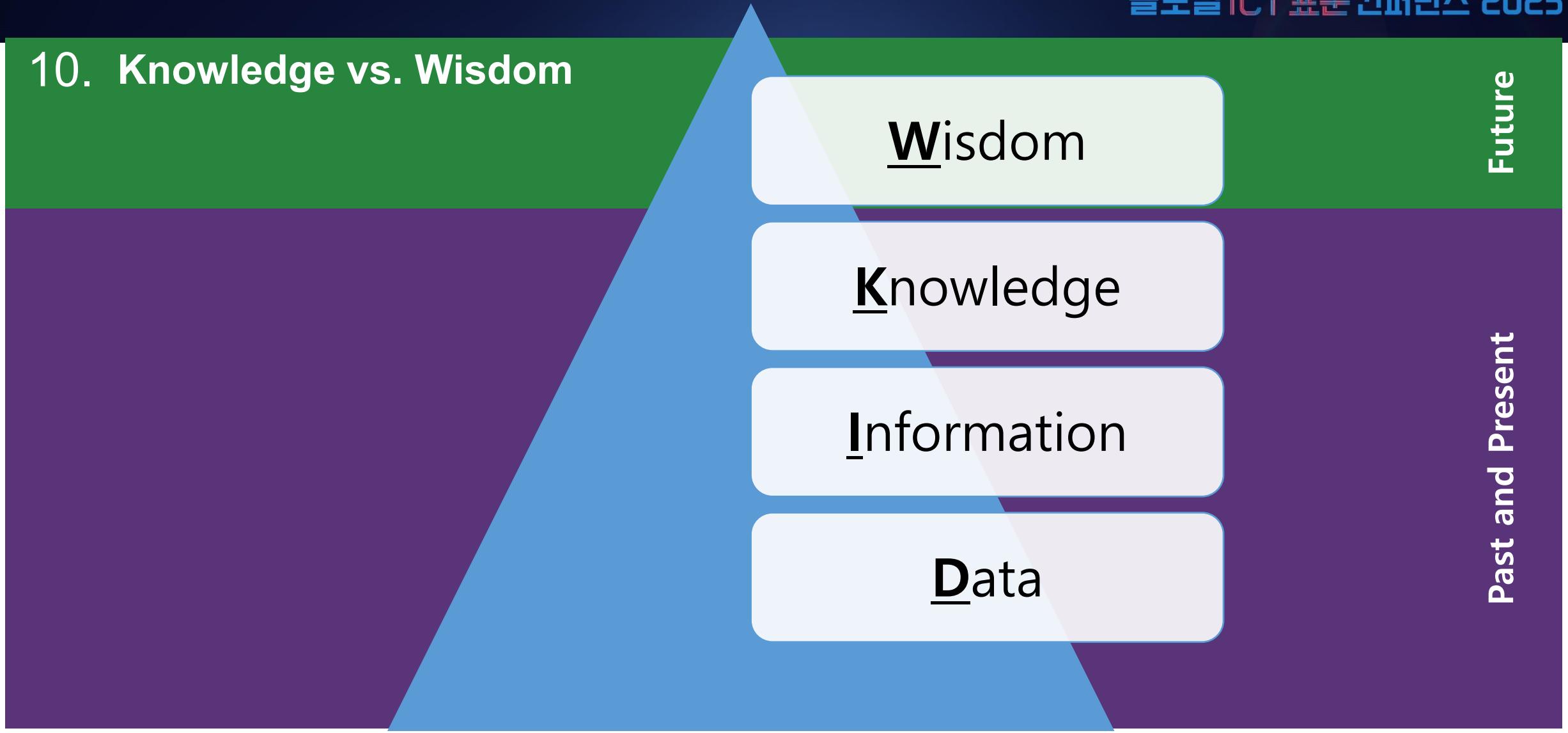
	Developed in the past (e.g., w/30141 Ed1)
Number of sensors/ actuators	Fewer
Analytics	Simpler For example, a simple closed loop
Component Diversity	Homogeneous
Tenancy	Single owner
Configuration Malleability	Static – relatively fixed
Technologies	IoT

09. Challenge examples of today and tomorrow

Remote patient monitoring systems, scaling to thousands of patients

Traffic management systems that monitor and manage traffic flow through busy highways

10. Knowledge vs. Wisdom



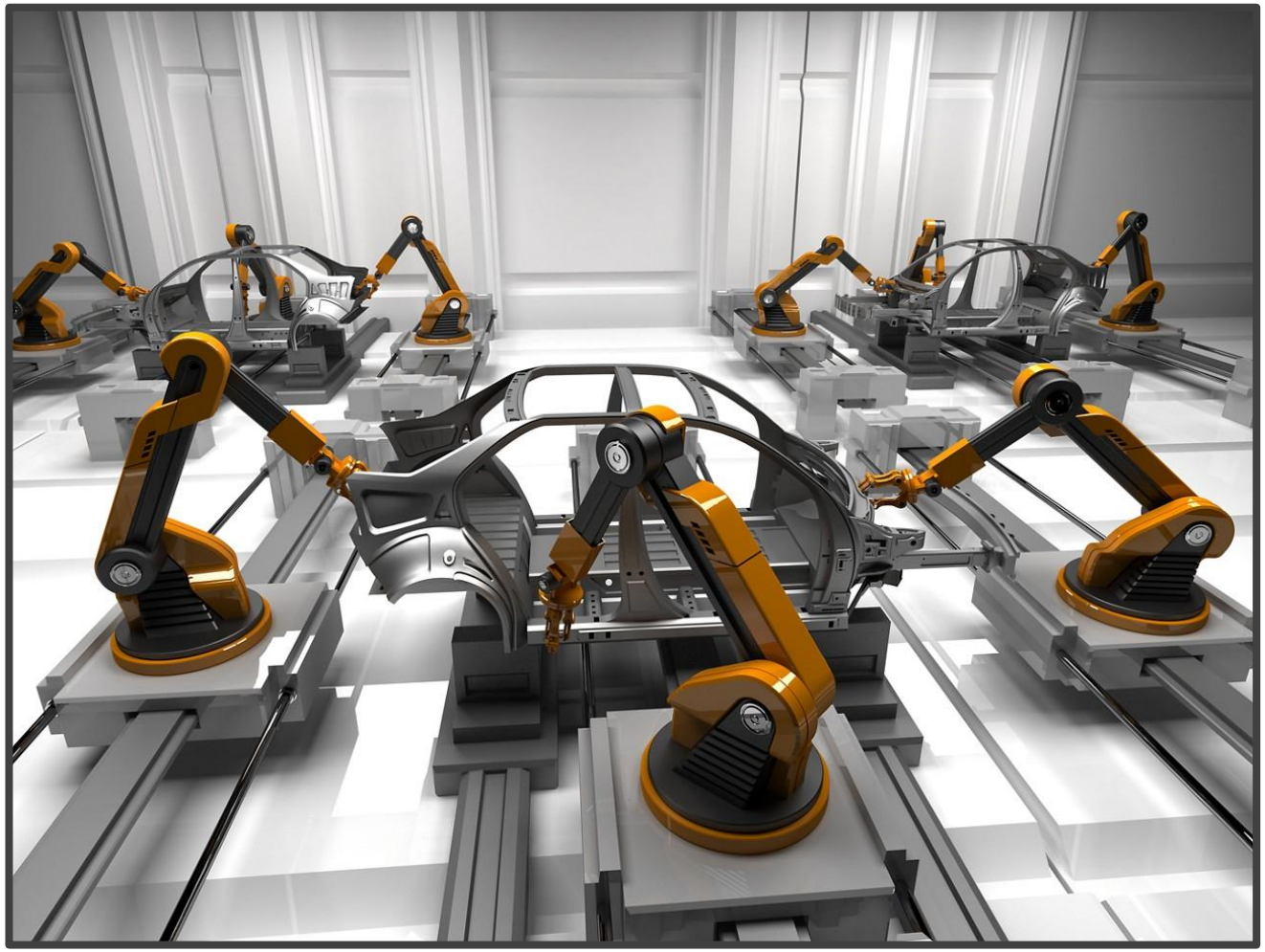
11. ISO/IEC 30141 Ed1 vs. future requirements

What's the Next Step for ISO/IEC 30141?

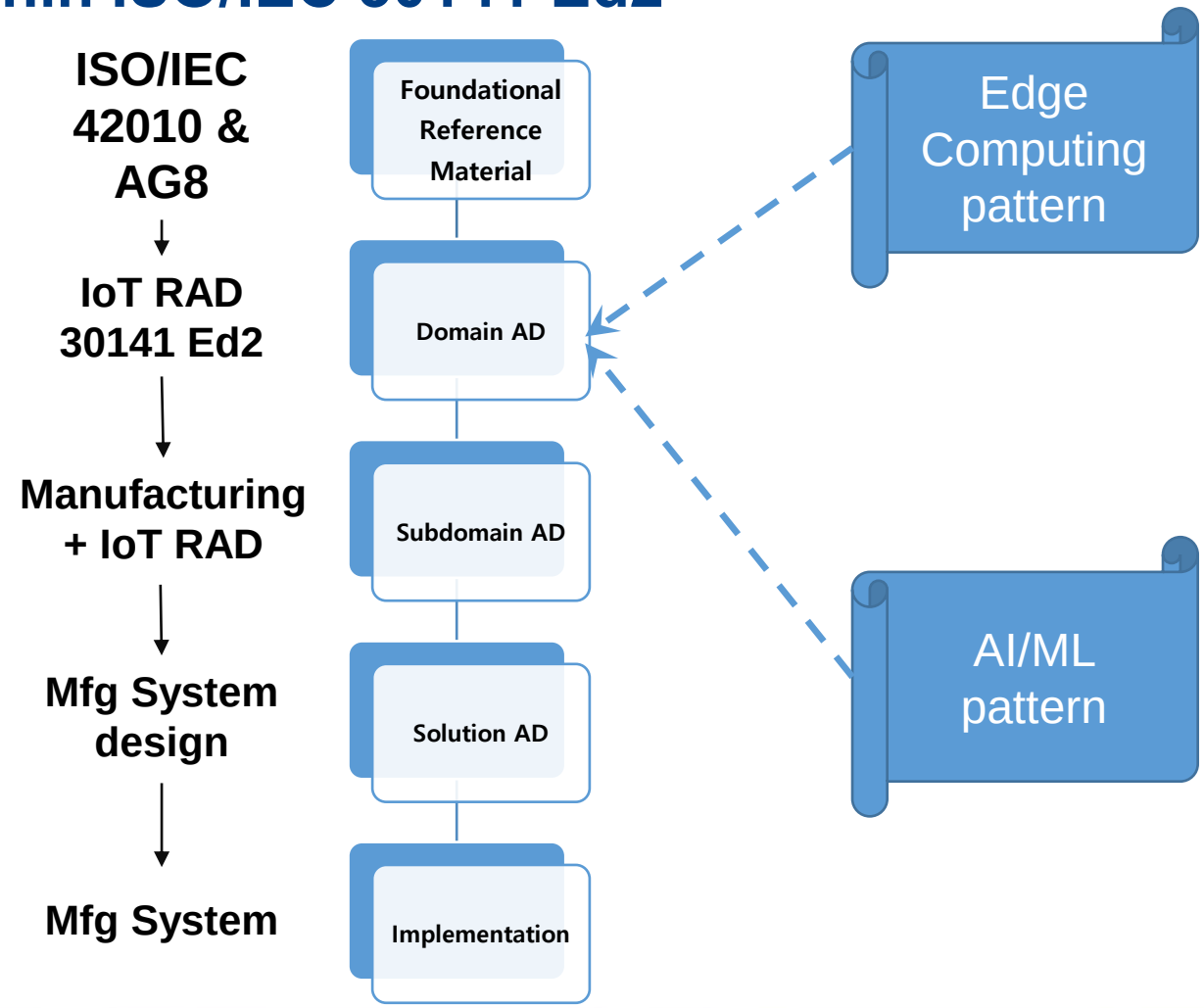
12. Looking to the future

Introducing **ISO/IEC 30141 Ed2**

- Foundational RAD
- Extensible
- Full hierarchical document structure
- Targeted release:
  end-of-2023 / beginning-of-2024



13. Document hierarchy within ISO/IEC 30141 Ed2



14. Patterns

- Plug-in module
- Extends ISO/IEC 30141 functionality
- Can be authored by anyone

15. Example patterns in ISO/IEC 30141 Ed2

The following patterns will be included directly with the 30141 Ed2 IoT Reference Architecture Description document:

- **Reference Architecture Model Industrie 4.0 (RAMI 4.0)**
- **Dynamic IoT System Pattern**
- **IoT Enterprise System Pattern**
- **IoT Enterprise Networking Pattern**
- **IoT Enterprise Usage Pattern**

16. Opportunities for new pattern development

The following patterns could be authored for use with the 30141 IoT Reference Architecture Description document to assist in development of Solution Architecture Descriptions (SADs)

- **Edge Computing Pattern**
- **Cloud Computing Patterns**
- **Sensor Network Patterns**
- **Underwater Sensor Network Patterns**
- **Interoperability Patterns**
- **Artificial Intelligence/Machine Learning Patterns**

17. Review

- What have we learned:
  - IoT has evolved significantly over time
  - Dependencies on other (emerging) technologies exist
  - New tools are being developed to keep pace with technology developments

Thank you

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