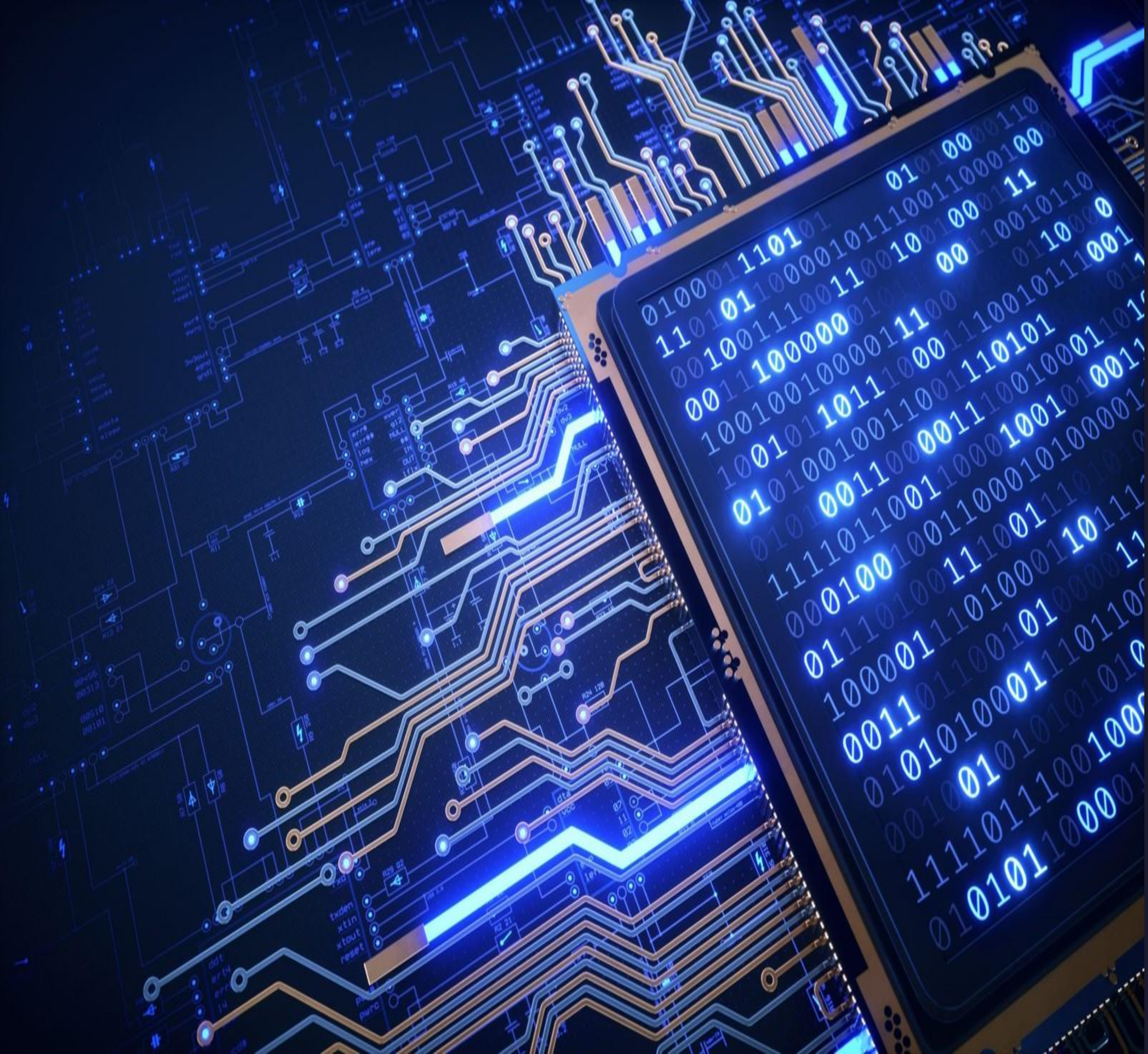
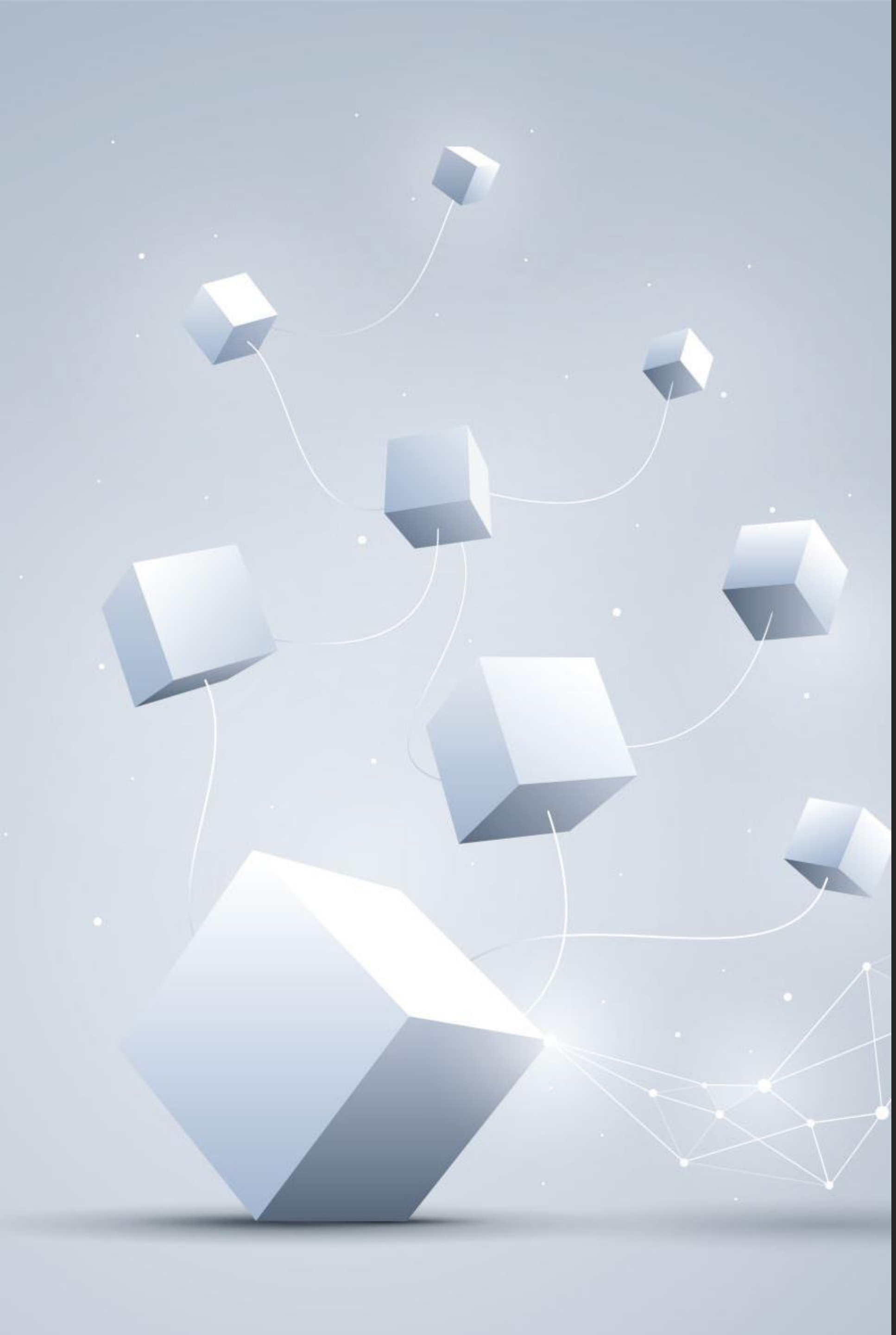


Fortifying the Future

Jon Boulos

National Cybersecurity Center of Excellence

March 5, 2025



Agenda

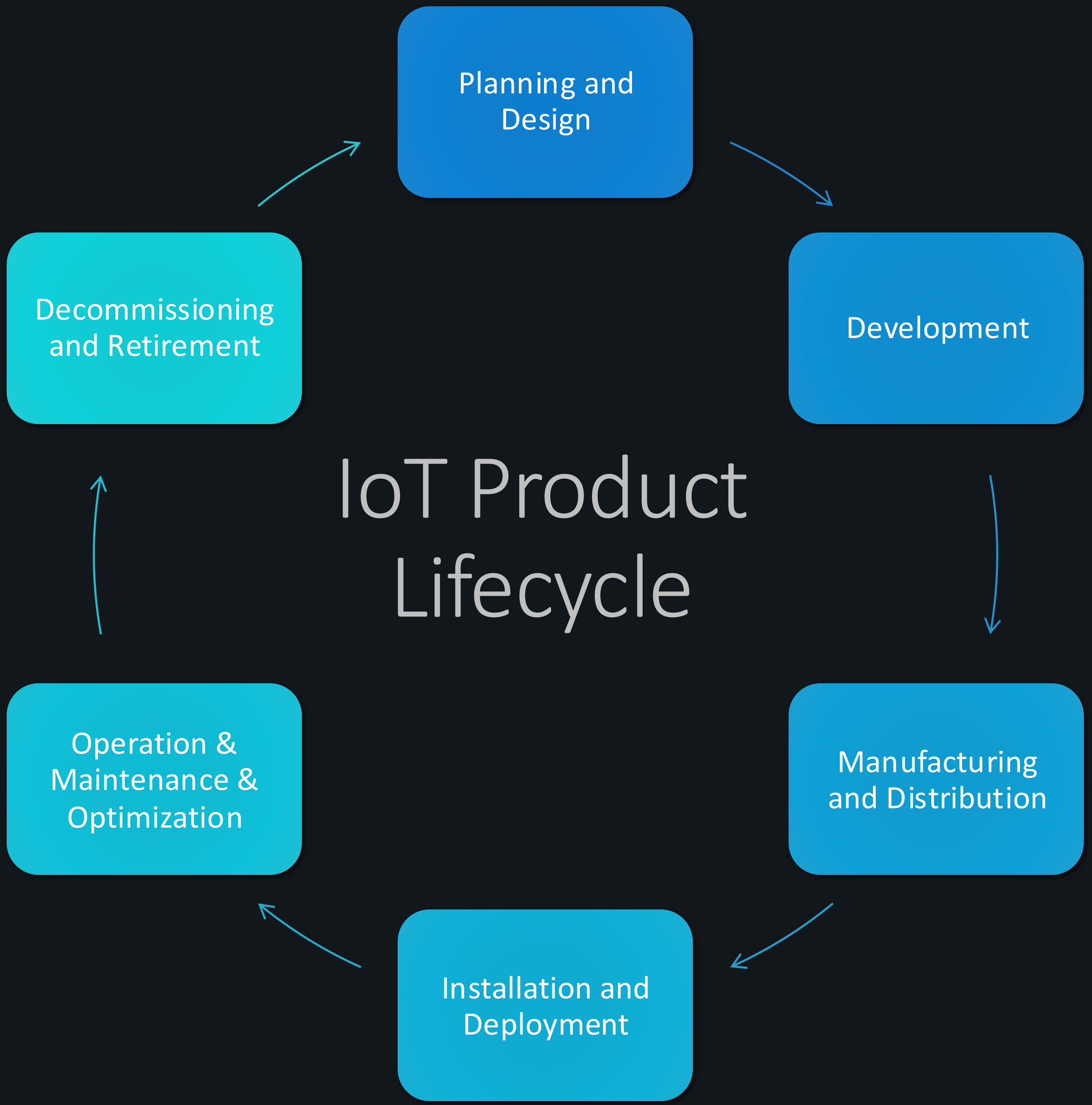
- Product-centric view of IoT
- The role of risk analysis
- Applying IoT guidance to industrial contexts
- Opportunities
- Final tips & takeaways

Product-Centric View of IoT

Device-centric → Product-centric

Consider how components interact within the broader ecosystem

Consider cybersecurity risks and controls from a product and ecosystem perspective



IoT Product Lifecycle

Planning and Design

Development

Manufacturing and Distribution

Installation and Deployment

Operation & Maintenance & Optimization

Decommissioning and Retirement

Planning and Design

Risk assessment

Security-by-design

Ecosystem security

Scalability and compatibility

Development

Secure SDLC

Hardware Security

Firmware security

Software security

Manufacturing & Distribution

- Trusted vendors
- Supply chain security
- Security testing & quality assurance
- Device identities

Installation and Deployment

Site survey

Secure configuration

Deployment strategy

Training

Operation | Maintenance | Optimization

- Continuous monitoring
- Vulnerability management
- Software & Firmware updates
- Troubleshooting and support

Decommissioning and Retirement

- Product lifecycle planning
- Data sanitization
- Safe decommissioning
- Recycling and disposal

RISK

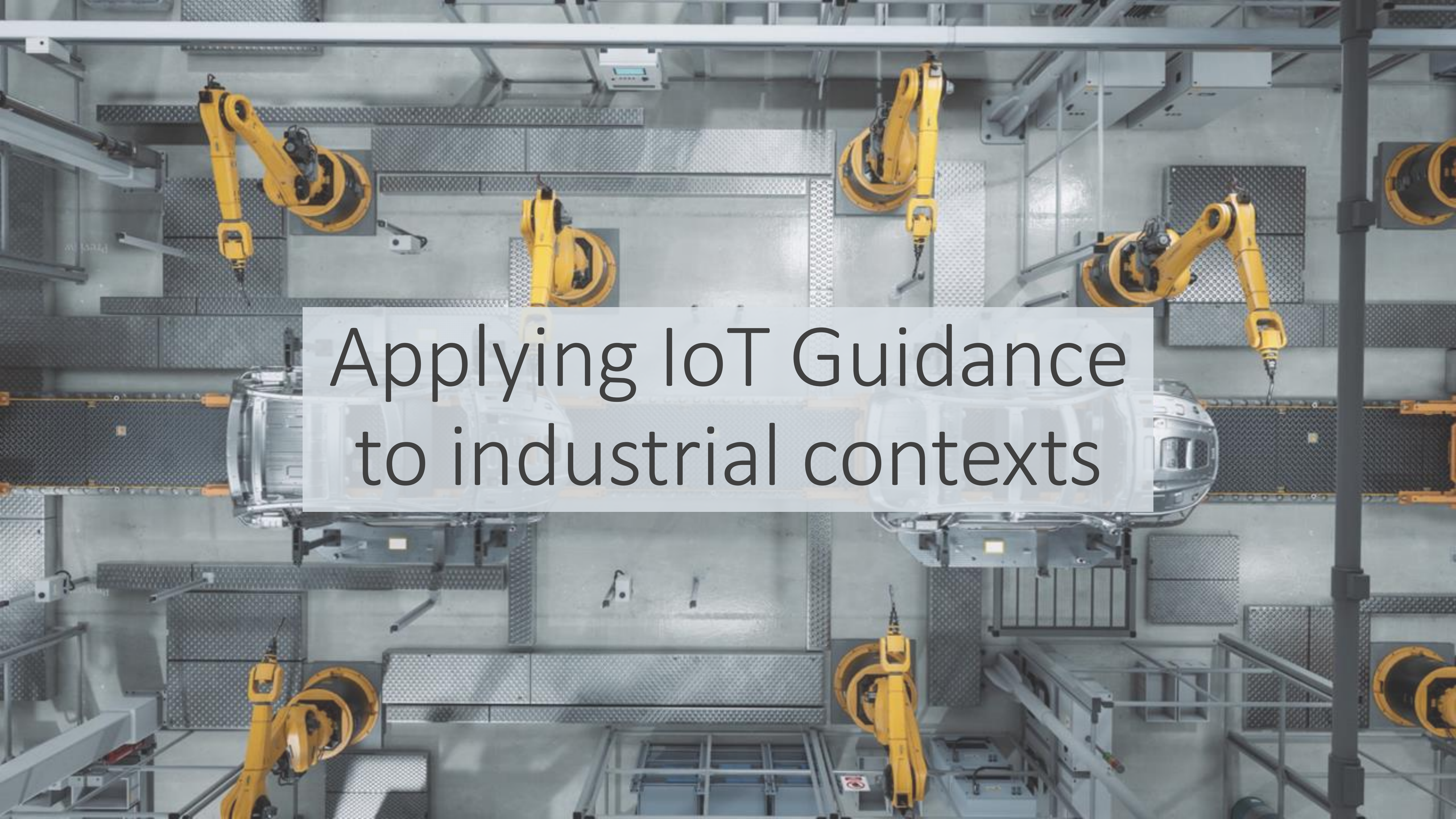
Risk analysis plays an important role in the early stages of product design

Risk-Based Approach

Identify vulnerabilities within ecosystems, networks, devices, and software

Prioritize vulnerabilities based on their potential impact and likelihood of exploitation

Risk analysis helps define the security controls to implement and prepare to respond to potential cyber incidents



Applying IoT Guidance to industrial contexts

Integration challenges and security concerns

- Higher complexity
- Requires new skillsets
- High investment cost
- Blending legacy and new infrastructure
- Secure data management

Opportunities

Clearer standards and guidance

Certification and labeling programs

Data standards, integration, and communication protocols

Dependable supply chains

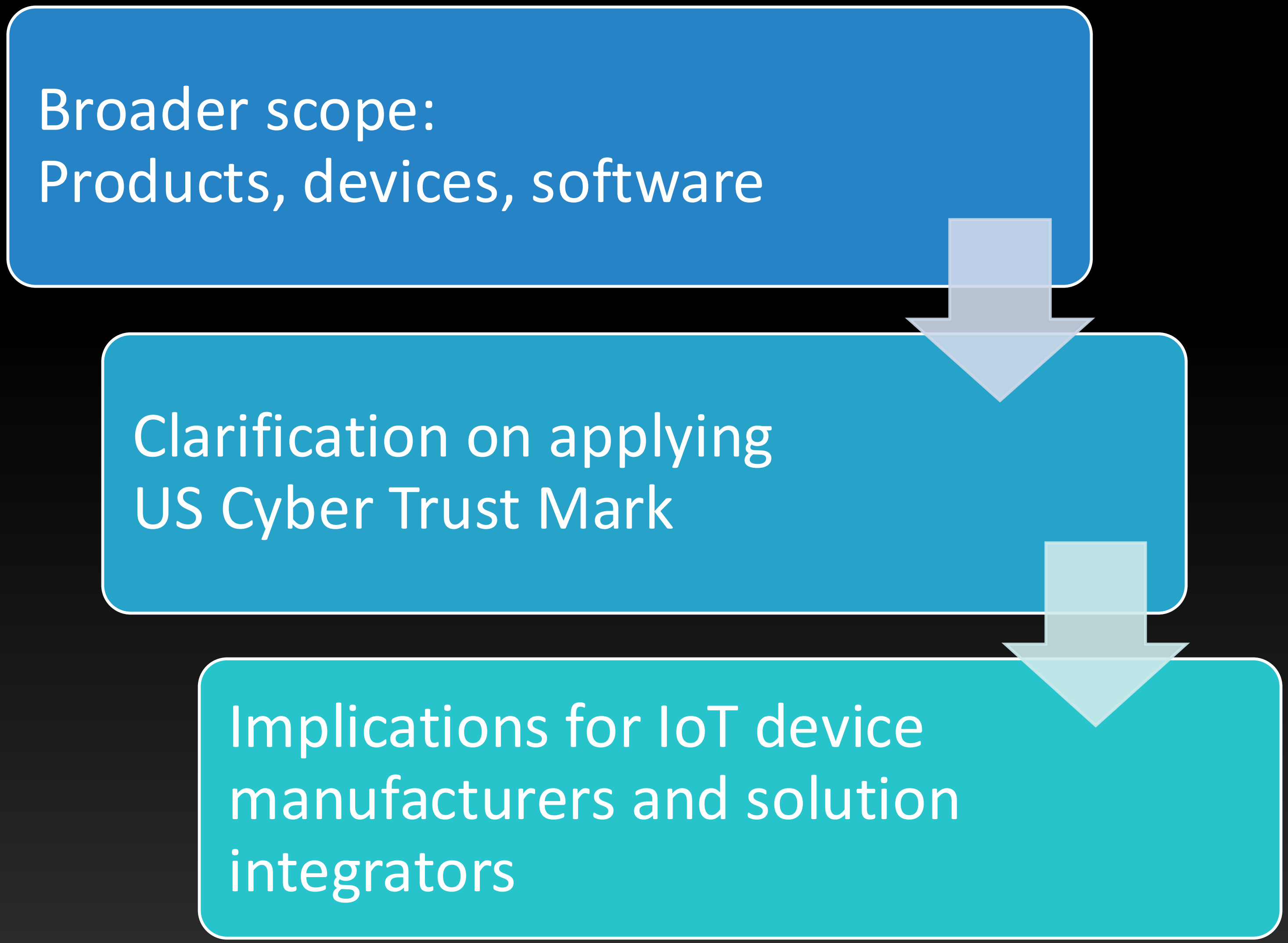
Workforce skill gaps

The adoption of IoT can be accelerated by creating clear and consistent standards for technology providers & adopters

Clearer Standards and Guidance

- Clearer direction on “mandatory” requirements from a regulatory and certification standpoint
- Appropriate level of security for product type, use case, and data
- More objective and articulate evaluation tools
- System-level requirements

Certification and Labeling Programs

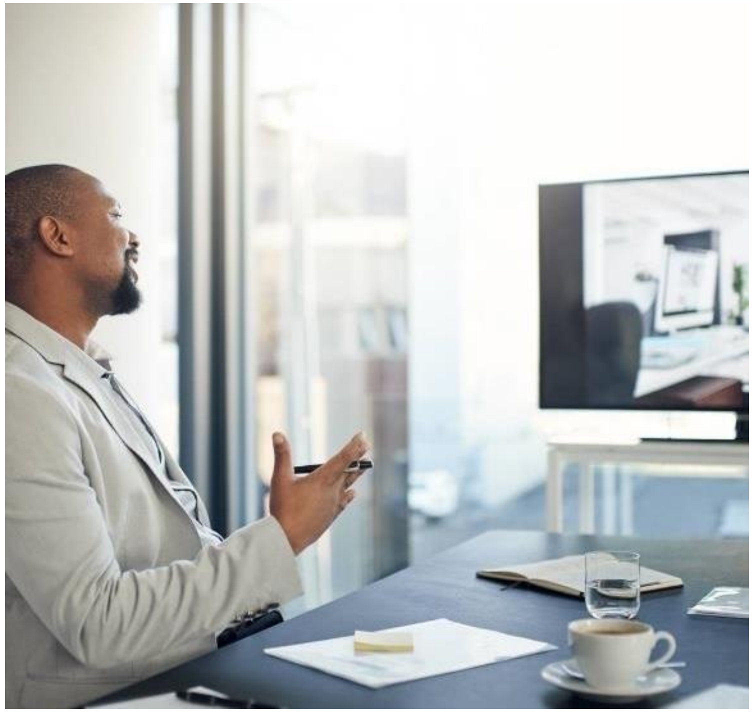


Broader scope:
Products, devices, software

Clarification on applying
US Cyber Trust Mark

Implications for IoT device manufacturers and solution integrators

Training & Upskilling
Programs & Incentives



Public / Private Partnership

Collaboration | Information Sharing | Integration of Public Feedback

Thank you!

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Q&A and Discussion