Cyber-Security for Critical Infrastructures
Securing IoT and their supply chains
- SIP, a government program in Japan -

SIP Cross-ministerial Strategic Innovation Promotion Program

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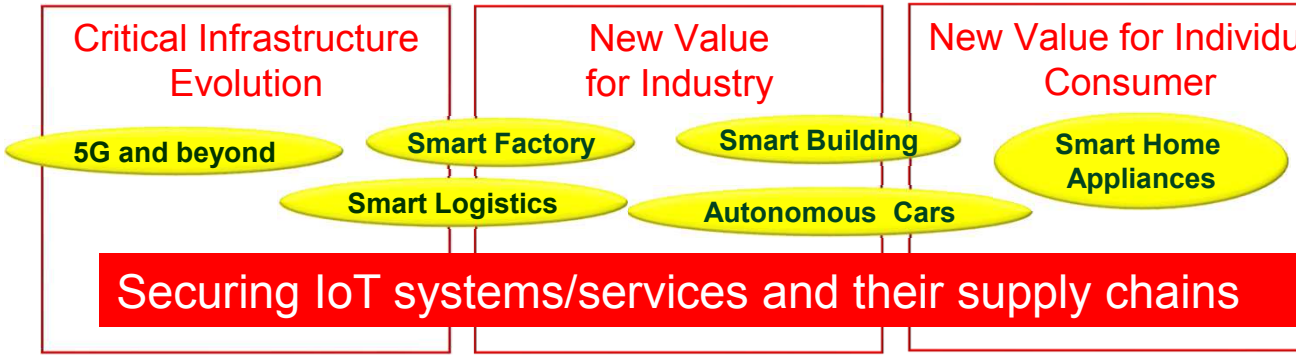
What we should protect from cyber attacks

Critical Infrastructures in Japan, for Tokyo2020 and beyond

SIP 1st Stage

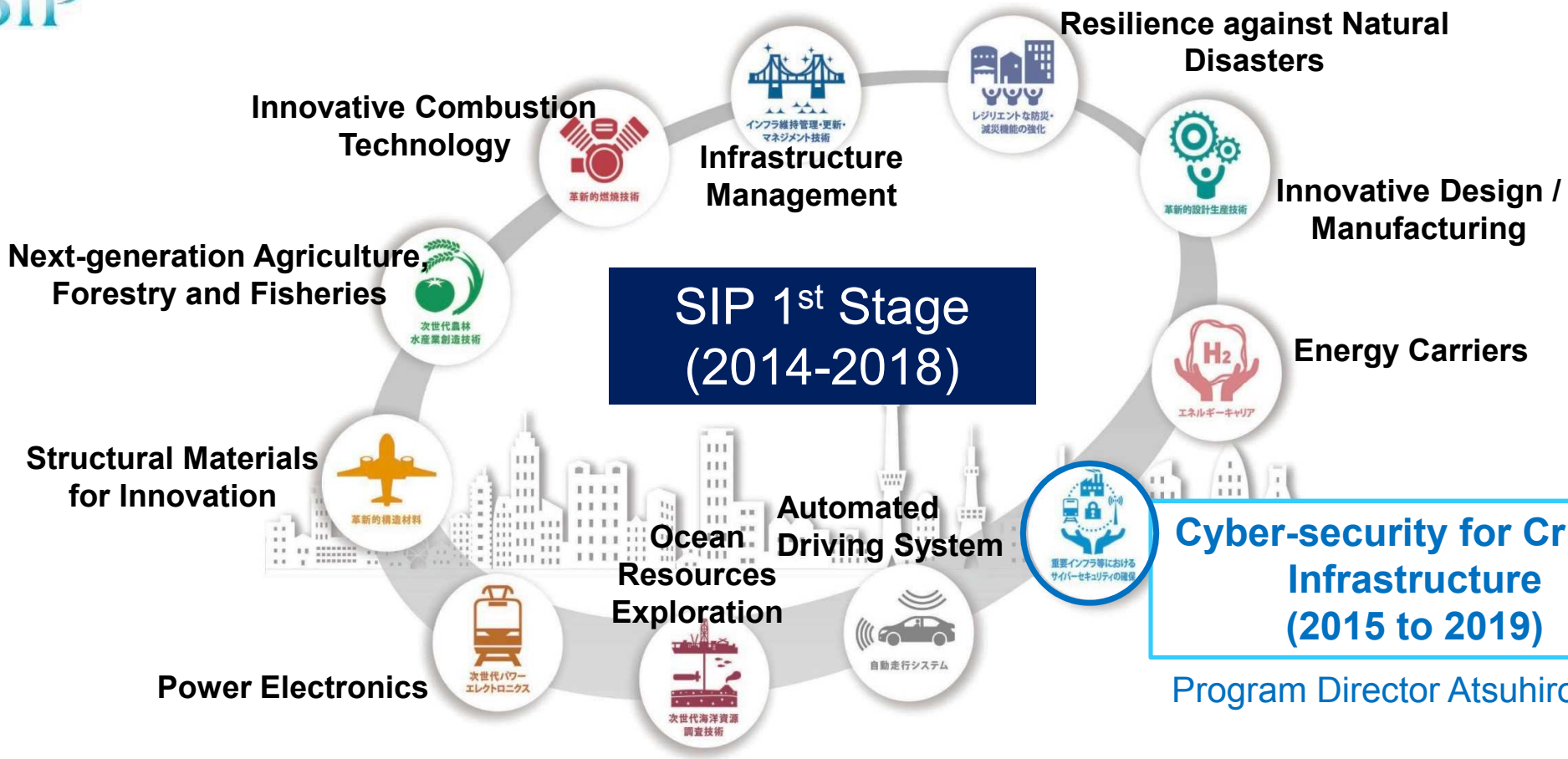
New value created by IoT System & Services in Society 5.0

SIP 2nd Stage



SIP is a national program in Japan, realizing Science, Technology and Innovation through promoting R&D from basic research to application and commercialization by cross-ministerial cooperation.

SIP: Cross-ministerial Strategic Innovation Promotion Program



Program Director Atsuhiro Goto

Cyber-Security for Critical Infrastructure

SIP 1st Stage

Critical Infrastructures

Communication and Broadcast

Energy

Transportation

Core Technologies for Secure Infrastructure and IoT Systems

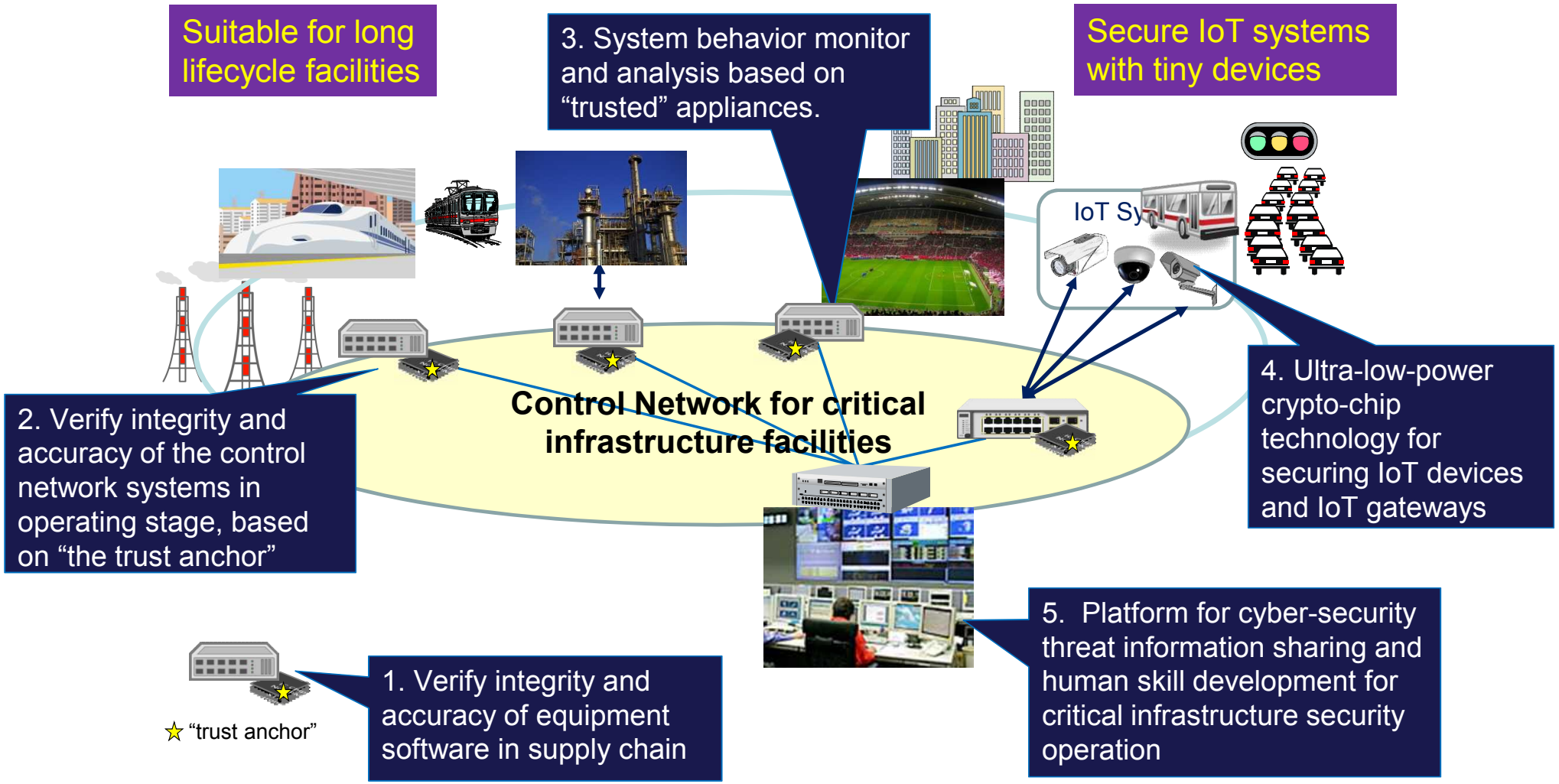
secure supply-chain framework for equipment and software,
secure facility operation by infrastructure operators themselves
to gain "**cyber-secure immunity**" of critical infrastructure

Technologies for secure operation:

information sharing platform, and human capacity-building for OT (operational technology) to strengthen "**organizational capability**"

Technologies developed in the project

SIP 1st Stage



Technologies developed in the project

SIP 1st Stage

Boost Cyber-security "**Immunity**" in Large-scale Control Network

- Authenticity and integrity monitoring technologies based on authenticity verification platform
- Behavior monitoring/analysis technologies for **long life-cycle** infrastructure systems where **new and old** facilities are working together

Strengthen Cyber-security for **Future IoT** Systems

- Anomaly detection and monitoring technology by means of **IoT** gateways
- Ultra-low power cryptography implementation technology for **tiny IoT** devices

Enhance "**Organizational Capability**" of Critical Infrastructure Operators

- Information Sharing Platform Technology
- Development of Human Resources for Cybersecurity

For more details

https://www.nedo.go.jp/activities/ZZJP_100109.html

Contact： cyber-sec2@nedo.go.jp

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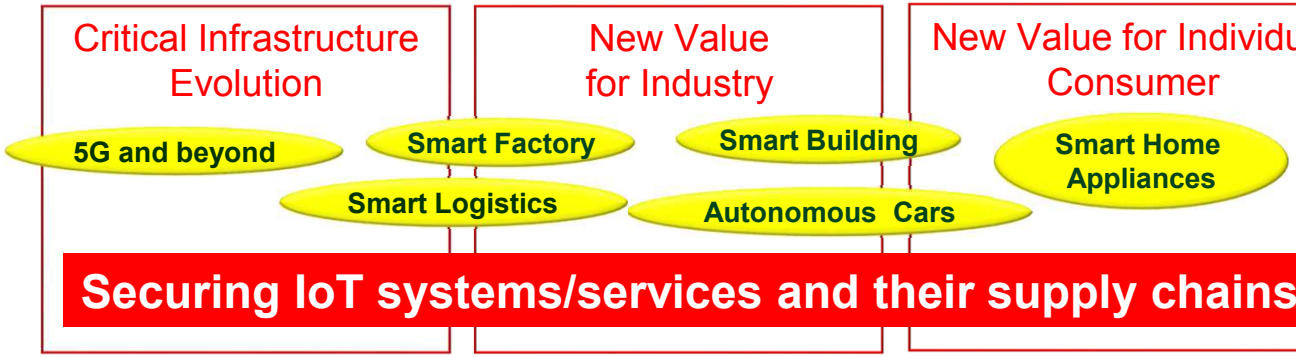

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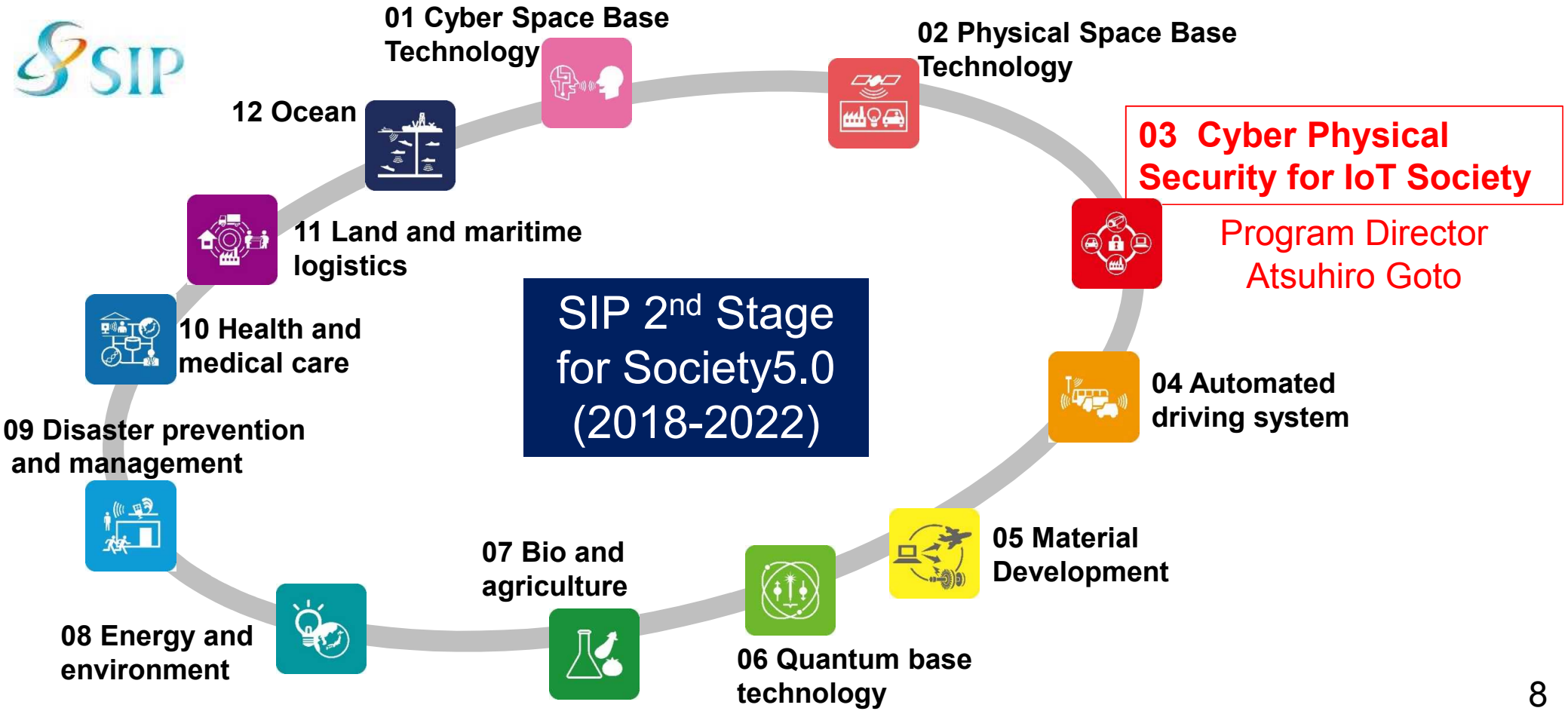
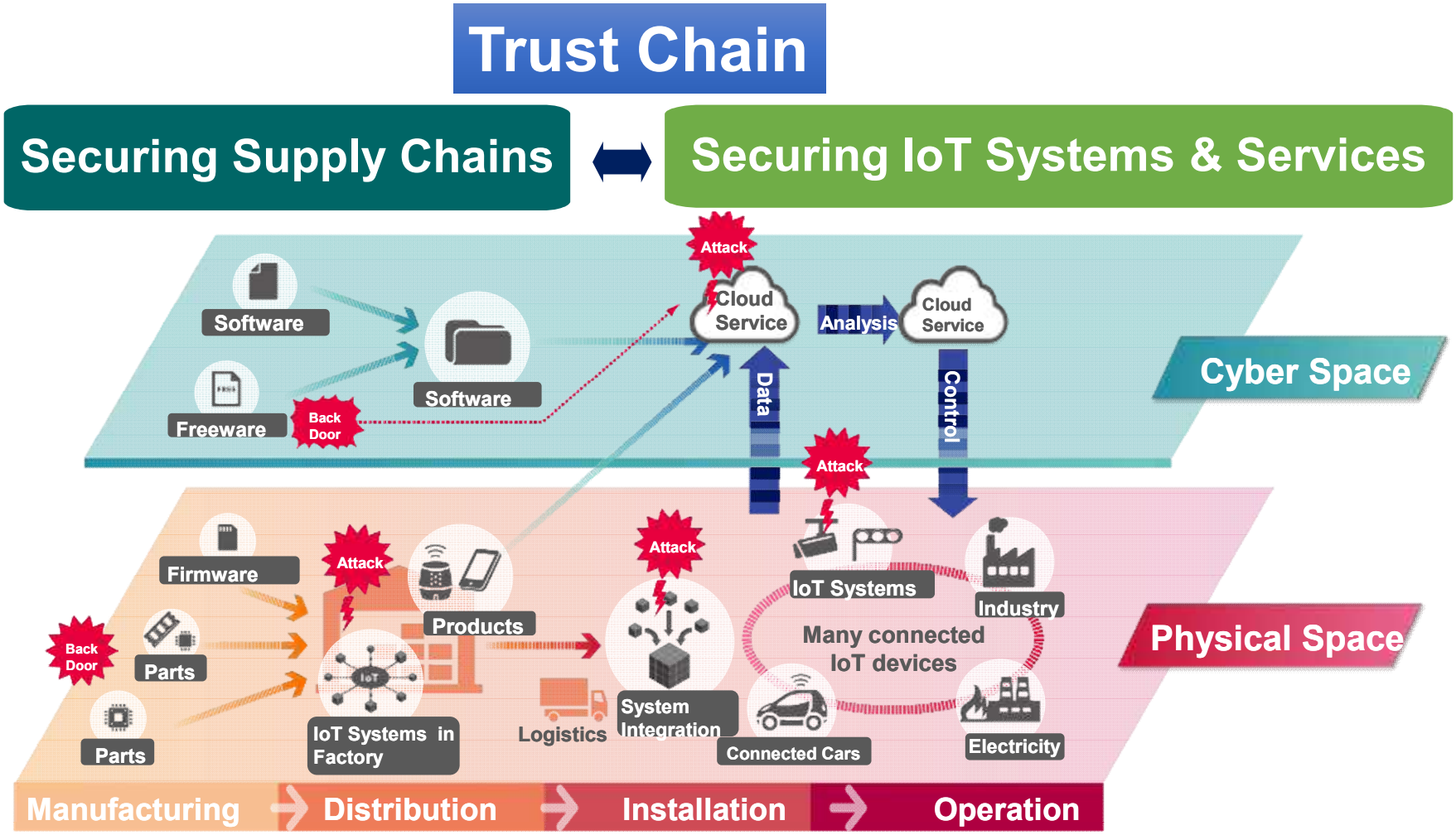


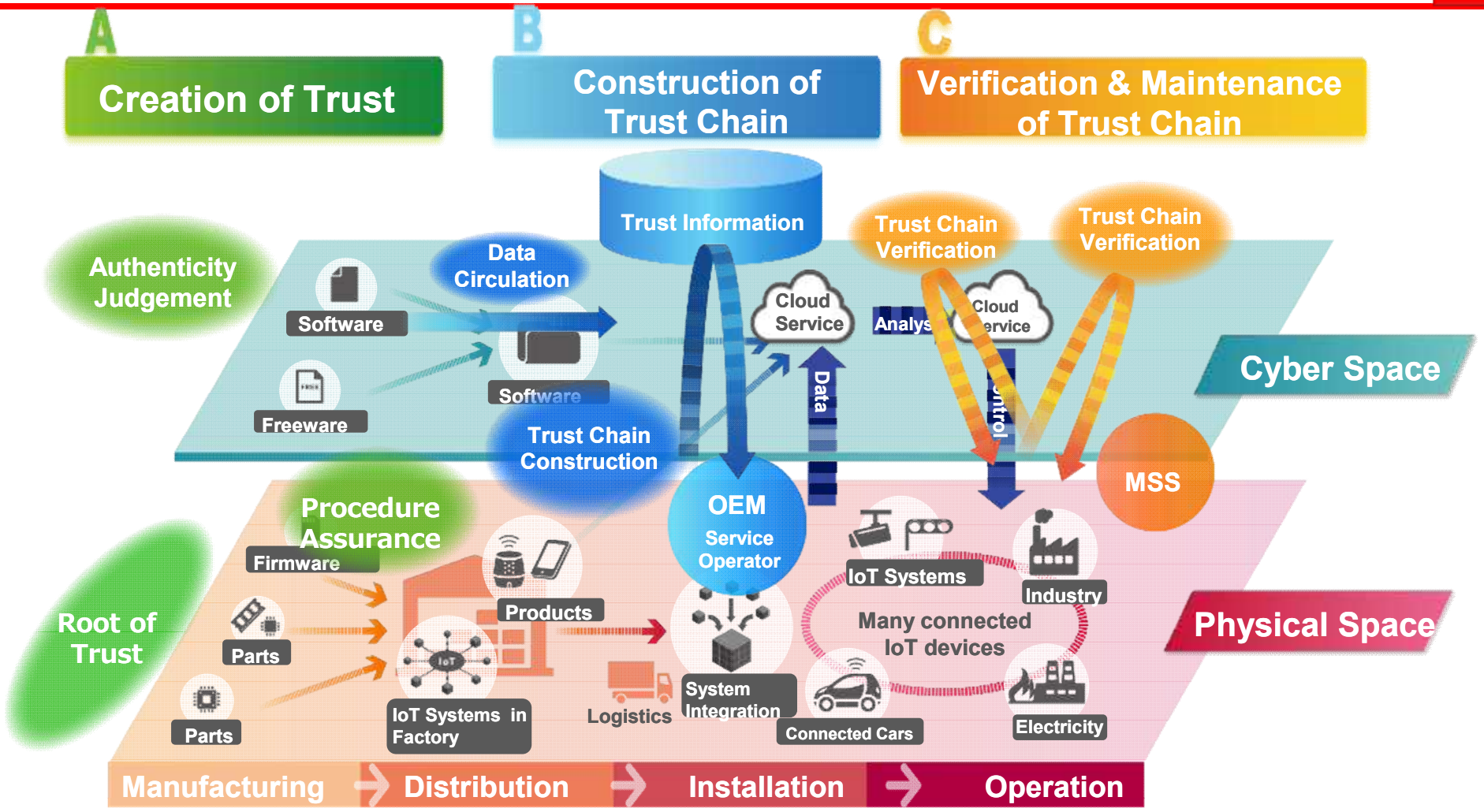
Security Risks in Cyber-Physical Systems

SIP 2nd Stage



Cyber-Physical Security Eco-System

SIP 2nd Stage



Three R&D Technology Goals

SIP 2nd Stage

R&D Budget: around $18M to $22M annually for 5 years

A. Creation of Trust

1. Creating trust by tamper-resist cryptographic module embedded in IoT devices.
2. Confirming trust through monitoring of authenticity and integrity of IoT devices
3. Confirming trust through certification of the eligibility of procedures

B. Construction of Trust Chain

1. Constructing trust chain based on industry-specific profiles.
2. Safe distribution of information related to the trust chain using block chain technology

C. Verification & Maintenance of Trust Chain

1. Verifying trust chains between business operators.
2. Maintaining trust chains by detecting, analyzing, and mitigating anomalies in cyber-physical system.

What are we doing and looking for?

To accomplish these three research goals,

- Practical experiments and trials in the “working” environment with support from industries (in smart manufacturing, logistics, buildings)
- Make research outputs compliant and consistent with relevant Regulations, Standards, Guidelines and Frameworks in the world.

For more details

LATEST SIP Plan and related information
https://www.nedo.go.jp/english/ZZpage_100140.html

Contact： cyber-sec2@nedo.go.jp