



Federal Ministry
for Economic Affairs
and Energy

PLATTFORM
INDUSTRIE4.0

Identifying security challenges along the industrial value chain

--- Toshiba case ---

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Leading Innovation >>>



ロボット革命イニシアティブ協議会
Robot Revolution Initiative



Toshiba's digital transformation business region

Toshiba IoT Architecture **SPINEX™**

Energy IoT



Electricity consumption visualization
Photovoltaic power generation
capacity prediction
Virtual power plant development
Power plant facility management

Social Infrastructure IoT



Operation & maintenance of water
treatment plants
Rechargeable battery management
for EV buses
Train operation monitoring
Monitoring & inspection of electric
power infrastructure

Distribution/Logistics IoT



Transportation quality visualization
& analysis
Operational efficiency of warehouses
Automatic identification & tracking
of cargo & roll box palletets

Building & Facility IoT



Equipment inspection support service
Preventive maintenance of elevators
Monitoring of air-conditioning &
lighting system operation
Energy-saving services for building
facilities

Manufacturing IoT



Big data analysis for manufacturing
Monitoring & maintenance of
production facilities
Industrial equipment failure prediction

- From order production to mass production
- From domestic production base to global production base
- Toshiba IoT Architecture **SPINEX** provides 'digital twin economy'



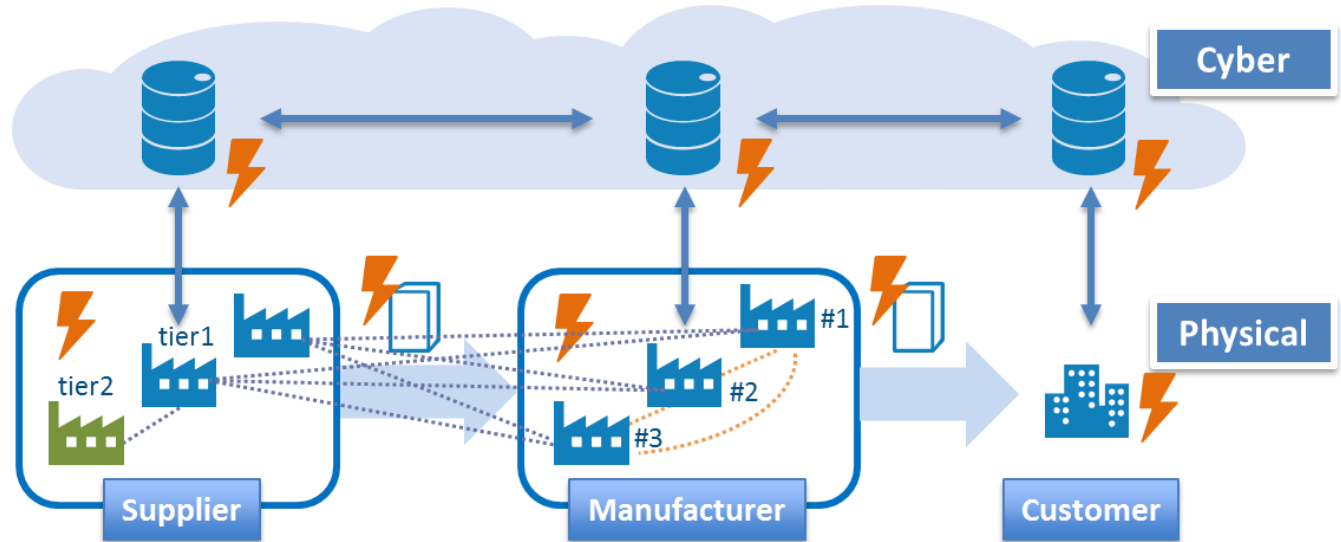
Security challenges for digital transformation

'Three Layers'

data circulation

cyber ↔ physical

supply chain



'Six Elements'

organization

people

component

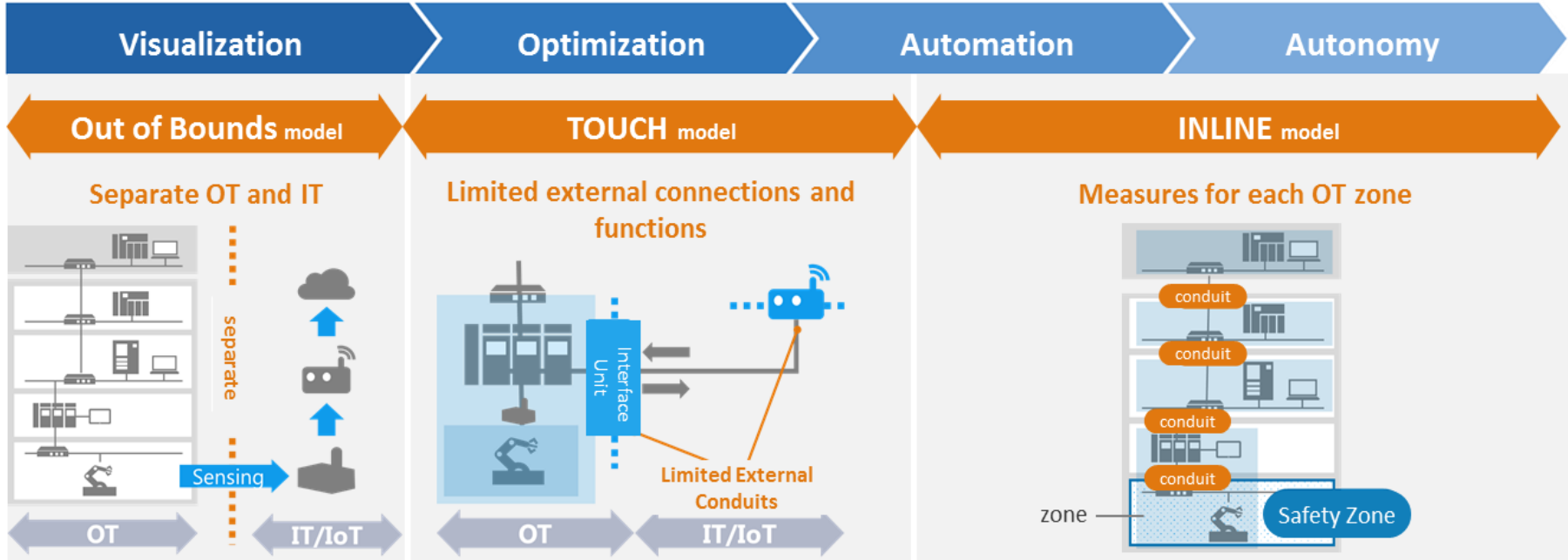
data

system

procedure



System evolution along digital transformation





Lifetime Protection Procedure



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