

**SATOSHI KOJIMA**  
Omron Corporation  
Japan

- General Manager of Network Product Management Group in Omron
- Representative of ODVA TAG Japan



# Security at Manufacturing Site of Factory Automation/OT

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September 20<sup>th</sup>, 2018




**Satoshi Kojima**

General Manager

Network Product Management Group, Controller Div.,

Omron Corp.

- Who is Omron
- Difference Between IT & OT, PA & FA
- Changes in FA
- Innovation at Manufacturing Site in FA
- Challenges ...

- Satoshi Kojima(小島 訓 in Japanese)
- General Manager of Network Product Management Group in Omron
- In charge of Business Planning and Product Planning for Network Product including Security
- Chairman of ODVA TAG Japan 
- I can be reached via  or 



# Brief Introduction of Omron

## Corporate Philosophy

**" To The Machine, The Work Of The Machine,  
To Man The Thrill Of Further Creation"**

Kazuma Tateishi  
Founder of Omron



## Solving Social Challenges by "Automation"



1960  
"Dream switch"  
non-contact switch Prox.



1967  
World's first fully automated  
train gate system at station



1971  
World's first automated  
on-line teller machines



2009  
Sphygmomanometers for  
domestic use. Sales of 100  
million units were achieved

**Established**

May 10, 1933

**Incorporated**

May 19, 1948

**Capital**

64.1 billion yen (580 MUSD)

**Net sales**

860 billion yen (7,800MUSD, FY18 consolidated)

**Employees**

OMRON Group      36,193

OMRON Corporation      4,766

Domestic subsidiaries      6,788

Overseas subsidiaries      24,639

(As of March 31, 2018)

# Corporate Overview: Net Sales by Business Segment

**OMRON Group**  
**860 B JPY (≒7.8 B USD)**  
(March 2018, Consolidated)



Others  
(Environmental Solutions  
Business, other)

Healthcare and Medical  
Equipment

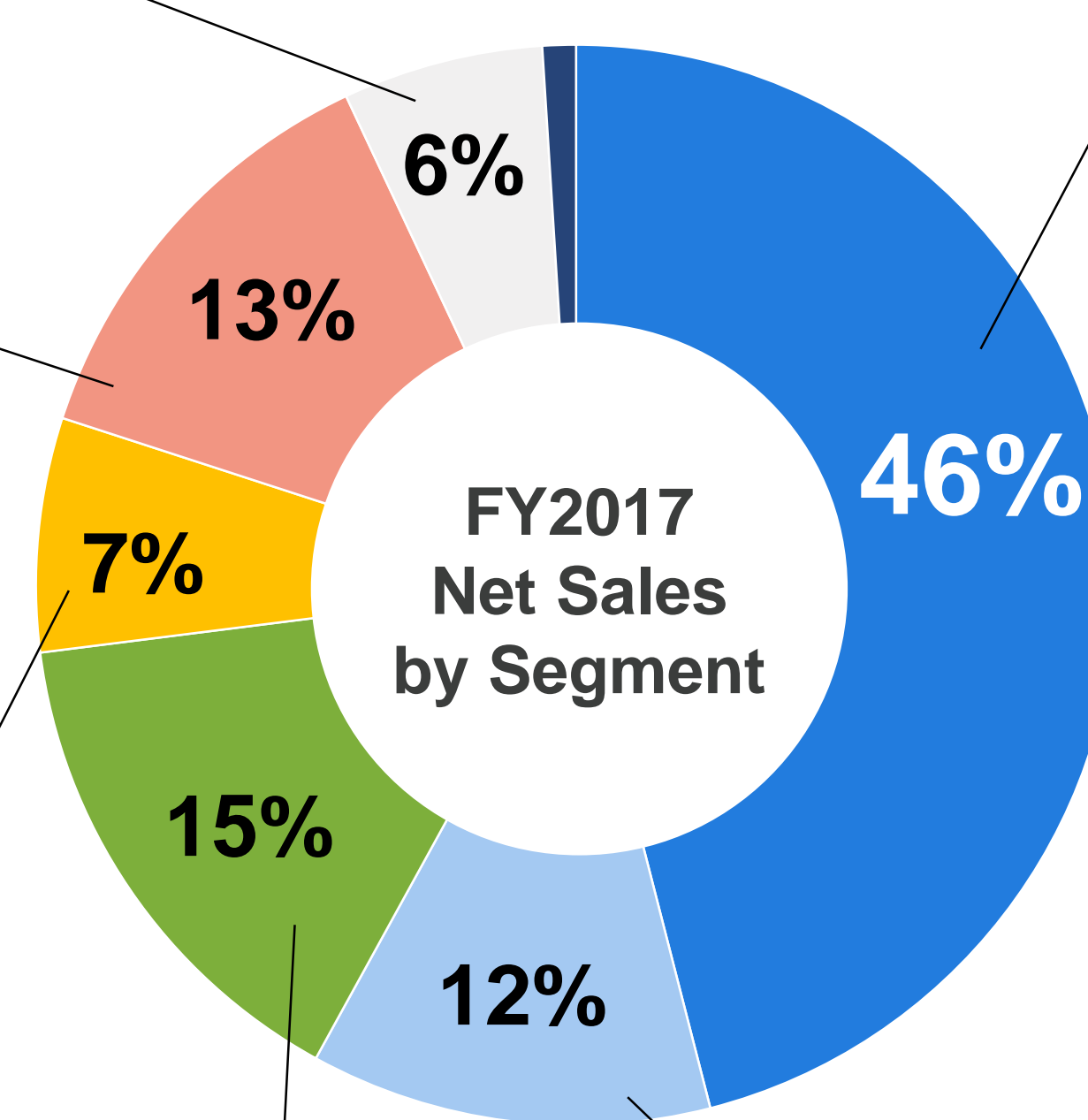


Social Systems



Eliminations & Corporate  
1%

**Control Devices for  
Factory Automation**



Automotive Electronic  
Components

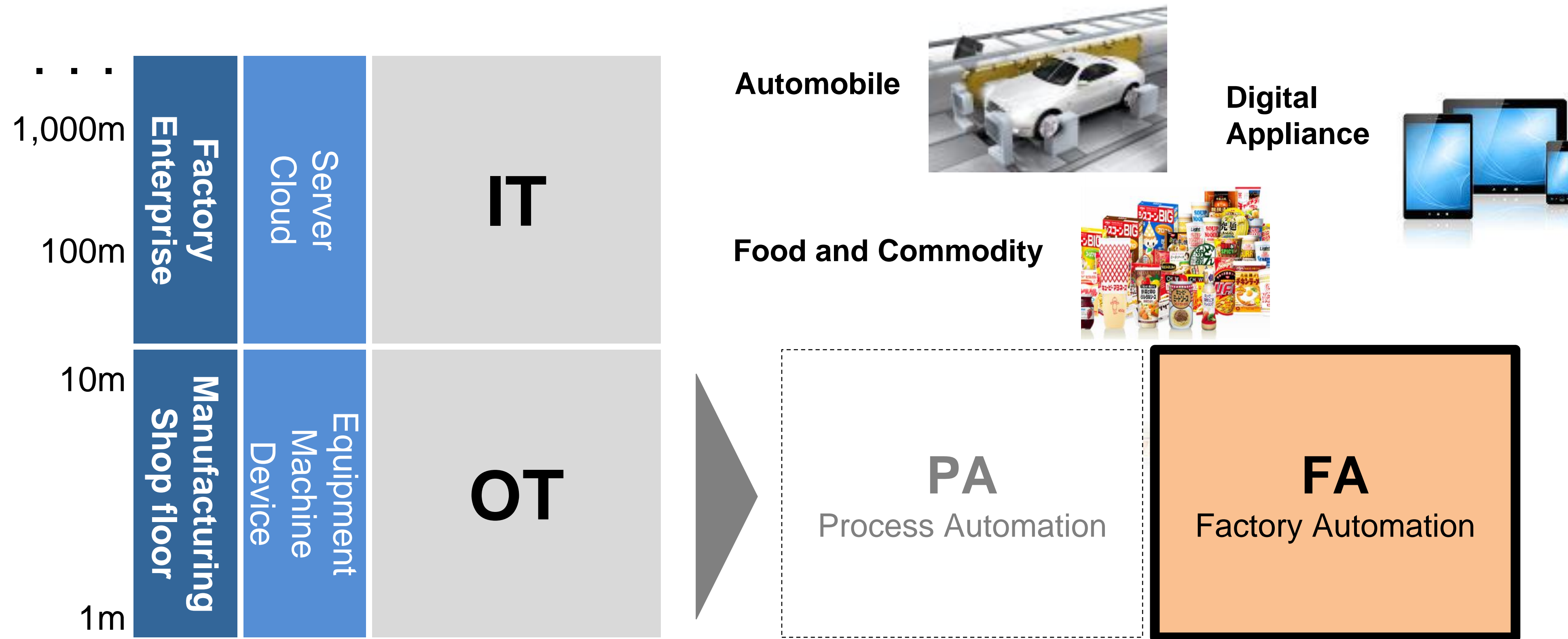


Electronic and Mechanical  
Components










# FA (Factory Automation)

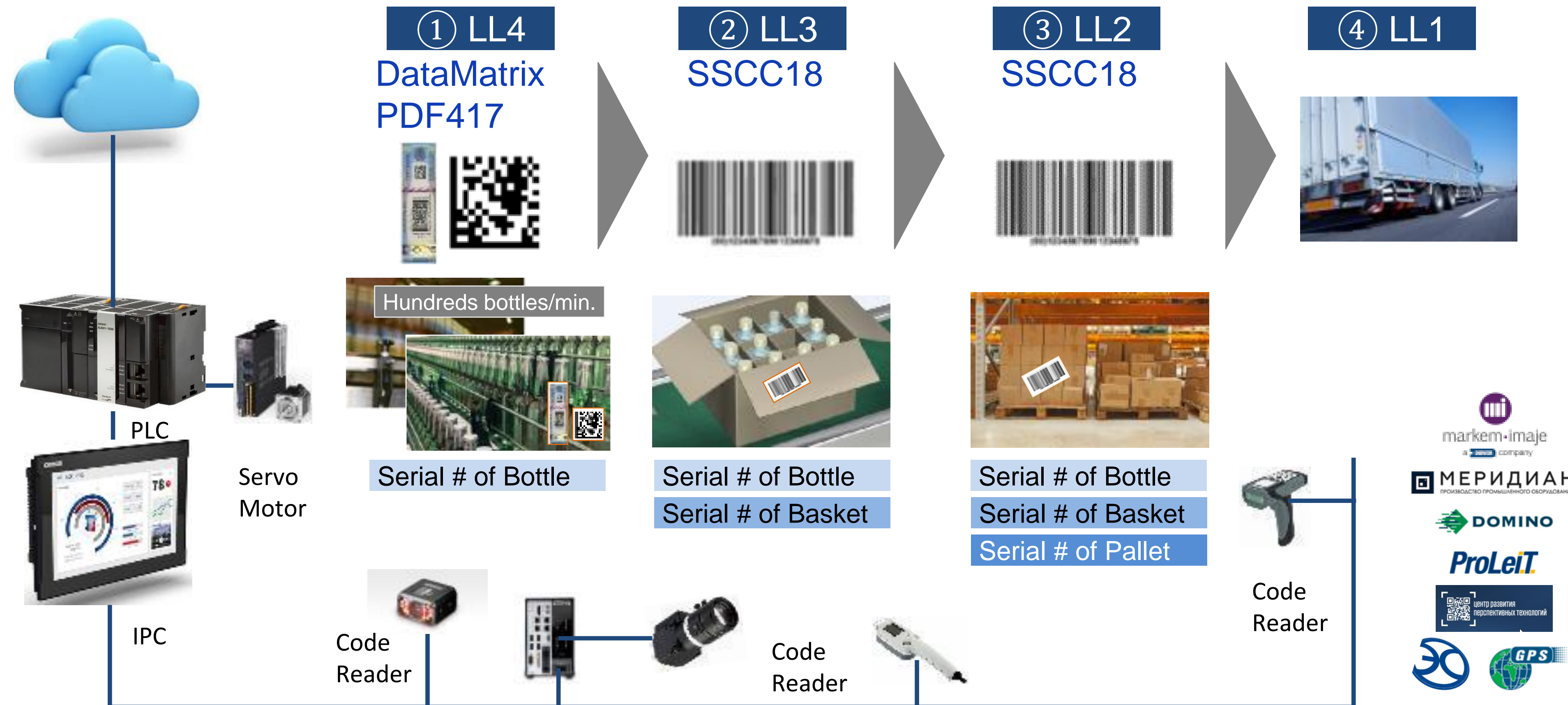
- In the “OT” Layer
- Basically Assembling, such as Automobile, Digital Appliance or Packaging of F&C ...



- Lots of Differences and Large Difference...

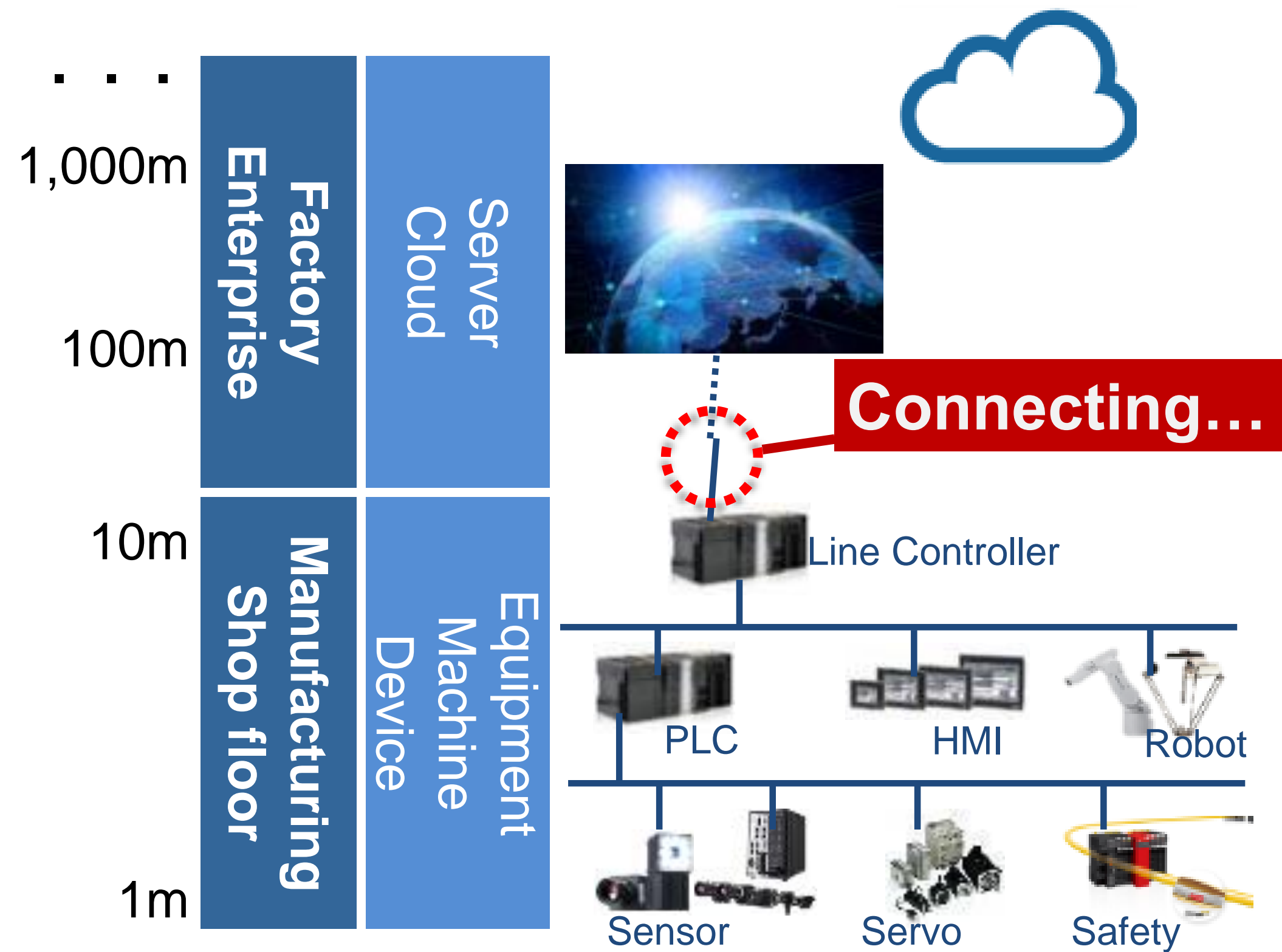
	Process Automation	Factory Automation
Control	DCS(Distributed Control System) or PC 	PLC(Programmable Logic Controller) or IPC 
Speed(unit)	second  ~ 1 sec	u(micro)second  1 / 1000000
When Stop...	Never Stop During Process 	Can be stopped (Even ropes to be stopped installed for car manufacturing.) 
Operators	Mainly in Control Room 	A Lot of Operators at Shop Floor 
Focus	Plant Engineering for Installing 	Manufacturing Engineering & Maintenance Personnel 

- Alcohol Serialization System in Russia**  
 To Prevent Product Counterfeiting Especially in Food Industry.  
 Extremely High Speed Control & Data Acquisition in an Extremely Short Time.



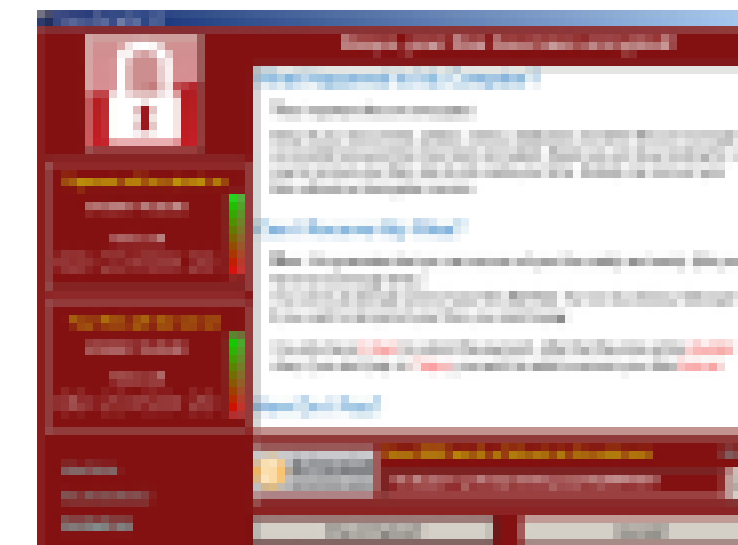
- IoT is Mandatory to Improve OEE(※) Dramatically
- Larger Risks of Security since Connecting to outside of Factory

※ OEE = Overall Equipment Efficiency



• PLC Connects from Outside of Factory..

• Then Sensors, Servos and Safety stuff also connect..



Risks ...

# Innovation at Manufacturing Site in FA w/Security

- Security Risks in FA is Changing from Possibility to Reality

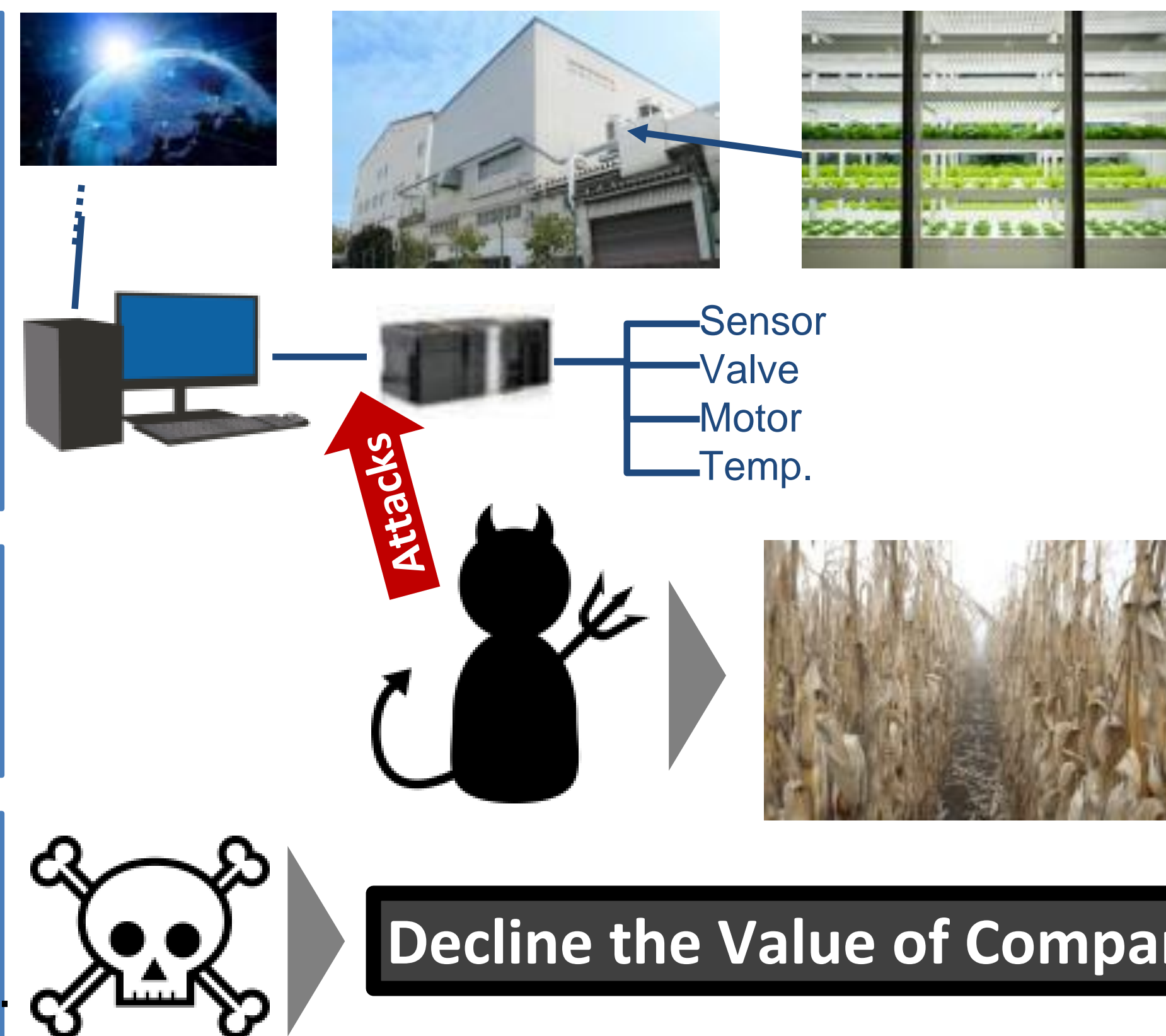
## Factory for Crops, Vegetable or Fruits

- Control by PLC
- Recipe is on MRP installing into PLC
- Sensors, Valves and Servos connect to PLC

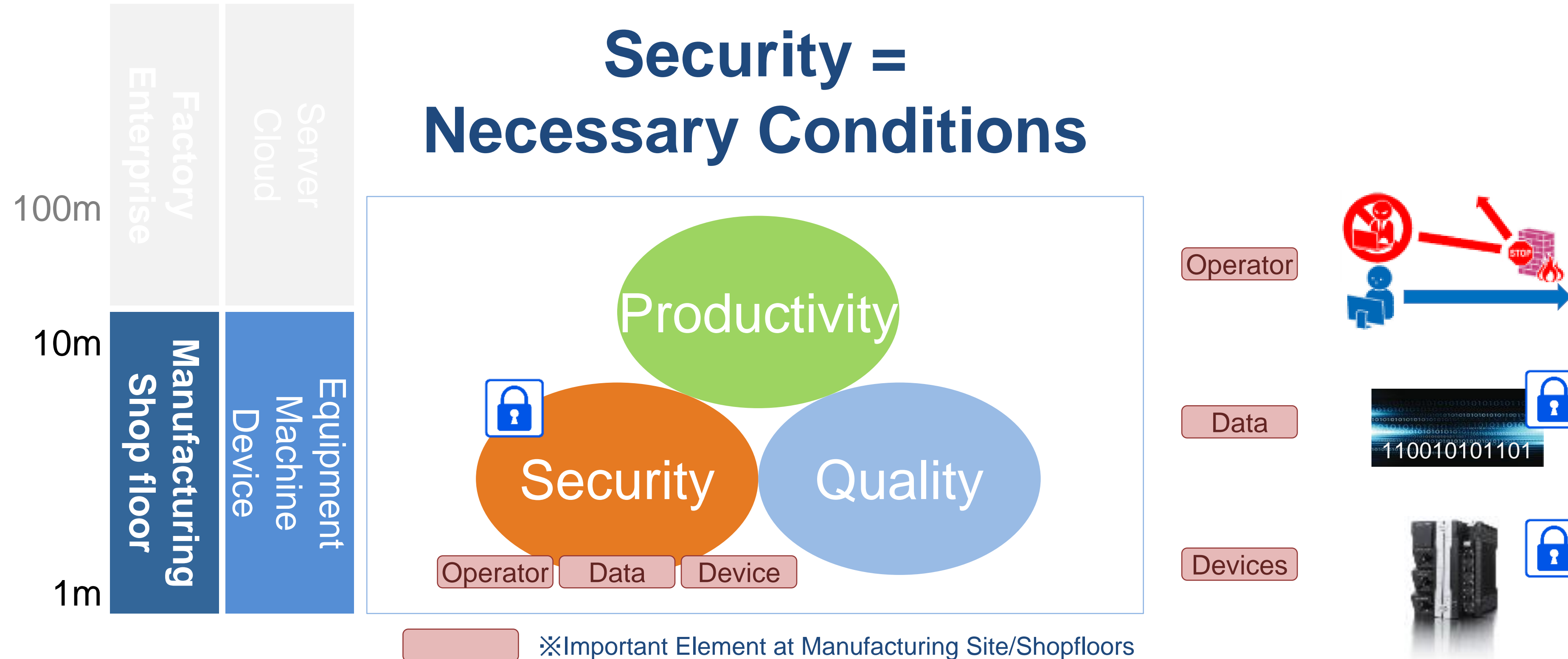
- Cultivating Various kinds of Crops/Vegies.
- Compounding for each variety that cultivates Multiple Feeds & Chemicals.

- The Crop/Vegies Starts being Withered
- Evidence of Intrusion into MRP & PLC, the Recipe Changed.

- Ended with an Accident that Simply Withered.
- However, If Pesticides Much Exceeding the Value and caused health hazard of consumers.

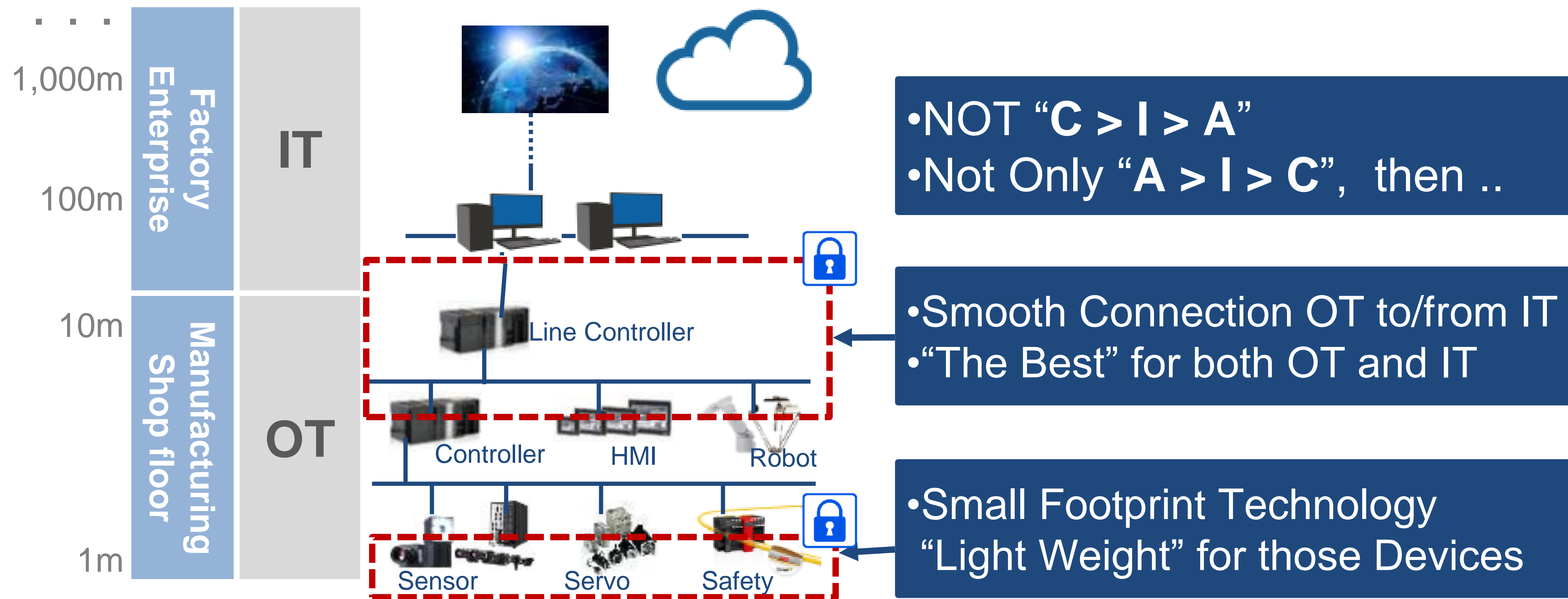


- Establish **3"TY"**s Simultaneously: **Productivity**, **Quality** and **Security**
- Trustworthy and Reliability among **Operator**, **Data** and **Devices** for Secure Manufacturing





- Technology Collaboration of Security especially for FA



Work with Omron to Make It Happen

- Reach Us for More Detailed Discussion and Future Collaboration



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Thank You For Your Attention.



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