

SKT 5G Smart Factory Proof Project

Data & Connection with very Quickly

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I. 5G Smart Factory Project Outline

Why Smart Factory? - Improve Productivity

Market
Circumstance



Manufacturing
Situation



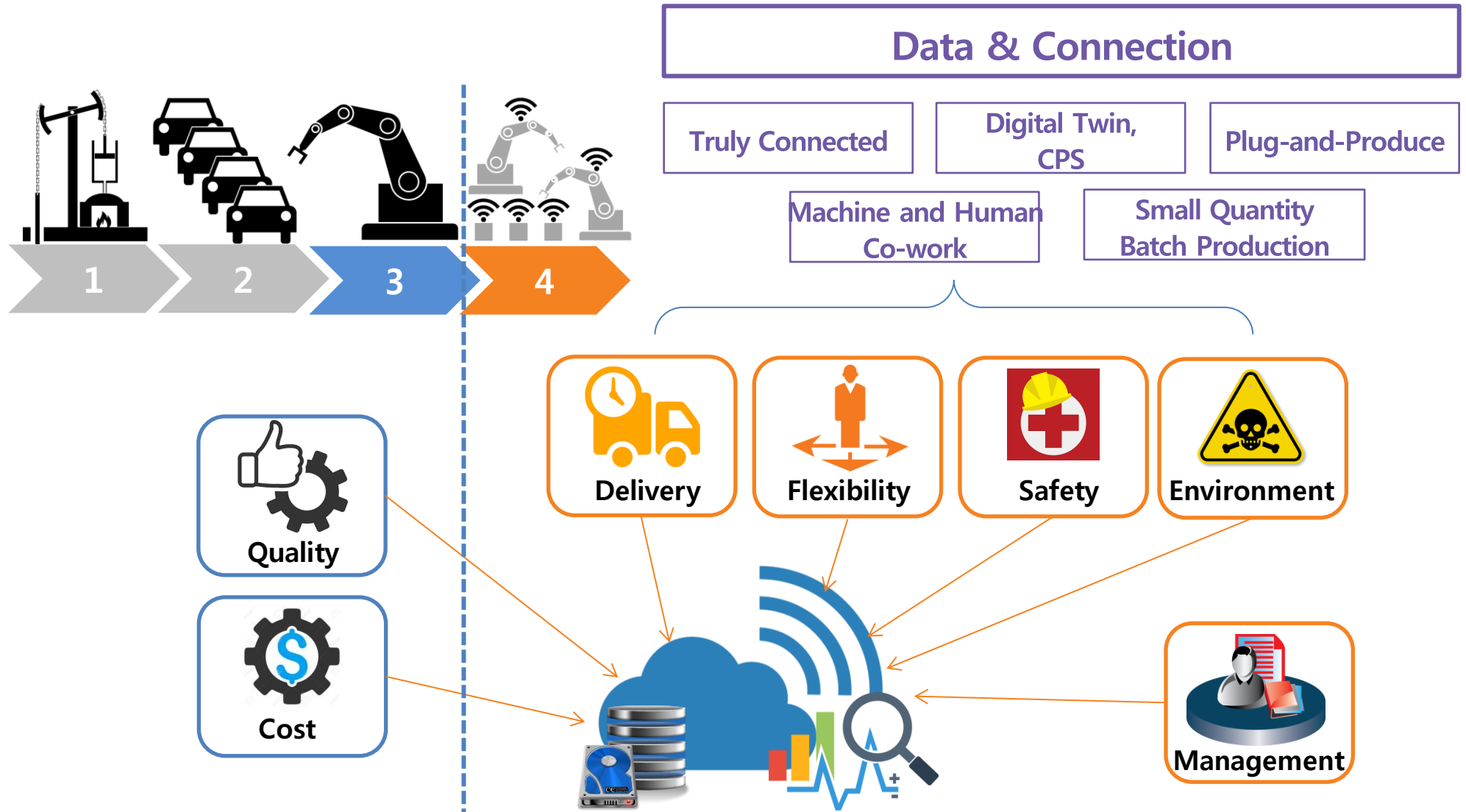
Technology
Development



***Productivity** isn't everything,
but, in the long run it is **almost everything**.¹⁾*

1) The Age of Diminishing Expectations (Paul Krugman, 1994)

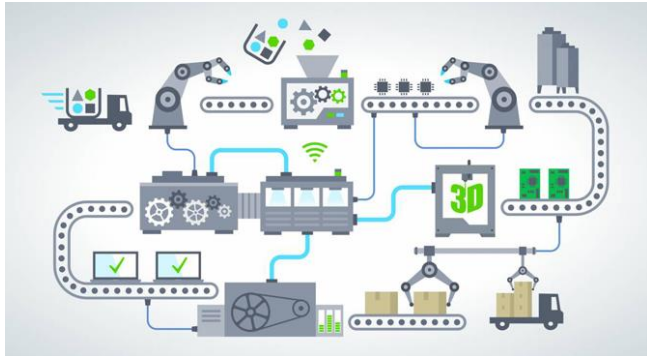
What is Smart Factory? - Over the Factory Automation



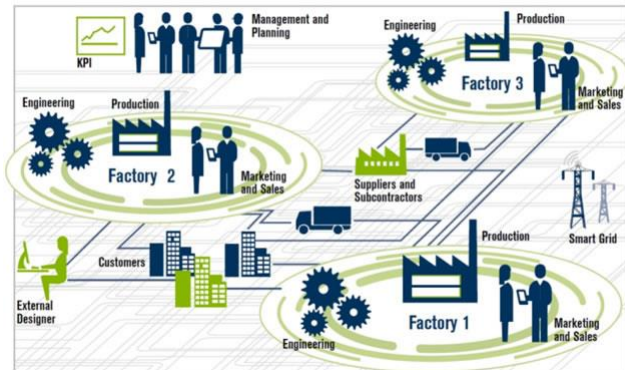
How to Realize Smart Factory? - Wireless with 5G

Network Needs for Smart Factory

Inter Factory IoT Network



Broadband Factory Network



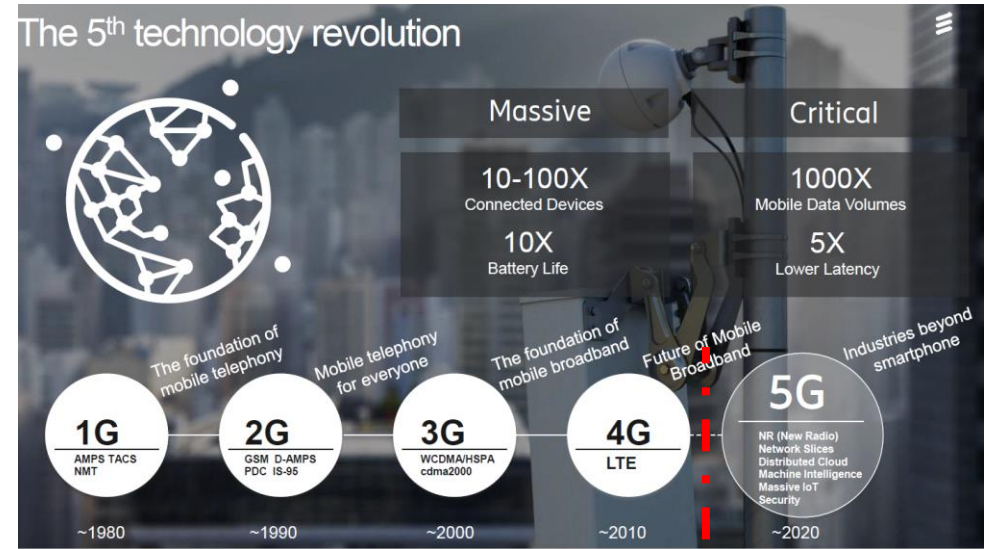
Source: Hewlett-Packard 2013

eMBB

mMTC

URLLC

The 5th technology revolution



Mobile Internet

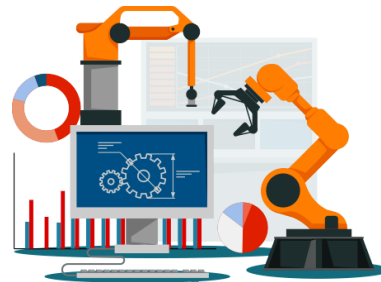
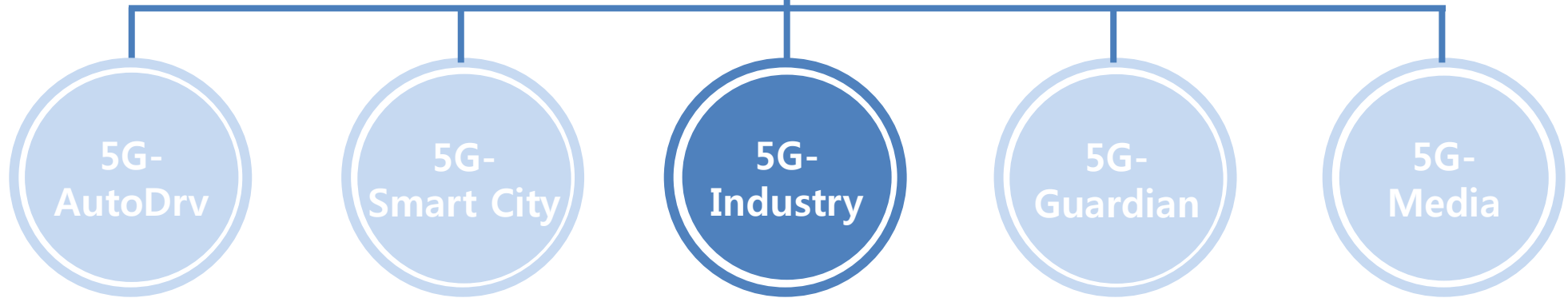


Full HD





















5G Government Project - 2018

5G Convergence Service Proof Project is for
Supporting promising 5G use case excavate and spread



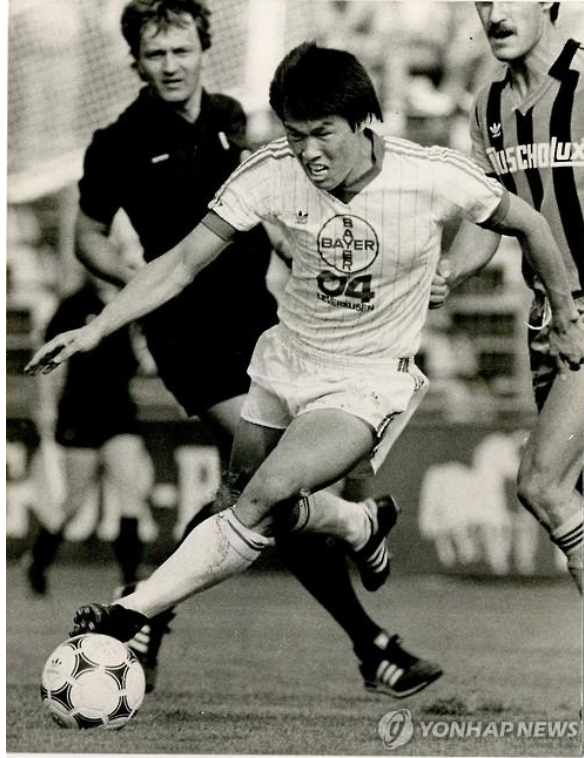
5G Industry Government Project Outline

5G-based *Production/Logistics Service* and Machine-Learning Platform Development for Cloud *Manufacturing*

Supervision Institution	 SK Telecom	
Person In Charge	Youn J.P.	
Total Project Period	2018. 4. 1 ~ 2020. 12. 31	
Total Working Expenses	\$35M(\$1 = ₩1,118)	
Purpose	5G use case excavate and spread at Manufacturing Area	
Consortium (Total : 13)	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid orange; border-radius: 15px; padding: 5px; margin: 5px;">Wire & Wireless Network Infra</div> <div style="border: 1px solid orange; border-radius: 15px; padding: 5px; margin: 5px;">Machine Learning & Vision</div> <div style="border: 1px solid orange; border-radius: 15px; padding: 5px; margin: 5px;">Multi-Function Robot & AR</div> <div style="border: 1px solid orange; border-radius: 15px; padding: 5px; margin: 5px;">Flexible Line</div> <div style="border: 1px solid orange; border-radius: 15px; padding: 5px; margin: 5px;">Proof Site</div> <div style="border: 1px solid orange; border-radius: 15px; padding: 5px; margin: 5px;">Project Support</div> </div> <div style="display: flex; flex-wrap: wrap; justify-content: space-around; margin-top: 10px;">                 </div>	

II. Project Proof Strategy

Korea DNA - Fast?



Cha Bum-keun(Cha Boom)

Bundesliga 98 goal('78 ~ 89)

100m 11.4sec(Cha Doori 11.3sec)



Son Heung-min(Super Sonic)

Bundesliga 49 goal('10 ~ 16)

Premier League 63 goal('15~'19)

34.3km/h, Sprints 20 times¹⁾

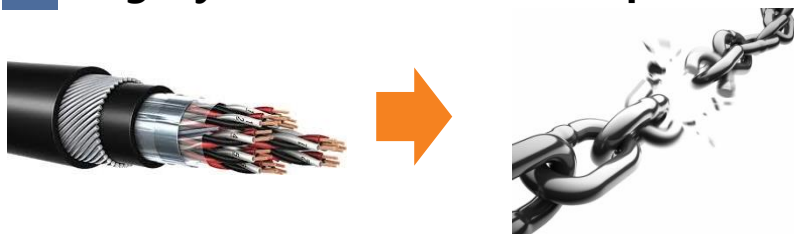
1) Maximum Speed. 9.52m/s. Best in his Team

Project Strategy : Quickly and very Quickly

How Knows what is killer App.

So, Establish Ecosystem with Convergence Technology for making Future

1 Legacy Wire : Massive Adaption



2 Legacy Wireless : Efficiency

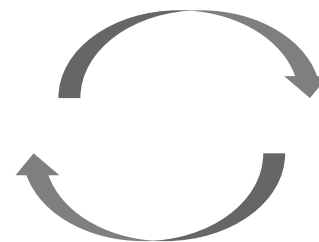


3 Just Idea : Destruction



5G

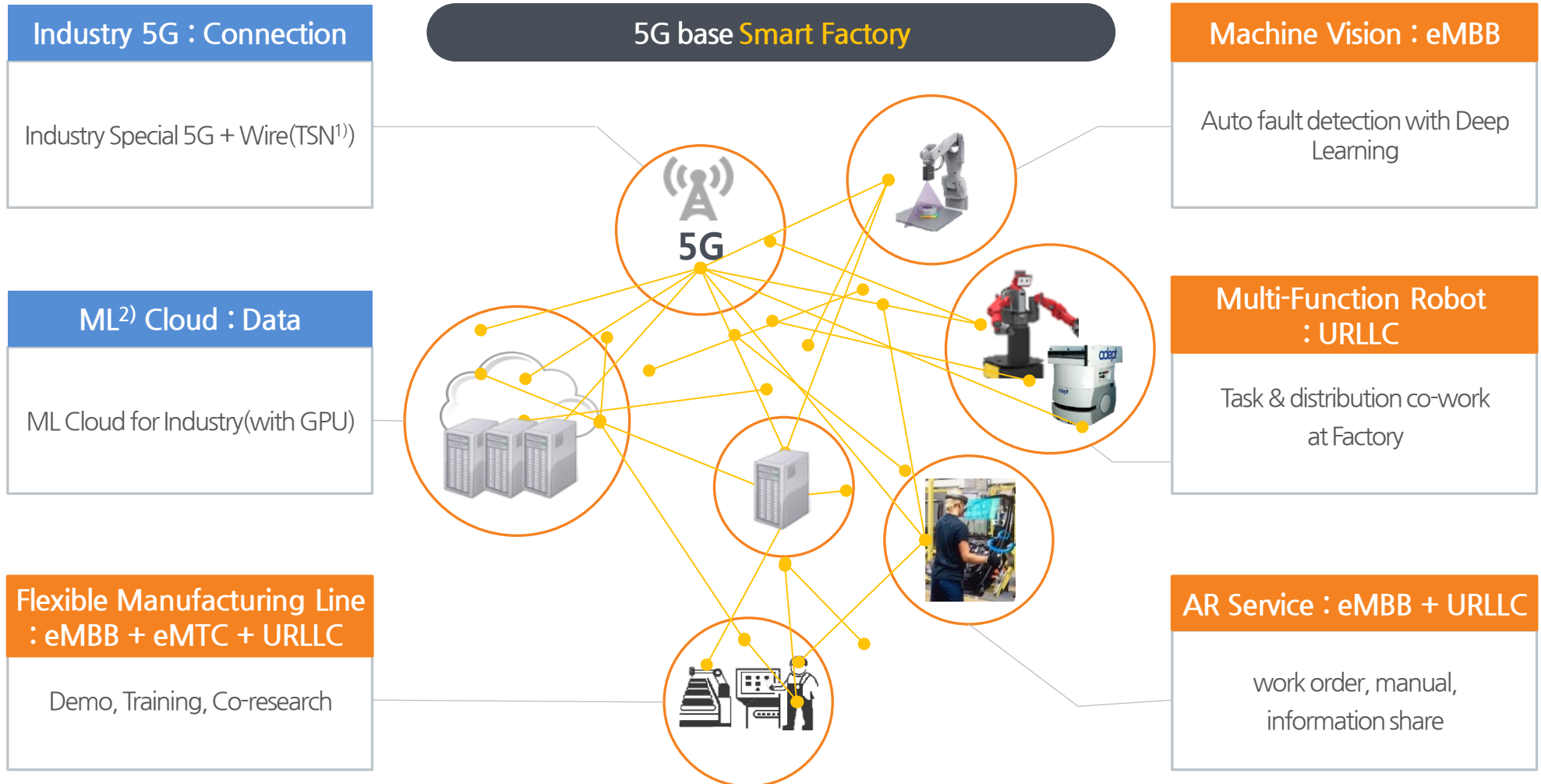
- Solution Supplier
: *Fast Development*



- Solution Demander
: *Immediate Feed-back*



Proof Method : 2 Infra + 4 Service with Pre-5G

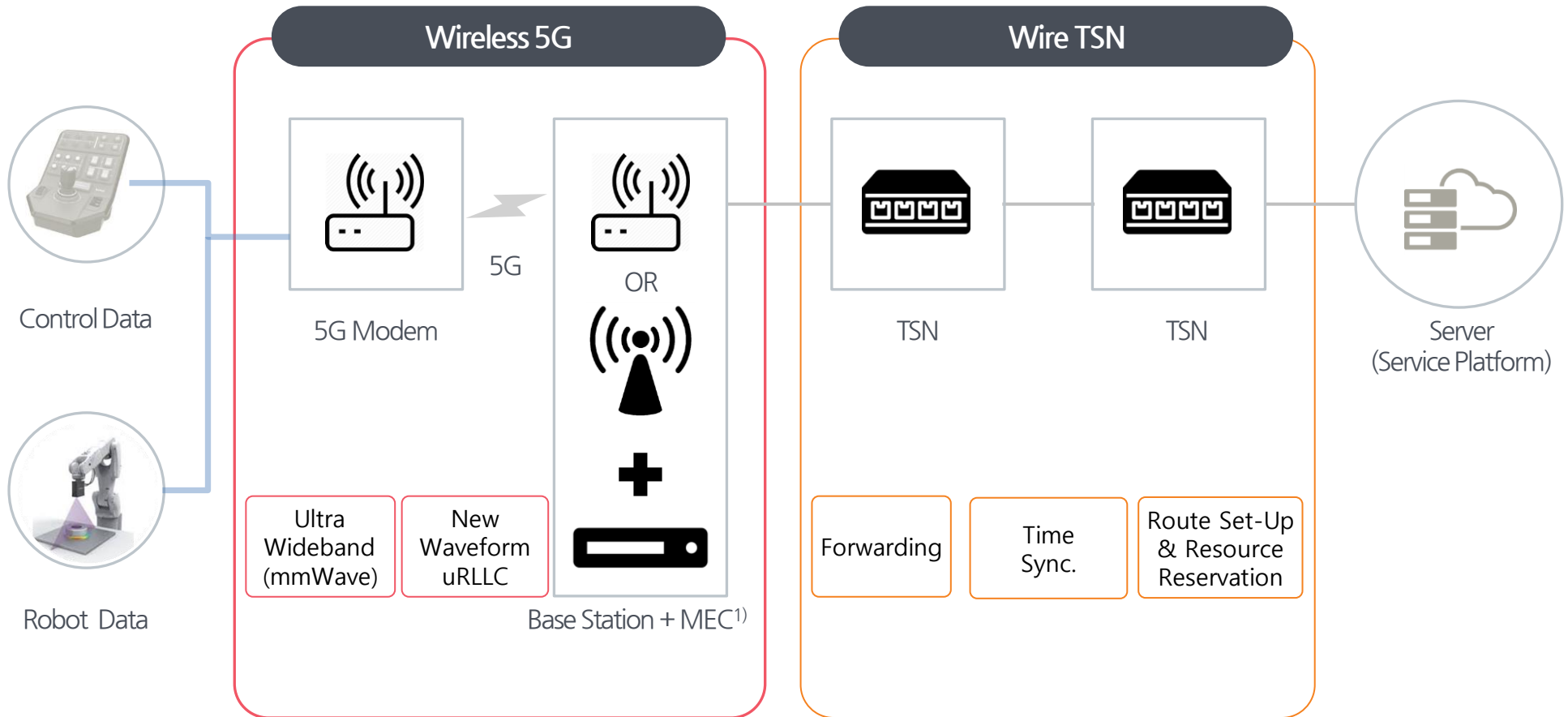


1) TSN : Time Sensitive Network 2) ML : Machine Learning

III. Explain Sub Project

Wireless 5G + Wire TSN

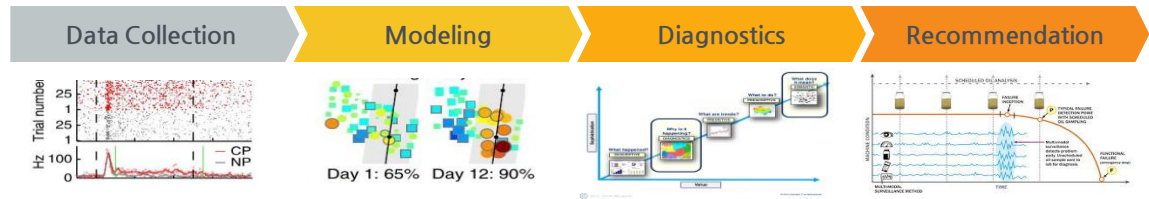
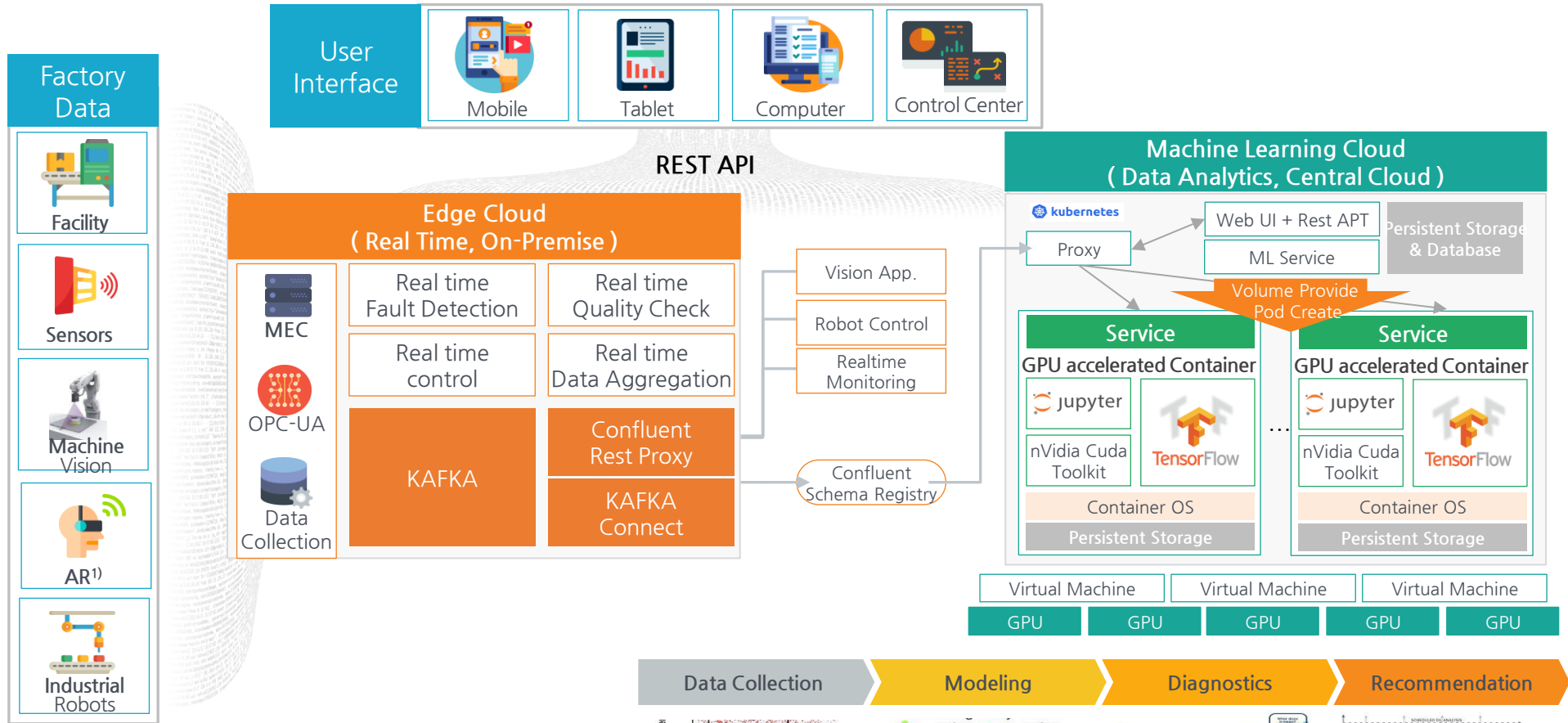
Composing ultra low latency, high speed and massive data Network Infra with combining wireless 5G and wire TSN for inter and outer manufacturing network



1) Mobile Edge Computing

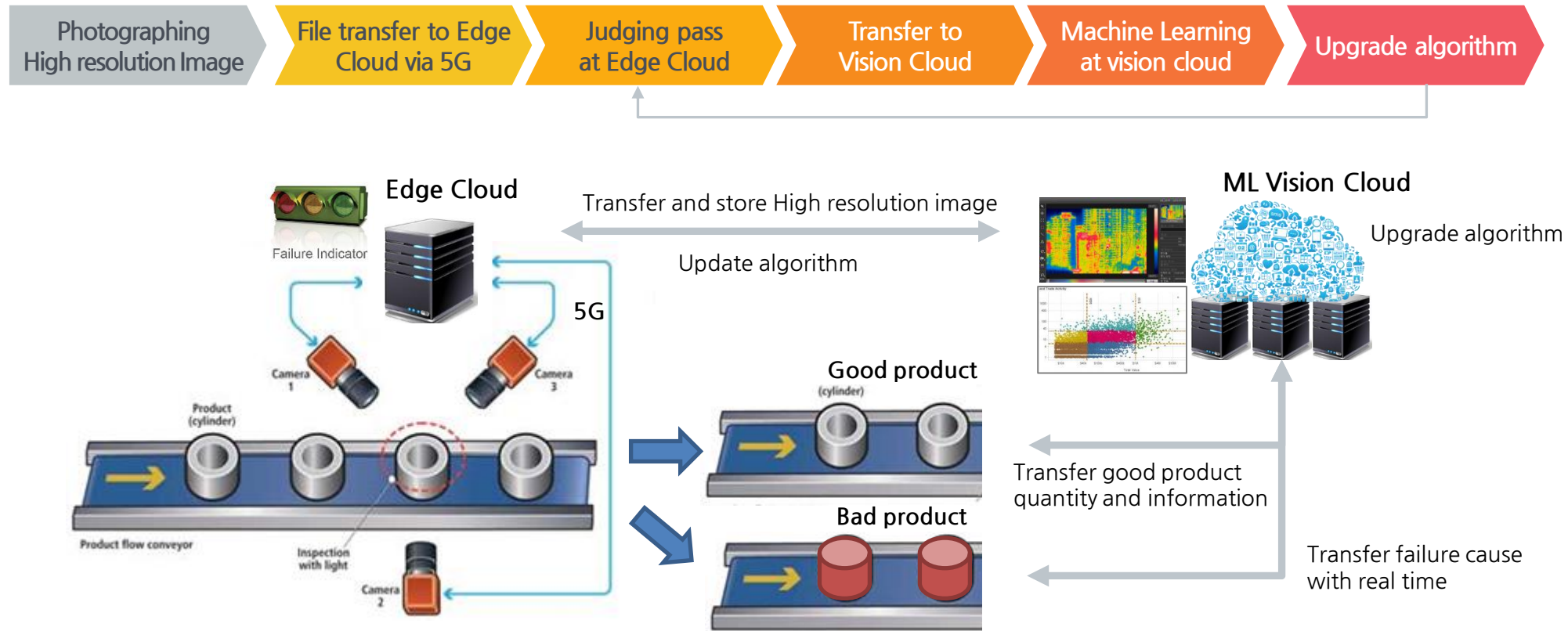
Machine Learning Cloud

Provide real time process with 5G base Edge Cloud and IDC machine learning cloud at SaaS style. It can analysis integrated factory data.



Machine Vision

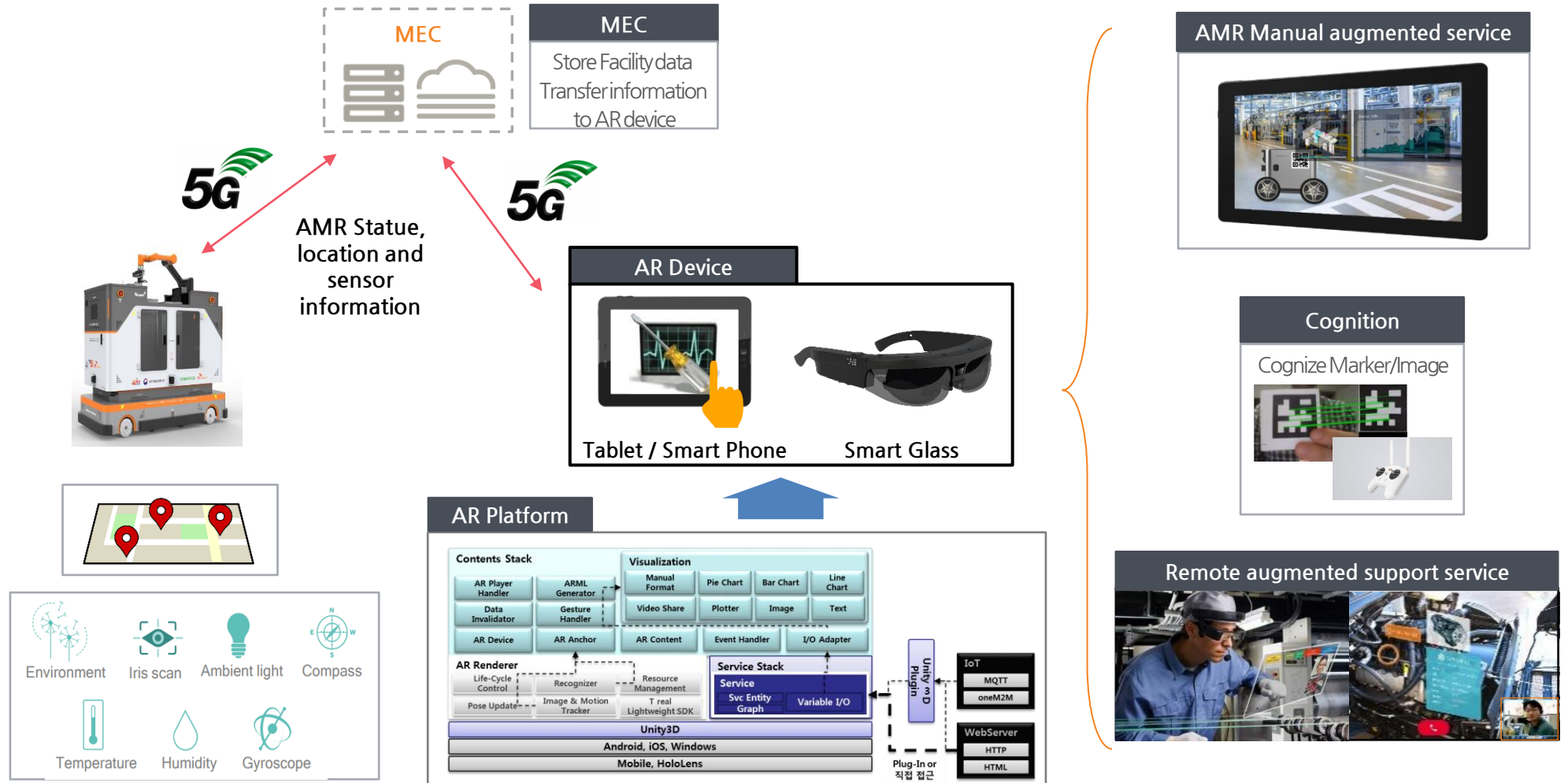
Photographing with high resolution camera connected 5G,
Judging good or fail with real time ML algorithm



AR Service

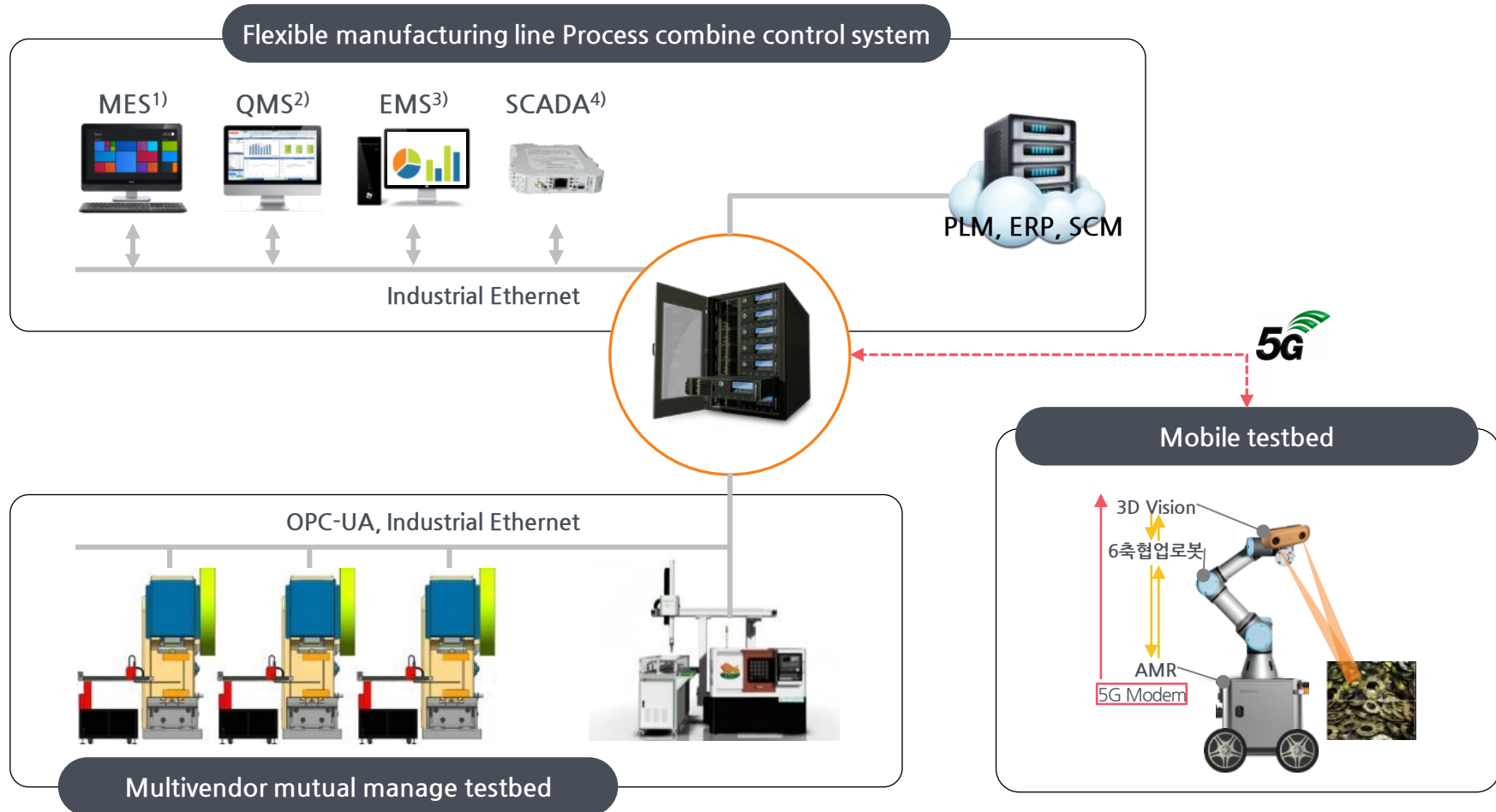
Using 5G, facility status and IoT sensor data augmented in real time.

And augmented manual service support for remote augmented support service



Flexible Manufacturing Line

Developing interface interlock like OPC-UA, industrial Ethernet and process control combine system, 5G base flexible manufacturing line proof.



1) MES : Manufacturing Execution System 2) QMS : Quality Management System 3) EMS : Energy Systems 4) SCADA : Supervisory Control And Data Acquisition

Thank You for Attending