Fujitsu World Tour 2017

Fujitsu North America Technology Forum 2017

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shaping tomorrow with you

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Intel Inside®.
Powerful Productivity Outside.

Human Centric Innovation
Driving Digital Transformation

Hyper-connected Business

- Stafford Bond, Fujitsu Digital
- Mike Lackey, SAP
- Nabil Lodey, GlobeRanger

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Powerful Productivity Outside.

Digital Waves

4th Wave
AI and Robotics
Knowledge & automation

3rd Wave
The Internet of Things
Convergence of physical & digital – 100bn (2021)

2nd Wave
The Mobile Internet
Real-time, anywhere – 10bn (2010)

1st Wave
The Internet
Connected, online – 1bn (2000)

Online consumer business

Hyperconnected World
A huge impact to every industry
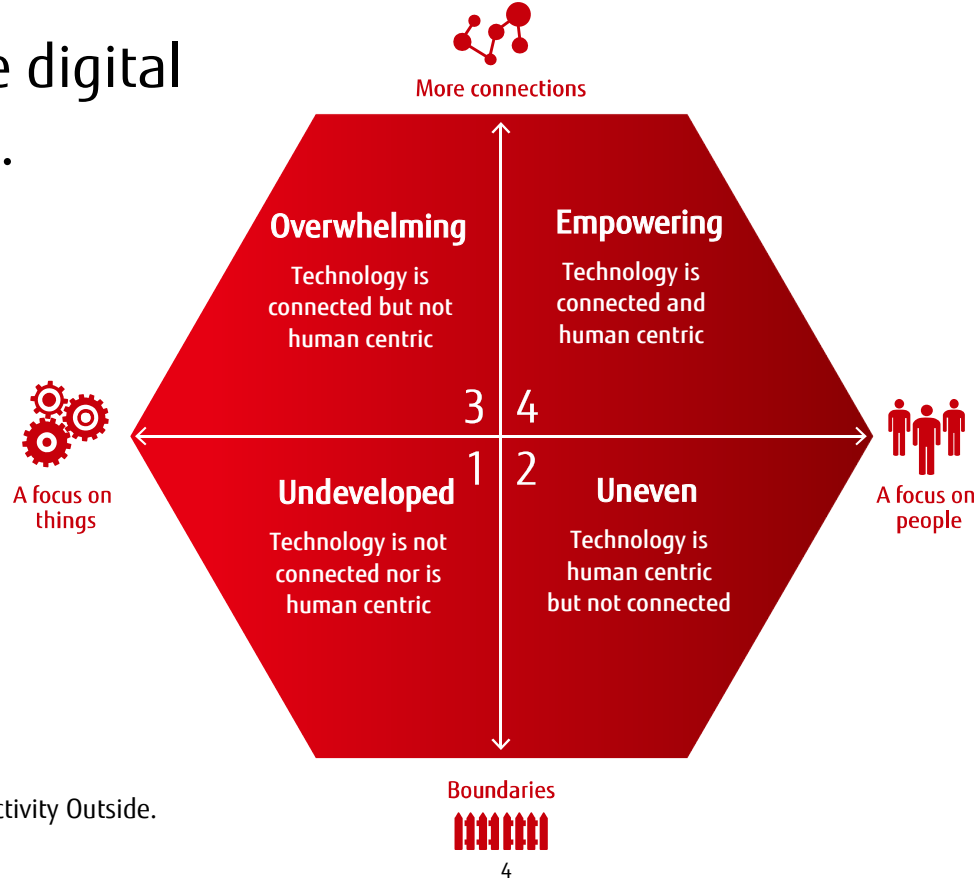
Organizations face a dilemma
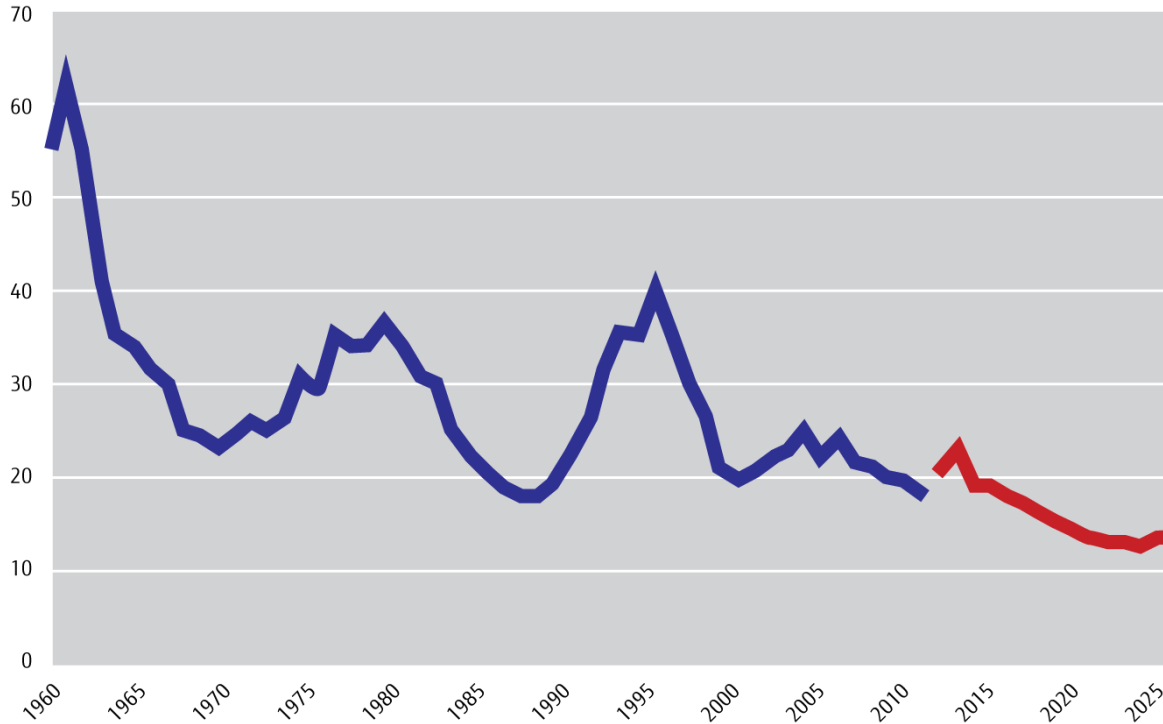
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Creative Destruction Whips through Corporate America, Innosight

Be in control of your destiny

■ A future where digital technology is...

More connections

Overwhelming

Technology is connected but not human centric

Empowering

Technology is connected and human centric

3 4

1 2

A focus on things

Undeveloped

Technology is not connected nor is human centric

Uneven

Technology is human centric but not connected

A focus on people

Boundaries

4

Big opportunities

"$2.5m spent per minute on IoT in 2016"
Gartner

1.6% looking for parking

1% sitting in congestion

5% driving

Typical European car parked 92% of time

Average European car has 5 seats but carries 1.5 people/trip

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30,000 deaths in accidents and 4X as many disabling injuries

>95% of accidents from human error

95%
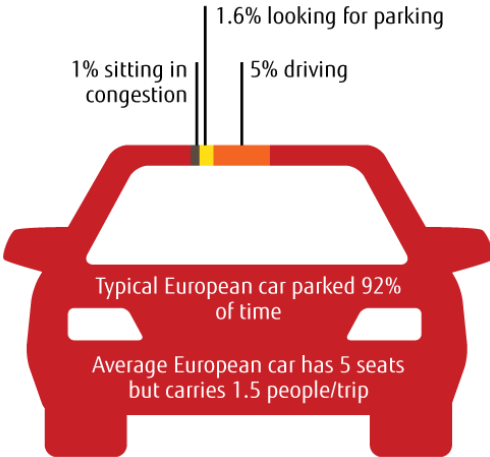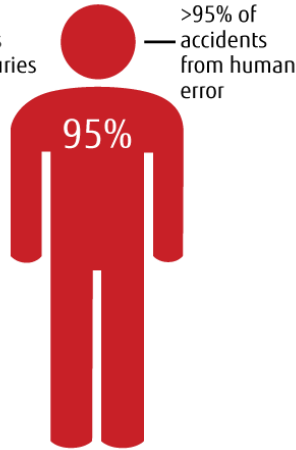
"Consumer IoT devices will reach 3 billion in the next 4 years, industrial IoT devices will reach 100 billion"

Gartner

69% consumed

11% consumer waste

20% value chain waste

Fertiliser used to feed people
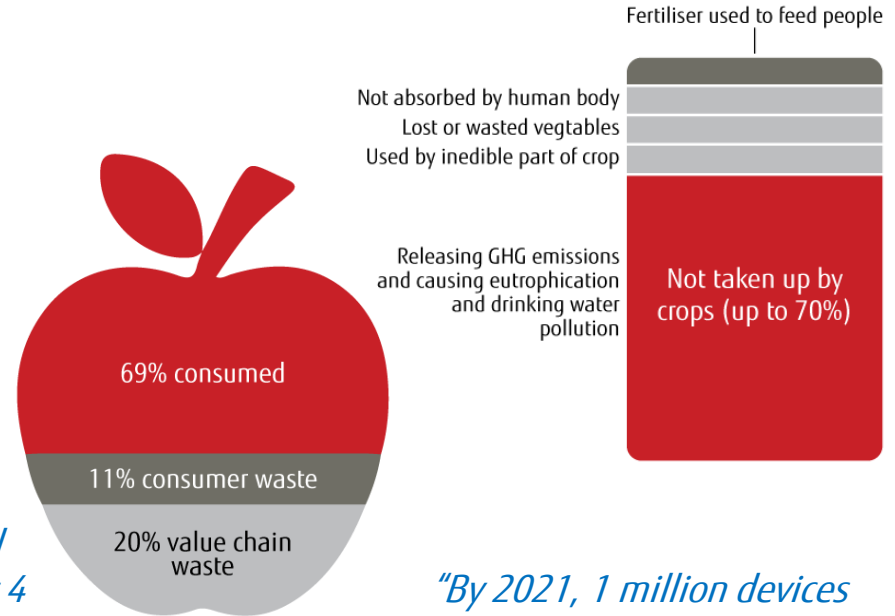
Not absorbed by human body
Lost or wasted vegtables
Used by inedible part of crop

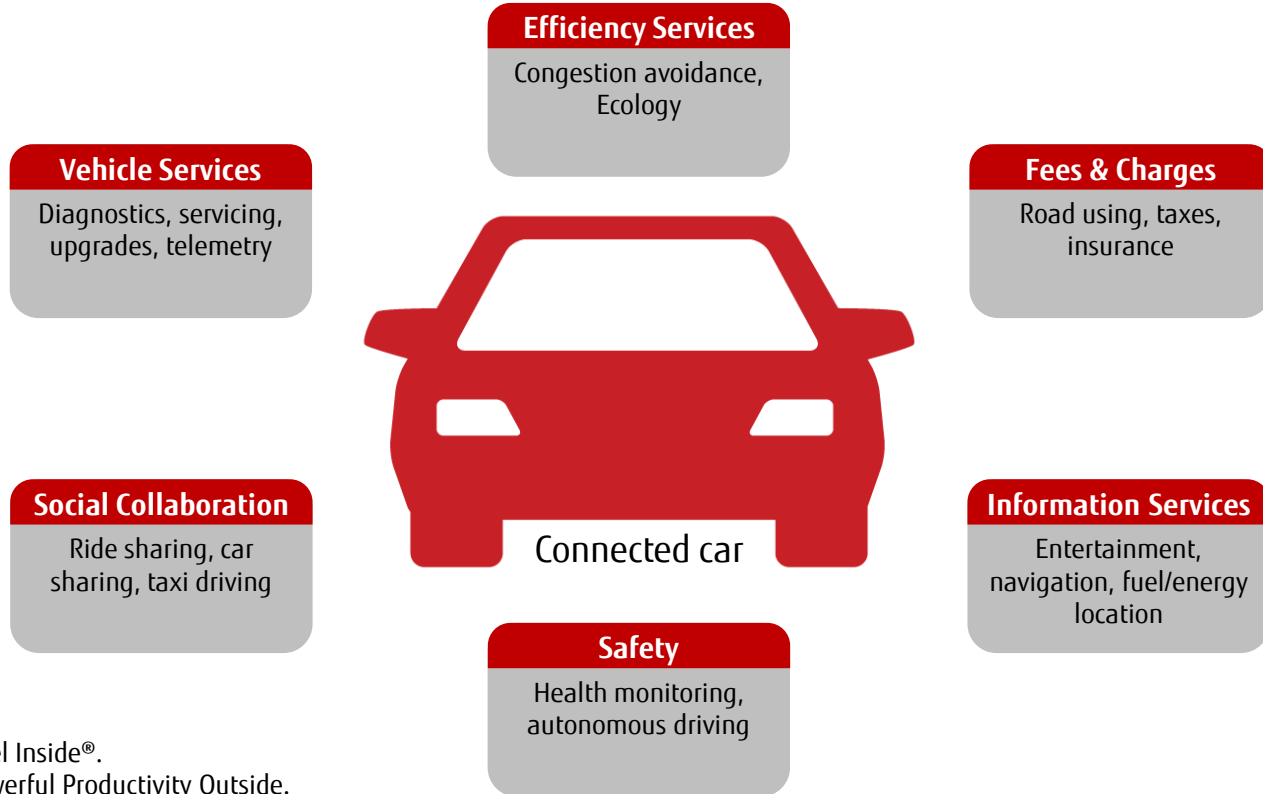Releasing GHG emissions and causing eutrophication and drinking water pollution

Not taken up by crops (up to 70%)
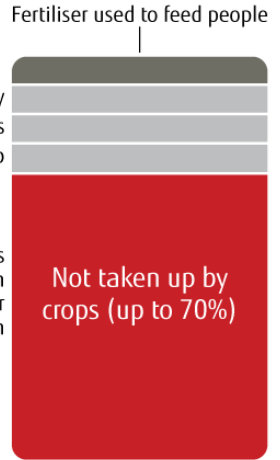
"By 2021, 1 million devices will be connected every single hour"

Gartner

Growth within: A circular economy vision for a competitive Europe, McKinsey

Big challenges

Efficiency Services
Congestion avoidance, Ecology

Vehicle Services
Diagnostics, servicing, upgrades, telemetry

Fees & Charges
Road using, taxes, insurance

Connected car

Social Collaboration
Ride sharing, car sharing, taxi driving

Information Services
Entertainment, navigation, fuel/energy location

Safety
Health monitoring, autonomous driving

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Why become a hyper-connected business?

Business model transformation
- From goods-selling to service-provision
- Fast value realization to meet individual customer's need (Mass customization)

Customer Intimacy
- Better understanding of individual customers
- Maximizing Customer Experience

Operational Excellence
- Empowerment of employees
- Autonomous operation

Product Leadership
- Intelligence in product and service
- Co-creation of innovative value

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Which approach to hyper-connectivity are you taking?
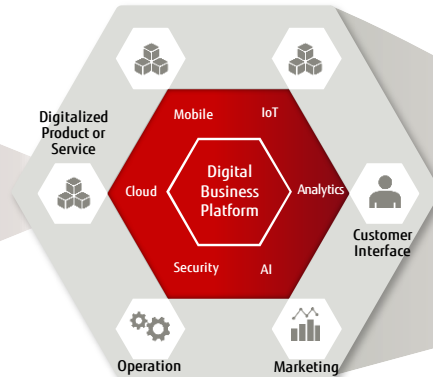
FUJITSU
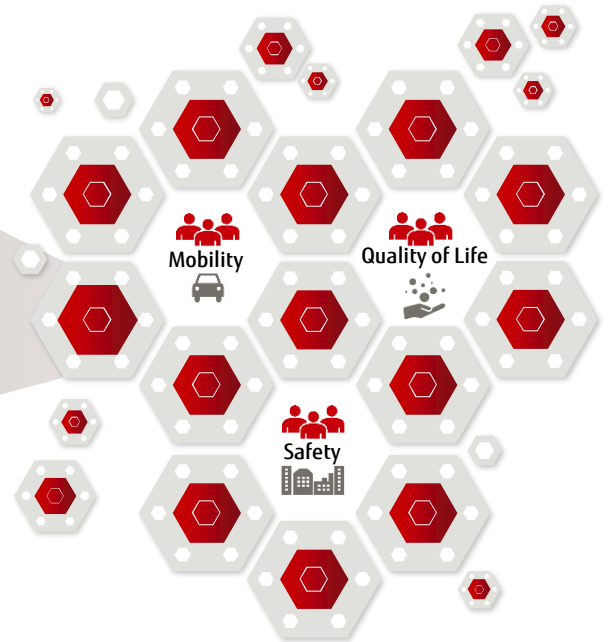
Digital Project

- Apply digital to a function or a product and service
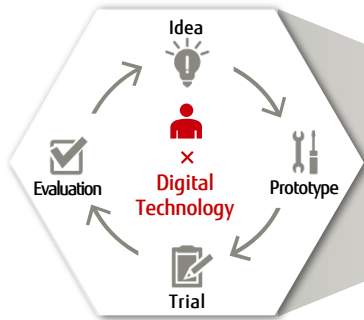
Digital Business

- Apply digital to the heart of business

## Digital Arenas

- Co-create greater value with partners

Idea
Evaluation
× Digital Technology
Prototype
Trial

Digitalized Product or Service
Mobile IoT
Cloud Digital Business Platform Analytics
Security AI
Customer Interface
Operation Marketing

Mobility
Quality of Life
Safety

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The future: The hyper-connected API economy

Product and Service

Digital Business Platform

●—● API
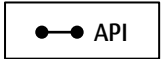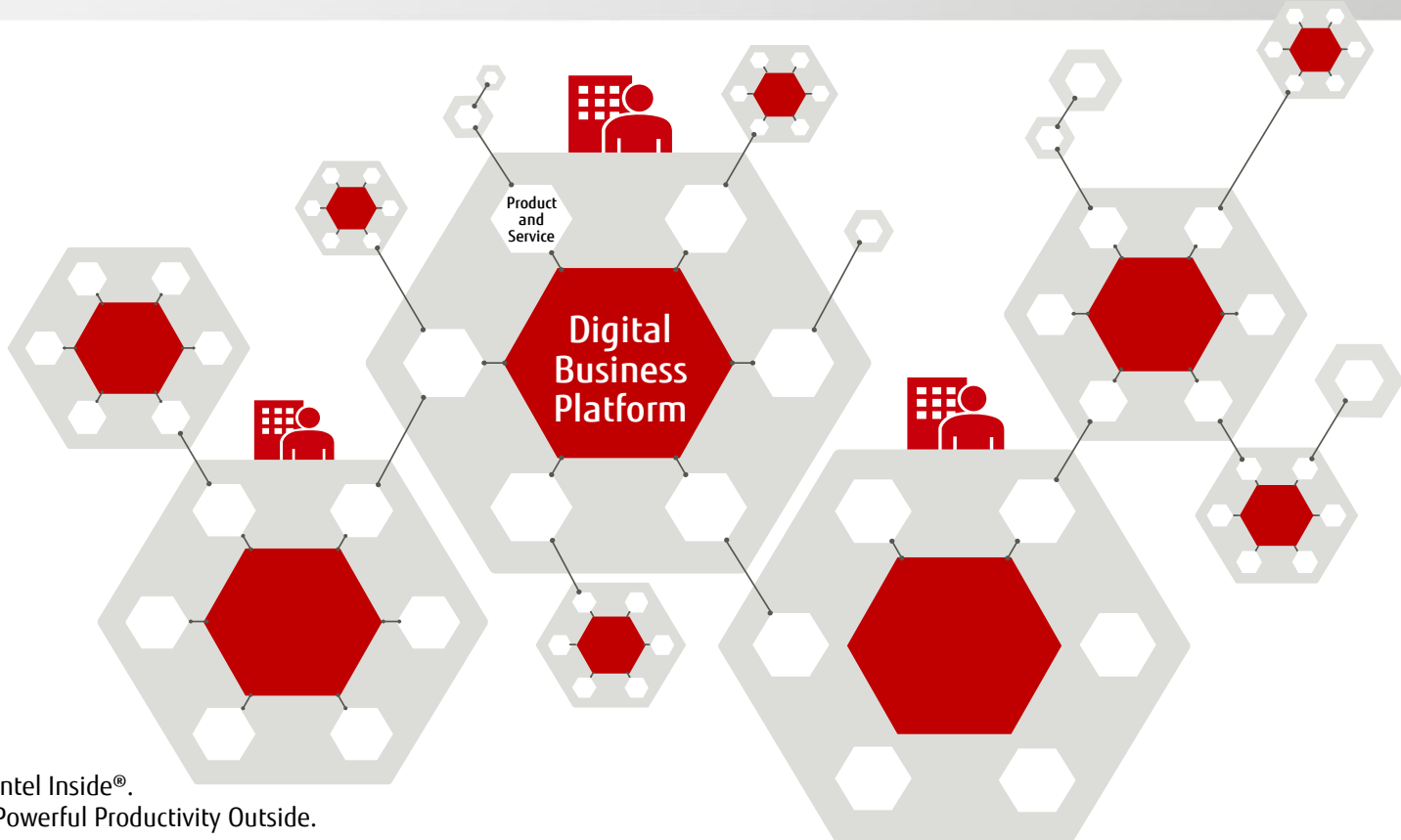
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Embracing hyper-connectivity: Sliding Doors

■ Now think about your organization;

■ Run through four hyper-connectivity adoption scenarios

1. No interest in becoming a hyper-connected business
2. Adopting hyper-connectivity solutions in small unrelated projects (Digital Projects)
3. Integrating hyper-connectivity into the DNA of the organization (Digital Business)
4. Adopting Digital Arenas and considering the API economy (Digital Arenas)

■ Roll forward 5 years

■ What is your prediction of the outcome?

My predictions

Scenario 1 – Do Nothing

Financial Performance		Customer Experience	
Revenue declining	⬇	Customer satisfaction	⬇
Cost base increasing	⬇	Customer Expectations	⬇
Organization		**Innovation**	
Engineering culture	⬇	Product innovation	⬇
Redundancies	⬇	New revenue streams	⬇

Scenario 2 – Digital Project

Financial Performance		Customer Experience	
Revenue flat	➡	Customer satisfaction	➡
Cost base flat	➡	Customer Expectations	➡
Organization		**Innovation**	
Engineering culture	➡	Product innovation	↘
Stagnant	➡	New revenue streams	↘

Scenario 3 – Digital Business

Financial Performance		Customer Experience	
Revenue growth	⬆	Customer satisfaction	⬆
Cost base decreasing	⬆	Customer Expectations	⬆
Organization		**Innovation**	
Customer centric culture	⬆	Product innovation	↗
Expansion / recruiting	⬆	New revenue streams	↗

Scenario 4 – Digital Arenas

Financial Performance		Customer Experience	
Revenue growth	⬆	Customer satisfaction	⬆
Cost base decreasing	⬆	Customer Expectations	⬆
Organization		**Innovation**	
Customer centric culture	⬆	Product innovation	⬆
Expansion / recruiting	⬆	New revenue streams	⬆

Digitizing manufacturing with IoT and Industry 4.0

Mike Lackey, Global VP of Digital Manufacturing

March 09th, 2017

Digital Transformation Impact

Business Processes

Business Models

Work Environment

Business Model, Change

Customer satisfaction

Competitive advantage

Higher profit

Higher
uptime and productivity

Lower
Risk, through predictive maintenance. Fix it before it break

Flexibility
Through pay per use

Business Model, Change

Customer satisfaction

Competitive advantage

Higher profit

Higher
uptime and productivity

Lower
Risk, through predictive maintenance. Fix it before it breaks

Flexibility
Through pay per use

Business Process, Change

Customer satisfaction

Better performance

Optimized Service

8%-10%
Reduction in maintenance costs

Improved
Reliability and availability of trains

Higher
Passenger satisfaction thanks to more reliable services

Business Process, Change

Customer satisfaction

Better performance

Optimized Service

Condition reporting
Best performing

Remote support
Reliability and availability of engines

Trend analysis
Predictive Maintenance
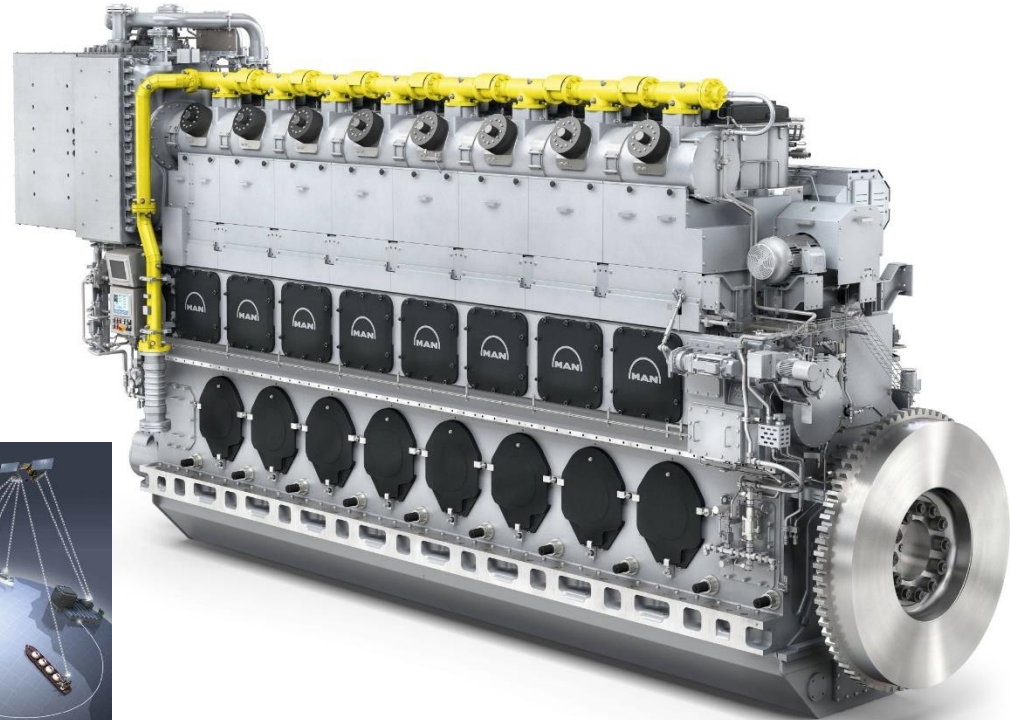
Work Environment, Change

Reduce costs

Improve productivity

High quality

Role Expansion
Work across disciplines, design and manufacture smart products

Process Change
Collaboration, Networking
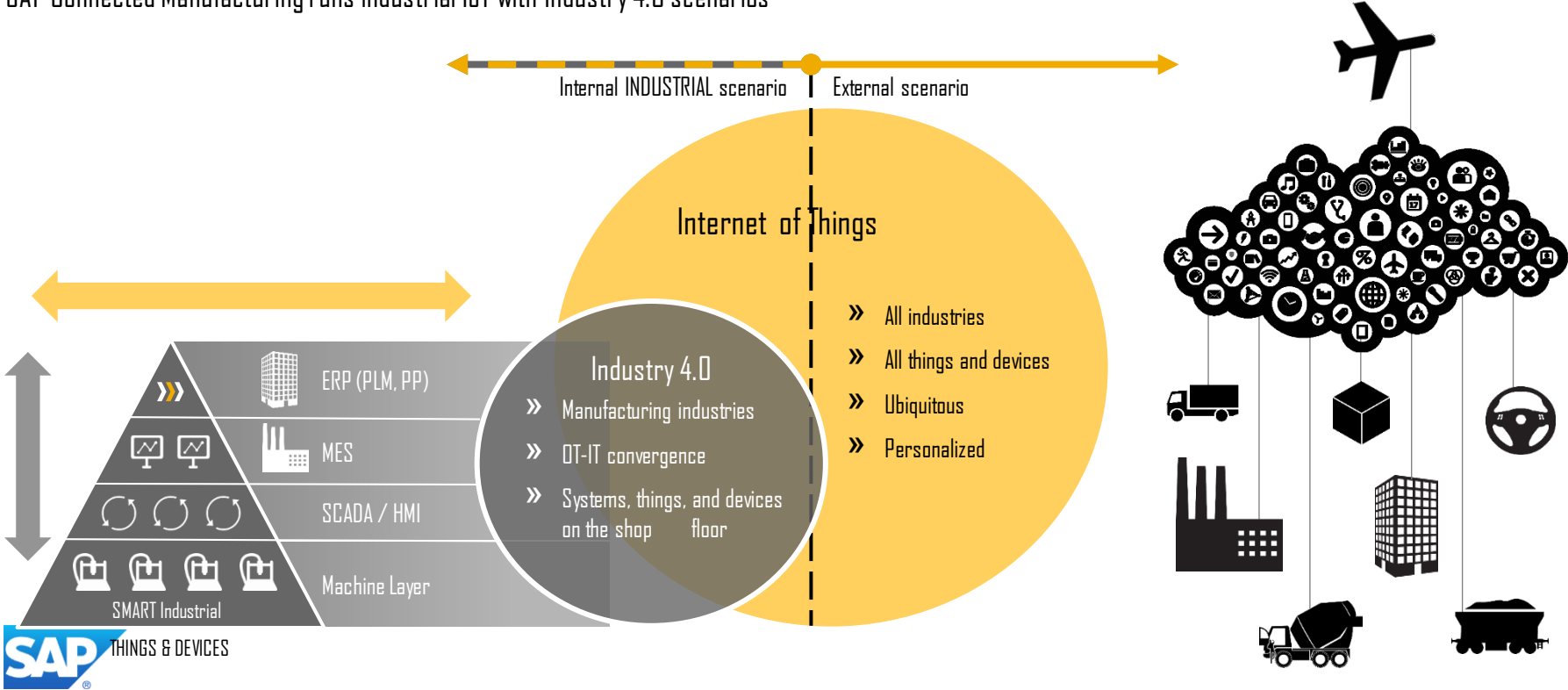
Business Modell
Customer Centricity

Digital Manufacturing
Linking the physical world to the digital world

Business World

Design → Plan → Make → Operate → Deliver

General Ledger
Procure to Pay
Order to Cash
Engineer to Order
Configure to Order
Make to Stock
Inventory Controls
Costing
CRM
SRM
Materials

¥ € £ $

SAP S/4 HANA

Digital World

Digital Twin

"As Designed"

"As Built"

"As Maintained"

"Performance"

SAP Leonardo

Physical World

Vending Machine
DCS/PLC
Auto
Chemicals
Sensors
Weigh Scales
LIMS/Inspection/Equipment Testing
CPG
Robots
CNCs
Engine
Batteries
Pumps
AGVs
Motors
Drinks

Trends Impacting Connected Manufacturing

Internet of Things and Industry 4.0

SAP Connected Manufacturing runs industrial IoT with Industry 4.0 scenarios

Internal INDUSTRIAL scenario | External scenario

Internet of Things

Industry 4.0

» Manufacturing industries

» OT-IT convergence

» Systems, things, and devices on the shop floor

» All industries

» All things and devices

» Ubiquitous

» Personalized

ERP (PLM, PP)

MES

SCADA / HMI

Machine Layer

SMART Industrial

THINGS & DEVICES

Trends Impacting Connected Manufacturing
Internet of Things and Industry 4.0

SAP Connected Manufacturing runs industrial IoT with Industry 4.0 scenarios

Internal INDUSTRIAL scenario | External scenario

Internet of Things

SAP Solutions for Industrial IoT
SAP Connected Manufacturing

» SAP Manufacturing Execution on HANA

» SAP Manufacturing Integration and Intelligence on HANA

» SAP Plant Connectivity

ERP (PLM, PP)

MES

SCADA / HMI

Machine Layer

SMART Industrial

THINGS & DEVICES

Industry 4.0

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» Ubiquitous

» Personalized

SAP Solutions for External IoT
SAP HANA Cloud Platform

» SAP HANA Cloud Platform (HCP)

» SAP IoT Connector

» SAP Plant Connectivity

SAP Digital Manufacturing Industrial IoT
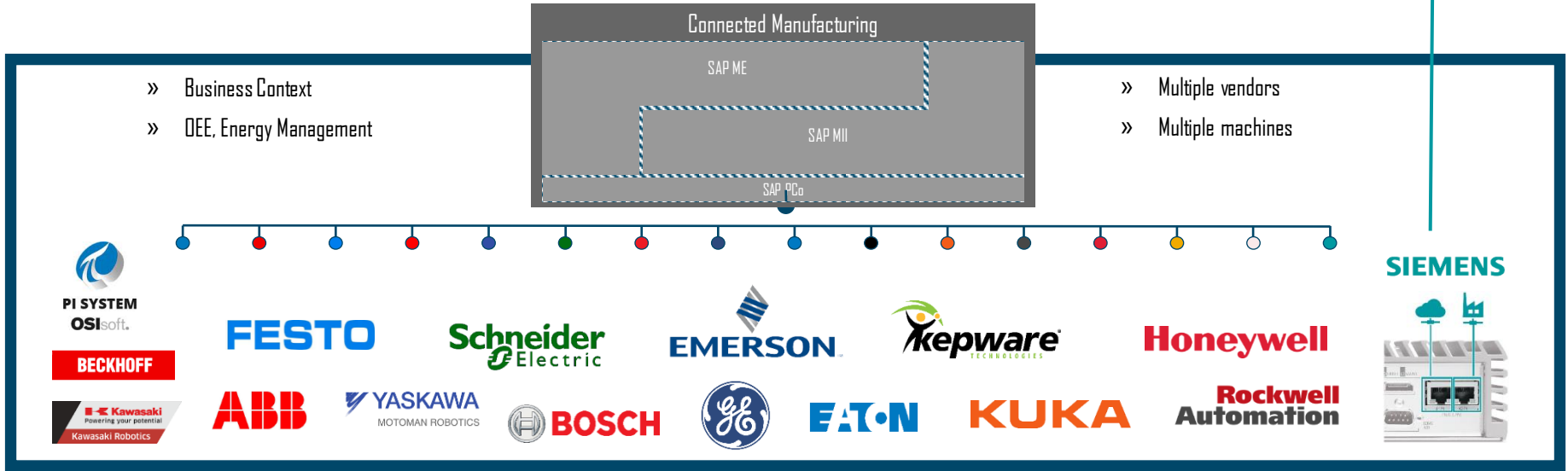
SAP Leonardo, Connecting Things with People and Processes

Digital Supply Chain

(Business Process View)

- Digital **Business Planning**
- Digital **Response & Supply**
- Digital **Logistics**
- Digital **Product Innovation**
- Digital **Manufacturing**
- Digital **Operations**

Industry view

SAP Leonardo Portfolio

Line of Business view

Technology view
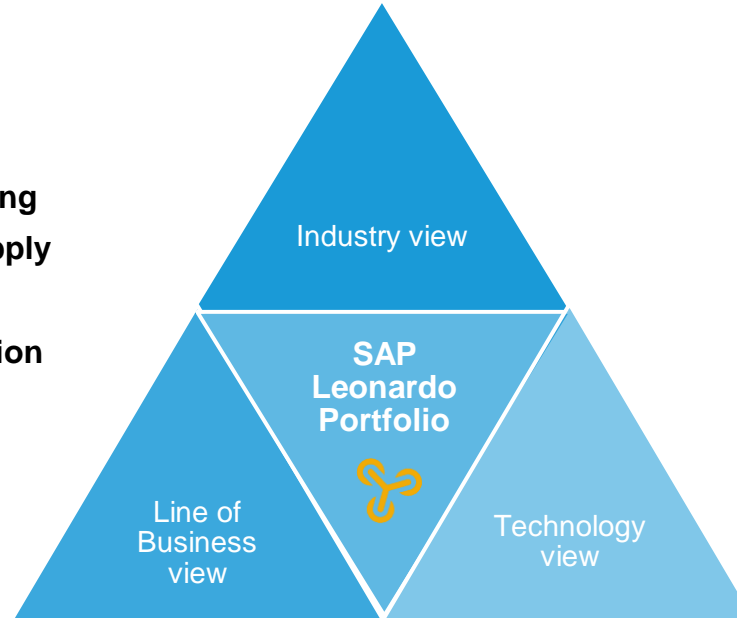
SAP Leonardo

("Things" View)

- Connected **Products**
- Connected **Assets**
- Connected **Fleet**
- Connected **Infrastructure**
- Connected **Markets**
- Connected **People**

SAP Leonardo

SAP Leonardo & Digitizing Business: The Big Picture

| Procurement | R&D | Supply Chain Planning | Manu-facturing | Logistics | Sales | After Sales Service | **PROCESSES** |

SAP Leonardo & Digitizing Business: The Big Picture

UI Layer (SAP Leonardo Bridge) — PEOPLE

SAP S/4 HANA — Enterprise Management – The Digital Core

SAP S/4 HANA Digital Core
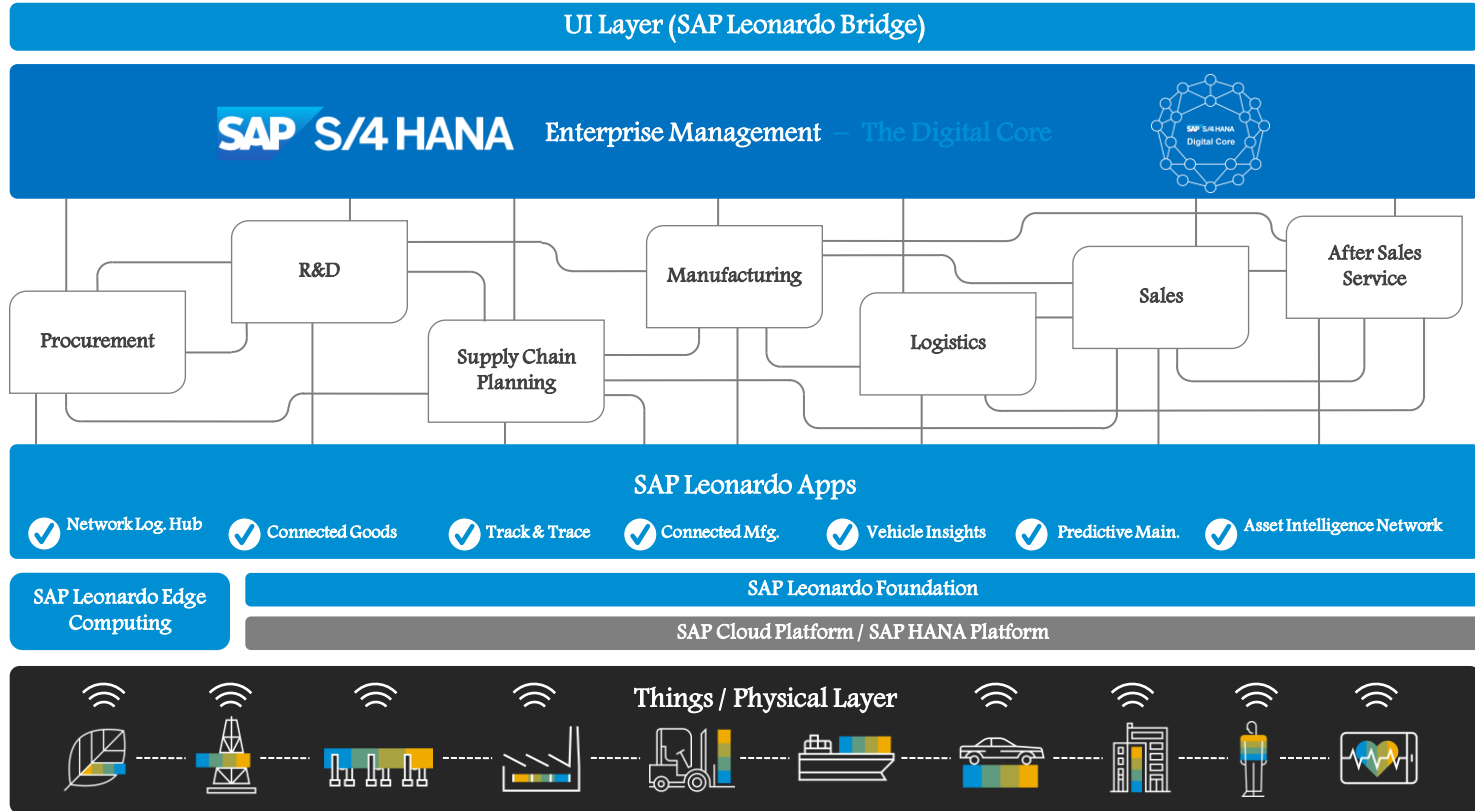
R&D, Manufacturing, After Sales Service, Procurement, Sales, Supply Chain Planning, Logistics — FROM PROCESSES TO NETWORKS / NEW BUSINESS MODELS

SAP Leonardo Apps
- Network Log. Hub
- Connected Goods
- Track & Trace
- Connected Mfg.
- Vehicle Insights
- Predictive Main.
- Asset Intelligence Network

SAP Leonardo Edge Computing

SAP Leonardo Foundation

SAP Cloud Platform / SAP HANA Platform

Things / Physical Layer — PRODUCTS

Integrate Operations with Digital Manufacturing

The GlobeRanger Perspective
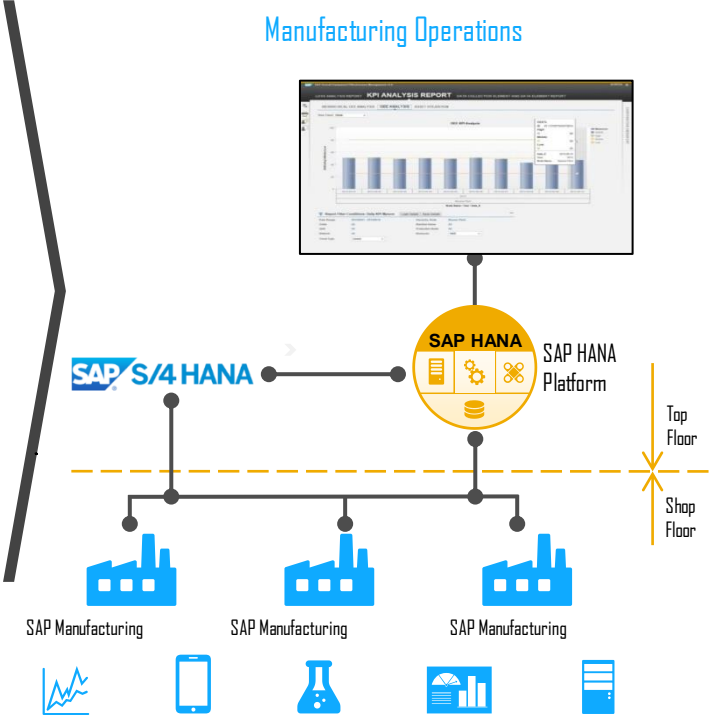
Key Market Trends	Customer Challenges	How to adopt IOT
1. Pace of Innovation 2. Data Driven Economy 3. New business models 4. The new "lean"? 5. Changing Demographic	1. Monetization 2. Culture Change 3. Ownership 4. Security	1. Land/Expand 2. Real time visibility 3. Automation 4. Analytics

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Connect the physical world to the virtual world i.e. "Anything to Everything"

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This provides <u>real-time end-to-end visibility</u> of our customer's business

Supply Chain

Supplier 1 Connected Factory
Inward Goods
WIP
Outbound Goods

Supplier 2 Connected Factory
Inward Goods
WIP
Outbound Goods

Supplier 3 Connected Factory
Inward Goods
WIP
Outbound Goods

WIP

Connected
Manufacturing

Asset Tracking
Connected Machine
Connected Workers
Automate manual activity
Tool Tracking
ERP Integration
Warehouse Management

Warehouse Operations

Connected Warehouse

Inbound Goods
Real time putaway
Outbound Goods

Which enables <u>**better decisions made based on accurate real time information**</u>. No missing or inaccurate data

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Can then add analytics to optimise supply chain, reduce cost and open new revenue opportunities
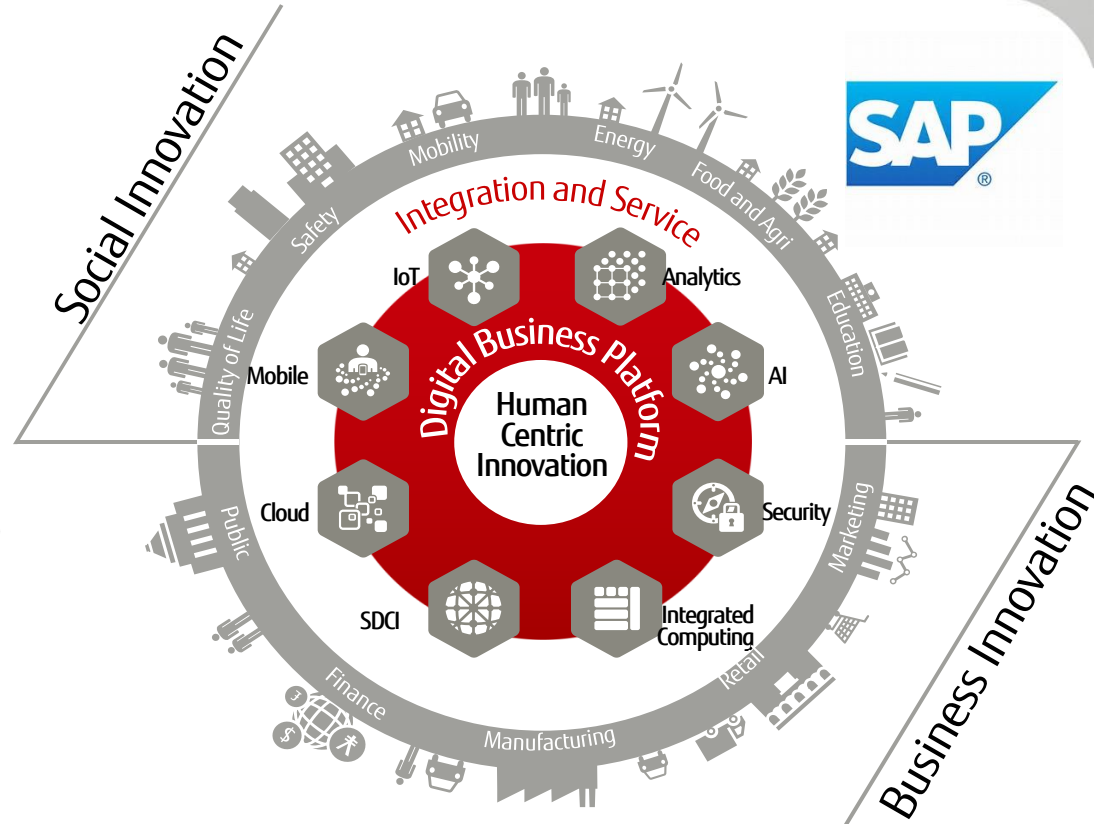
GlobeRanger's IOT Examples

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Key Take Aways

- Develop an hyper-conncected business strategy focused on business value

- Integrate it into the DNA of the organization and establish the organizational units to maximize the value it brings

- Choosing a partner who participates in a comprehensive eco-system is key

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