

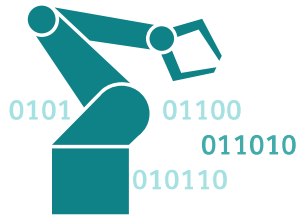
Asamblea Railgrup 2019

3ª edición Diálogos de la Movilidad

Digitalization in Mobility

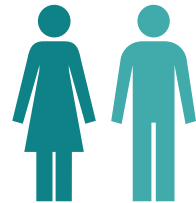
Enrique Torres, director de Ventas de Siemens Mobility

Global megatrends will shape our lives in the coming decades ...



Digitalization

By 2020, the digital universe will reach **44 zettabytes** – a **10-fold increase** from 2013



Demographic change

The earth's **population will increase** from 7.3 billion people today to **9.6 billion** by 2050



Climate change

By 2050, a **global temperature increase of 4°C** is expected



Urbanization

By 2050, **70 percent** of the world's population will live in cities (2014: 54 percent)



Globalization

The **volume of world trade** nearly **doubled** between **2000 and 2014**

Vision 2020+

New company organization as of April 1, 2019



Operating Companies

Gas and Power



Smart Infrastructure



Digital Industries



Strategic Companies

Siemens Mobility



SIEMENS Gamesa
RENEWABLE ENERGY



SIEMENS Healthineers



Service Companies

Financial Services

Global Business Services

Real Estate Services

Corporate Development (e.g., IoT Services Unit, Next47, Portfolio Companies)

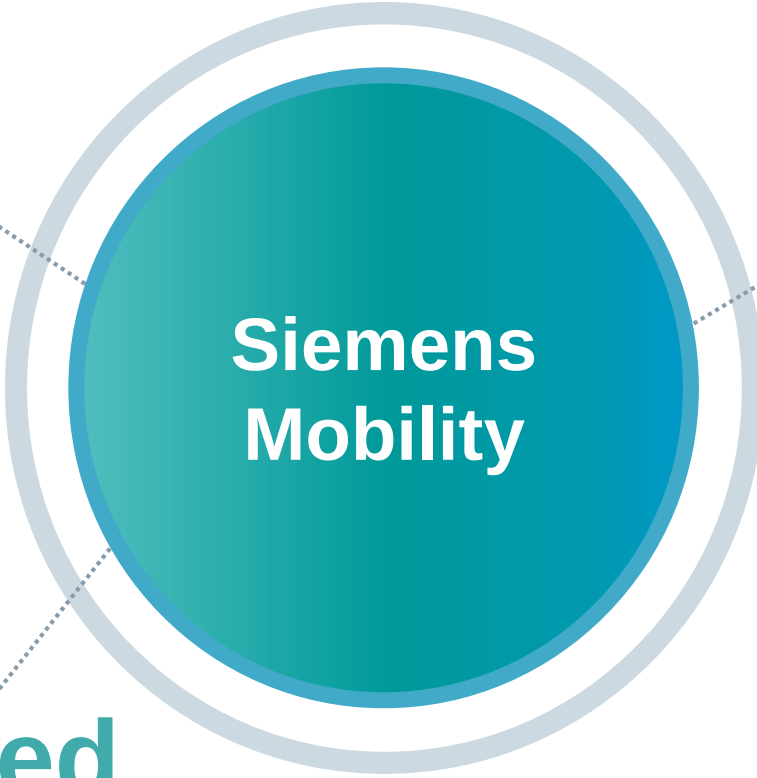
We are Siemens Mobility

SIEMENS
Ingenuity for life

Carries

the **SIEMENS** brand

Belongs to Siemens
100 percent



**Siemens
Mobility**

Fully consolidated

in Siemens AG

Leading provider of rail and road solutions



What will mobility be like
in the future?



Our vision...



**100 % connected and
Integrated: technologies,
people, services providers,
etc.**

Our vision...



**100 % Availability
Based on predictive
maintenance.**



Our vision...

SIEMENS
Ingenuity for life

**Safe, secure and
sustainable: electric,
physically and IT protected.**

Ecosistema conectado

Aplicaciones y servicios en co-creación con nuestros clientes



Ferrocarril

Material rodante

Mantenimiento

Seguridad informática

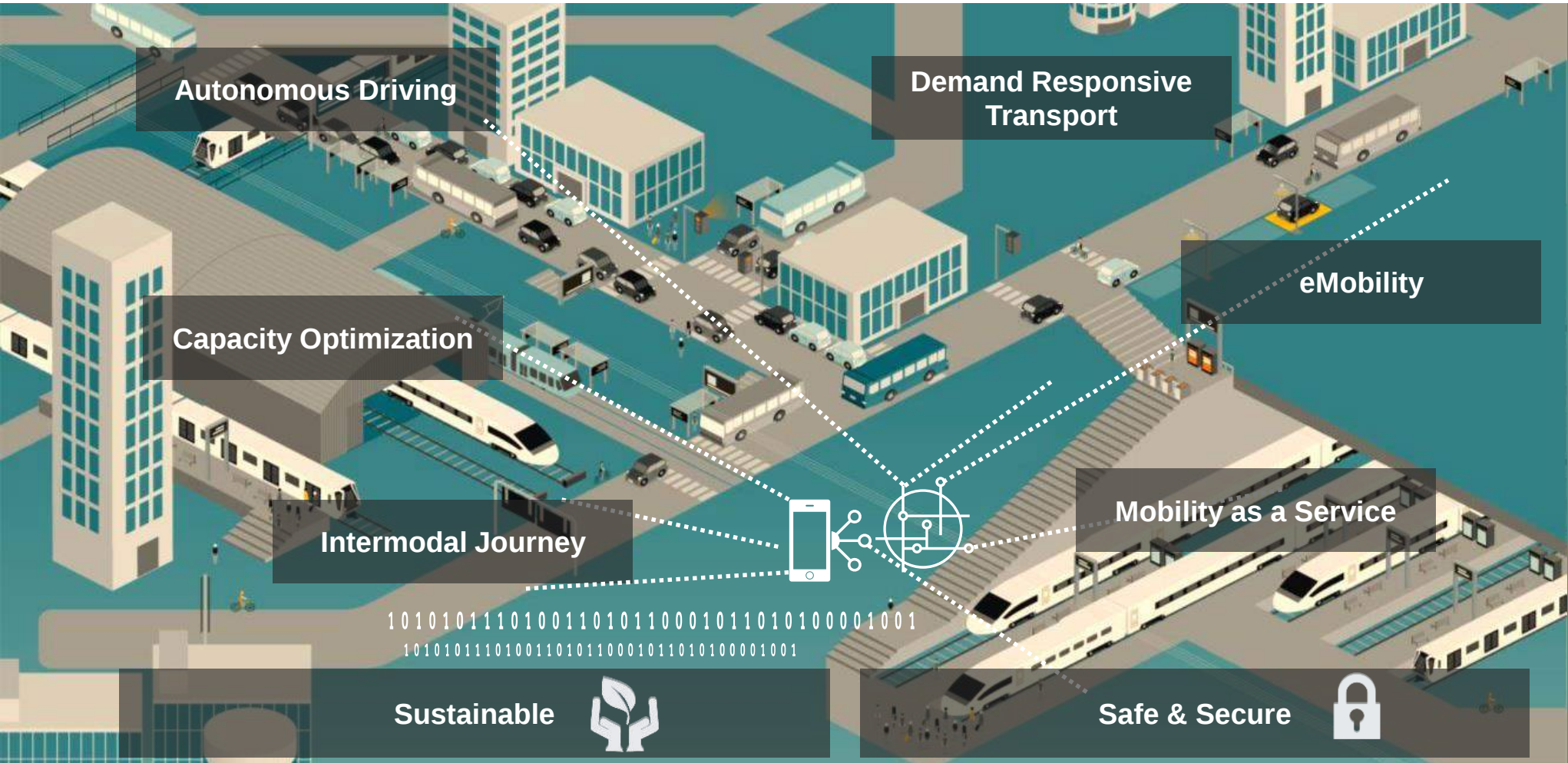
Carretera

Funcionamiento

Conectividad



The future connected mobility landscape will deliver economical, sustainable and convenient travel experiences – as a service



Guaranteed Availability

Optimized Capacity Profile

Enhanced Passenger Experience

We significantly ramps up our Mobility Software and Digital Services portfolio in our core markets



Digitalization

Automation

Electrification

Mobility Software

Mobility Digital Services

MindSphere – the open IoT operating system

Digitally enhanced fleets, infrastructure and field equipment

Holistic IT Security Concept

In an era of interconnected and digitalized mobility, travel behavior is changing

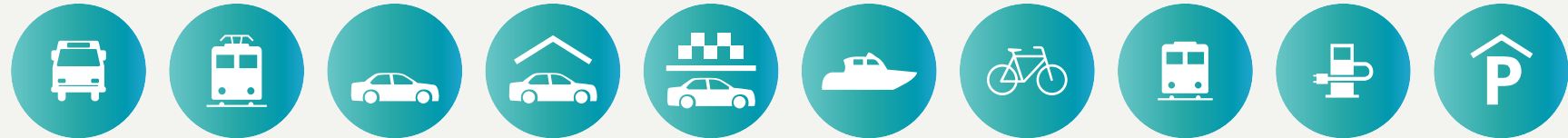
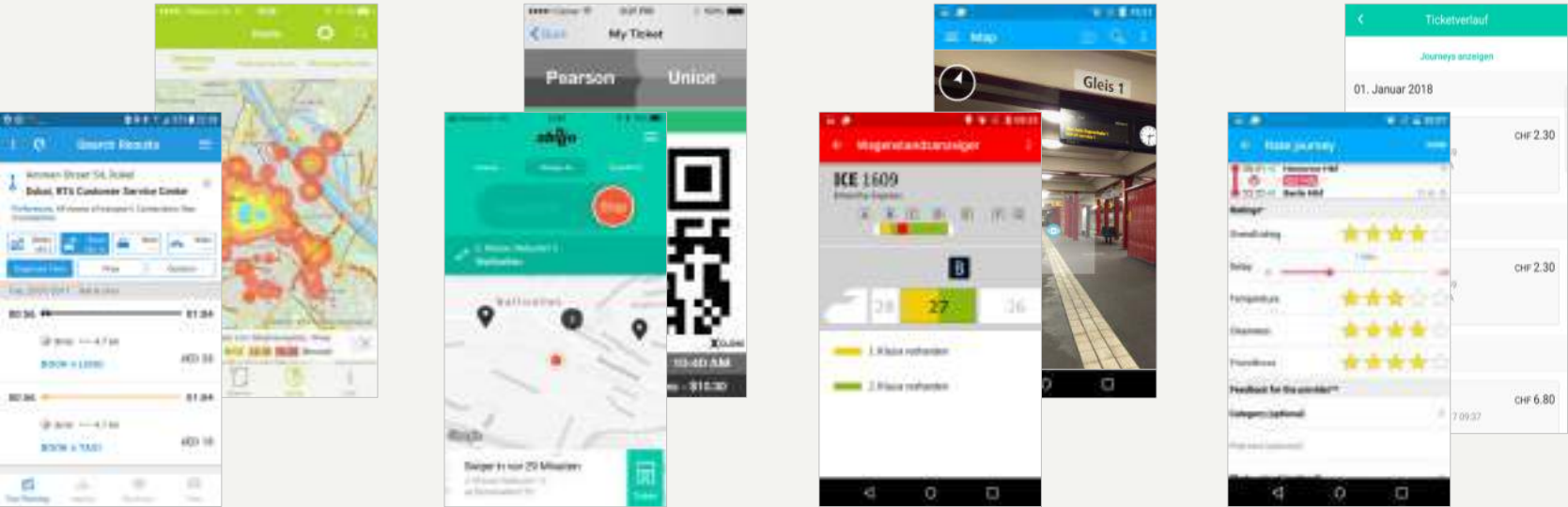


One single interface

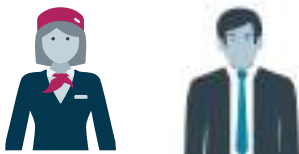
MaaS solutions to enhance the passenger experience and to drive the operational excellence of operators



Passenger



Operator / Authority



Understand passengers

Improve operations

Orchestrate mobility



We are providing solutions for transport operators & authorities as well as freight, tech & automotive companies



Nationwide door to door solutions

- Germany – Deutsche Bahn AG
- Switzerland - SBB
- Austria – ÖBB & VAO
- Poland – PKP
- Luxemburg – CFL & CdT
- Denmark – Rejseplanen
- Sweden – Samtrafiken
- Norway – NSB & NRI
- Belgium – SNCB
- Netherlands – NS

Railway solutions

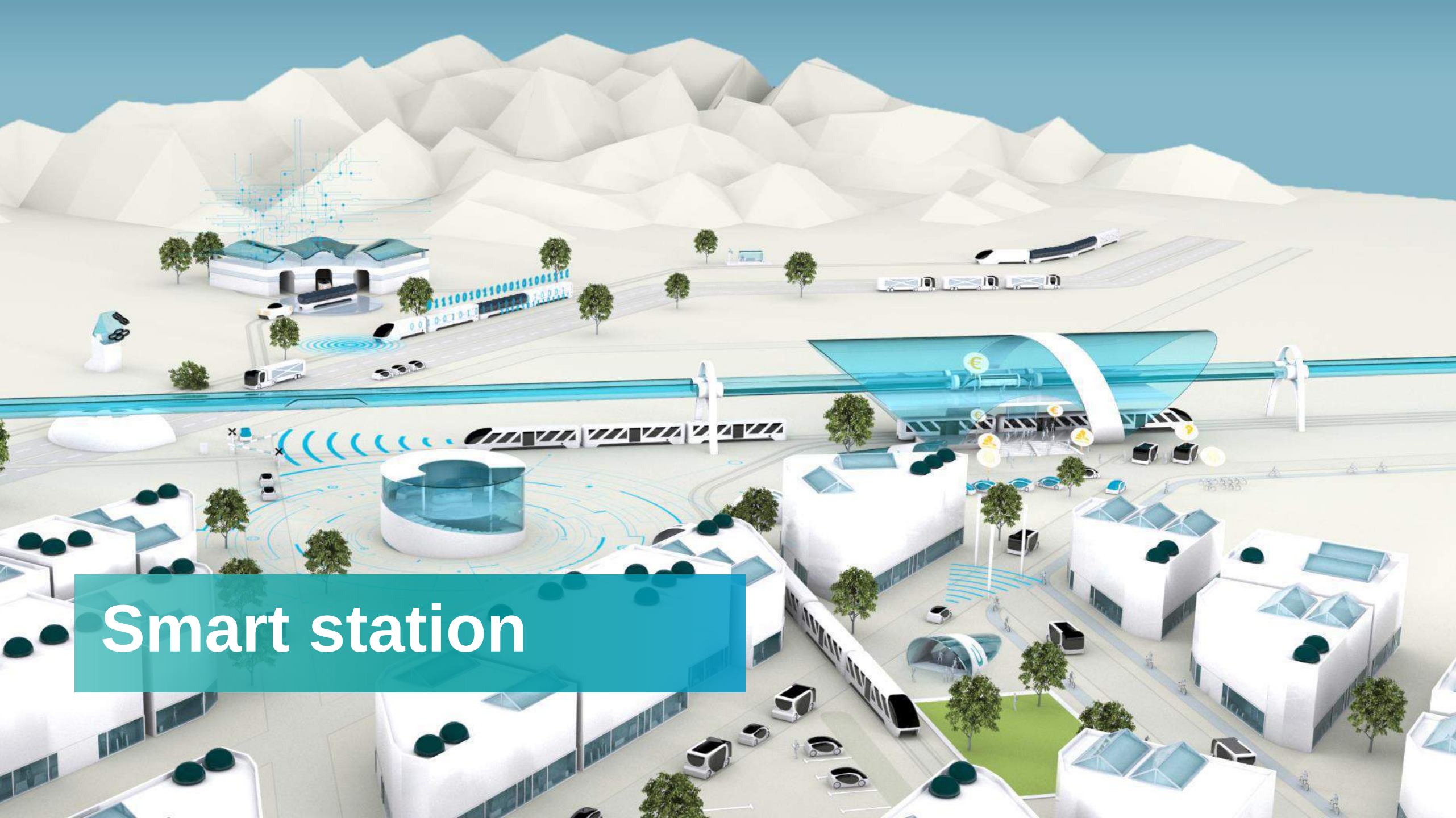
- SNCF, NS, DB
- SBB, ÖBB, PKP, CFL
- SNCB, NSB, Irish Rail
- Eurostar, ADIF, UIC
- Network Rail, UK train operators

Local public transport operators

- USA, Great Britain, Ireland
- Germany, Austria, Switzerland
- Italy, Luxembourg, Denmark, Israel
- Norway, Sweden, Finland, Colombia

Freight, technology companies and automotive

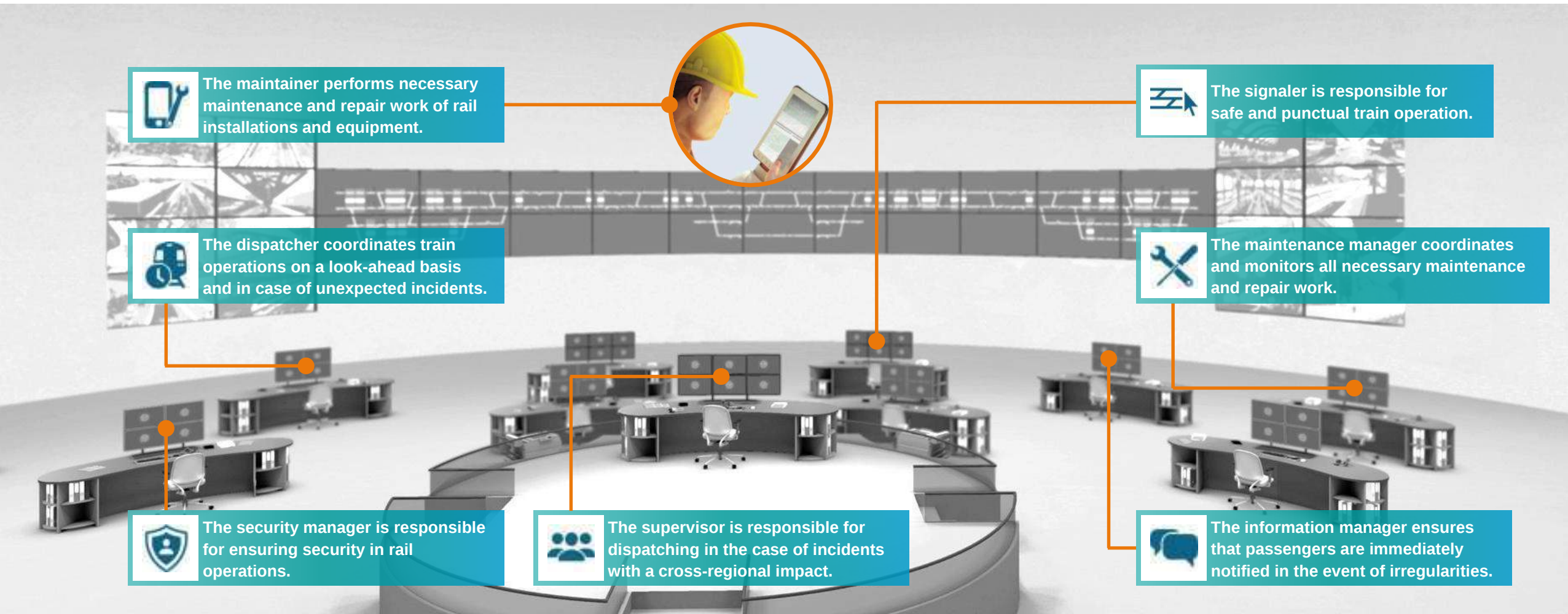




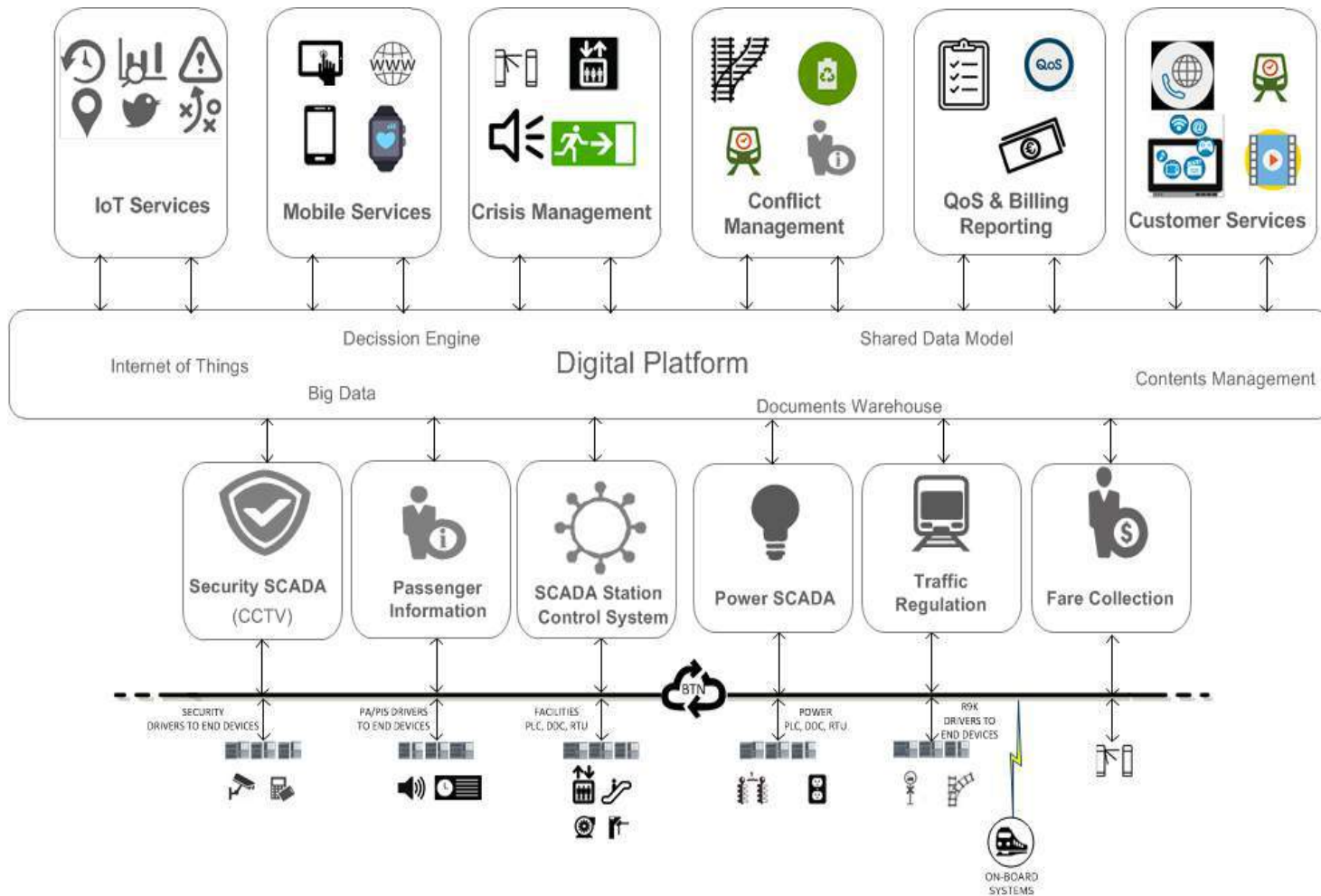
Smart station

Operational Control centre integrates operations & dispatching - Efficient decision-making through seamless data integration

SIEMENS
Ingenuity for life



Smart Station: Unifying the Digital World

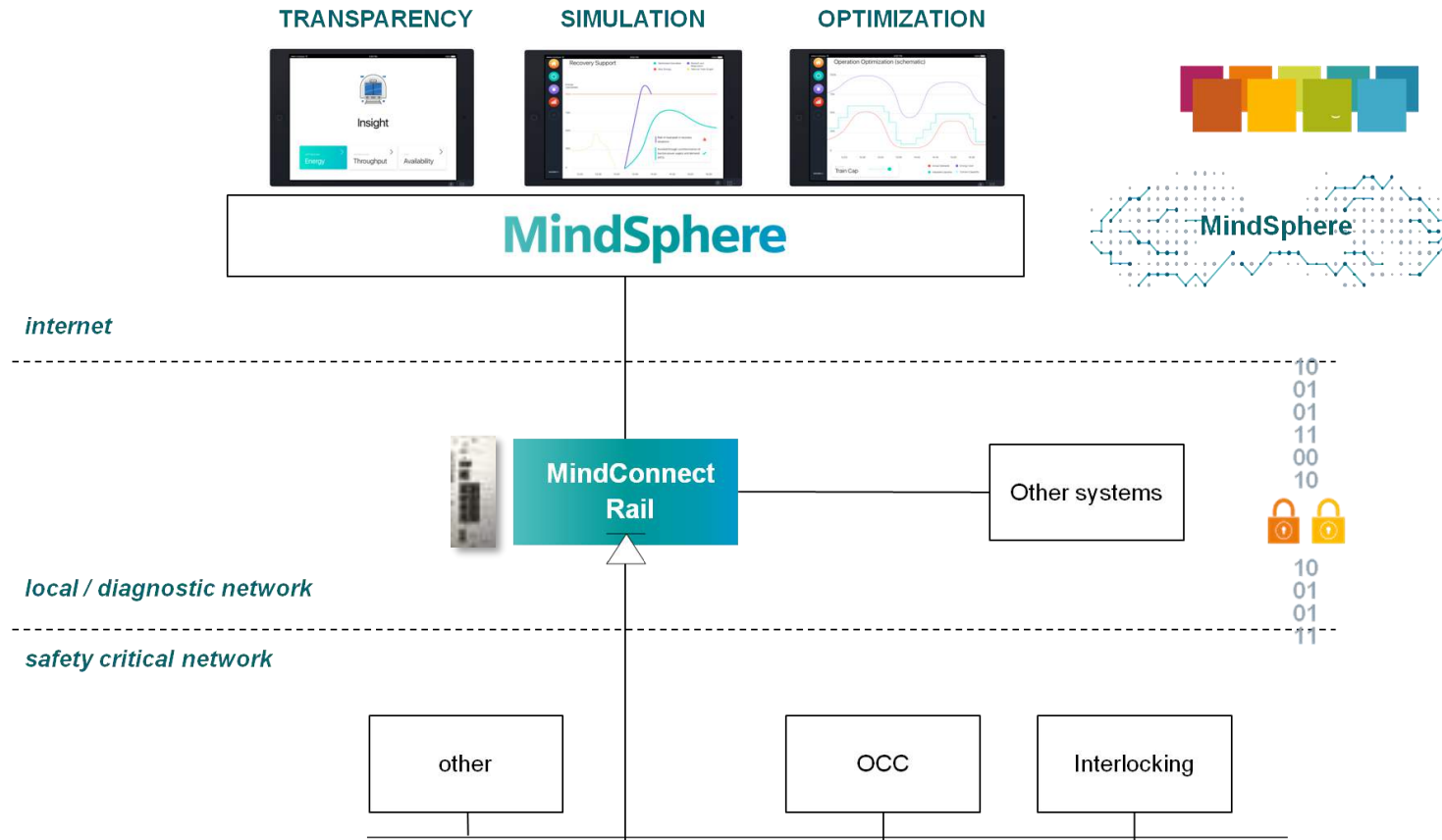


Common platform and interface to add value to whole railway operation; homogenizing and correlating information from different subsystems. It sets up our value proposition and unique selling point for digitalization.

- Traffic control, planning and regulation
- Common platform for SCADA/Control System
- Digital architecture to share, store and analyze data and to increase customer experience in the digital framework
- Radio communication network to ensure online access for real time user experience.

Gaining insight in and optimize system performance of smart & connected infrastructure systems

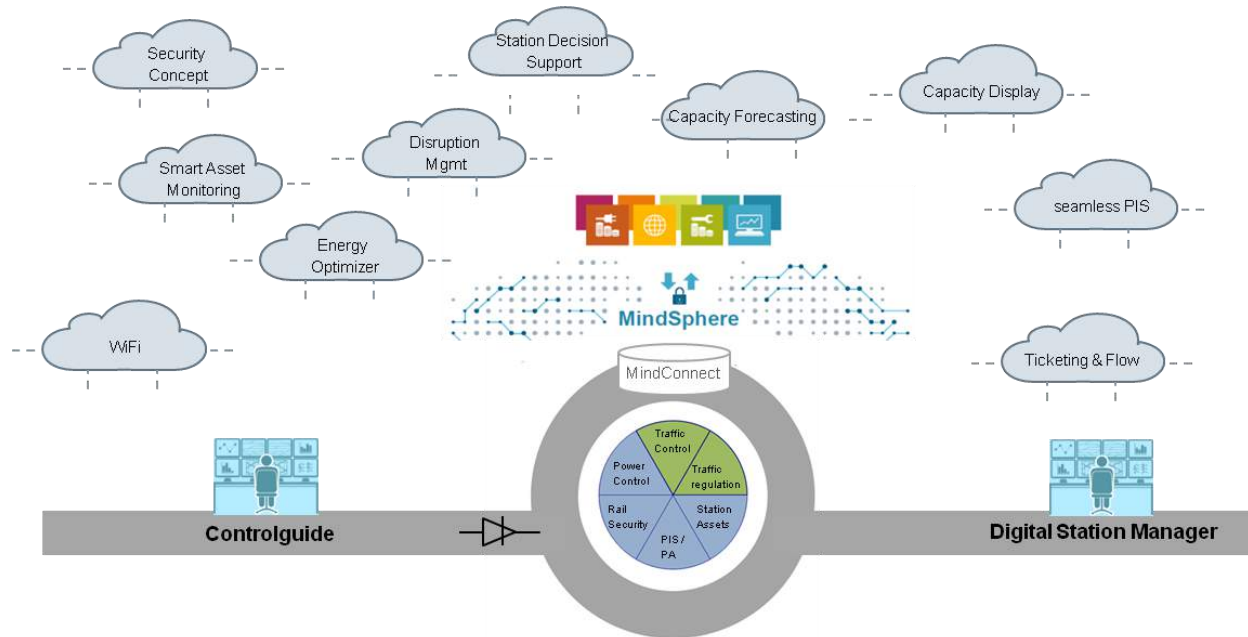
SIEMENS
Ingenuity for life



- Apps and software for enhanced operation of critical railway infrastructure systems - unlocked via a safe & secure connectivity solution by Siemens
- Customer will get transparency and insights about system performance and optimization potentials (e.g. energy optimization, decision support)
- We are connecting the physical with the digital world – delivering data to bring Digital Twins alive (e.g. to create a “one truth system view” along the life cycle and to perform online/offline simulation)

Our target is to offer value adding apps & software on top of MindSphere – enabled by connected signaling systems.

Siemens Digital Station Manager to optimize Station Operations and Passenger Flow



Passenger Flow and Experience

Optimize passenger flow and experience by self-learning, personalized station guidance



Power Savings

Energy savings by stringent asset coordination (e.g. train arrival and escalators, PIS systems)



Alerts and Notifications

Station staff as well as passengers can receive direct notifications tailored to user group and priority

Example: Enhanced station safety in case of evacuation

Intelligent station evacuation & monitoring in case of emergency through integrated system with analytics capabilities, e.g., iCCTV, all escalators change in upwards direction, etc.



SIEMENS
Ingenuity for life

Thanks for your attention