Enhanced passenger experience through digitalization

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The Digital Challenge – Everything is Connected: The Passenger, the Operator, the Train and the Traffic
The Digital Challenge – Everything is Connected
The Passenger, the Operator, the Train and the Traffic

The passenger: Always connected on the journey

Passengers want to have online assistance, to work/consume, to be entertained and to communicate with the world – everywhere.

The (cost-) efficient and digitalized operator

The operator needs real-time supervision (e.g. fleet status, safety and security), real time data for optimization (e.g. utilization, energy) at any place.

The supplier – enabling with innovative Train IT

The supplier has to deliver flexible, connected and cost/energy optimized trains. An open and secure IT-infrastructure is the enabler.

The upcoming challenge: Autonomous driving

Autonomous driving changes the way of traveling and transportation – with completely new business models of operation.
Siemens offers answers to frequently asked questions of passengers

Which ticket should I buy?
Where do I need to get off the train?
Do I have WiFi connectivity on board and infotainment services?
Is it save to take public transport?
How much time do I have for my connection?
What other travel options do I have?
Siemens answers: Digital solutions for enhanced passenger experience.
Seamless passenger experience by intermodal and connected solutions from door-to-door

- **SiMobility**: Intermodal information and transaction solutions incl. handsfree ticketing “Be-in/Be-out”
- **Always Connected**: Connected solutions for passenger assistance and entertainment during the journey
- **PIS+**: Passenger Information and guidance System depending on passengers location and traffic situation
- **iCCTV**: Automated recognition solutions including detection of seat occupancy and wheelchair space availability
- **Train IT**: Fully integrated standard IT backbone for flexible and future-proof train application
SiMobility solutions improve passenger travel comprehensively

SiMobility Connect
B2B platform enabling information and transactions before, along and after the journey

SiMobility Flow
Proximity-based push information for passenger guidance and source of usage data for operators

SiMobility JustGo
Hands-free, on-the-go ticketing with BiBo (Be-in/Be-out) and CiBo (Check-in/Be-out) flavors

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SiMobility makes travel easy, seamless and comfortable

Inform & Plan | Book & Pay | Travel | Manage

SiMobility makes travel easy, seamless and comfortable

Travelers

Challenges and opportunities

Digital Solutions

SiMobility

AlwaysConnected

Passenger Info +

iCCTV

Train IT
SiMobility Connect: flexible base towards intermodal and mobile services

**Apps/Portals for travelers**
- Customer portals, Traveler profiles
- Billing, payment
- Single authentication

**SiMobility Connect**
- Schedules, realtime info
- Routing, booking
- Ticket provision, transactions
- Billing, B2B clearing, …

**Transport operators**
- Mobility retailer
- B2B platform operator
- Service providers
SiMobility provides guidance: contactless ticketing included.
SiMobility for enriched mobility offerings

**Extend mobility offerings**
- Multimodal services

**Simplify travel**
- Best-price – hands-free

**Increase customer satisfaction**
- Confident passengers

- Single-mode offering
- Complex tariff systems
- Lost in mobility jungle

Challenges and opportunities
- Digital Solutions
- SiMobility
- AlwaysConnected
- Passenger Info +
- iCCTV
- Train IT
Siemens as innovation partner for third largest rail operator in Switzerland

Scope

- Easy access to intermodal mobility services incl. routing
- Timetable (static, dynamic)
- Integration of BiBo functionality via mobile app
- “Best-price” module for optimization after public transport trip

Siemens has been selected as innovation partner for the development, implementation and operation of a sales platform – to go live at the end of 2016

13 mio passengers p.a.
125 km rail network in East/Central Switzerland
3rd largest rail operator in Switzerland
Velaro Turkey with digital AlwaysConnected solutions: Internet on board, passenger assistance and entertainment

INTERNET ACCESS
AAA = Authentication, authorization and accounting

ACCESSIBILITY
In-seat displays on board monitors mobile devices satellite connection

COMMERCE
advertisement

MOBILITY INFO
coach related info routes, platforms, connections

WAYFINDING
directions moving map station maps

INFORMATION
current news, weather info, announcements, driver view camera

NEWS
newspapers, RSS feeds

VIDEO ON DEMAND
plugin-free, payment, video games

AUDIO ON DEMAND
playlists, albums

LIVE TV/Radio
IP-TV streams IP-radio streams

e-READING
books, magazines

Challenges and opportunities Digital Solutions SiMobility AlwaysConnected Passenger Info + iCCTV Train IT
Passenger Information System Plus – Imagine you are standing at the door and want to catch the next train

The all-in-one passenger system provides

- Realtime interference management of delays, malfunctions, incidents, etc.
- Guidance system for passengers before entering platform
- Simplified display of complex content e.g. network map, infrastructure
Intelligent Closed Circuit Television – iCCTV
Understand complex situations to increase passenger comfort

Intelligent CCTV means …

- Detection of occupation level – available seats, standing room and dedicated areas
- Analysis of passenger flows
- Automated alarming in case of safety threats
Intelligent Closed Circuit Television – iCCTV
Data analytics and algorithms for enhanced passenger comfort

**Occupation level**
- Detection of available seats and dedicated areas for wheelchairs, bicycles, baby pushchairs
- Dynamic prognosis of occupation level
- Display of available places on the train, on passenger assistance and conductor app and at the station

**Passenger flow**
- Passenger counting and movement analysis
- Active guidance of passengers using digital channels

**Safety threats**
- Detection of potential aggression or suspect objects
- Detection of vandalism on the train
- Automated alarming of driver, operators staff and control center

**Benefits for passengers**
- Easy and relaxed seat finding
- Higher safety and comfort feeling
- Faster boarding/leaving of trains

**Benefits for train operators**
- Higher passenger satisfaction can lead to higher utilization/revenue
- Utilization data help to better plan and optimize capacity and resources
- Shorter response time and more capable of acting in case of threats
Train IT: Separation in homologation and non-homologation relevant systems enables faster innovations
Train IT brings innovative applications and saves costs over the lifecycle

Benefits of Train IT for operators

- A modular and standardized Train IT architecture for the operator and passenger IT network generates significant cost savings over the whole lifecycle of a train.
- The new Train IT is the backbone to “plug-in” innovative rail applications (iCCTV, passenger information, WiFi, entertainment, diagnosis systems, etc.).
- Standard IT (HW and SW) components for the non-homologation relevant parts bring flexibility to upgrade and replace IT easily and quickly → lifecycle of IT/SW vs. lifecycle of a train.
- Obsolescence and interoperability issues are “things of the past.”
- Easy and future-proof to integrate 3rd party applications.
- SW-updates can automatically be dispatched to and installed on the train (no manual updates via USB stick or CD Rom anymore).

Rhein-Ruhr-Express will be equipped with Train IT.
Digitalization driving customer benefit
RRX exemplifies new digitalization offerings

RRX will be equipped with innovative, digital solutions for passengers and operators

- Digitally enhanced electrification and automation components
  - Tailor made train setup based on optimized Lifecycle Costs (train, service and energy)

- Digital services
  - Smart data analytics for vehicle service
  - Preventive up to predictive maintenance
  - Bogie remote diagnosis

- Vertical software/IT solutions
  - Internet on board (WiFi)
  - Passenger Information System
  - Security for passengers (CCTV)

- Best asset utilization
- Guaranteed availability
- Enhanced passenger experience
Thinking mobility further ...

Thank you.