Building An Intermodal Ecosystem

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Mobility of the Future?


Picture Source: https://bit.ly/2t17c7j

Picture Source: https://ford.to/2jl1Mdf
Car, Bike, Bus or Train

Here are 200 people in 177 cars

without cars

on bikes

on 3 buses

on 1 light rail train

Images of downtown Seattle's 2nd Avenue

From the International Sustainability Institute's Commuter Toolkit photos
MaaS – A Jungle of Mobility Interfaces
Operating System for Mobility

Travelers

Operators

Intermodal Solutions

Vehicles

Infrastructure
First Mile – Last Mile
A Trip around the World…

- **Luxembourg**
- **Dubai**
- **Silicon Valley / Bay Area**
- **Andorra**
Mobility Platform MMI Luxembourg

- Intermodal Trip Planner (PT, Car, E-Charging, CarSharing, P&R, BikeSharing)
- Comparison of CO₂-Emissions for all modes
- MyMix: User account for individual travel preferences
Mobility as a Service – MaaS (RTA Dubai “S’hail”)

- Public transport, Taxi, Limousine, Uber, Careem, Car
- All in one App:
Intermodal Routing and Ticketing (Bay Area, San Francisco)

- Trip planner (BART): Door to door with public transport + car + bike
- Trip planner, live map with animated vehicles, mobile ticketing (Samtrans)
Mobility as a Service
for sustainable mobility countrywide

Forces Elèctriques d’Andorra
HAFAS and HAFAS Driver – Ecosystem to Digitize Mobility

Customer App
- Multimodal trip planner app
- Push notifications for commuters
- Navigation for public transport – re-routing inside
- Connected with driver app

Driver App
- App-based ITCS system for bus & train
- Navigation for bus driver – re-routing
- Connection assurance integrated
- Connected with customer app

Embedded into HAFAS IoT Cloud
Digital STOP button
“Registered” trips

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Michael Frankenberg / Siemens Mobility
Information, Navigation, Push Notifications and Additional Content
Next Gen Ticketing: Check-in/Be-out (CiBo)

Thank you for travelling!

Check-out: Main Station, Hamburg
Time: 08/08/2016, 11:30 h

You have been checked out.

Prepaid → CiCo → CiBo → BiBo
The Verkehrsverbund Berlin-Brandenburg Introduces Itself

With **30.546 km²** the VBB covers the largest transport network in Europe by area.

The VBB covers the metropolitan region **Berlin-Brandenburg** with about **6 million** inhabitants in total.

About **1,5 billion passengers** travel with public transport in the VBB area.
Berlin and Brandenburg: Different Preconditions

Berlin

- 3.6 Mio. Inhabitants
- Area: 892 km²
- Population Density: 4,088 Inhabitants/km²
- Modal Split: 25 % ÖV / 33 % MIV
- 1.2 Mio. PKW

Brandenburg

- 2.5 Mio. Inhabitants
- Area: 29,654 km²
- Population Density: 85 Inhabitants/km²
- Modal Split: 11 % ÖV / 59 % MIV
- 1.4 Mio. PKW
VBB Live Map Berlin vs. Finsterwalde
KidsApp Is Live – VBB Jump
Big Data Analysis

Anfragen pro Stunde vs. Abfahrtszeit

Depeche Mode
im Olympiastadion

Start: S Olympiastadion (Berlin)
Start: S Wuhlheide (Berlin)

Arcade Fire
in der Kindl-Bühne

Berliner Rundfunk Open Air
in der Kindl-Bühne

Broilers
in der Kindl-Bühne

U2
im Olympiastadion
Big Data Analysis

Berlin Fan Map

Map based on average of Rounded X and average of Rounded Y. Color shows sum of Diffdumu2. Details are shown for ID.
Occupancy Forecasts with HAFAS @ VBB & Protrain

- Project Partners
  - BLIC
  - DB Regio + DB RES
  - DLR
  - IVU
  - Telefonica NEXT

![Graph showing occupancy forecasts over time]
Change of Mobility – Approaches & Challenges

- **Vienna: 365 Days Ticket**
- **Luxembourg: Public Transport For Free**
- **Connecting The Country Side To Public Transport**
- **Individual Travel Behavior**
- **Seamless Ticketing Experience**
- **Individual Car vs. Public Transport**

What comes next?