

# Mobile Integration Platform (MIP)

A Project of Deutsche Bahn AG

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Deutsche Bahn AG

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DB Systemtechnik

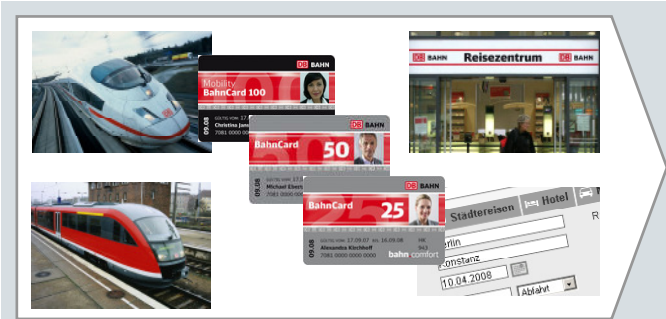
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Jens Haeger, Roman Roelofsen

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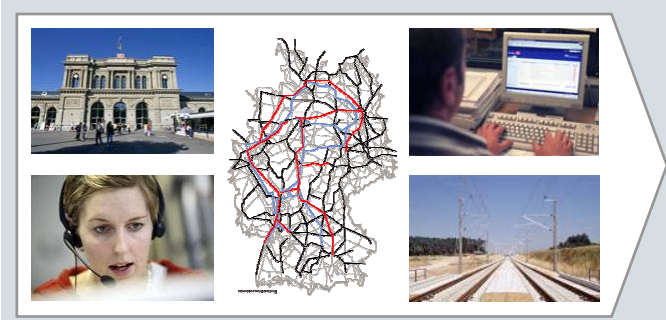
Berlin den 10.06.2008

# We have become a leading operator of transportation networks



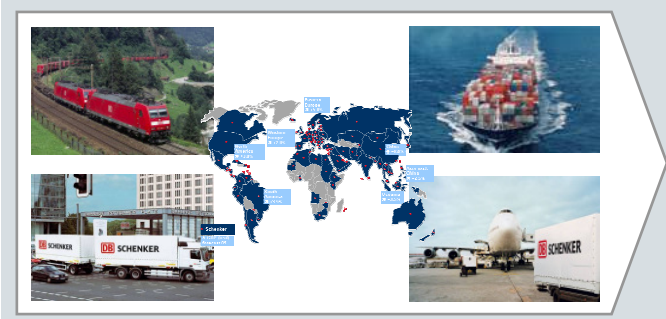
## Passenger Transport

- New regional and long-distance vehicles in service
- New mobility offers such as Call-a-Bike, DB Carsharing, RailNet; exact-address information in Internet, Cityticket available
- More international connections



## Infrastructure and Services

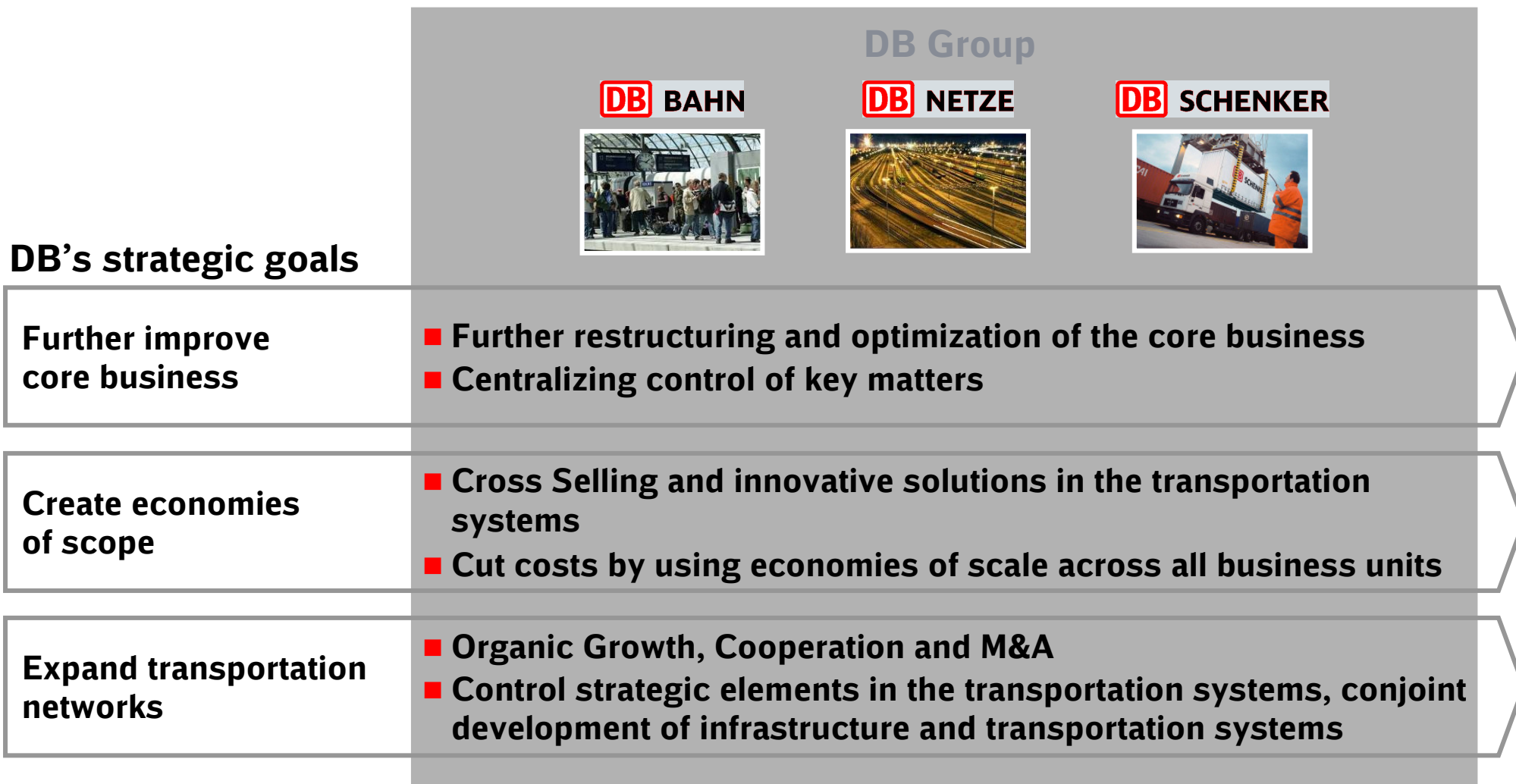
- Modernization of track infrastructure and stations
- Expansion of high-speed network
- Expansion of IT and telematics networks



## Transport and Logistics

- Expansion of air, ocean, road, and logistics businesses
- Strong growth noted in Germany and abroad
- Establishment of logistics chains with rail as a strong backbone

## DB is pursuing three essential strategic goals



# Mobile Integration Platform (MIP)

## Initial situation (1)

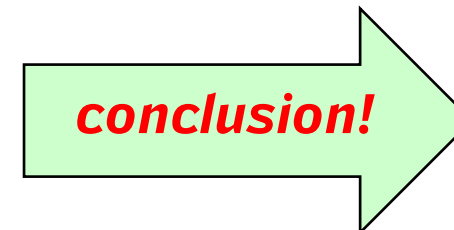
### Requirements to data communication from vehicles to stationary platforms

- Increasing mobile customer needs leads to intense growth
  - ⇒ new services for travelers has to be developed and supplied
  
- Rapid technical innovation
  - ⇒ enable new applications for customers



### Answers today, by:

- stand-alone solutions, reasons are:
  - preventing increasing complexity
  - decreasing project coordination
  - impulse to „small and keen“ solutions
  
- individual solutions because:
  - different vendors are involved
  - mostly no one risk a view over the horizon

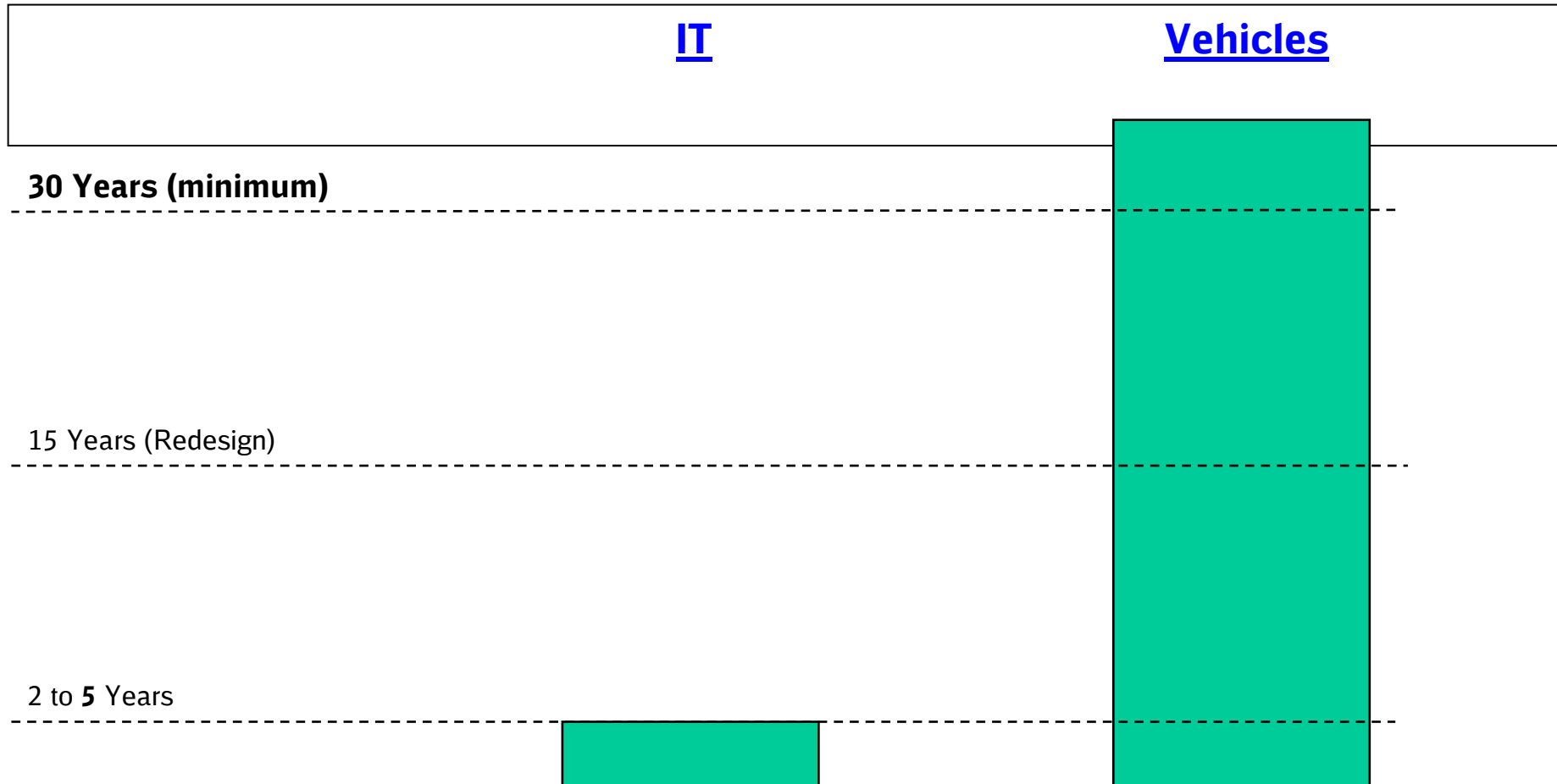


## Mobile Integration Platform (MIP) Initial situation (2)

- only small integration of applications
  - singular, different solutions
  - multiple radio path (antennas, modems, accounts)
  - only few multiple utilization
- each application has own methods /  
and singular infrastructure
- costs für investments, maintenance and operations are high



# Mobile Integration Platform (MIP) Different life cycle: Vehicle – IT-Technology



**The challenge: how can we reasonable connect both life cycles?**

## Mobile Integration Platform (MIP) Different life cycle: Vehicle – IT-Technology

### How can we connect reasonable both life cycles (IT – Vehicles) ?

#### Assumptions:

- Vehicles have to stay operational over the whole life cycle (guideline)
- Technological changes in IT has to be free of negative impact to vehicel sector (guideline)

#### Challenge:

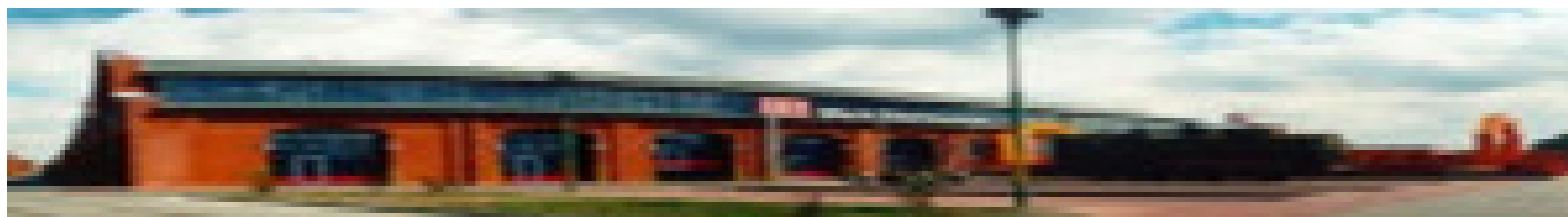
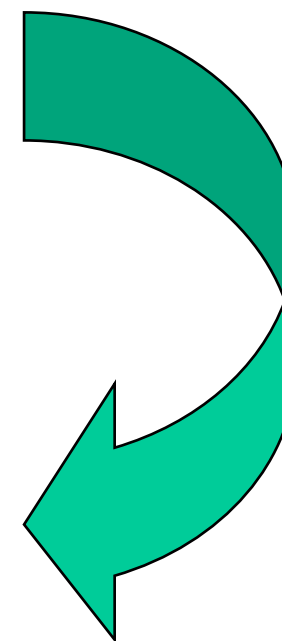
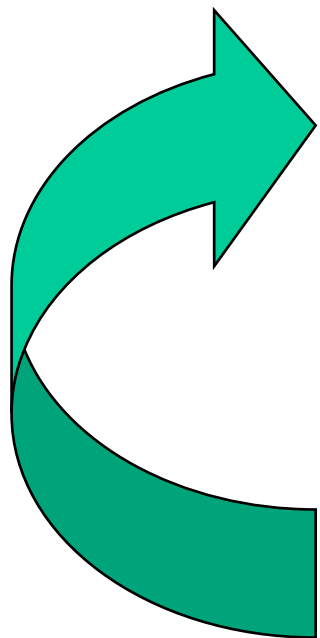
- To make useful new technology innovations, which enables new applications
- Constant increase of need of informations by travelers and vehicle owners

## Mobile Integration Platform (MIP) Objective



**Creating a unique base of modern data communication supporting processes from and to vehicles as an onboard integration solution for**

- Information - mining
- Information - allocation
- Information - distribution
- Information - processing



## Mobile Integration Platform (MIP)

### Basic requirements

- High modularity (“modular design”: flexible configuration, based on consistent components for different profiles of usage), thereby scalability from “top to down”;
- Adoption of a basic concept, which should avoid any impact of applications each other, thus decrease efforts for admittance and sample testing;
- Integration capability in existing system landscape of vehicles, though the product-responsibility remains at vendors of connecting components;
- Platform-independency (standard software-architecture, closed portable software-module, consistent concept for developing, operating, maintenance, software-allocation, configurations-management,...); thereby easy maintenance and administration;
- High reliability (Usage of „state of the art“ technology; under compliance of standards);
- Common extensibility by capsulating the implementation and interfaces;
- Flexibility regarding the usage different existing and possible future transmission channels for the train <-> ashore communication;

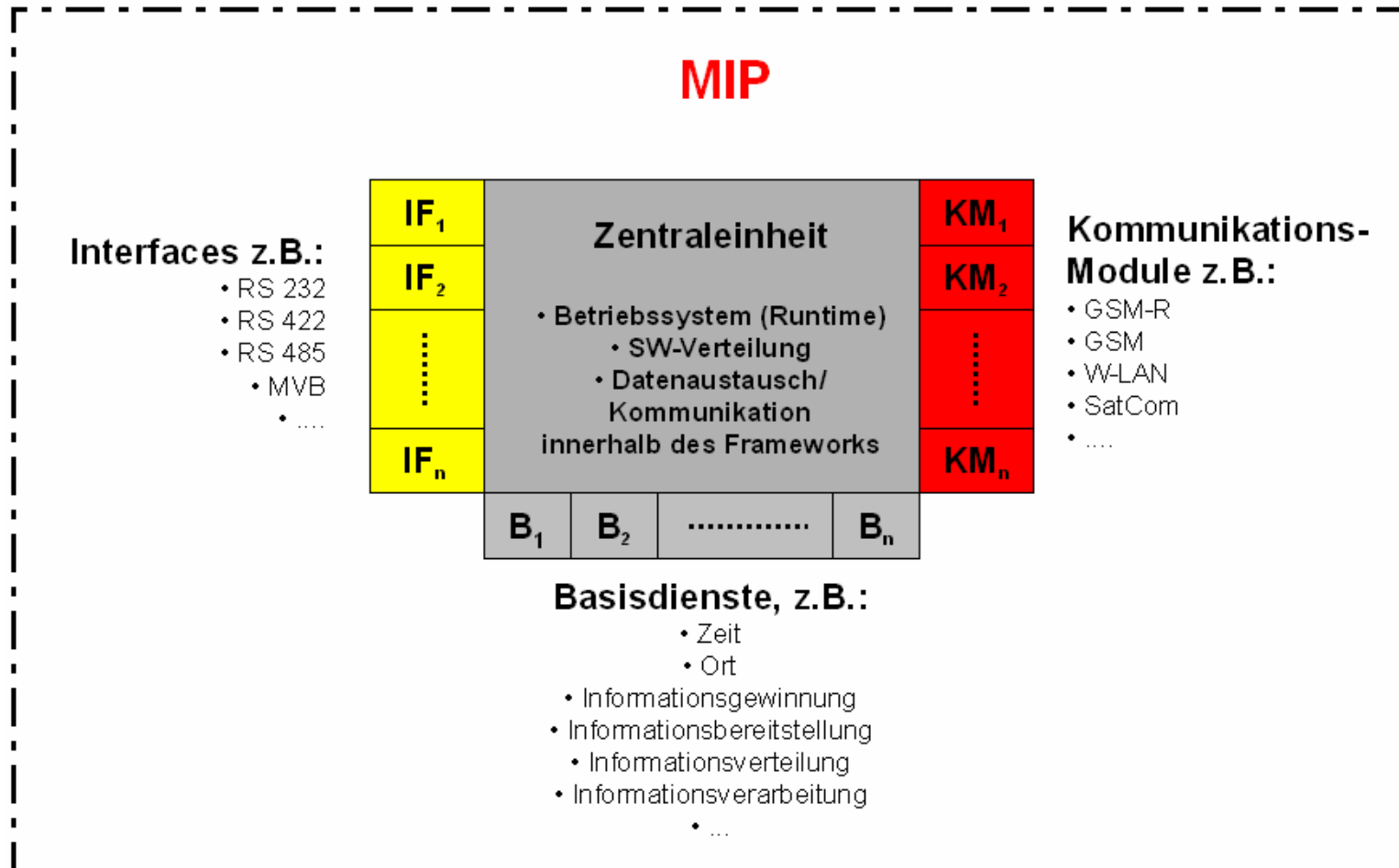
## Mobile Integration Platform (MIP) Open system architecture for a modular approach

- Open infrastructure
- Open software architecture
- Capsulated, predetermined hard- and software-interfaces
- Complete and open definition of mobile ↔ stationary communication



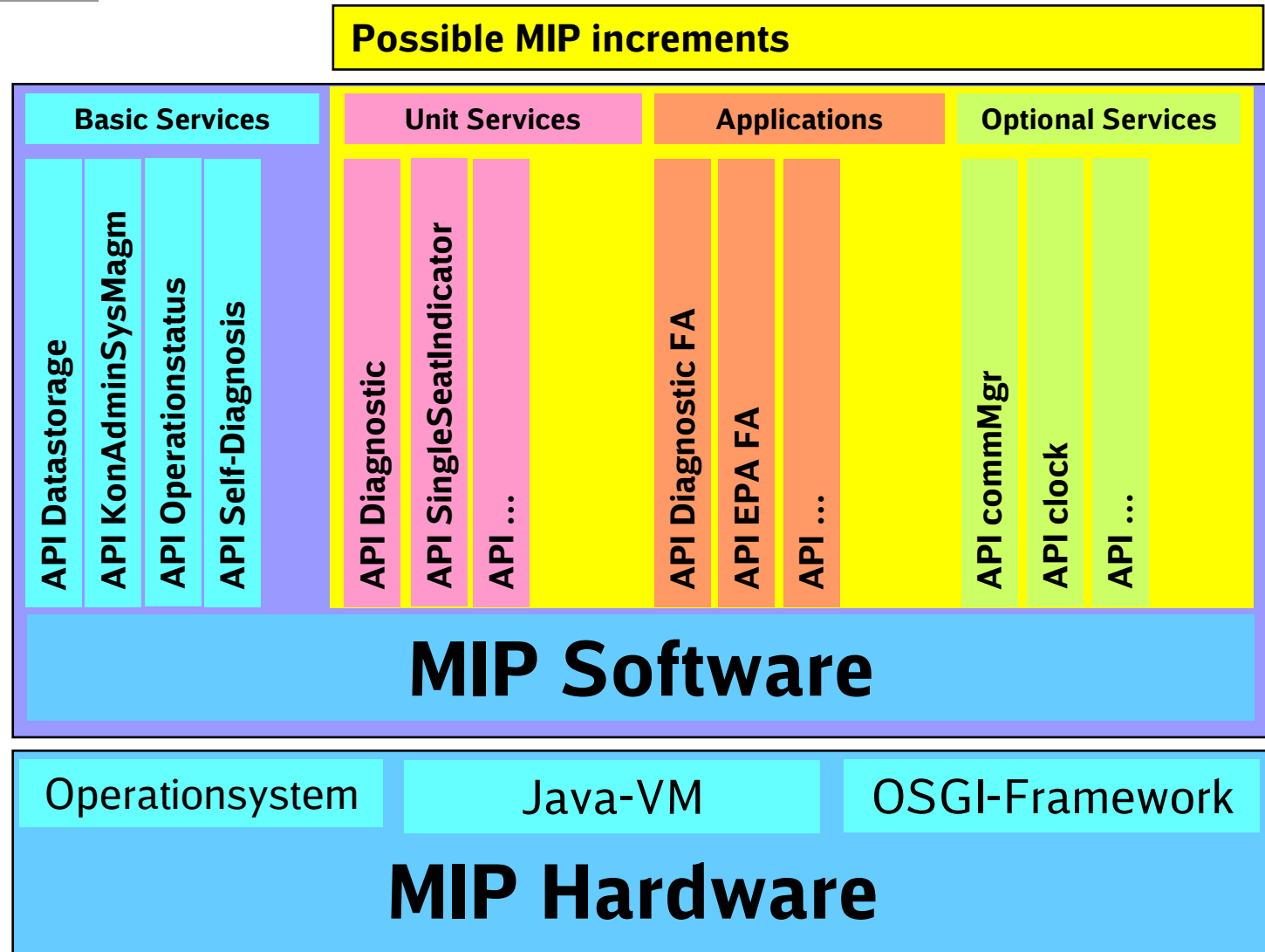
# Mobile Integration Platform (MIP)

## Basic design of future system architecture



# Mobile Integration Platform (MIP)

## Stages of expansion



**1st Step**

**To make MIP available for concrete vehicle-projects**

**2nd Step**

**Development of MIP to an industrial standard**

**3rd Step**

**European-Norming of MIP**