



## Using wireless services to help train operators cut costs

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Lloyd's Register Rail

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## Introduction to Lloyd's Register Rail Europe

- Used to be part of Dutch Railways, now Lloyd's Register Rail
  - Complete range of services
  - Global presence
  - Safety, functional and business performance of rail systems
- Experience since 1839, Consulting since 1959
- Center of Competence for rail vehicles and its interfaces
- Notified Body
- ICT enabled rail new focus area

## Some relevant projects

- NS; ICT on train architecture: consultancy
- Thalys; on board LAN and internet: certification
- NS/KPN; Smart Connection project (infotainment and internet on trains): business consultancy, project management, technical design, testing
- Virgin Trains; on-board LAN and internet: technical design, engineering, testing
- NS; Zwolle – Kampen infotainment: business consultancy, project management
- NedTrain; real time diagnostics: consultancy, project management



## Business drivers for bringing connectivity to the train

- Making train services more attractive
- Making train operations safer
- Making train operations more efficient
- Making supporting processes more efficient and effective

## Making train services more attractive

- Wireless access to internet
- Mobile office (e-mail and VPN)
- Real time travel information
- Video and music downloads
- News and entertainment
- Location based services
- Chatting and gaming



## Making train operations safer

- Connected staff
- CCTV applications
- Front-end cameras





## Making train operations more efficient

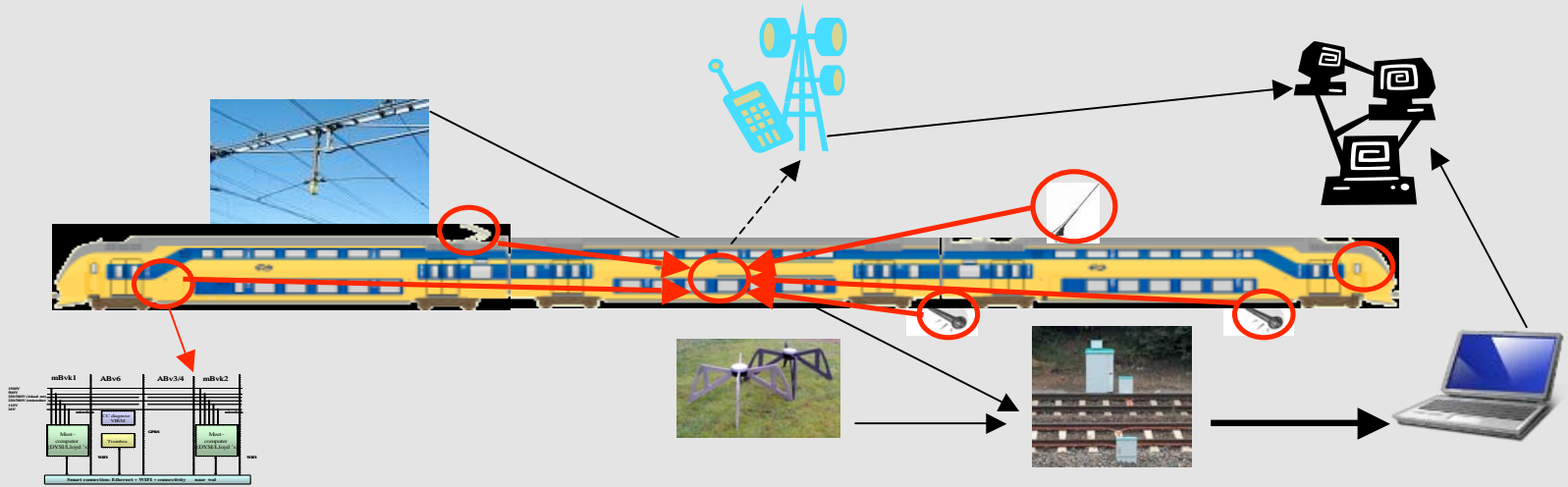
- Train positioning
- Public announcements
- Real time seat reservations
- On line ticket-sales and verification
- HR portal incl update rosters





# Making supporting processes more efficient and effective

- Real time diagnostics rolling stock
- Real time diagnostics infrastructure
- Real time communication with back office train controllers



## How to create the business case?

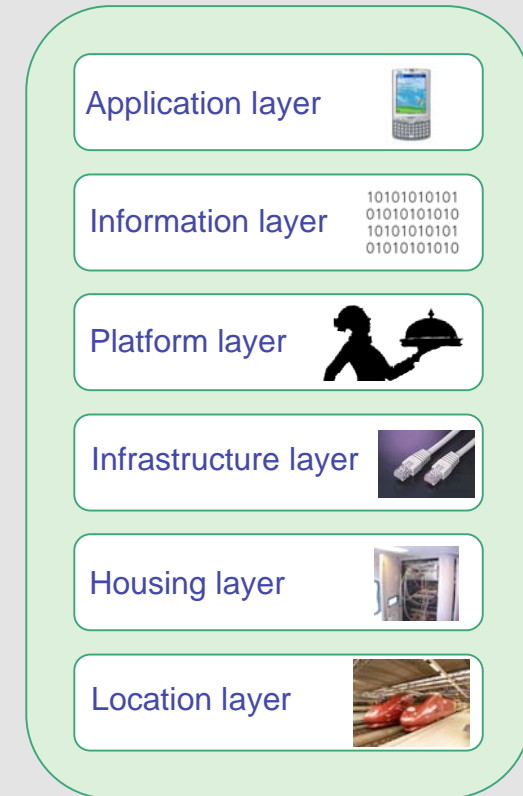
- Any single application requires basic connectivity infrastructure
  - Initial investment relatively high, depending on:
    - type of back haul
    - bandwidth required
    - business model with telco and solution providers
    - size of fleet and number of train services
    - franchise model and fleet ownership
    - type of train service (high speed/ intercity/ suburban)
- ⇒ So very dependent on the context!!

# Shared infrastructure

Combine requirements for different applications into one shared infrastructure

- Lower costs per application
- Prioritising of scarce resources (eg in case of emergency: CCTV takes precedence over WiFi)
- Separation of infrastructure and application makes upgrading easy

## Architecture stack



## Validate and prioritize the potential money makers

- Are your passengers willing to pay for the service?
- Will they use it?
- What alternatives will be launched in the near future?
- Consider narrowcasting in combination with advertising.
- Utilize governmental subsidies related to CCTV!
- Re-engineer your maintenance processes in order to benefit from real time diagnostics!



## Implementation strategy

- Define your business objectives
- Create a master planning
- Manage your risks
- Find appropriate partners
- Draw up overall architecture
- Execute a step-by-step approach
- Continuous assessment
- Alignment with business strategy

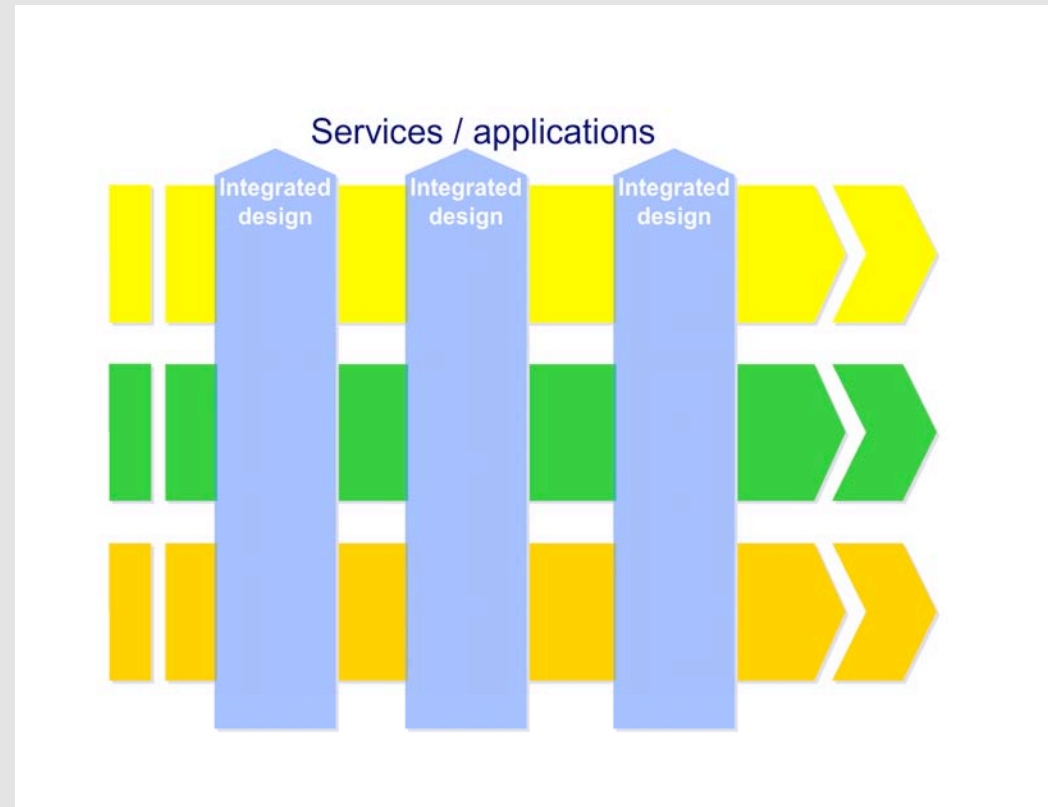
# Working area's Lloyd's Register Rail

## Business:

- Integrating business, ICT and Rolling Stock requirements
- Consultancy: definition, scope, technical implications
- Business casing and negotiating with partners
- Projectmanagement

## Technical:

- Interface between COTS ICT equipment and train.
- Ensuring that the train fulfills all train requirements after installation.
- Providing adequate protection for the ICT equipment against the train environment
- Principal design of installation of the housing and cabling in coaches





# Questions?



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