

„Integration of the European Systems: The Way Forward“



EUROPEAN DRIVER'S DESK  
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

# The European Driver's Desk Project:

## A Practical Example of the Development of Modularisation and Its Expected Benefits

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InnoTrans, Messe Berlin,

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# Market Requirements Ask for a Competitive Rail System



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## ■ The Futur Market

- Freight transport to grow by ~63% until 2015
- by 2015 the amount of cross border freight transport will equal the inland transport
- economic-ecological & political need to foster rail transportation

## ■ The Current Situation

- Current quality, frequency, reliability, frequency, of today's railsystem provide a loss of ~1.3 Mrd. € per 10% freight for the national economy when taken over from road to rail (Prof. Baum, University of Colone)

## ■ The Strategic Way Ahead

- A single European Rail System, competitive, more reliable, faster, more attractive, affordable, safe, clean by
  - Harmonization
  - Standardization of procedures & certifications
  - Modularization of Hardware and Software
  - Interoperability with the system throughout lifecycle

# Future Railsystem to Enlarge Marketshare



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**UIC, UNIFE, UITP, CER and EC have set ambitious goals for the future European Railsystem:**

- ↪ **Tripling of ton kilometres in freight traffic until 2020**
- ↪ **Doubling of passenger kilometres until 2020**
- ↪ **a threefold increase in productivity**
- ↪ **50% reduction of pollutants**

**To be accomplished by operational & technological & procedural effects, e.g.**

- command and control (ERTMS/ ETCS/ GSMRail)**
- passive safety and fire protection**
- optimised European Break System**
- Modularized European Driver's Desk (MMI)**

# From Airbus to European Railbus



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## Example aeronautics:



from the Thirties  
Junkers Ju-52

- Fly-by-wire
- Improved ergonomics
- Modularisation
- Display
- Terminal technology



to the Future  
Airbus A380



Lead to analogue Modularisation technologies  
in a LCC optimised European Rail system

# EUDD Overview

EU-Project (5. RP, Growth Programme), started: 01.01.2001



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## Objectives

- ▶ Modularized driver desk for Conventional Rail (for application in cross-border traffic at first)
- ▶ Development of a modular desk considering latest knowledges in ergonomics and applying new telematics and MMI technologies
- ▶ Realisation as a functional demonstrator, simulation and verification
- ▶ Preparation of an Input document for a European Standard based on Technical Specifications of EUDD

## Partner

- FAV Berlin
- Bombardier
- AnsaldoBreda C.F.
- UIC / ERRI
- Faiveley
- Catalonia Technical University – Barcelona
- Siemens
- TU Wien
- Alstom
- IAS
- SGW Werder
- Deuta Werke GmbH

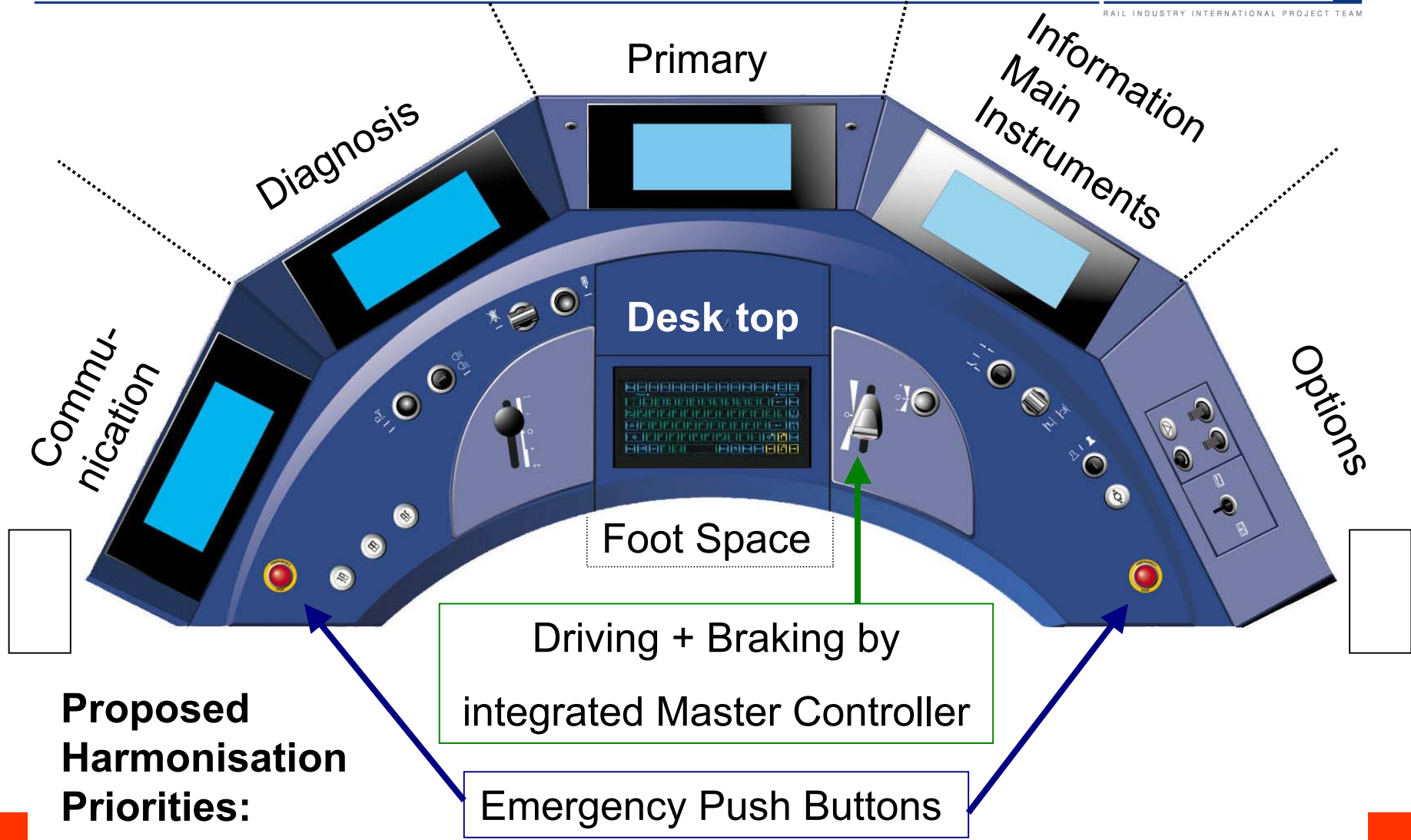
Total costs: 4,6 Mio. €

Duration: 32 months

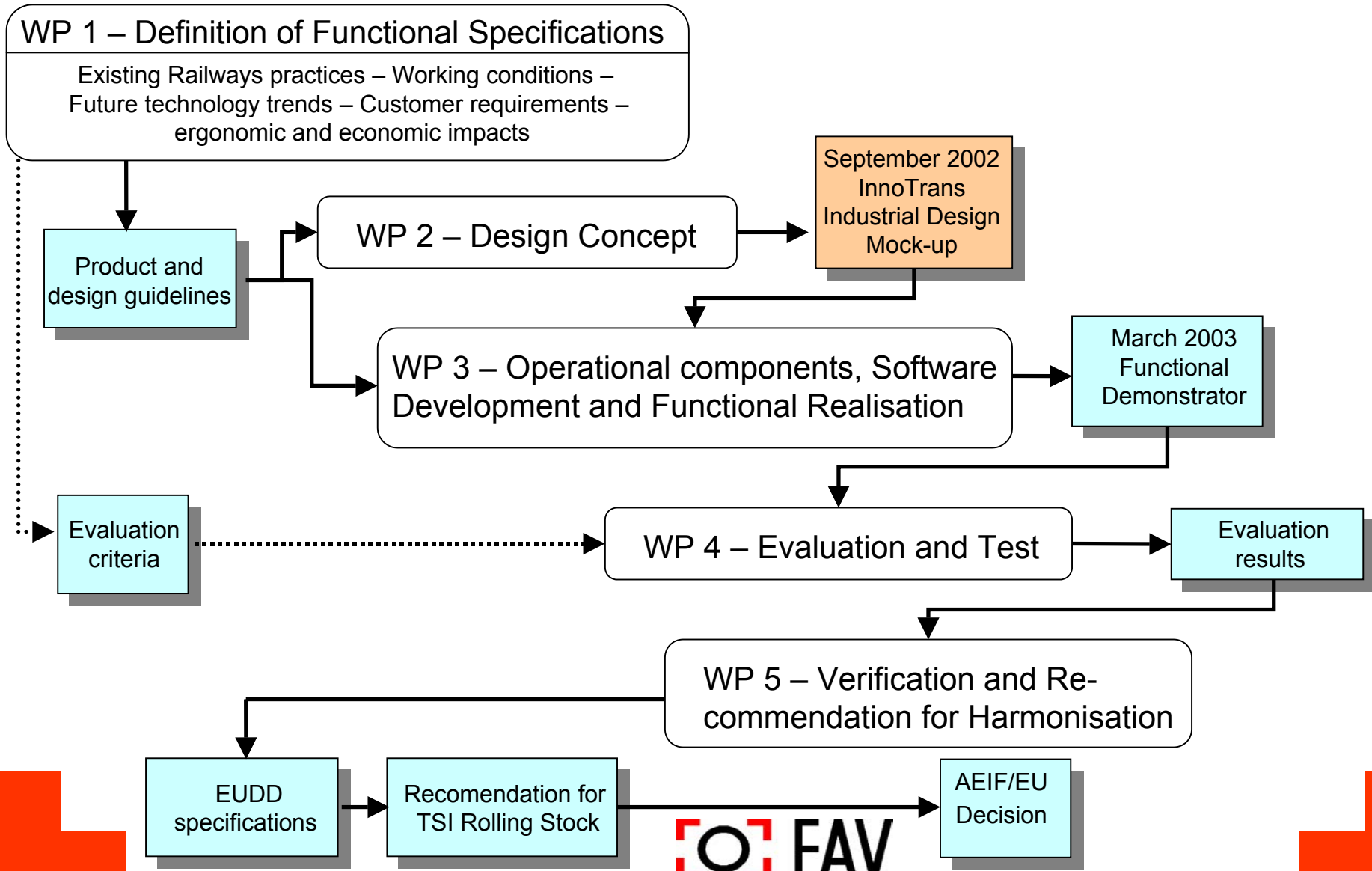


# EUDD - A Modularized Driver's Desk Layout

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# Interdependency of Workpackages



# Expected Benefits



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## For the Supply Industry

- 25% reduction in manufacturing costs (software > 50%, electrical hardware ~25%, mechanical desk components ~25%)
- 10% reduction in „time-to-market“

## For the Operator

- 30% maintenance costs reduction for the desk during its service life
- 25% reduction in overall Life Cycle Costs
- 30% reduction in staff training costs
- 25% improvement of reliability through replacement of electro-mechanical displays by fully electronic ones

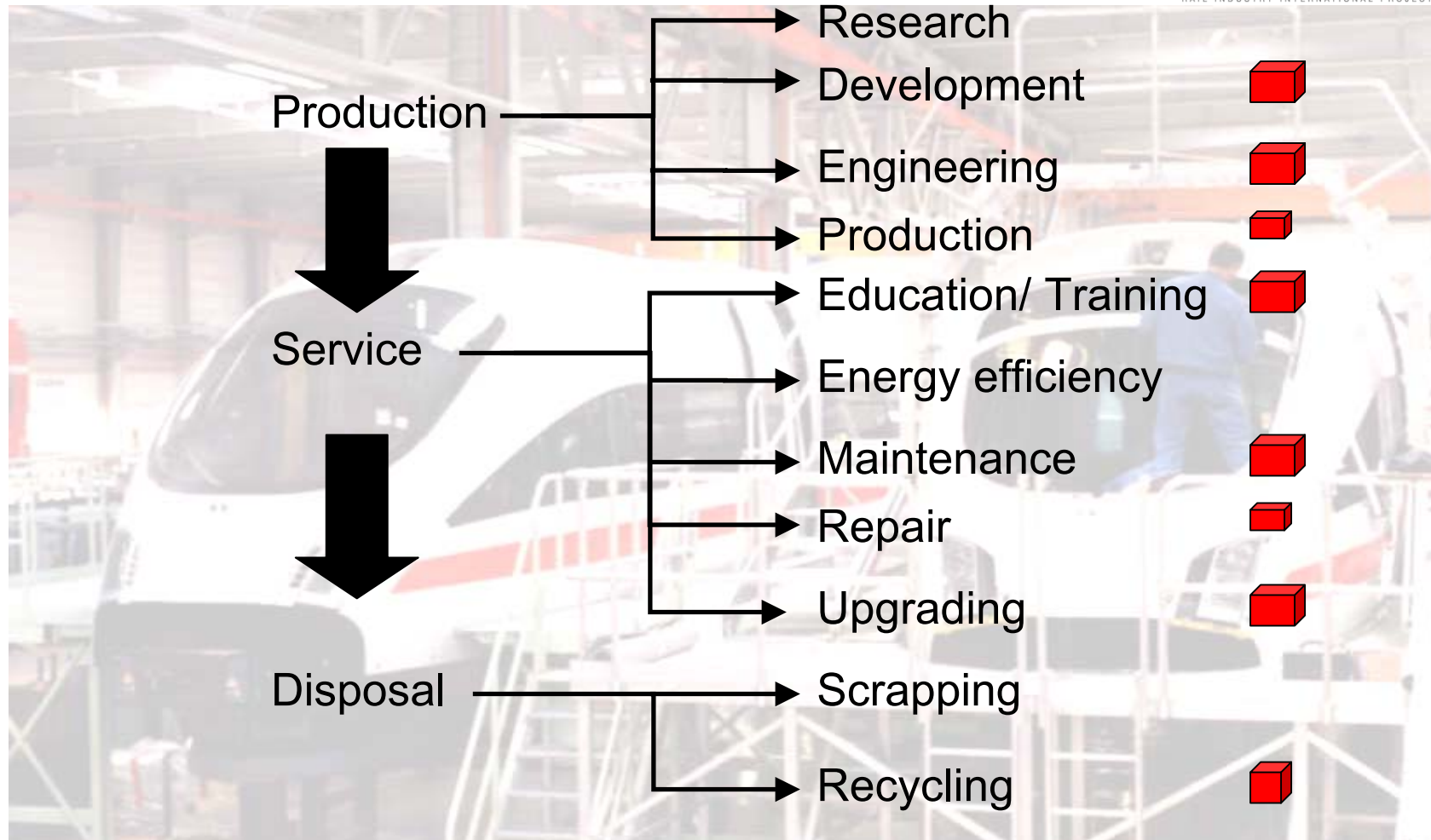
## For the driver (for the society)

- 10% improvement regarding correct reactions in unexpected/unusual situations
- 10% reduction in error rate



# Reduction Potential Areas in Life Cycle Cost - Chain

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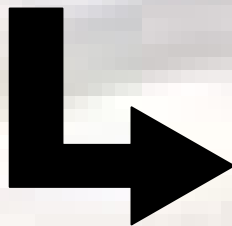
10% of the cost at the beginning determine 90% of the total LCC Costs

# Advantages of EUDD Towards Existing Desks



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- Improved MMI by applying latest knowledge in ergonomics
- Reduced number of hardware elements by shifting HW functions to SW functions → Terminals
- Enhanced functional modularisation
- Harmonisation of the important operations (e.g. driving/braking with integrated Master Controller)



**Industrial Design Mock-up presented at  
InnoTrans is an example for the EUDD-Layout**