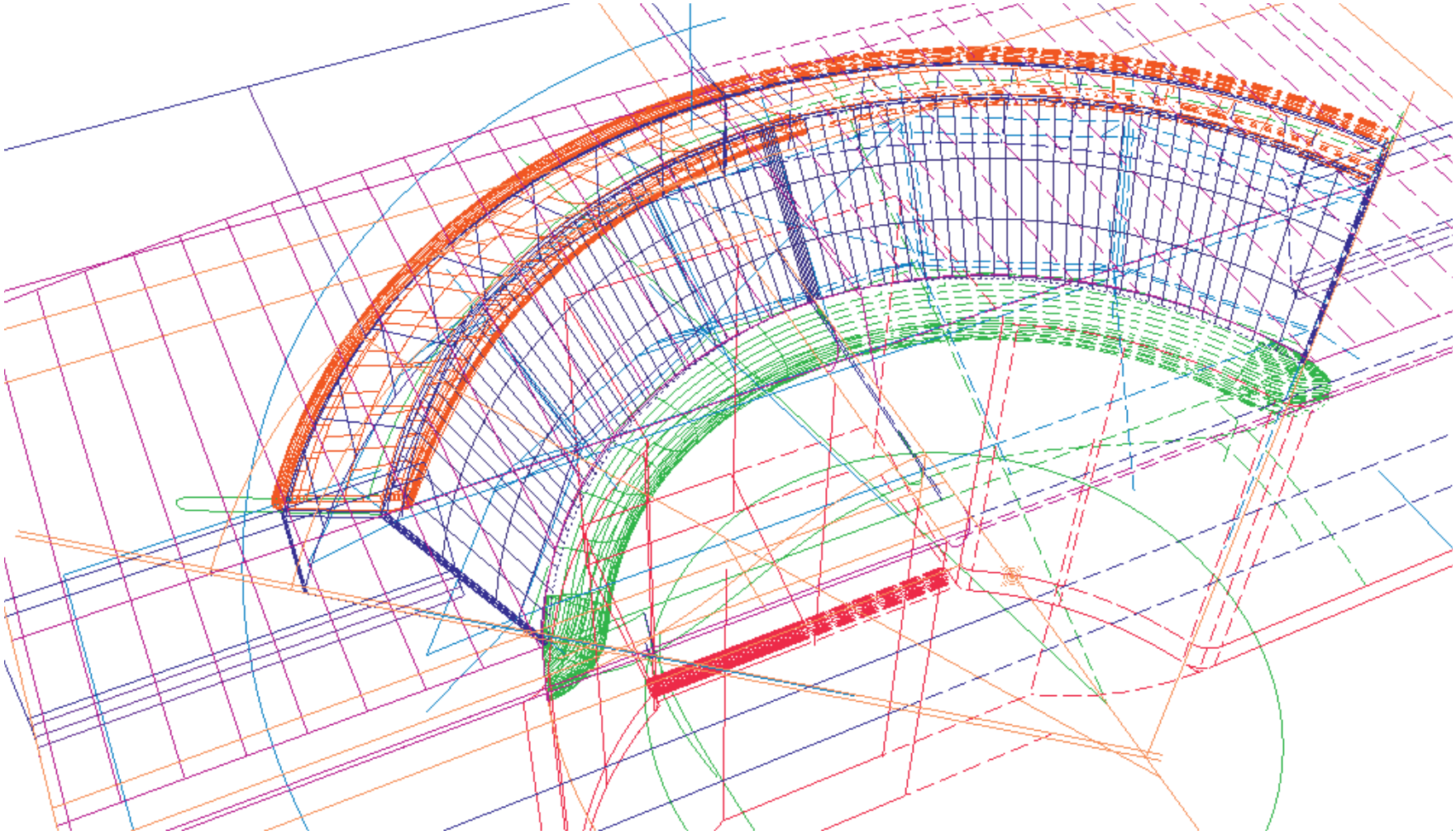
EU Driver´s Desk

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM



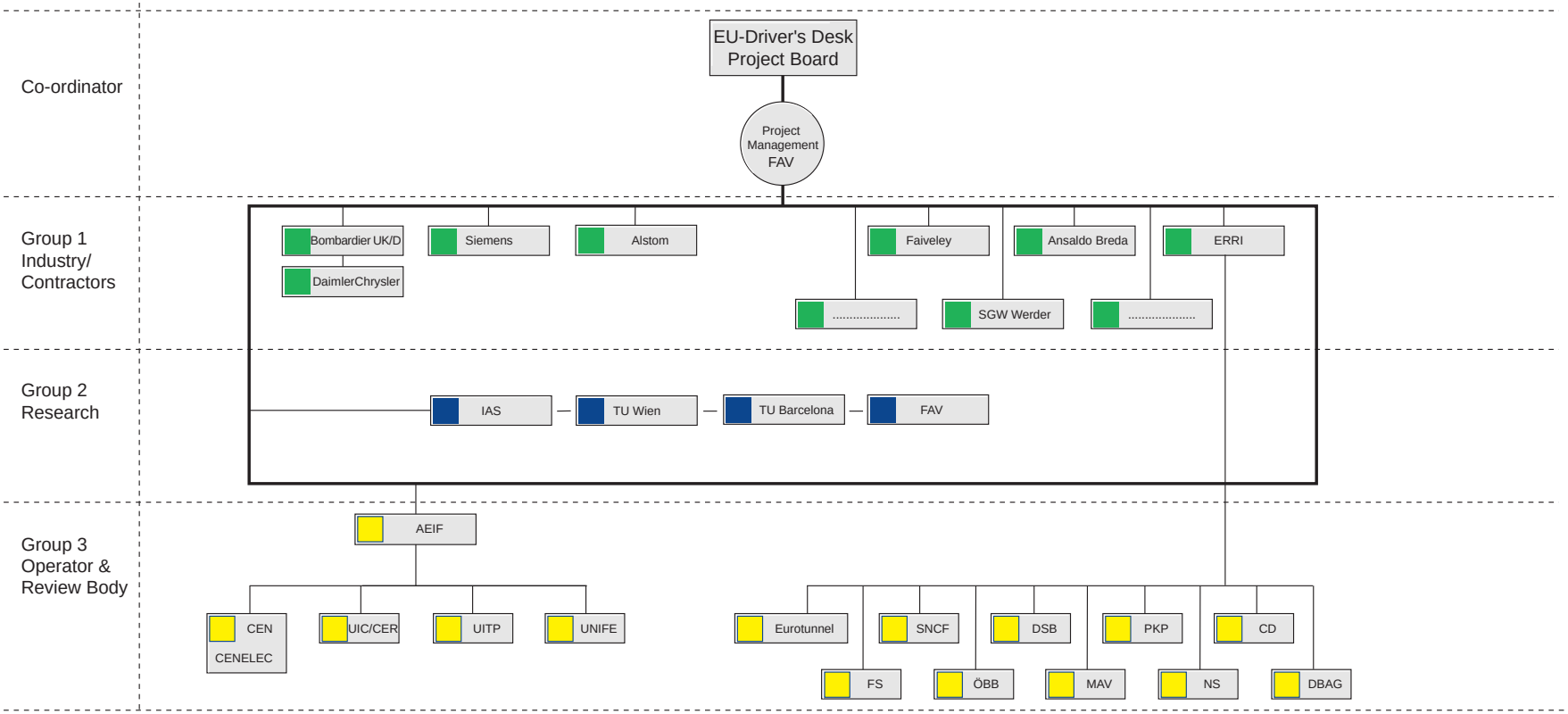
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Project Structure

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

European Team



EU Driver´s Desk
Classification

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

General objectives

- Harmonisation of different national conditions and requirements for High Speed, Freight Locomotive and Regional Transit

- Define the basic areas of man-machine interface

- Proposals to minimize control elements and service processes

- Reduce production cost, life-cycle cost and servicing costs with regards to all components in the area of MMI

- Reduce cost for education of drivers

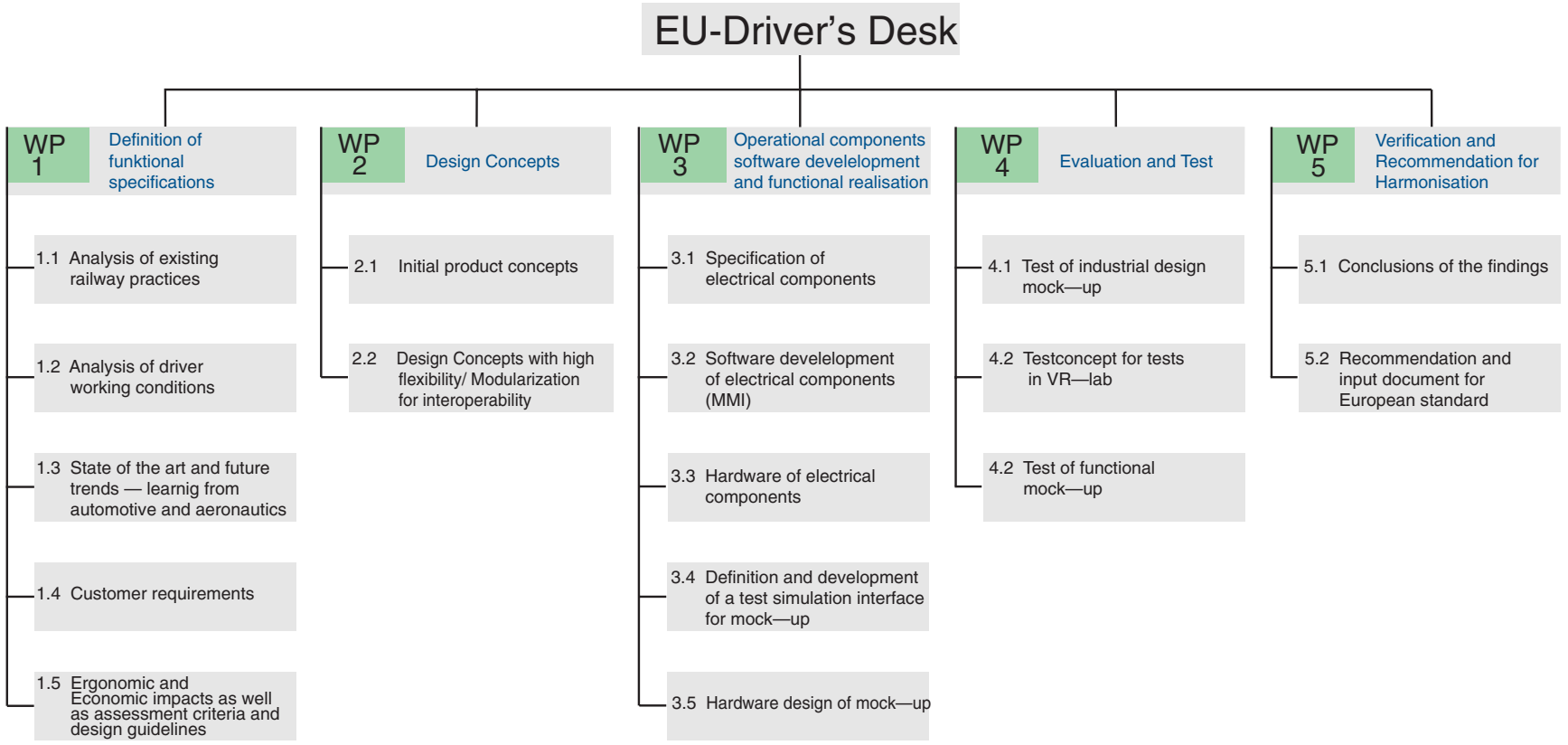
- Improvment of drivers working conditions

- Improvment of saftey for drivers and passengers

EU Driver´s Desk
Project Structure

EUROPEAN DRIVER'S DESK

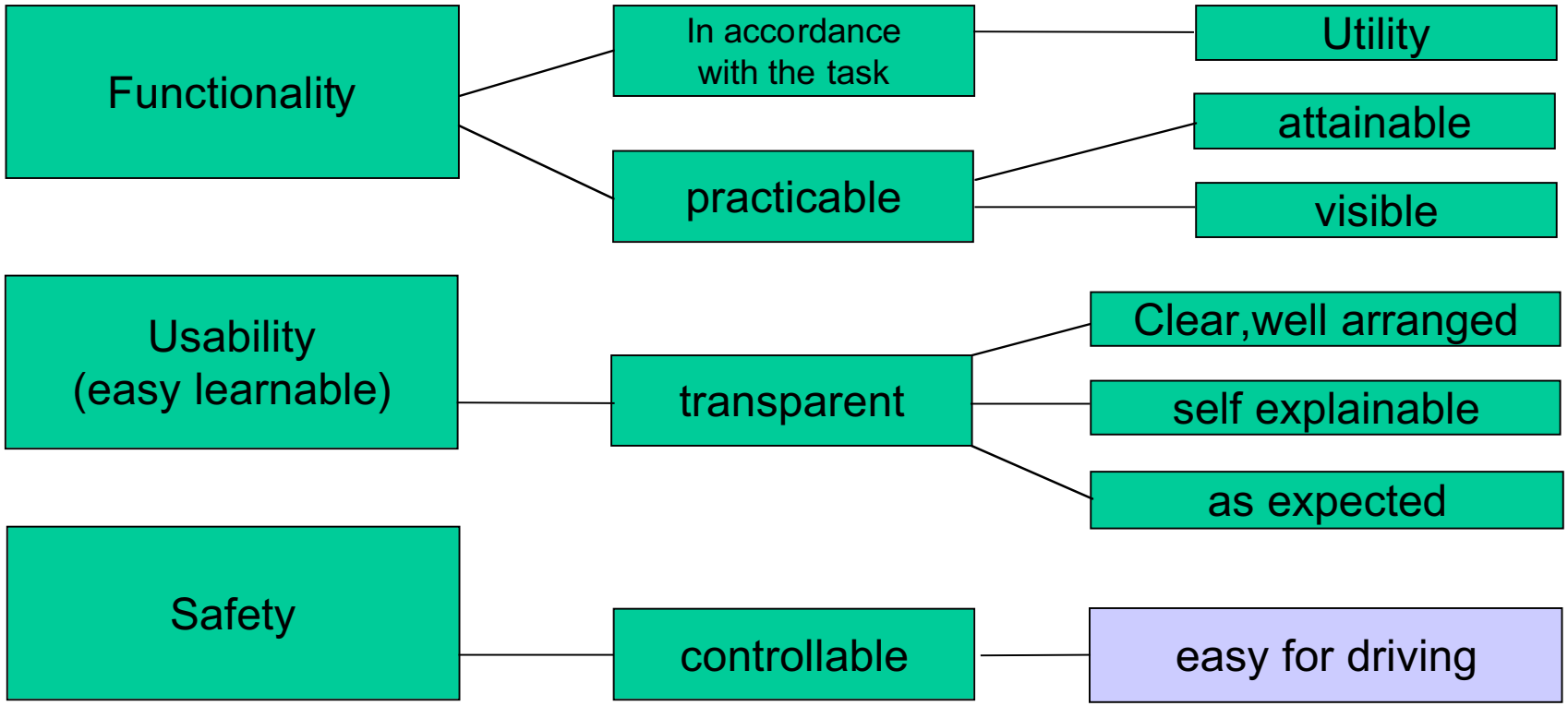
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM



EUDD
Customer requirements

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Driver's Desk has to fulfil the principles of



EUDD
Customer requirements

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Two directions of surveys

Block 1	Block 2
Functional	Contentedness
Safe	Simplicity
Effective	Pleasant
(HFSR)	Beautiful/ Esthetical

- See aesthetics as a part of functionality

EUDD
WP 1 Analysis

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Status quo:

Project is official running since January 2001 started with WP1:

- Analysis of existing railways practices (UPC)
  (comparison of train manuals)
- Analysis of drivers working conditions (VUT)
  (Survey of European Driver's / Reference groups of selected countries)
- State of art and technological trends (FAV)
  (comparison with car and aircraft industry)
- State of art and design trends (Bombardier Transportation,LCR/ES2
  (Pictures and drawings Collection of European Driver's Desk,
  classification of DD-types)
- Customer requirements / Structuring and evaluation of problems (LCR/ES2 +DC);
  (Preparation of operators questionin "

EU Driver´s Desk
Status quo in Industrial Design

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Collection of more than
50 driver desks

EU Driver´s Desk
Status quo Collection

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

BB 36022
Foto ● Drawing ●

BR 481
Foto ● Drawing ○

Gardermoen Expr.
Foto ● Drawing ○

Kiruna
Foto ● Drawing ○

BR 101/145
Foto ● Drawing ○

CRUSARIS Regina
Foto ● Drawing ●

IBB reequiped Lok
Foto ● Drawing ○

Lint
Foto ● Drawing ○

BR 128
Foto ● Drawing ○

Doubledeck 763
Foto ● Drawing ○

ICE3
Foto ● Drawing ●

Lirex
Foto ● Drawing ○

BR 152
Foto ● Drawing ○

ET BR 423
Foto ● Drawing ○

ICN
Foto ● Drawing ●

OEBB-Lok
Foto ● Drawing ○

BR 185
Foto ● Drawing ●

ETR 480
Foto ● Drawing ○

ICT
Foto ● Drawing ●

OTU-Contessa
Foto ● Drawing ●

BR189
Foto ● Drawing ●

ETR 500
Foto ● Drawing ●

Italy Commuter
Foto ● Drawing ○

SGW/IAS
Foto ● Drawing ○

BR 442
Foto ● Drawing ○

Eurostar
Foto ● Drawing ○

ITINO
Foto ● Drawing ●

Steuerwagen 640
Foto ● Drawing ○

EU Driver´s Desk
Samples for WP 1

ETR 500
Italy

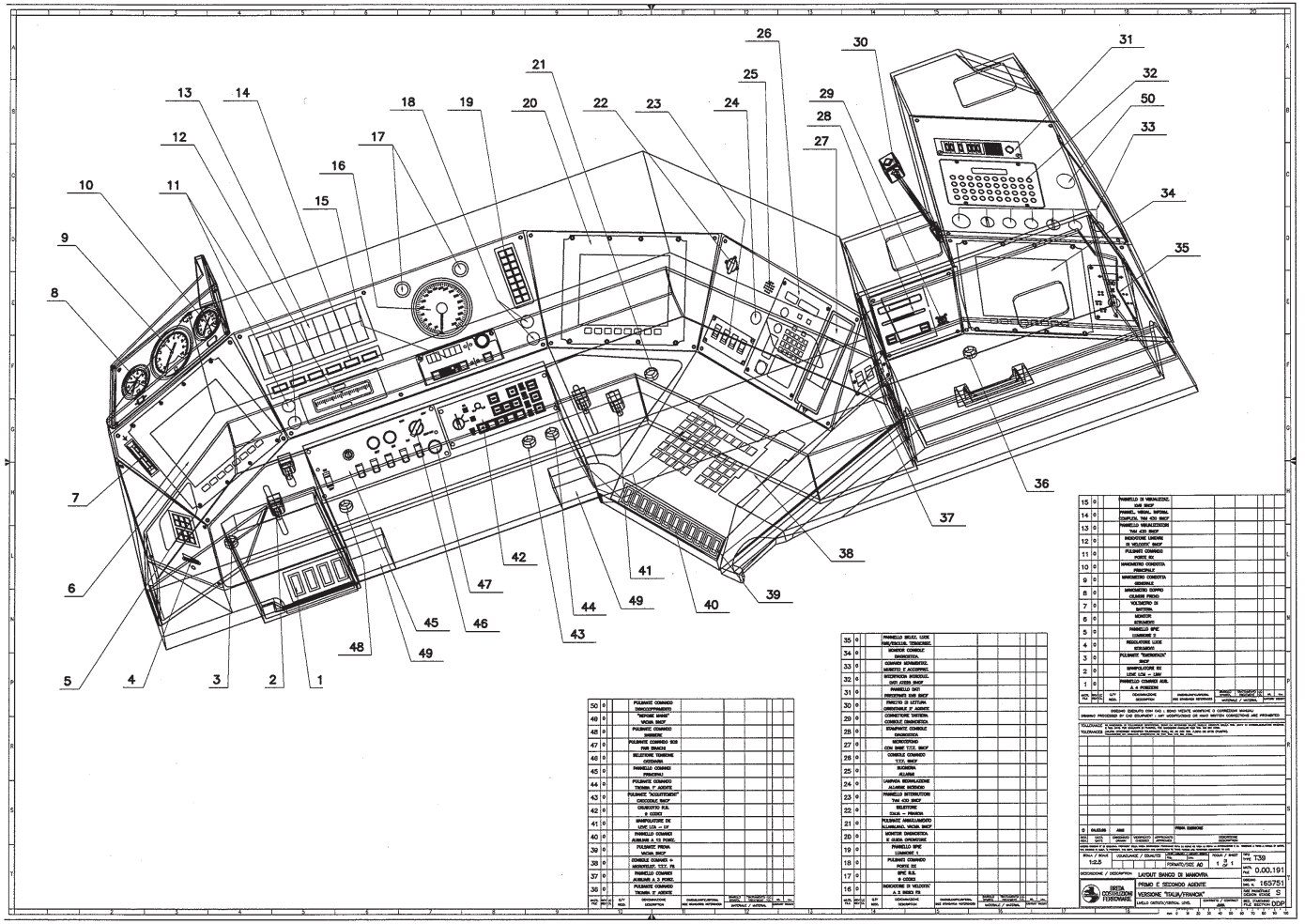
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

ETR 500
Italy



EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

ITINO Jönköping
Sweden

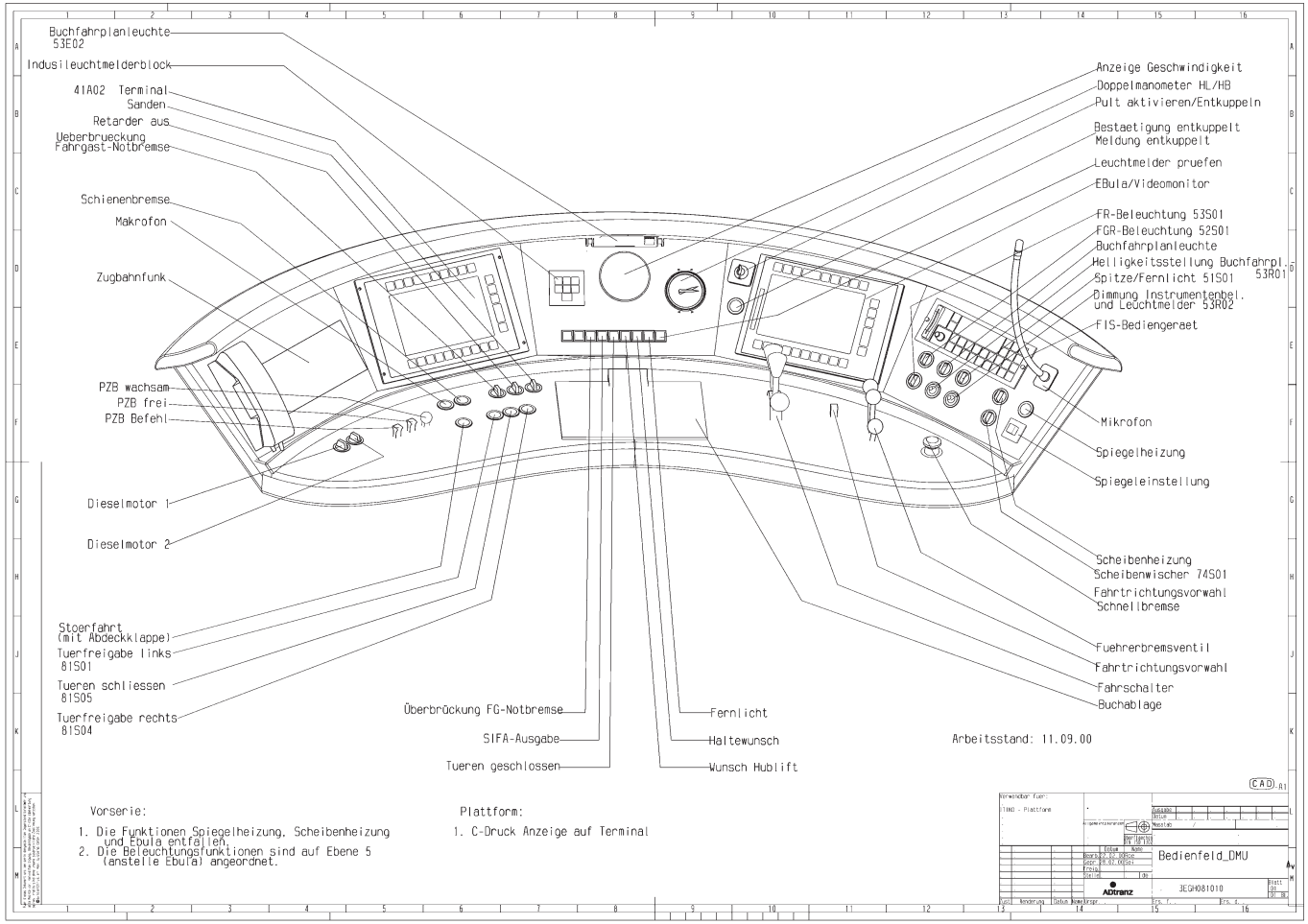
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

ITINO Jönköping
Sweden

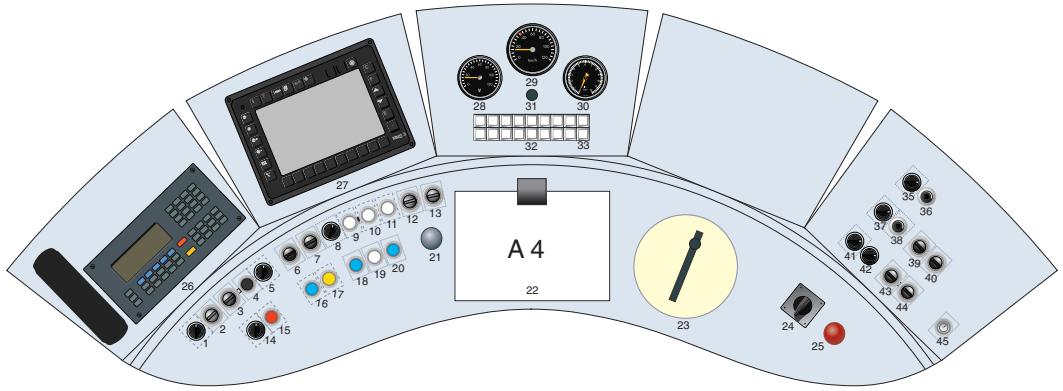


EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

ITINO Driver Desk Layout



panel 1

1 bridge passengers emergency brake
2 PZB alert
3 PZB free
4 PZB command
5 bridge deadman´s device
6 diesel engine 1
7 diesel engine 2
8 battery
9 brake test
10 to fix spring-applied brake
11 to release spring-applied brake
12 retard off
13 sanding
14 disturbance PZB
15 disturbing traction
16 preheating operation off
17 preheating operation on
18 door opening left
19 closing doors
20 door opening right
21 deadman´s device
22 books area
23 throttle
24 running direction switch V-0-R
25 emergency stop

panel 2

26 train radio (optional)

panel 3

27 terminal

panel 4

28 Display battery voltage
29 display speed
30 display air-blast
31 microphone
32 diverse indicator lamps
33 indicator lamps test

panel 5

34 electronic time table

panel 6

35 time table lamp
36 dimmer time table lamp
37 lighting measurement instruments
38 dimmer lighting measurement instruments
39 signal lighting
40 full beam
41 windscreen wiper
42 passanger´s room air-conditioning
43 passanger´s room lighting
44 driver´s cab- lighting
45 driver´s console active

additional

46 video supervise

lower casing

47 block fan (in air-condition unit)
48 indicator lamp de-coupling (exported)
49 de-coupling

cancelled in mock up

50 mirror flap (instead of video supervise)

EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

VT 612
Germany

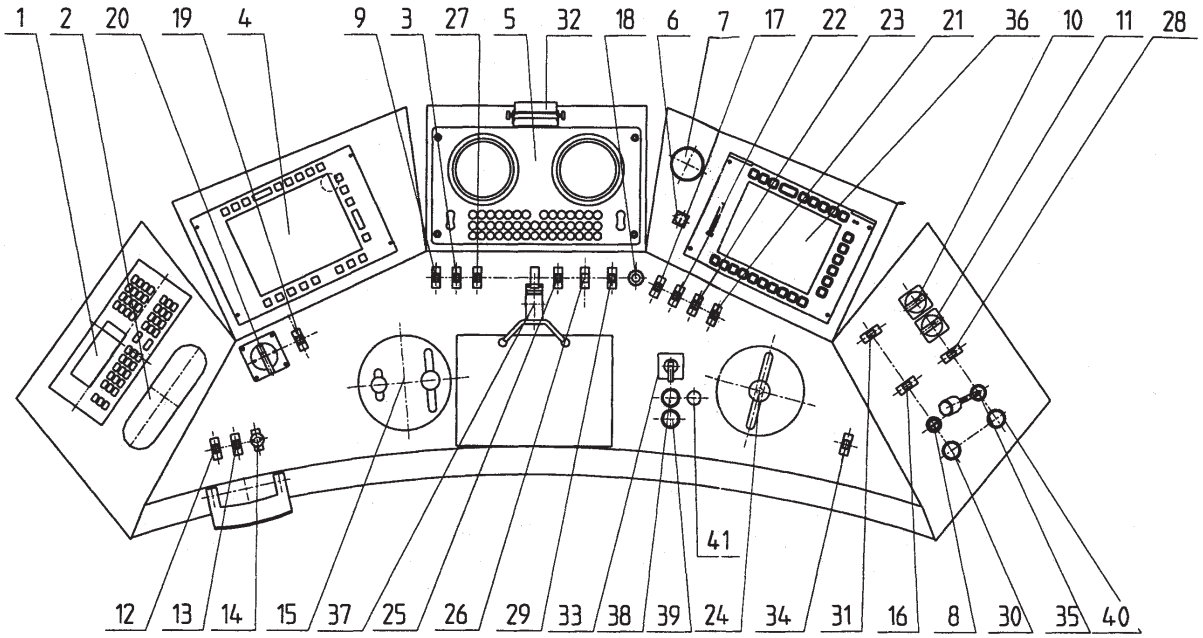
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

VT 612
Germany



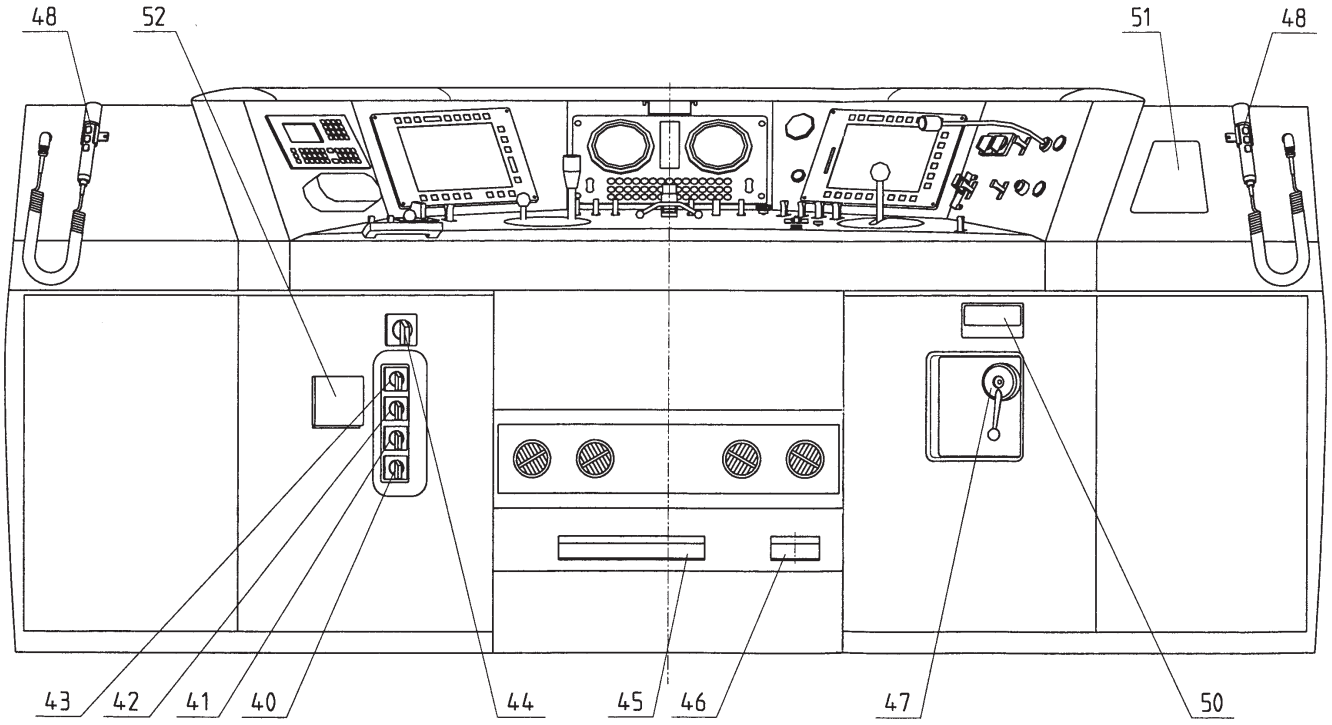
1 Bedienteil f. Zugbahnfunk
2 Handapparat f. Zugbahnfunk
3 Scheibenheizung
4 Farbdisplay
5 MFA
6 Entkuppeln
7 Manometer Bremszylinderdruck C1/C2
8 Schlüsselschalter für Führerbremsventil
9 Klimalüfter sperren
10 Anlaß-/Abstellschalter "Gruppe I"
11 Anlaß-/Abstellschalter "Gruppe II"
12 Indusi-Befehl
13 Indusi Frei
14 Indusi Wachsam
15 Fahrschalter
16 Wagenlicht
17 Schalter für Buchfahrplanbeleuchtung
18 Dimmung für Buchfahrplanbeleuchtung
19 Abblend/Scheinwerfer
20 Wahlschalter für Signalbild
21 Sanden
22 Bremsprobe
23 Magnetschienenbremse
24 Führerbremsventil FS4
25 Kippschalter "Leistung"
26 Kippschalter Luftpresser
27 Führerraumbeleuchtung
28 Klingel
29 Wagenkastenneigung Ein/Aus
30 Taster Angleichen
31 Steuerstromschütz
32 Buchfahrplanleuchte
33 Türwahlschalter
34 Typhon 370 Hz/660 Hz
35 Schwanenhalsmikrofon
36 Display für elektronischen Buchfahrplan (optional)
37 Buchfahrplanhalter
38 Drucktaster Türen "frei"
39 Leuchtdrucktaster Türen "zu"
40 Leuchtdrucktaster "Notruf"
41 Dimmer für Pos.39

EU Driver´s Desk
Samples for WP 1

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

VT 612
Germany



40 Klima – Fußraum
41 Klima – Luftmenge
42 Klima – Temperaturwahl
43 Klima – Betriebsartwahl
44 Scheibenwischer
45 Fußtaster Sifa
46 Fußtaster Typhon
47 Notbremsventil
48 Handmikrofon
49 Leuchtmelder Türen "zu"
50 Aschenbecher
51 Wischwassereinfüllöffnung
52 Getränkedosenhalter

Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EUDD
Customer requirements

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Questions for DD judgements

• Is (or seams) the operation difficult or • easy to handle • Is it easy to learn the operation • Appear the DD clear (good arranged) • Self-explainable of functionality • Too much functioning on the DD • Is the feeling of elements good • Are all elements good visible / legible • Is there a danger of confusion	Ist die Bedienung kompliziert oder leicht durchzuführen Ist die Bedienbarkeit gut erlernbar Erscheint der DD klar geordnet Erklären sich die Hauptfunktionen selbst Sind zu viele Funktionen auf dem DD Fühlen sich die Elemente angenehm an Sind alle Elemente gut erkennbar Besteht Verwechslungsgefahr

EUDD
Customer requirements

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Objective esthetical factors of value judgement:

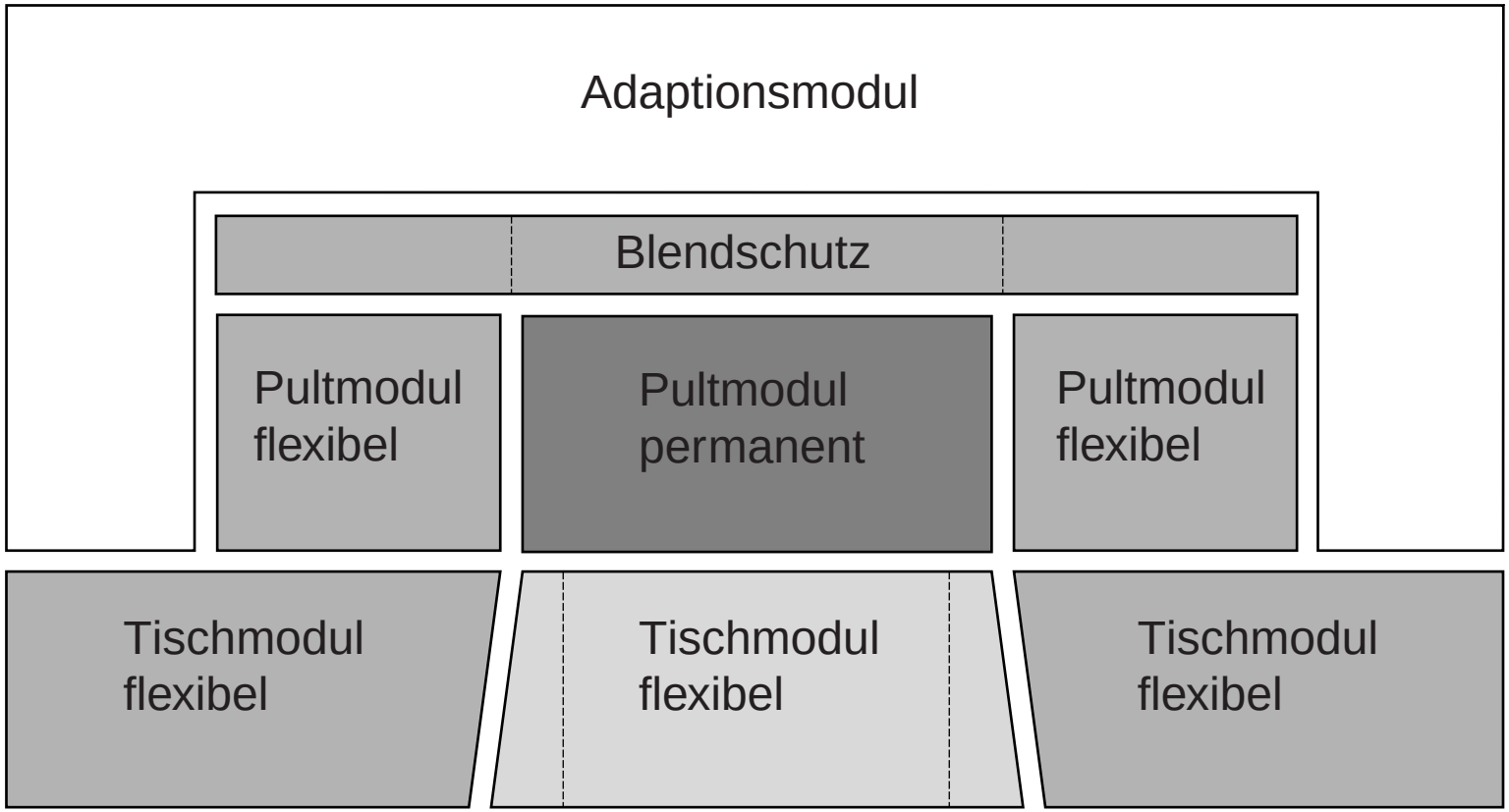
• Gefälligkeit	Pleasing
• Zeitgemäß / zeitnah	Up-to date
• Interessant	Interesting
• Übersichtlich / geordnet	Well arranged; clear
• Stimmig / ausgewogen/ zweckentspr.	Coherent, balanced
• Glaubwürdig	Credibility
• Gediegen / geschickt	Solid

See the esthetics as part of functionality in the sense of usefulness

EU Driver´s Desk
Design Concept

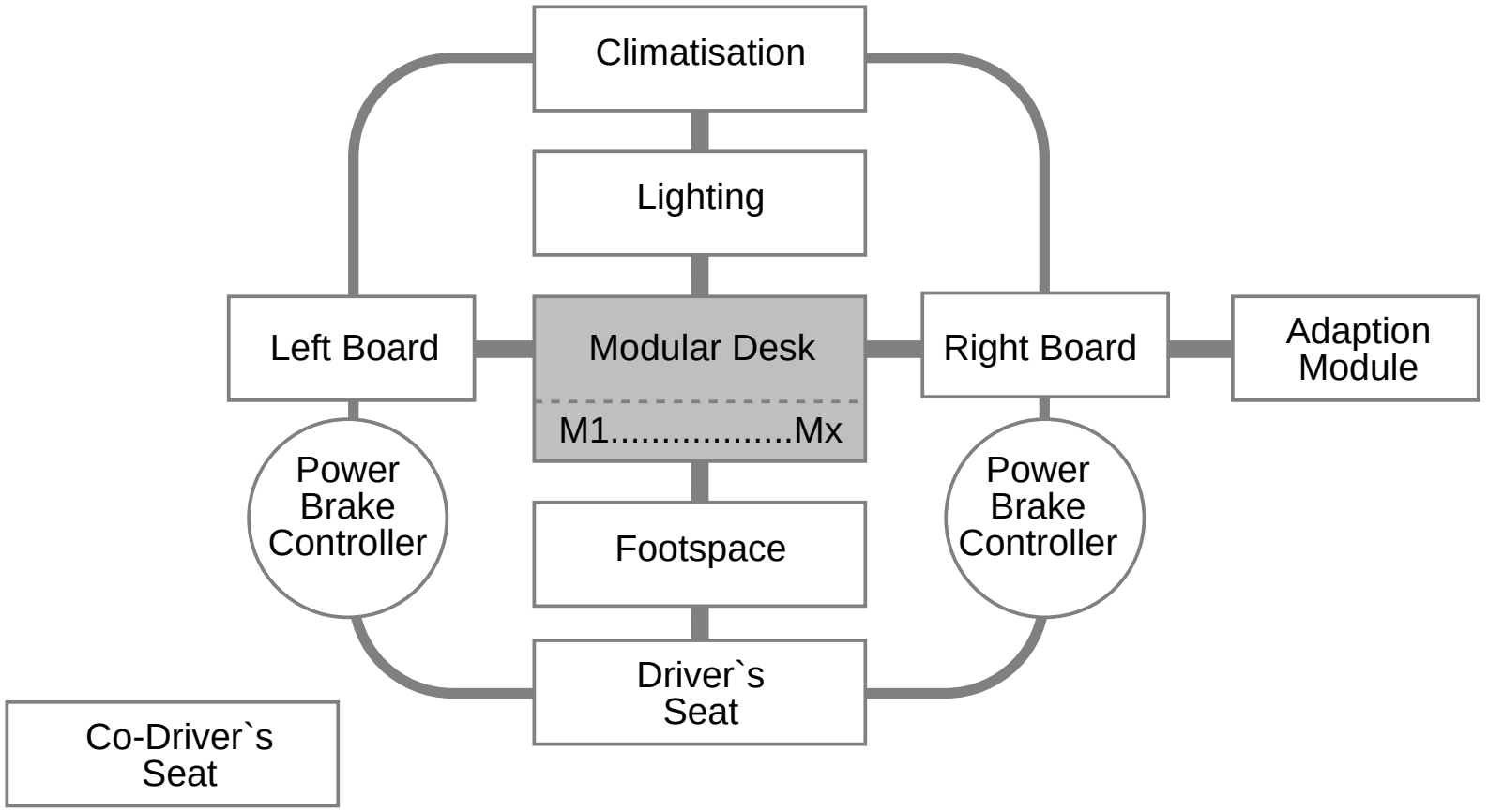
EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Basic Modular Structure



EU Driver´s Desk
Modules / Structure

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

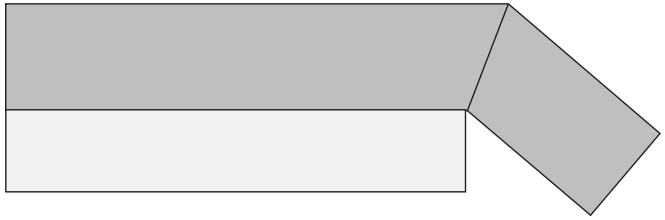


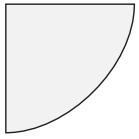
EU Driver´s Desk
Classification

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Main Types of Driver Desks

main type I





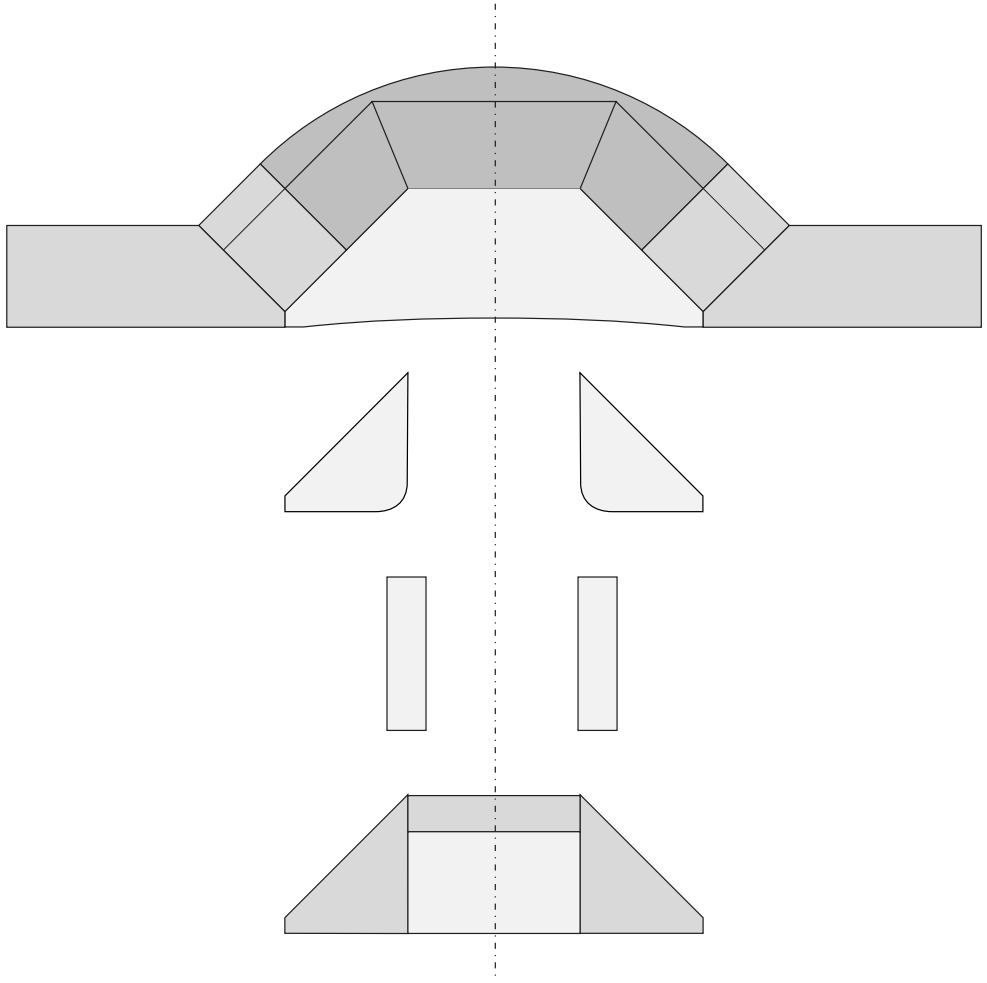
Connex (UK)
LTS (UK)
OSE

EU Driver´s Desk
Classification

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

main type II



BR 101/145
BR 152
BR 185
BR 189
BR 481
BR 640
BVmot (HU)
ISAP 3 Athen
Kiruna
Lint LHB
Lok 2000
OTU Contessa
Talent
Taurus Lok 1016
VT 611

Crusaris Regina

ICN

ETR 500
ETR 480

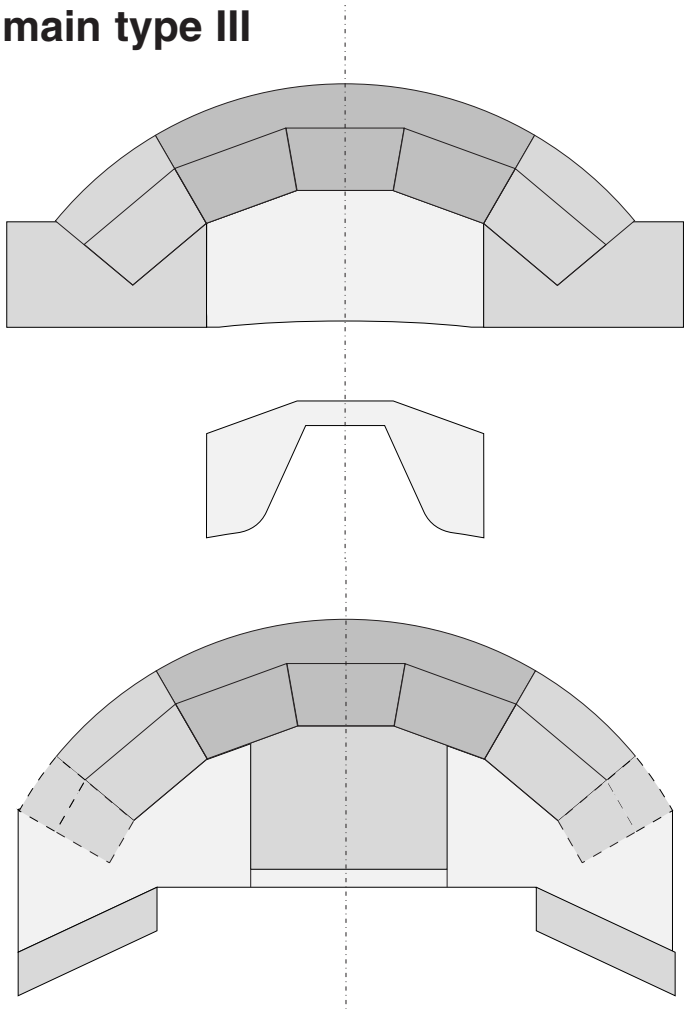
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Classification

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

main type III



BR 128
BR 423
BR 442
BR 763
ICE 3
ICT
ITINO
Lok 1014 OeBB
Lok 1822 OeBB
VT 612

Lok G 2000

Ave
BB 36022
Eurostar
TGV Duplex
Thalys

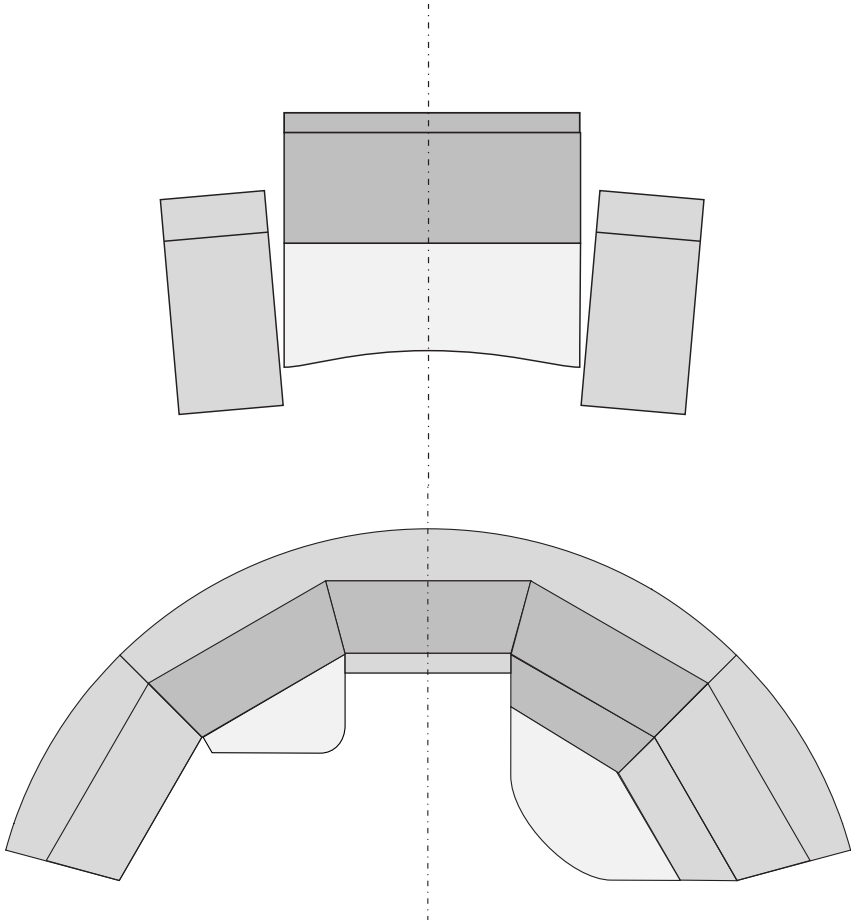
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Classification

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

spezial cases



Lirex

Gardermoen Airport Shuttle

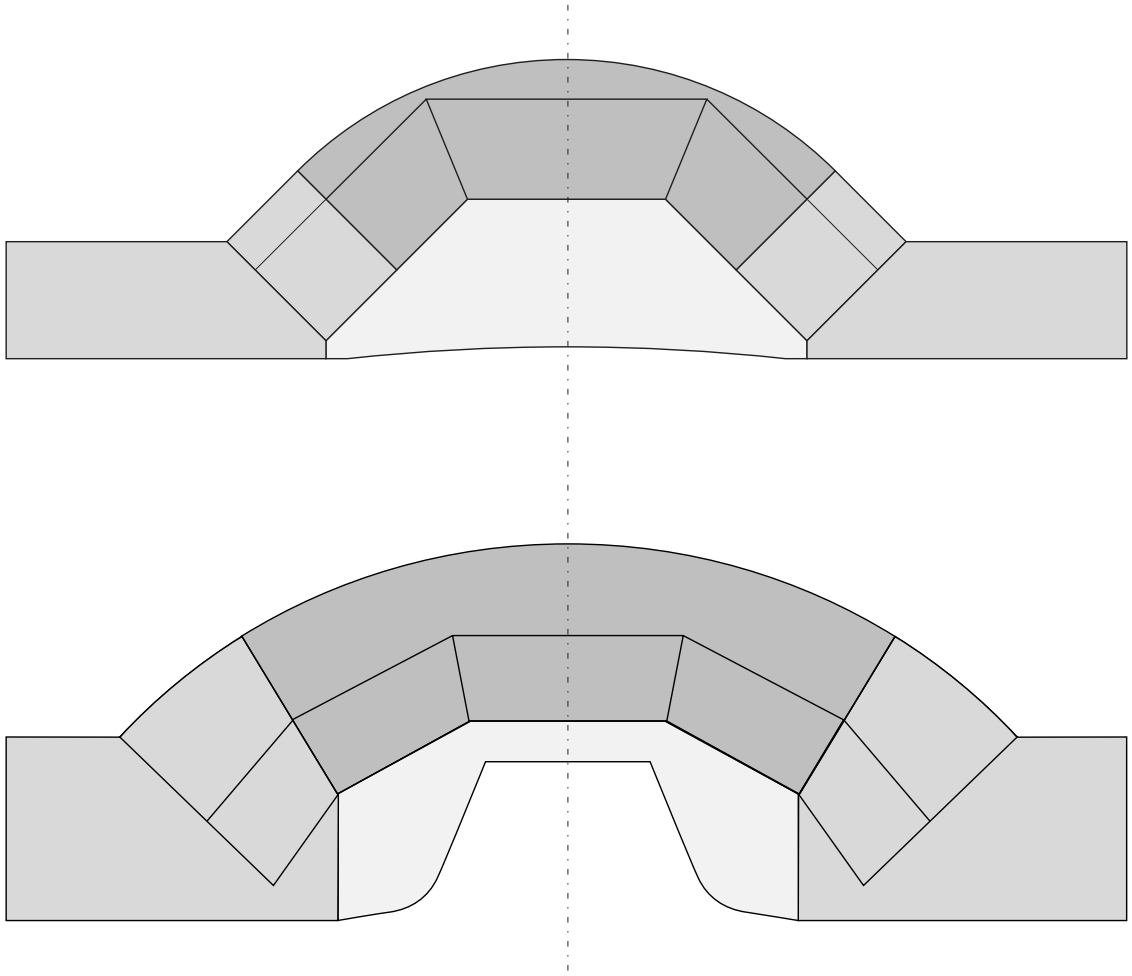
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Customer Requirements

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

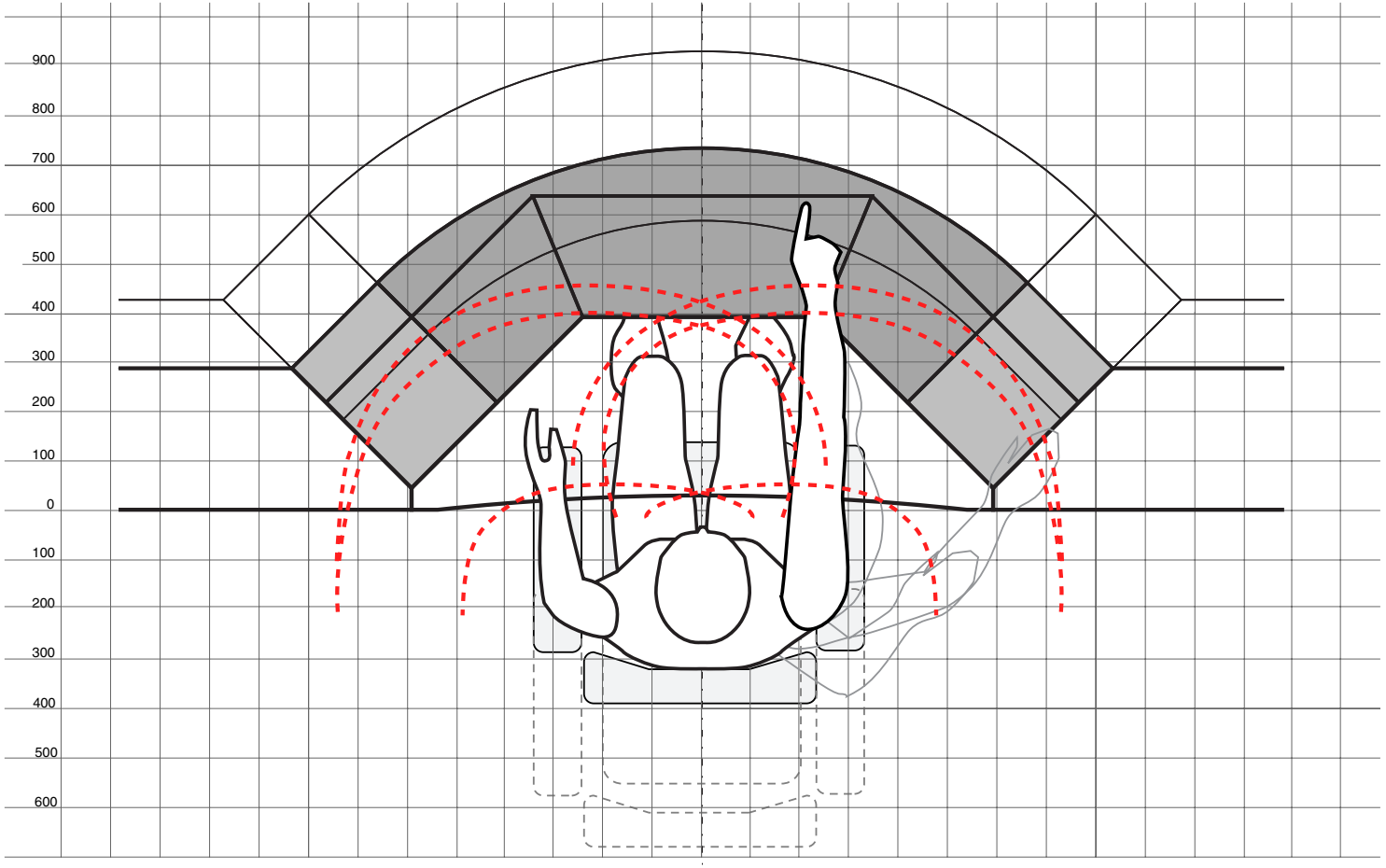
Examples of Archetypes



EU Driver´s Desk
Ergonomie

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

scope of handling

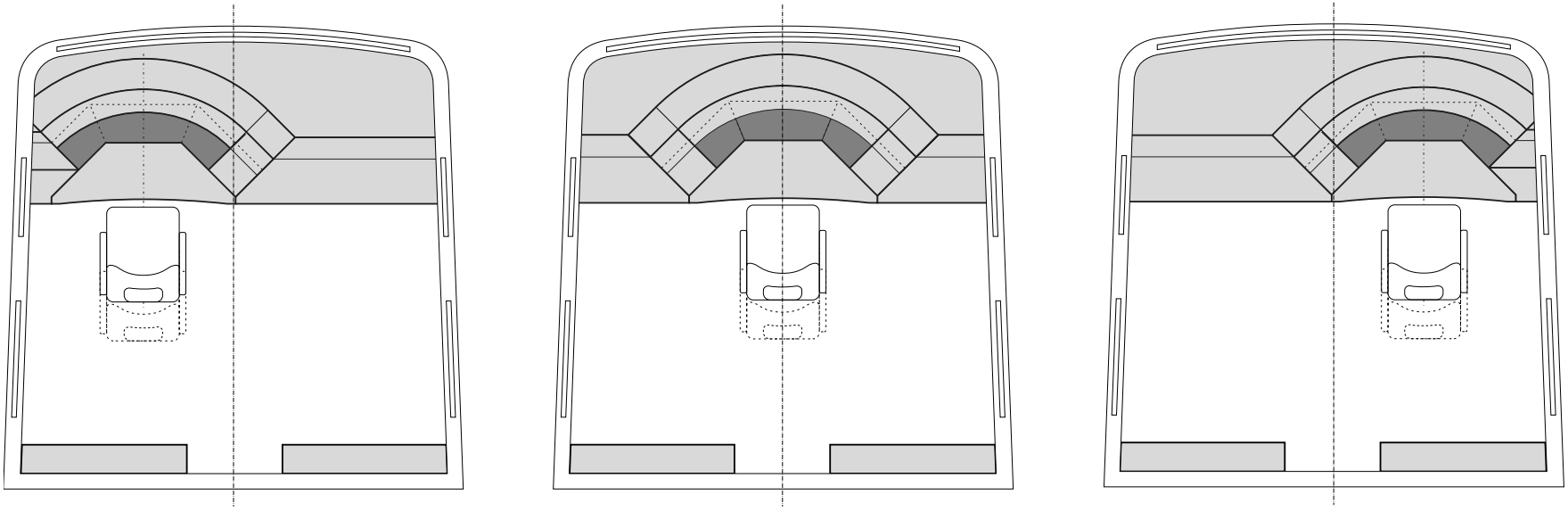


EU Driver´s Desk
Modularer Fahrerstand

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Basisgeometrie

Pultanordnung in der Fahrerkabine



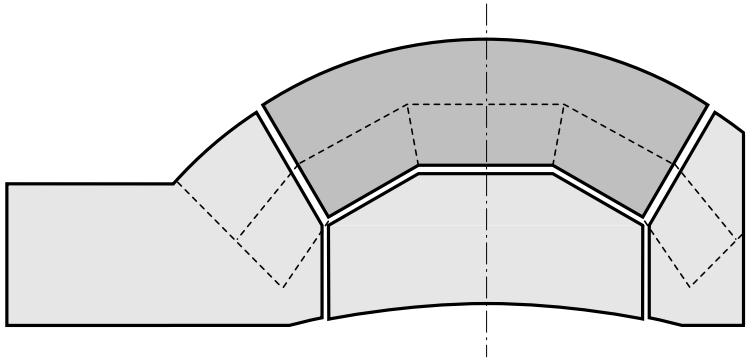
Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

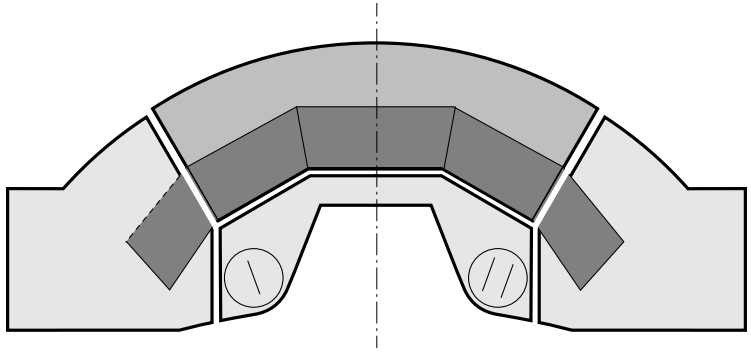
EU Driver´s Desk
Modularer Fahrerstand

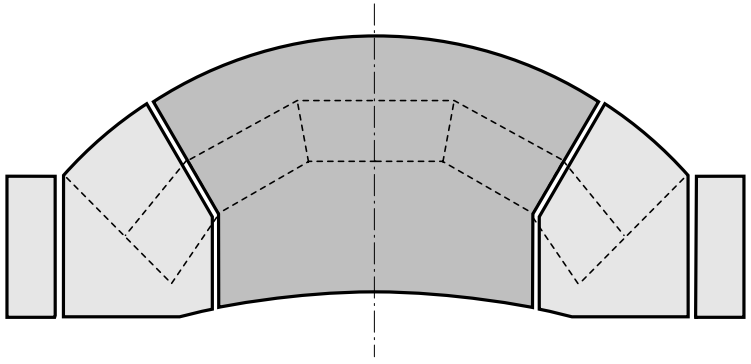
EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Basisgeometrie

Modulaufteilung
Fahrerpult





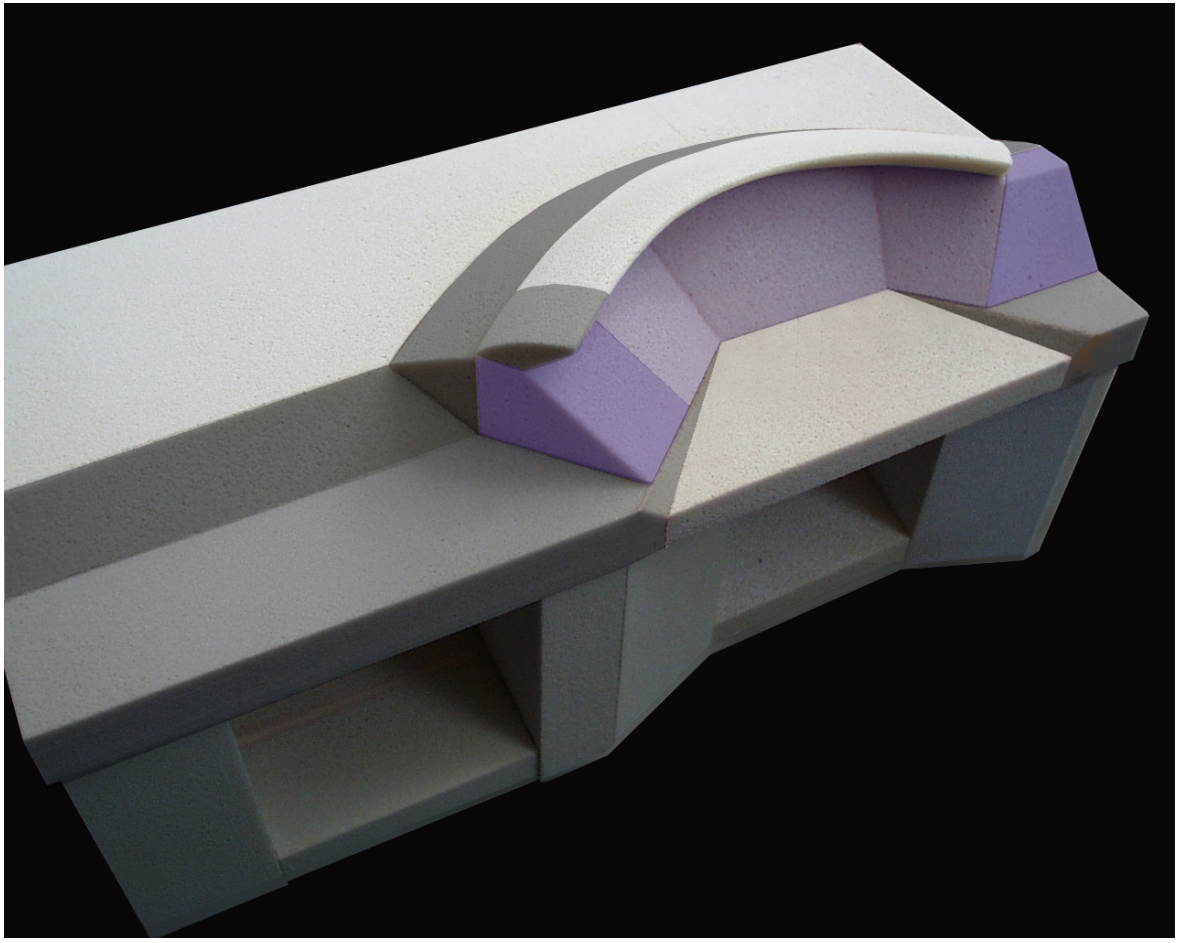


EU Driver´s Desk
Modularer Fahrerstand

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Gliederung der Module

außermittige Position mit
seitlichem Austauschmodul
zur Wandanbindung



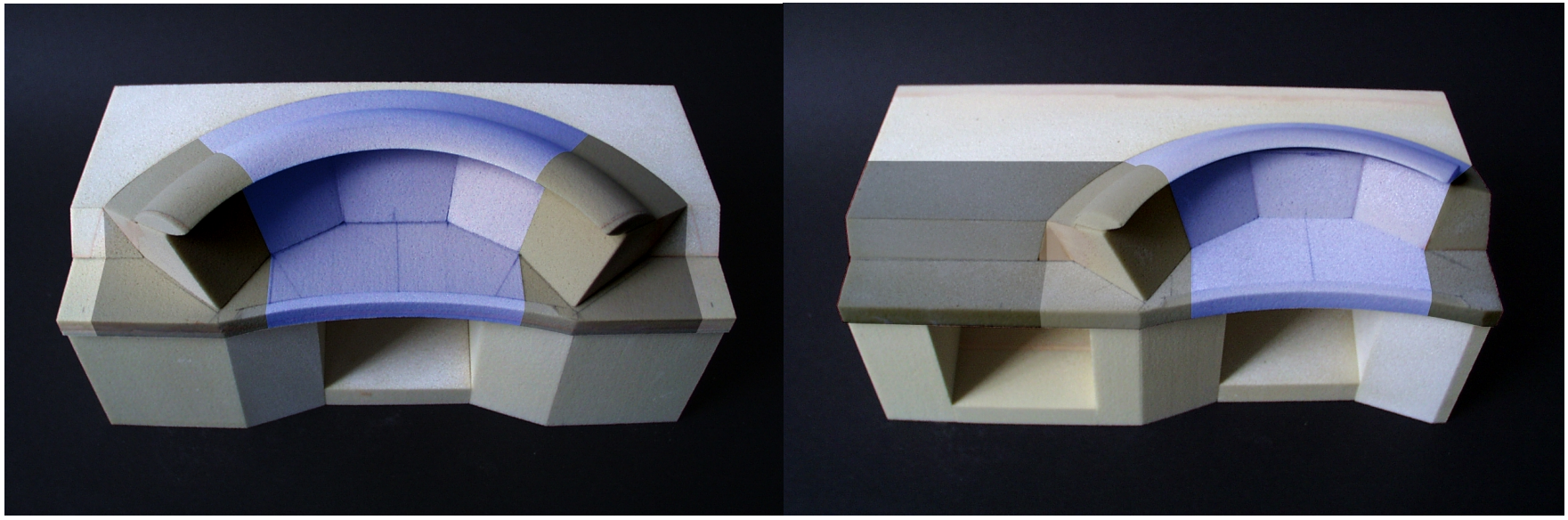
EU Driver´s Desk
Modularer Fahrerstand

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Basisgeometrie

- permanente und variable Teile des Fahrerpults

- Anordnung je nach Fahrerposition

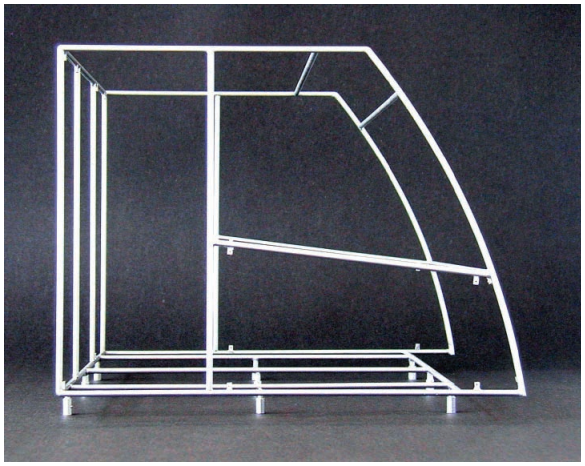


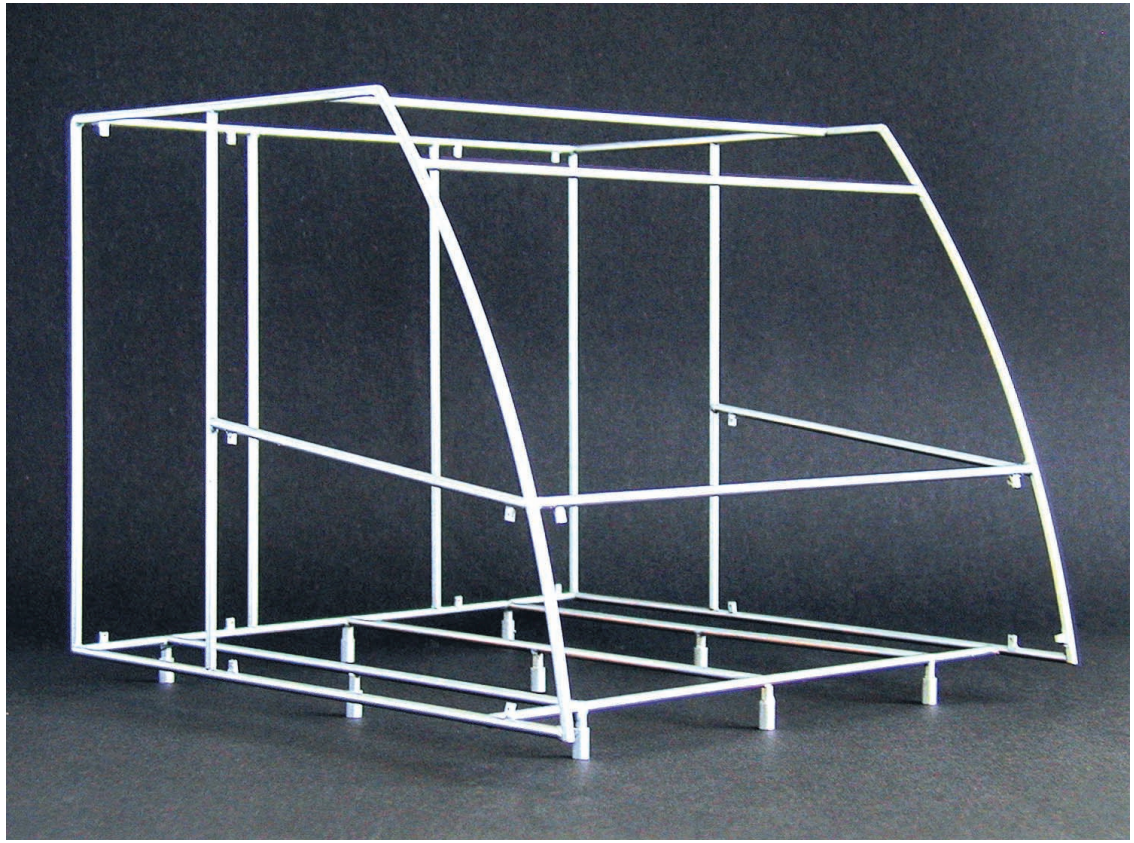
EU Driver´s Desk
Design Concept Study

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Framework model of a train cockpit





Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Design study for a new driver´s seat

EUROPEAN DRIVER'S DESK

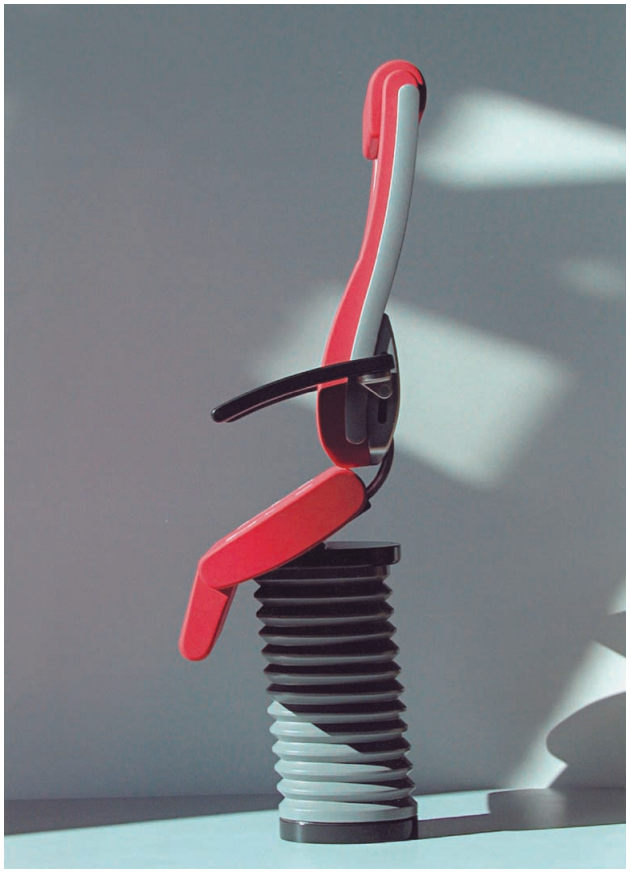
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EU Driver´s Desk
Design study for a new driver´s seat

EUROPEAN DRIVER'S DESK

RAIL INDUSTRY INTERNATIONAL PROJECT TEAM



Bombardier Transportation, LCR/ES 2, Grt., CW. 06/01

EUDD
Internal Information Network

EUROPEAN DRIVER'S DESK
RAIL INDUSTRY INTERNATIONAL PROJECT TEAM

Next steps:

- Completion of questionnaires for drivers and operators survey
- Survey carrying out (Selected countries and cross-border-routs)
- Analysis of Survey
- Aesthetics valuation of collected driver's desk
- Design concept and Mock-up preparation
- Collecting innovative technologies for the future orientated driver's desk