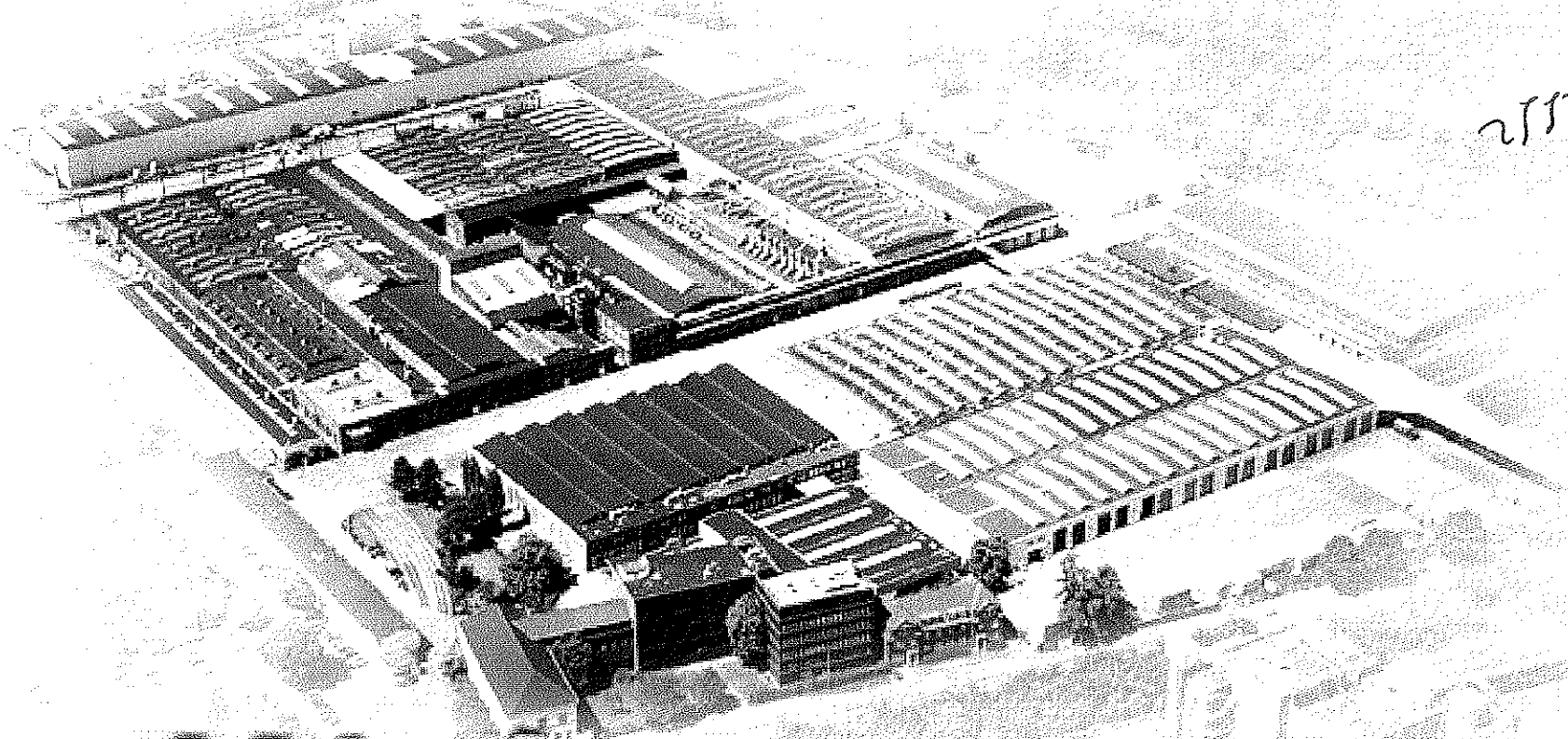


SIEMENS



252

Welcome

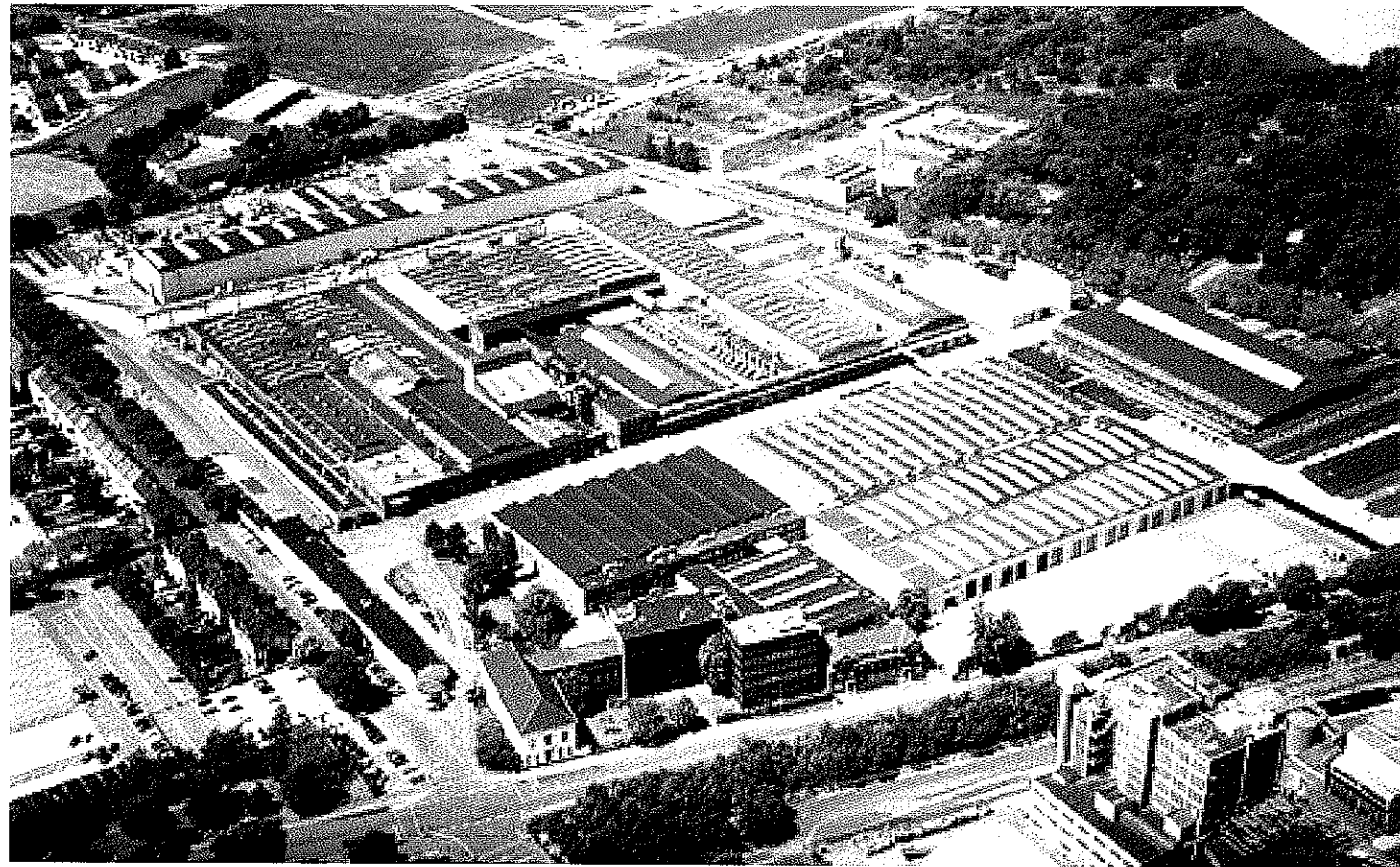
Program

**9:00 am Presentation of Krefeld/Uerdingen site
and COMBINO production**

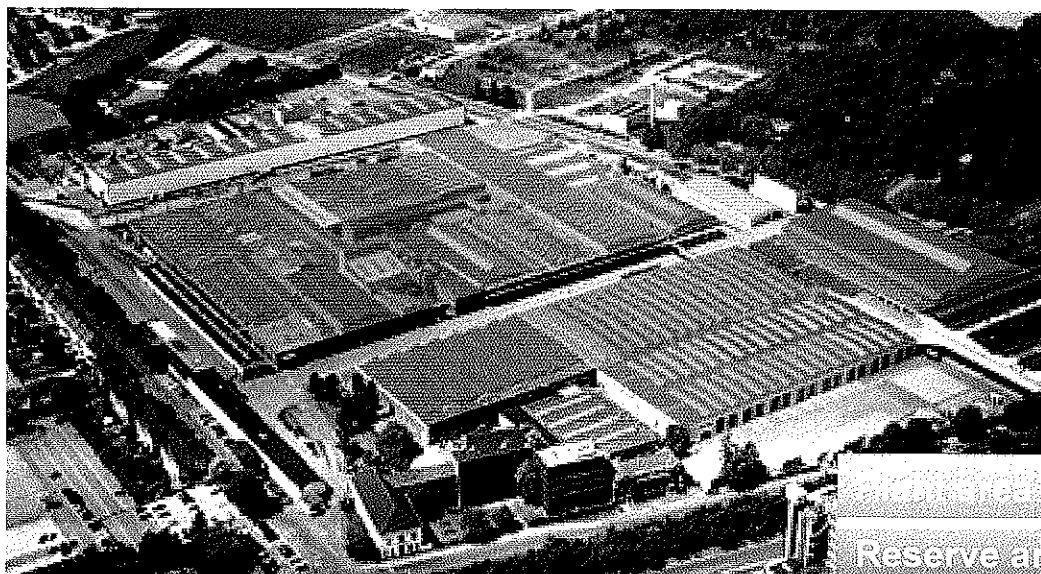
9:20 am Guided tour of COMBINO production

10:30 am Trip to Wegberg-Wildenrath test center

Krefeld/Uerdingen – Combined Production Facilities of Transportation Systems Light Rail (LR) and Trains (TR)



Breakdown of Area Utilization



-  TS TR UP
-  TS TR EC
-  TS LR UP

Plot area 175,000 m²

Reserve area 126,000 m²

Built-up areas:

Total 102,000 m²

TS TR 66,900 m²

TS LR 17,200 m²

Jointly used area 17,900 m²

Uerdingen Plant – Manufacturing Divisions

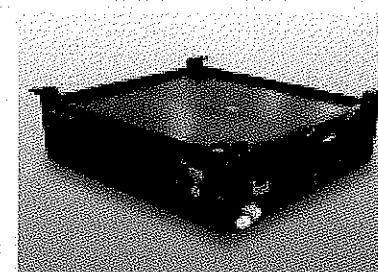
TS TR UP (Trains)

- Electric & diesel multiple units
- Tilting trainsets
- High speed trainsets



TS TR EC (Electrical Components)

- Power supply units
- Onboard and auxiliary converters
- Electric train supply systems

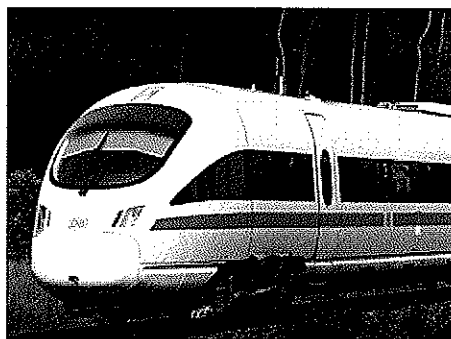


TS LR UP (Light Rail Vehicles)

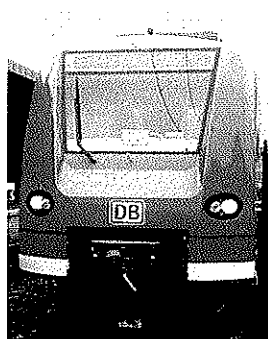
- Tramcars
- LRVs – Mixed surface and tunnel
- Multi system vehicles (LRV/Mainline)



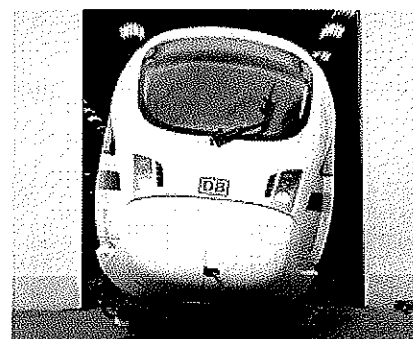
Rolling Stock – Trains



ICE TD



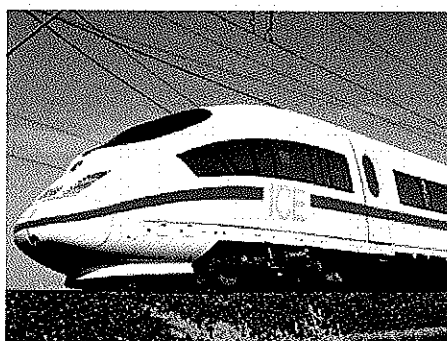
ET 424-426



ICE T



DESIRO VT642

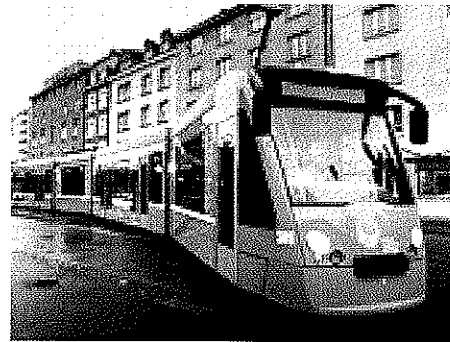


ICE 3

Rolling Stock – Light Rail



Amsterdam



Basel



Stuttgart



Hiroshima



Karlsruhe

Changeover from Conventional to Modular Type Vehicles

**Conventional
standard: M/N cars**



**M-cars
Essen**

**Variety of types:
Customer-driven concepts**



**NGT6 with EEF
Kassel**



**NF6 with FRP
Düsseldorf**



**NGT8 with KRD
Leipzig**



**MGT6 with LDF
Valencia**



**6 MGT
Mannheim**



**Type R
Frankfurt**

**Modular standard:
COMBINO**

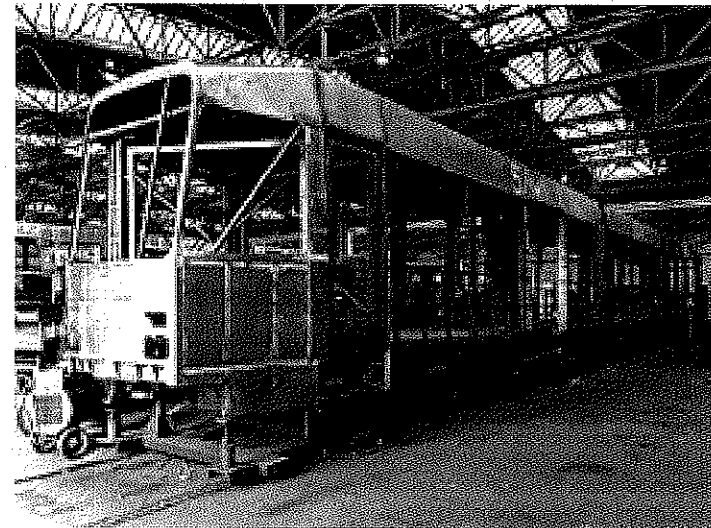


1990

2000

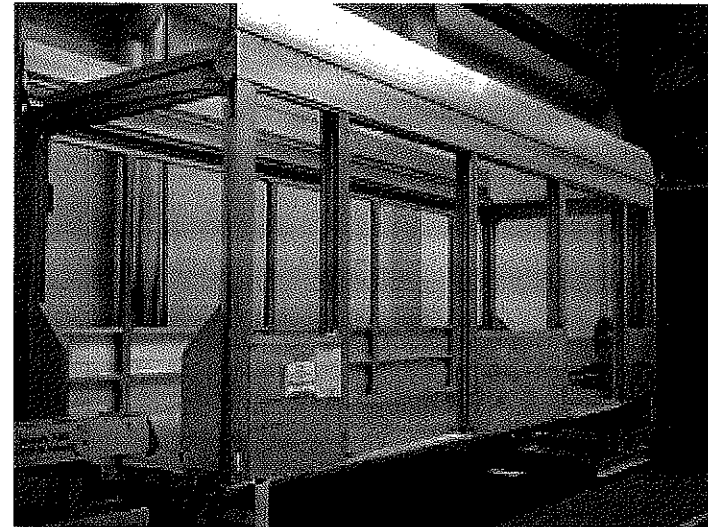
Characteristics of Conventional Construction

- Less prefabrication of assemblies
- Greater independence from external suppliers
- Sequential expansion
- Individual adaptation of components
- No standardization
- Greater variety of parts



Characteristics of Modular Construction

- Flexible system configuration
- Greater variety of versions –
Access to a broad spectrum
of components
- Custom-made configurations
built with standardized
design elements
- Defined interfaces
- Optimization of design
- More rational possibilities
for testing

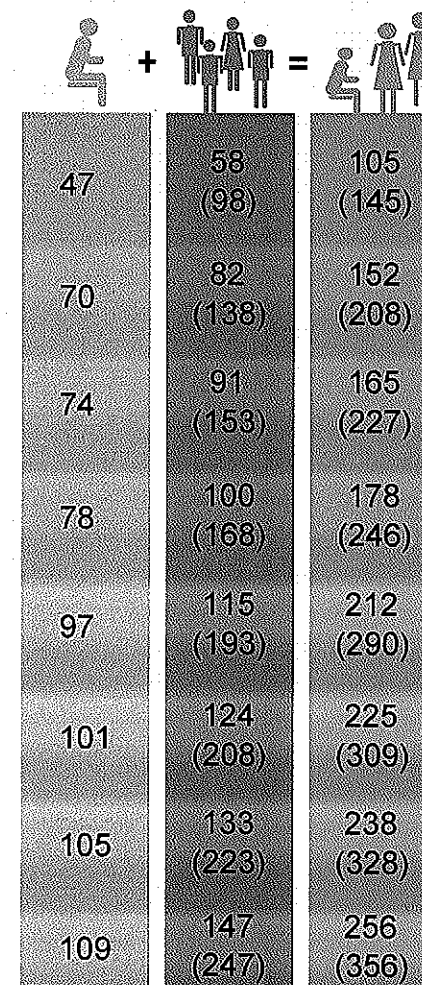
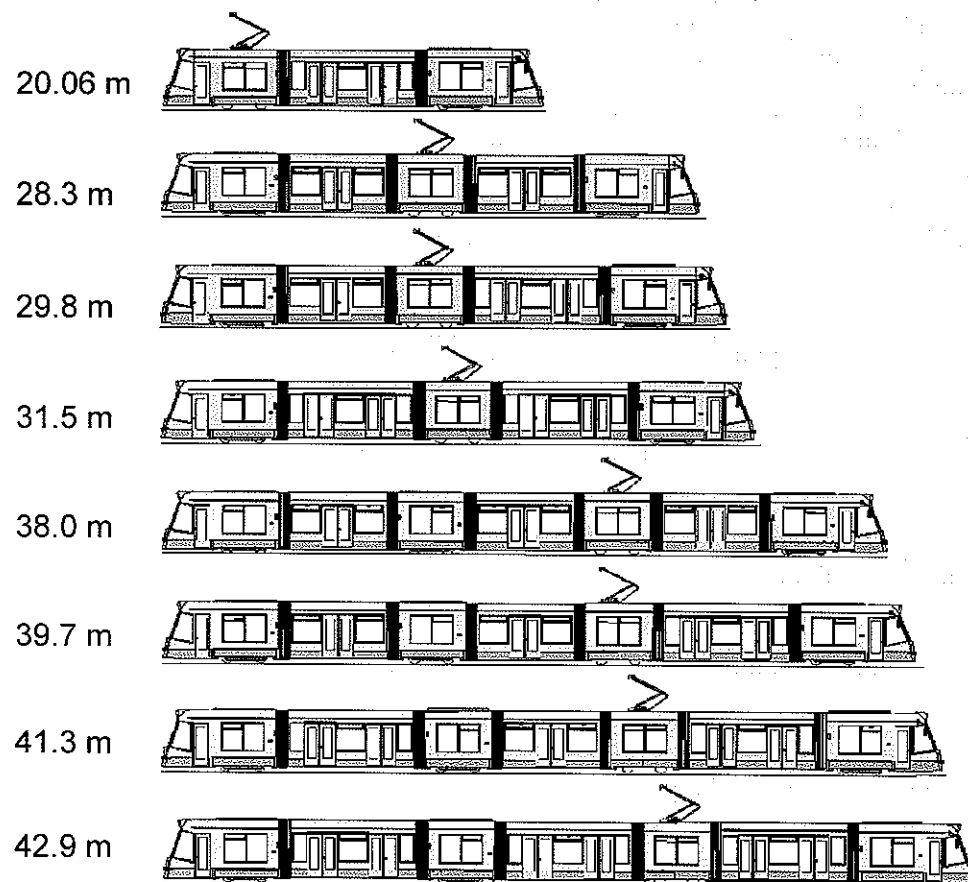


Vehicle Data

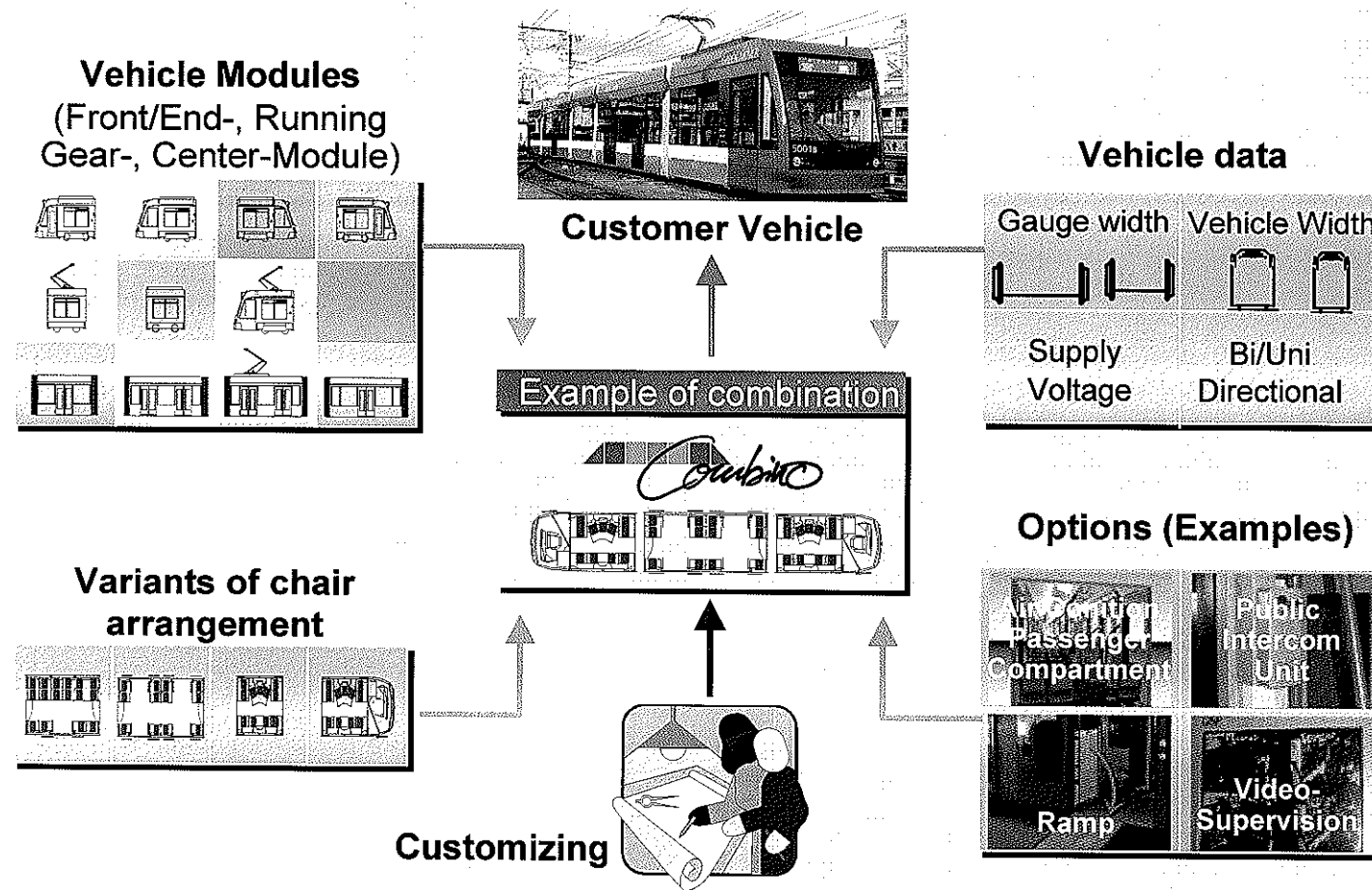
Unidirectional vehicles

Vehicle width: 2300 mm

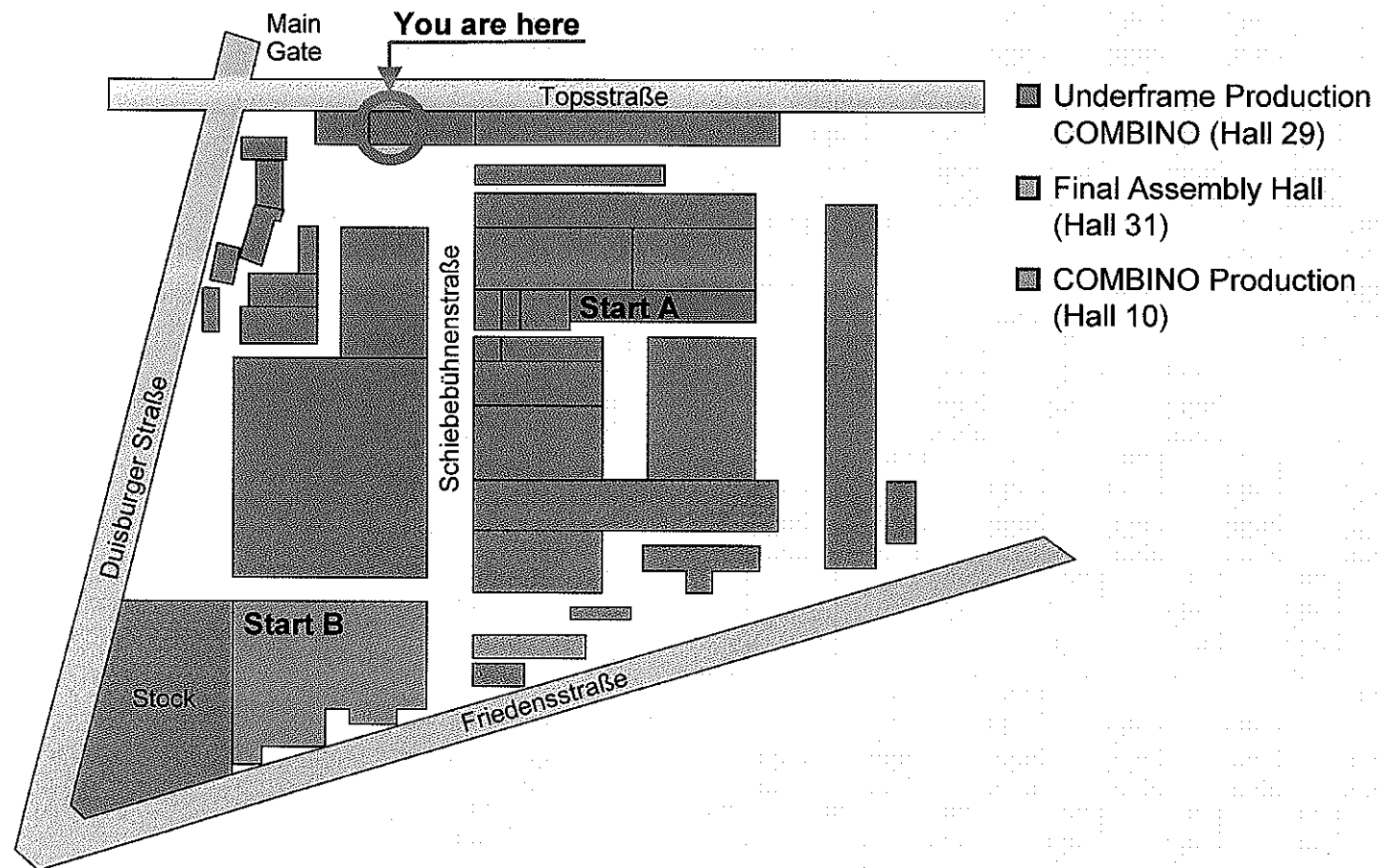
Standing capacity: 4 persons/m² (6,7 persons/m²)



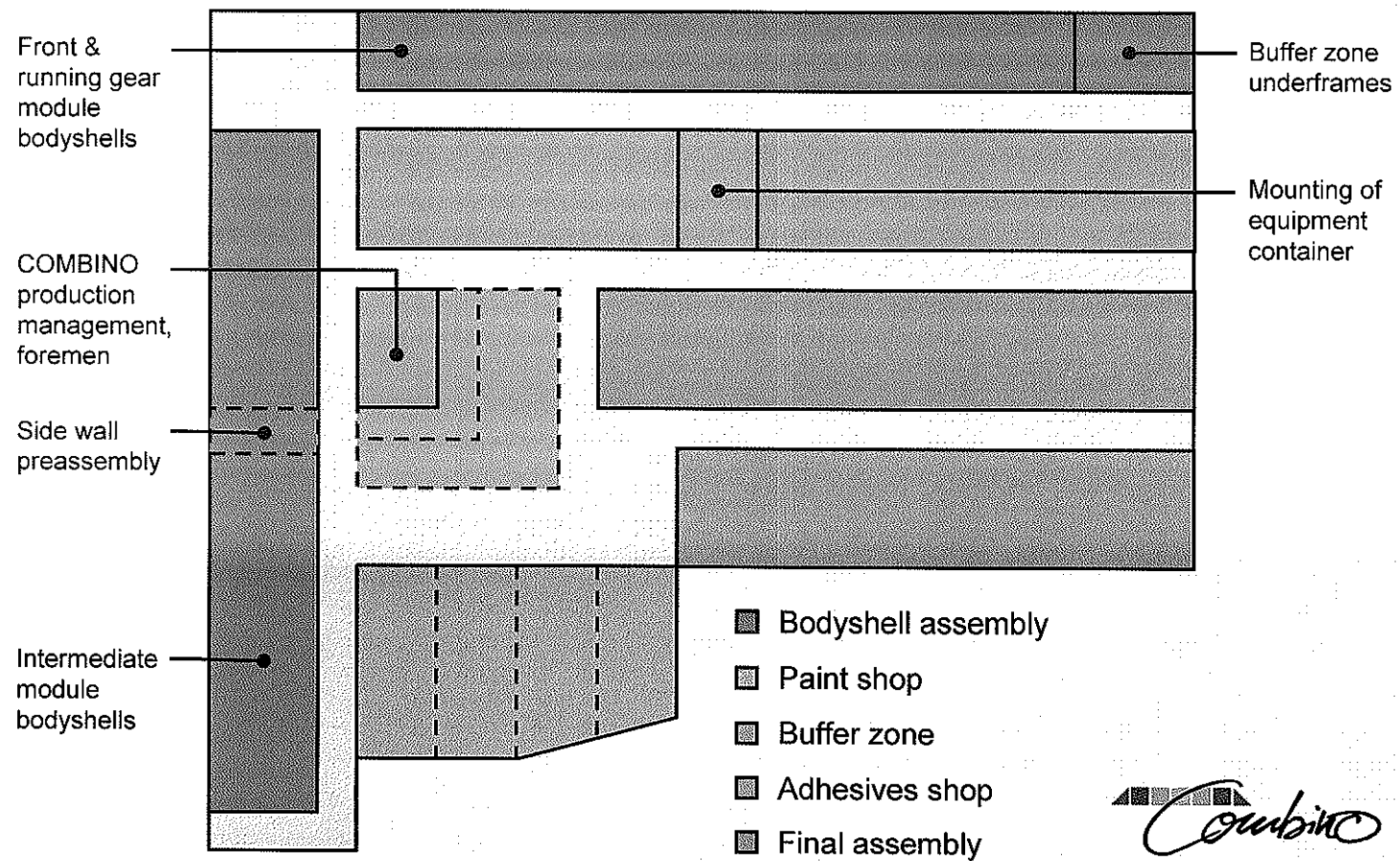
COMBINO Modular System



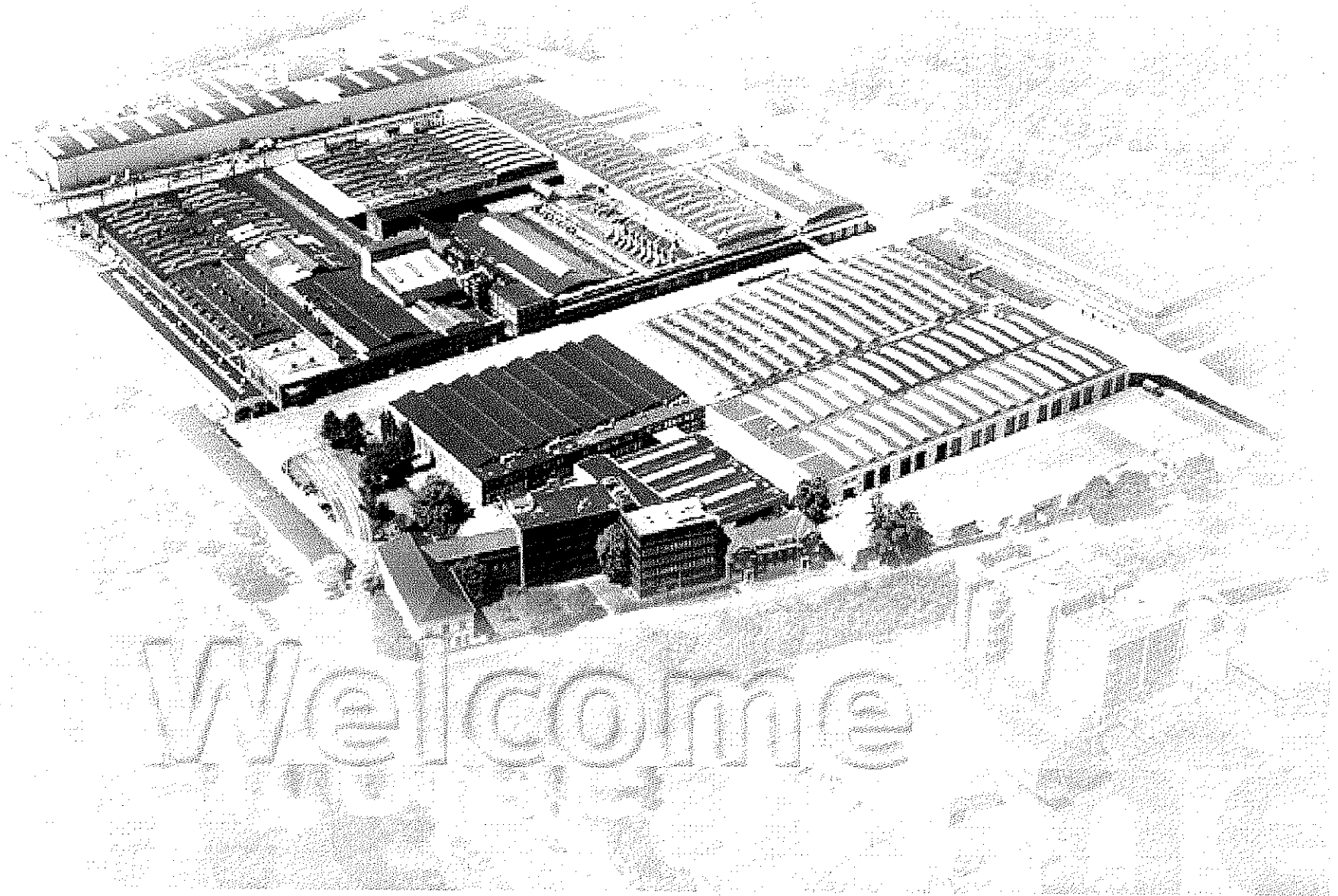
Tour of the Plant



The COMBINO Production at Krefeld/Uerdingen



SIEMENS



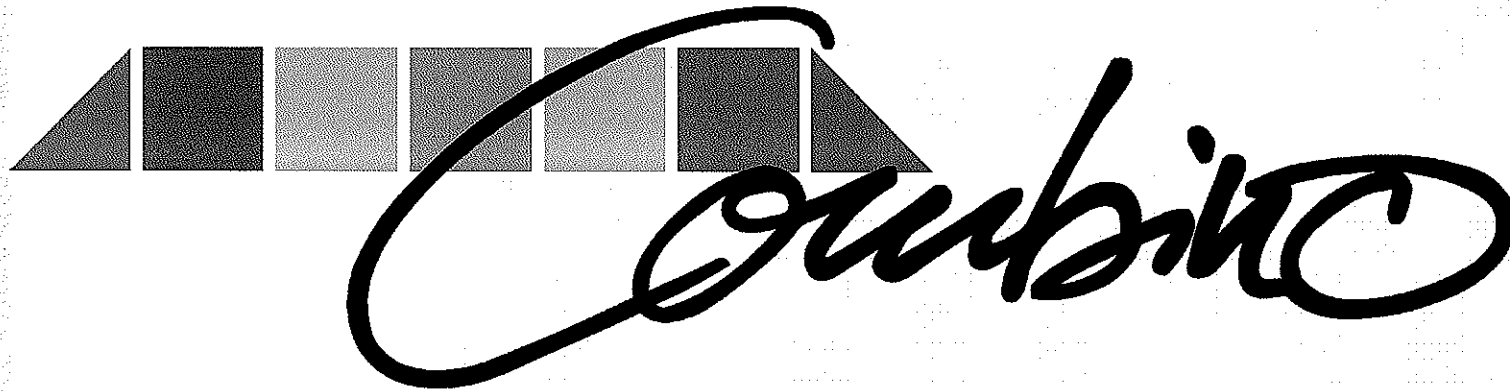


Welcome

Test Centre
Wegberg-Wildenrath

Program of the day

- 11:30 Press Conference
Discussion
- 12:45 Lunch
- 13:30 Visit of Vehicles
- 14:00 Drive in the Ring
- 14:30 End of the Meeting



The Combino

Another Success Story for
Siemens Transportation Systems

The Siemens Group Transportation Systems

Automation & Power

- Automation Railways
- Electrification

Rolling Stock

- Heavy Rail
- Locomotives
- Light Rail
- Trains

Turnkey Systems

- For mass transit services
- For main line services

Integrated Services

New orders worth: 5.6 billion euros

Sales: 4 billion euros

EBITA: 186 billion euros

Employees worldwide 14,800



Combino: 500 sold so far

The most successful 100 % low-floor tram in the world

Hans M. Schabert

Wegberg-Wildenrath, Feb. 1, 02



Consistently towards success:

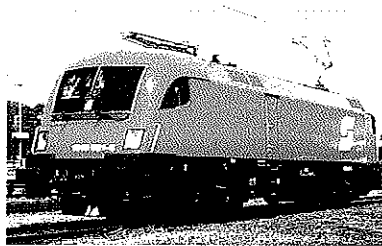
**We're banking on platform
concepts!**

Hans M. Schabert

Wegberg-Wildenrath, Feb. 1, 02

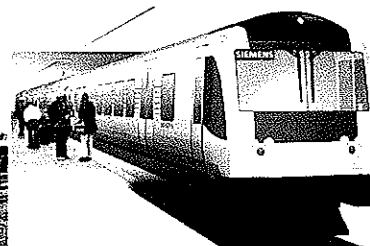
Locomotives

e.g.: EuroSprinter



Trains

e.g.: Desiro



Trams

e.g.: Combino



Metros

e.g.: Mo.Mo

Consistently towards success:

We're banking on platform concepts!

Market situation / Driving forces

- **Privatization**
- **Deregulation**
- **Cost pressure**
- **Competition**

Modular concepts – Concepts for the future

Modularity means:

■ **Safety / Availability**

- through the use of service-proven tools/standards
- on-time delivery
- mature technology without “teething problems”
- low costs incurred by poor performance

Modularity means:

■ **Availability**

- through professional spare-parts service
- all-inclusive service offer: Life-cycle services

Modularity means:

availability

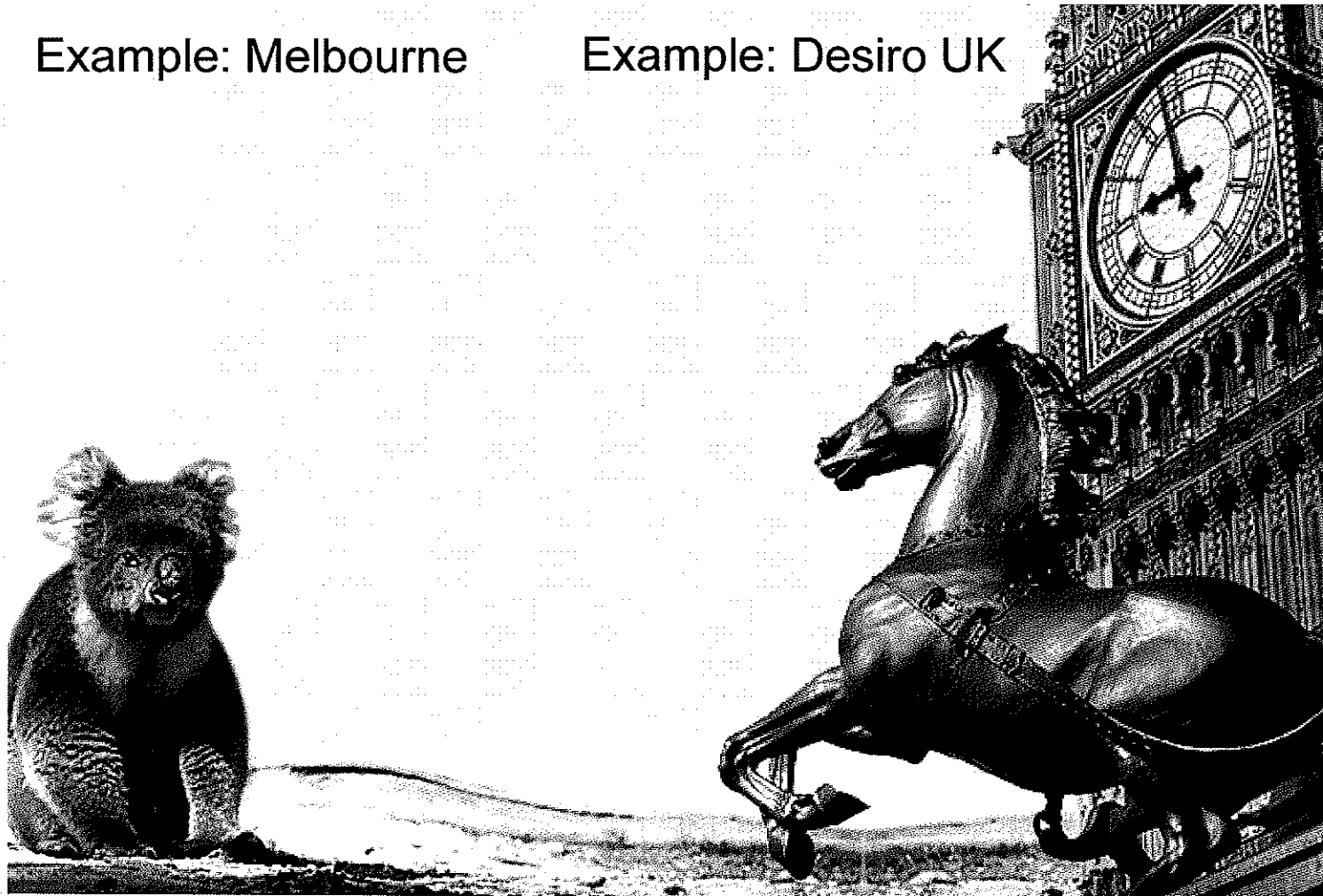
■ **Economy**

- through high volume production
- low life-cycle costs
- shortened development times
- speedy commissioning

Modular concepts are the key to successful operator concepts and fleet management

Example: Melbourne

Example: Desiro UK



Hans M. Schabert

Wegberg-Wildenrath, Feb. 1, 02

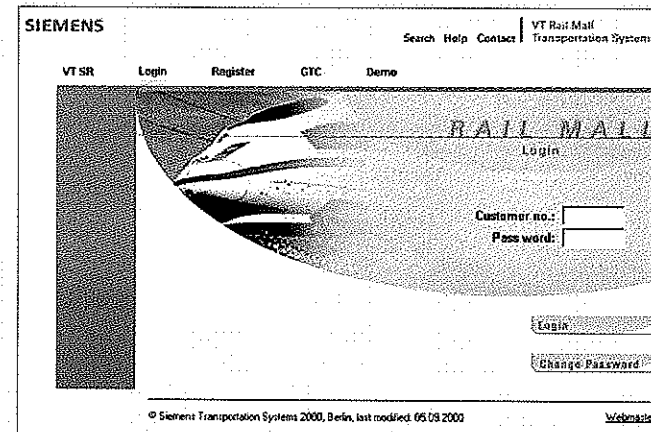
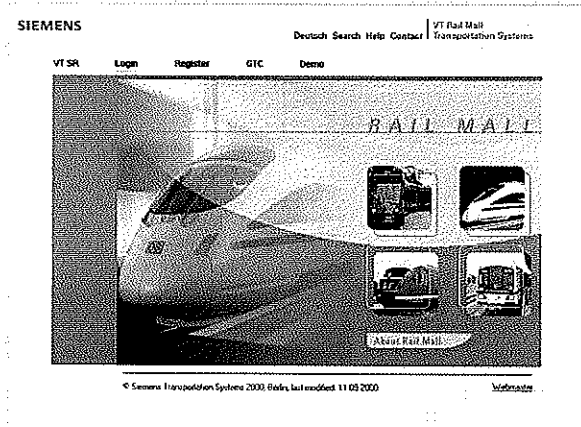
**Our aspiration:
To be a partner over the entire life cycle**

- Modularization ensures quality
- Full service over the entire life cycle



Our aspiration: To be a partner over the entire life cycle

- Stocking of spare parts
- Charter Rail, Leasing
- e-business (Rail Mall)



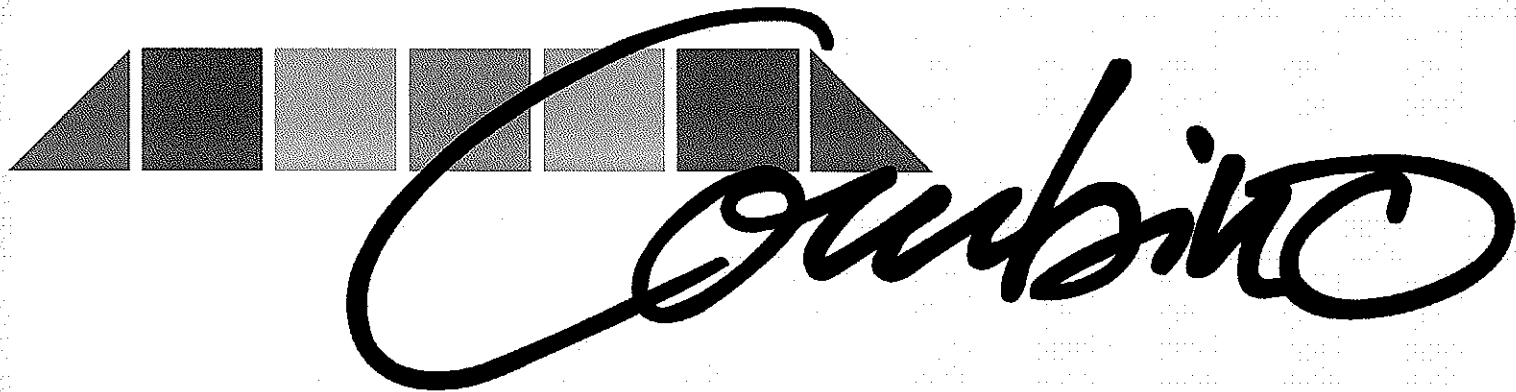
■ Financing

Hans M. Schabert

Wegberg-Wildenrath, Feb. 1, 02

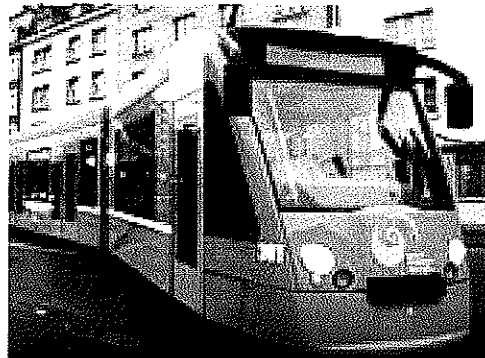
Modularity as concept for a successful situation

WIN-WIN



5 Years Combino 500 Combinos on the Market

100 in service

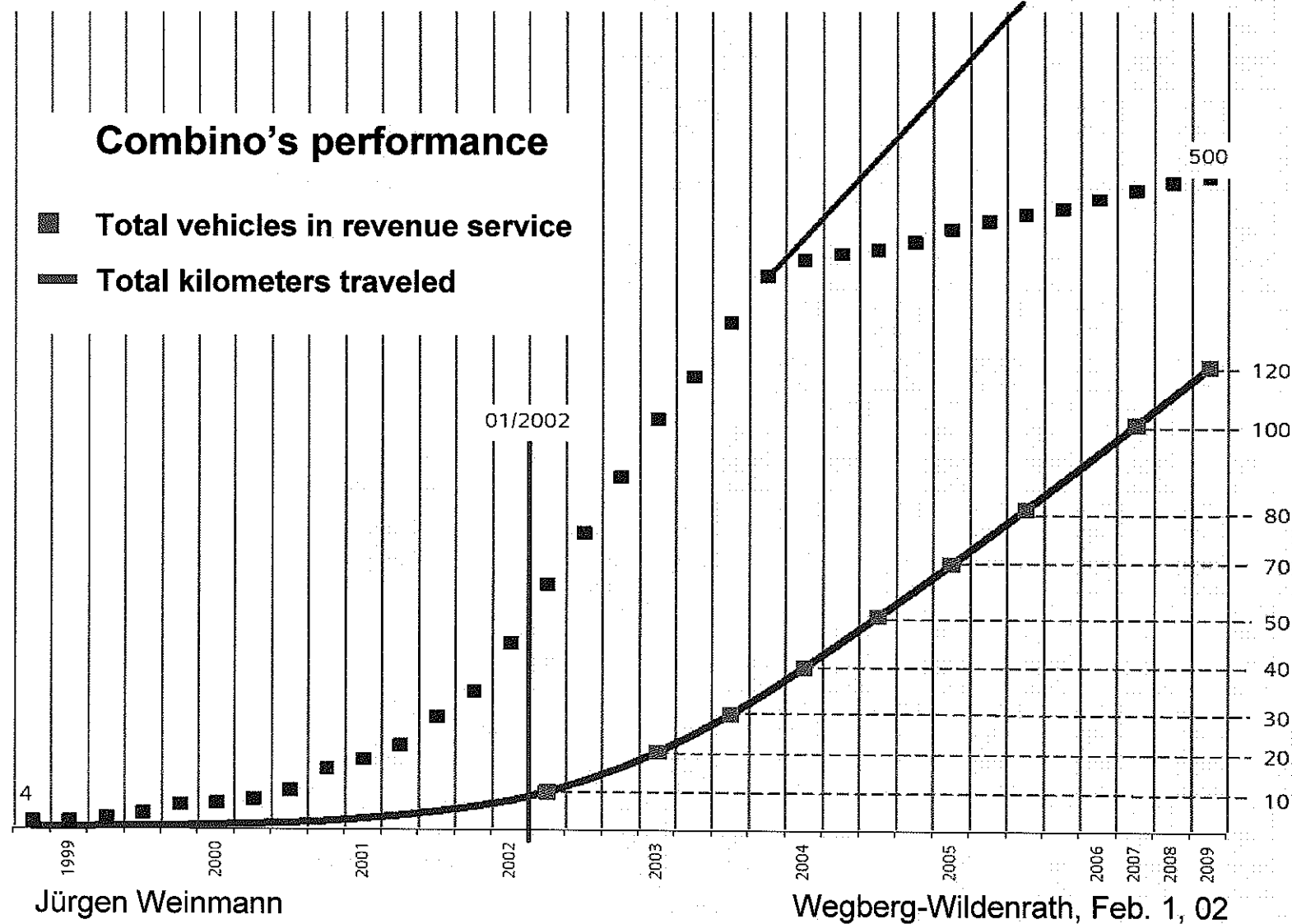


400 more on the order books

Jürgen Weinmann

Wegberg-Wildenrath, Feb. 1, 02

100 in service, 400 more on the order books



**A motor for success:
The prototype**

Innovation for sophisticated technology

Road show through 20 cities:

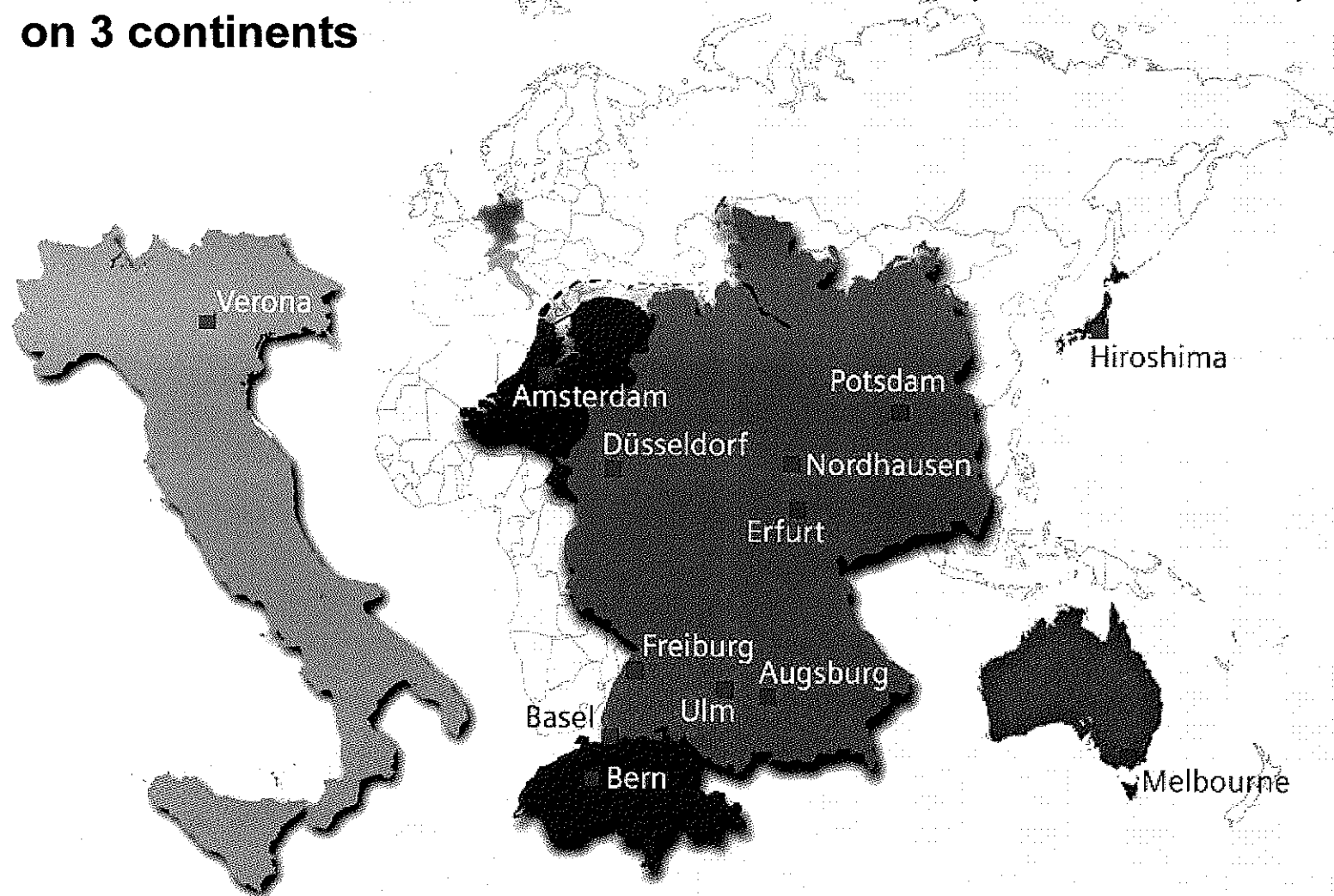
Düsseldorf - Berlin - Potsdam - Vienna - Barcelona - Erfurt - Basel - Zürich -
Stein am Rhein - Augsburg - Mannheim - Ludwigshafen - Heidelberg -
Mülheim/Oberhausen - Amsterdam - Rotterdam - Düsseldorf - Bern - Geneva -
Alicante - La Coruña



Jürgen Weinmann

Wegberg-Wildenrath, Feb. 1, 02

**Combino worldwide: Successful in 13 cities, in 6 countries,
on 3 continents**



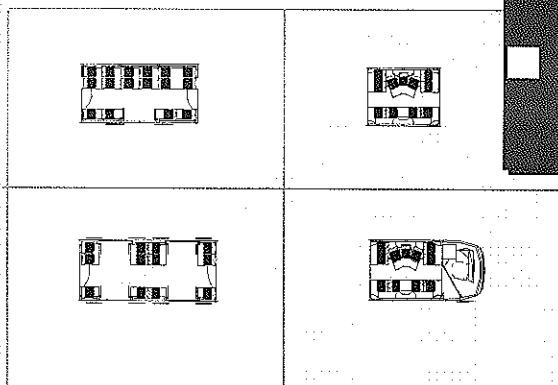
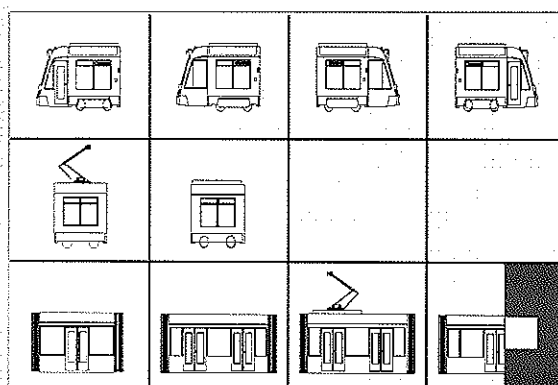
A sophisticated concept: Combinos can be supplied in every shape and batch size

■ Nordhausen	7
■ Ulm	8
■ Hiroshima	12
■ Bern	15
■ Freiburg	18
■ Verona	22
■ Basel	28
■ Augsburg	29
■ Potsdam	48
■ Erfurt	48
■ Düsseldorf	51
■ Melbourne	59
■ Amsterdam	155

Total: 500



Modularity enables us to meet every demand



■ Every operating variable

■ Every infrastructure requirement

■ Different type of drive system

Track gauge	Car width
Line voltage	Single-ended/ Double-ended

HVAC system for passenger area	Emergency call points
Boarding ramp	CCTV surveillance

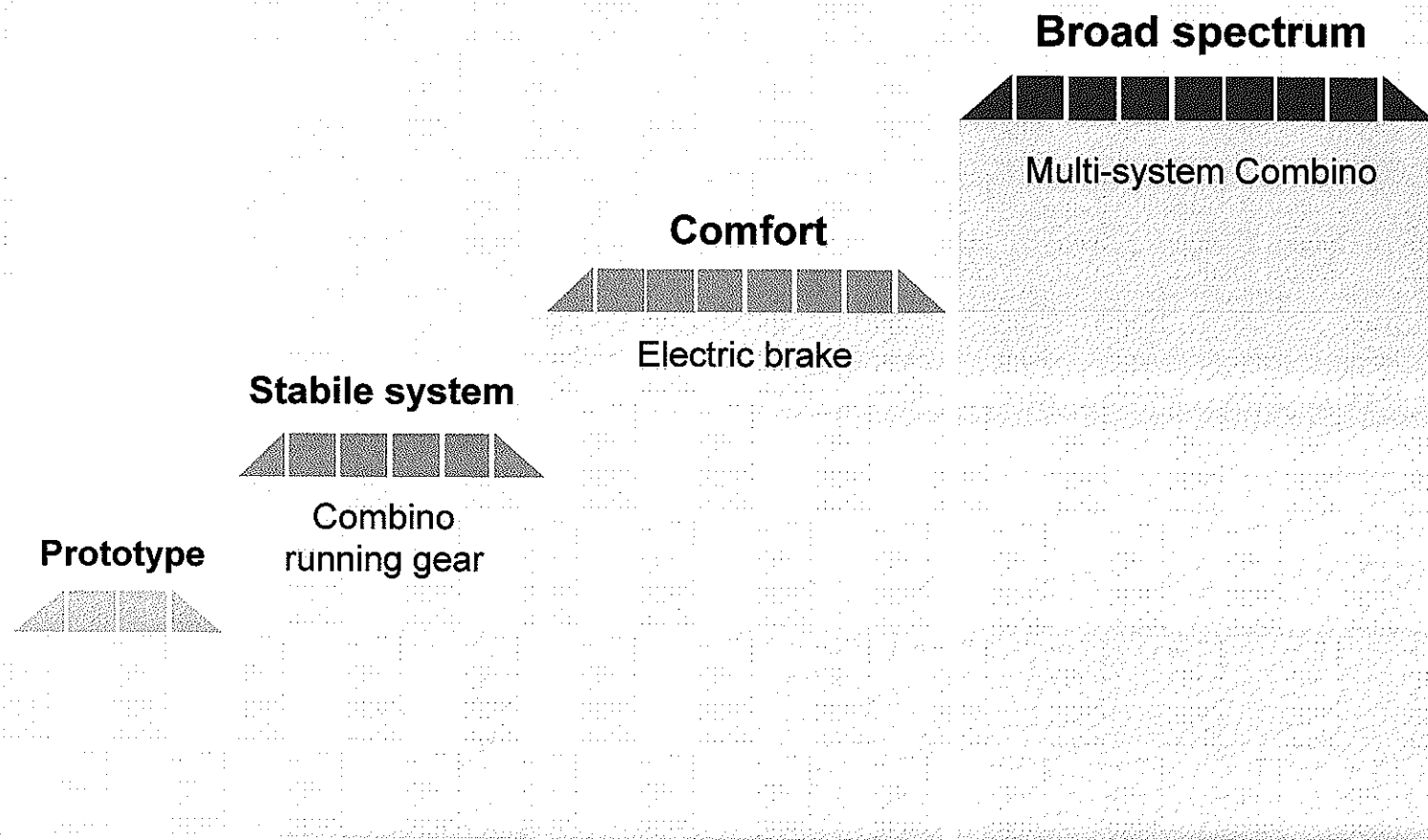
**Modularity is the key to the new
benchmark-setting assembly concept**



Jürgen Weinmann

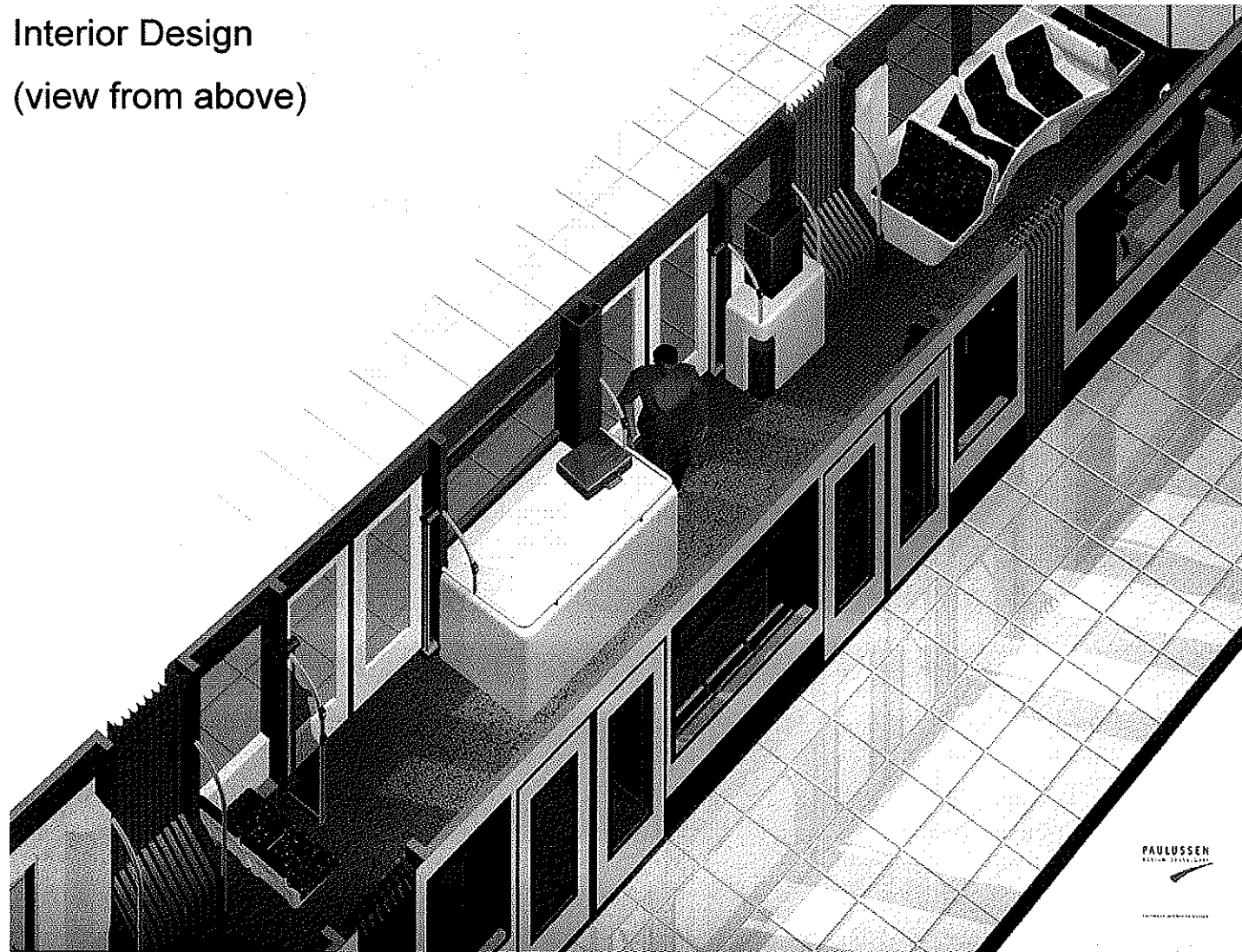
Wegberg-Wildenrath, Feb. 1, 02

Intelligent ongoing development based on field experience and customer feedback



Multi-system Combino

Interior Design
(view from above)

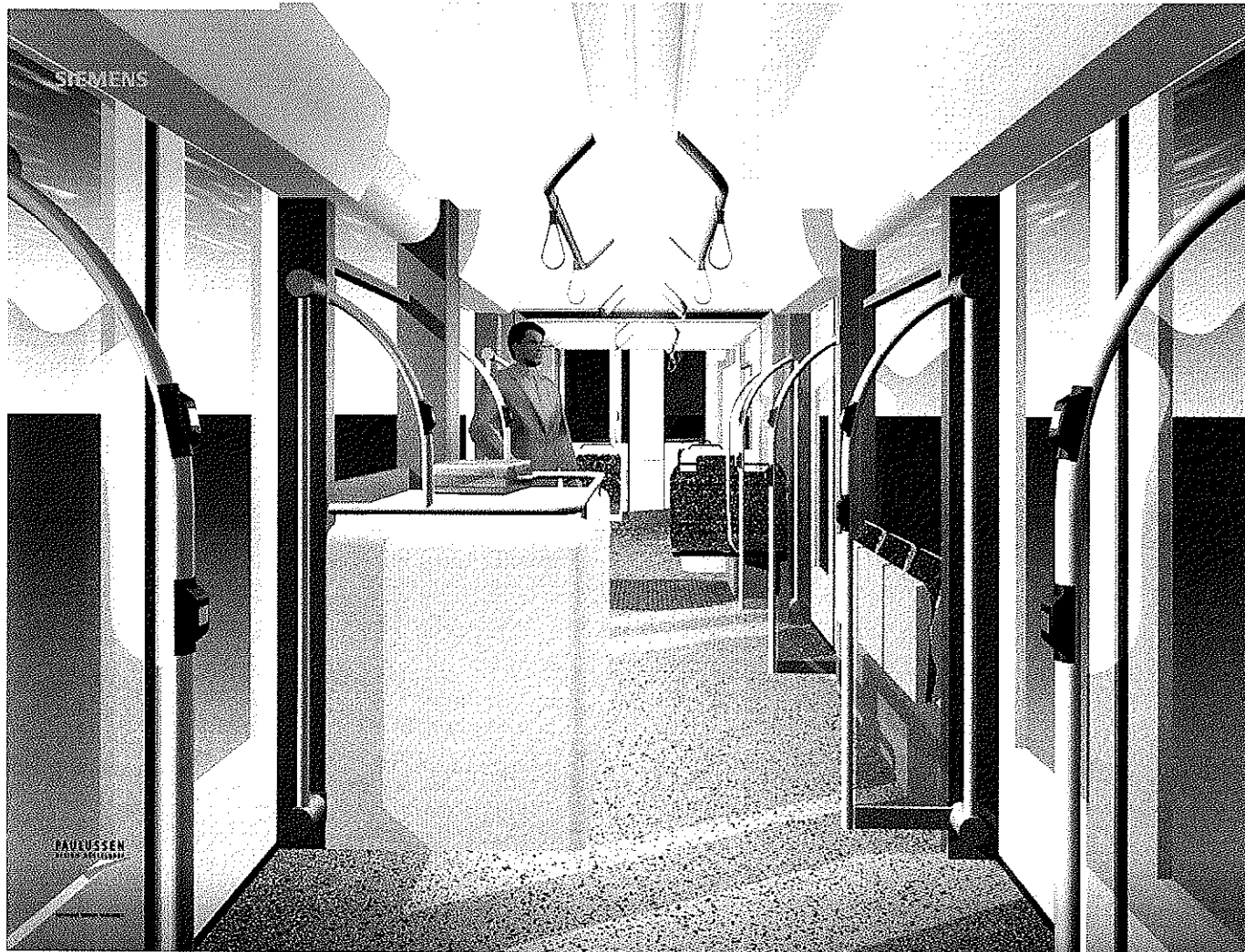


Jürgen Weinmann

Wegberg-Wildenrath, Feb. 1, 02

Multi-system COMBINO

Interior Design



Jürgen Weinmann

Wegberg-Wildenrath, Feb. 1, 02

The customer becomes a marketing motor

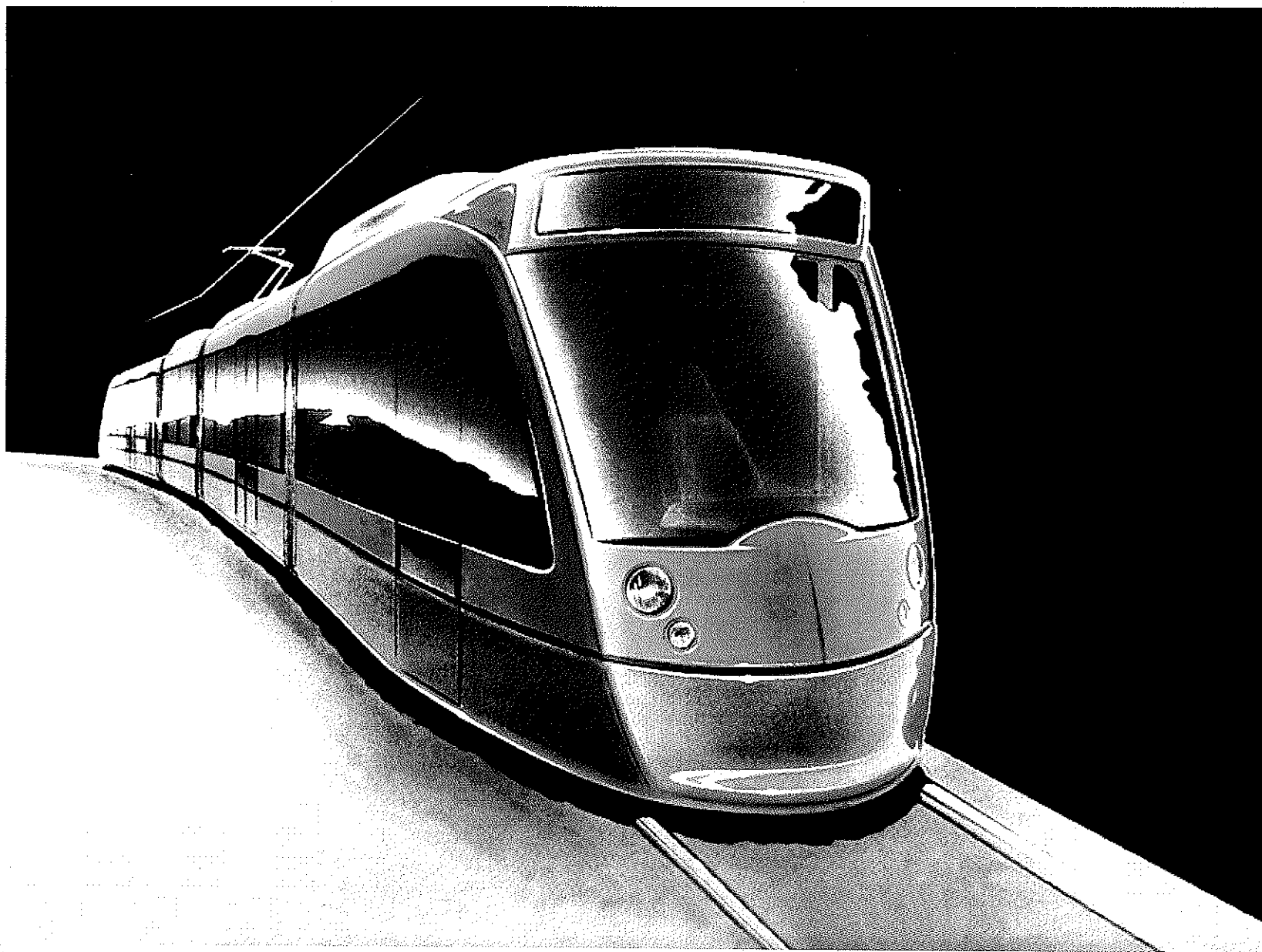
Combino User's Club

- Combino customer meet regularly to exchange experiences
- They give feedback to Siemens Transportation Systems
- Siemens Transportation Systems comments on it and takes up suggestions

COMBINO DESIGN

From 1994 until today

A look into the future





Variants

Combino as basis for customer-specific design

Hiroshima, new head design

Düsseldorf, new Combino-based design



SIEMENS



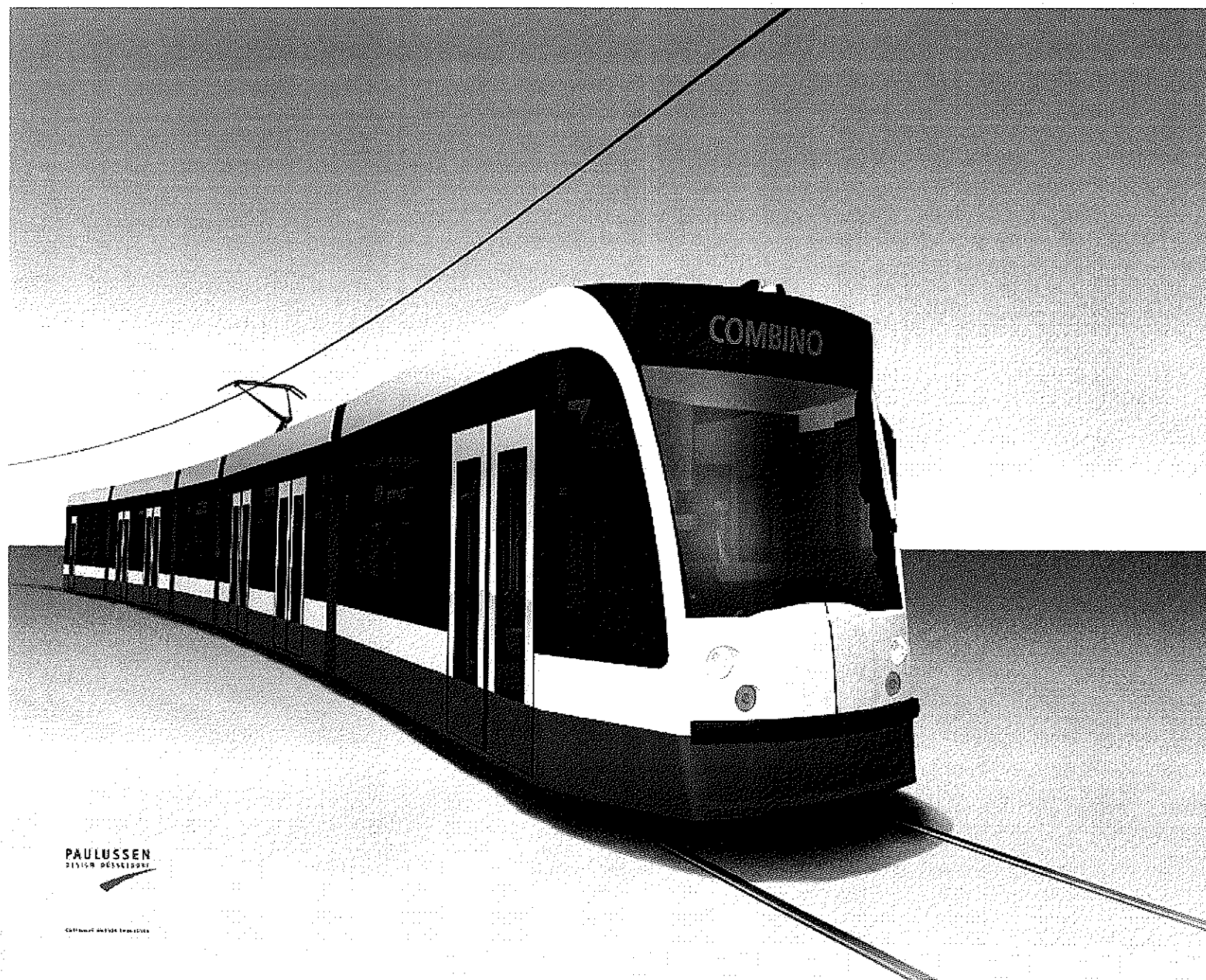
Current Design

Amsterdam

puristic straightforward friendly

Melbourne

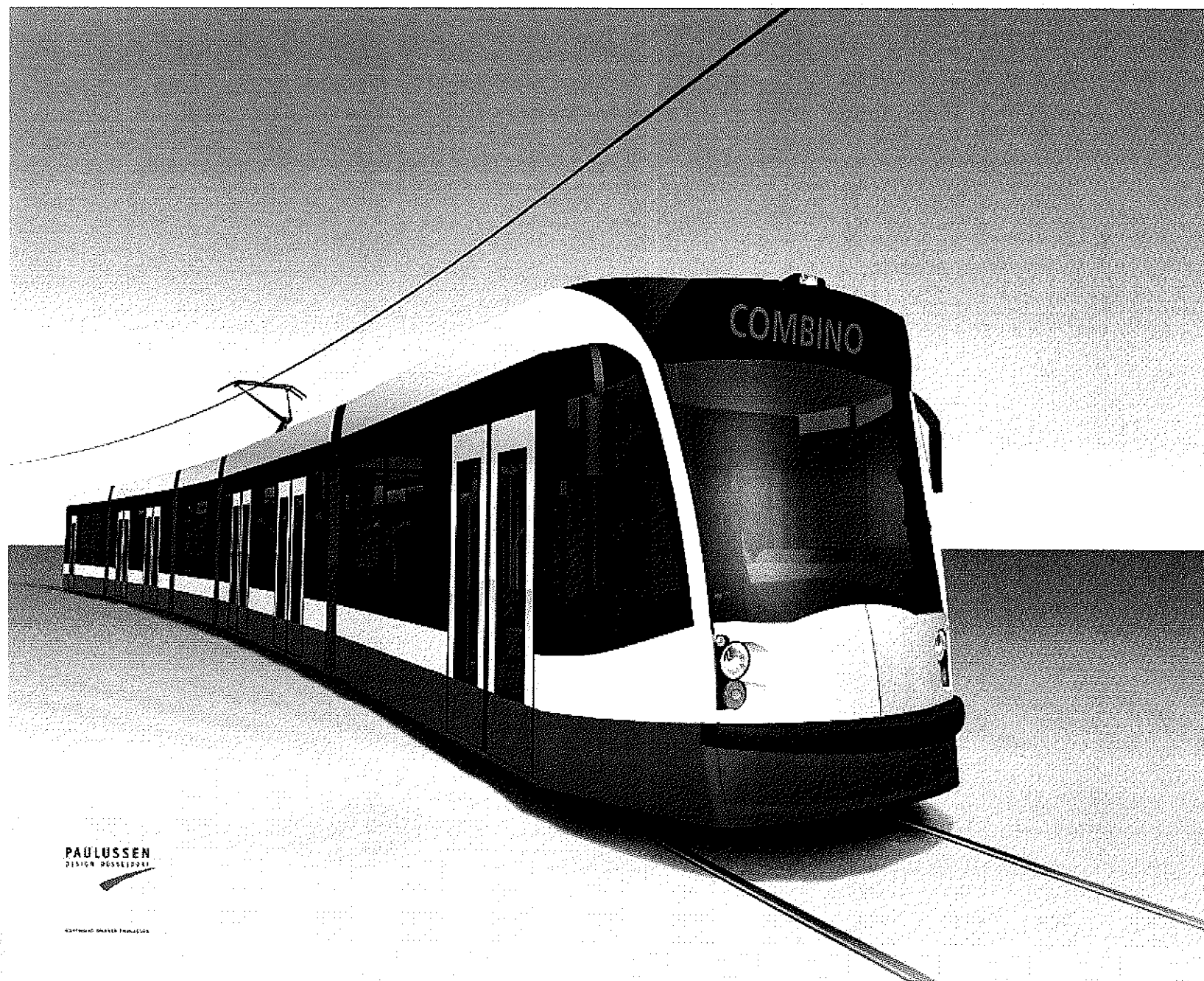
dynamic determined up-to-date



PAULUSSEN
DESIGN DELVEIDORI



CONCEPT DESIGN TRANSPORT



SIEMENS

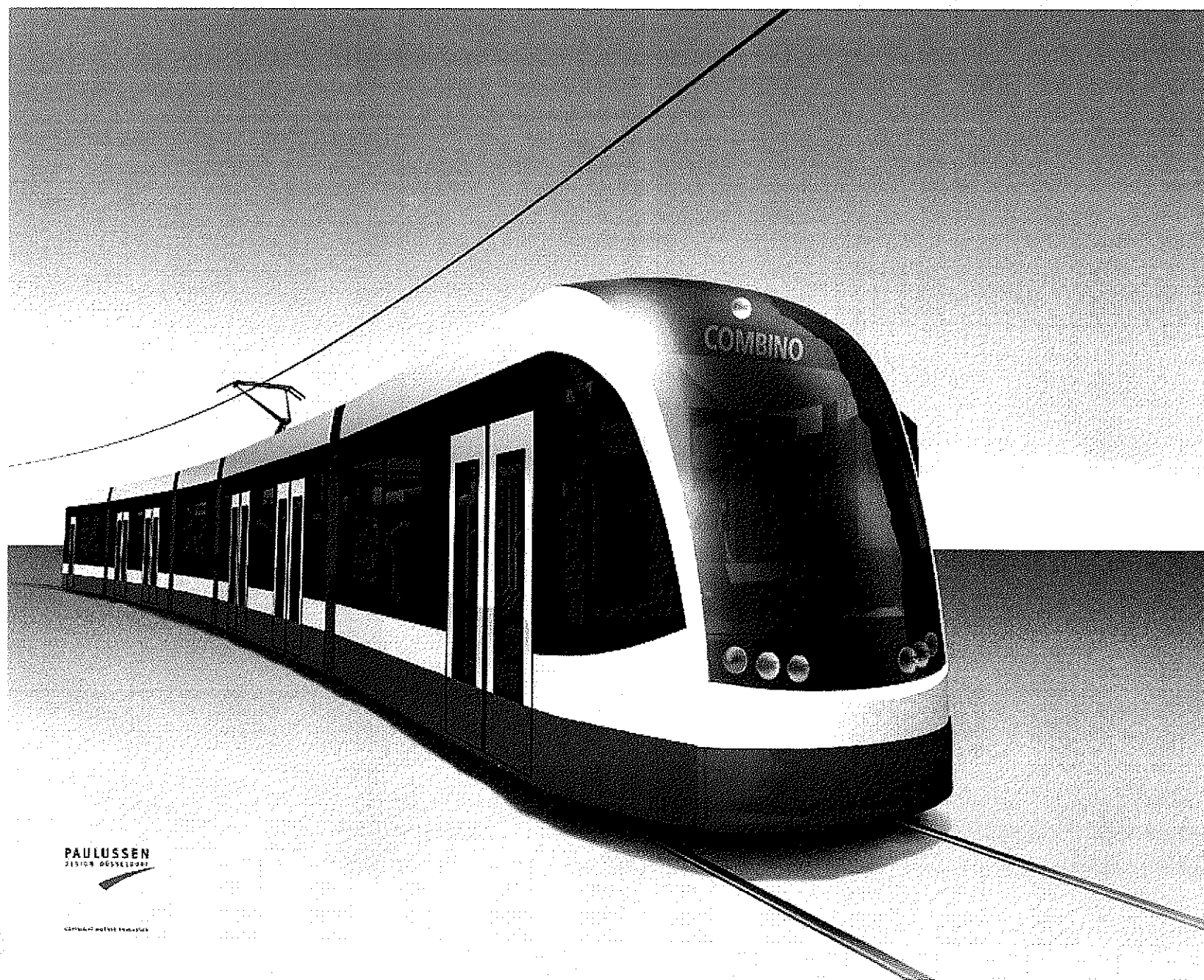
The Future

New design lines

innovative

elegant

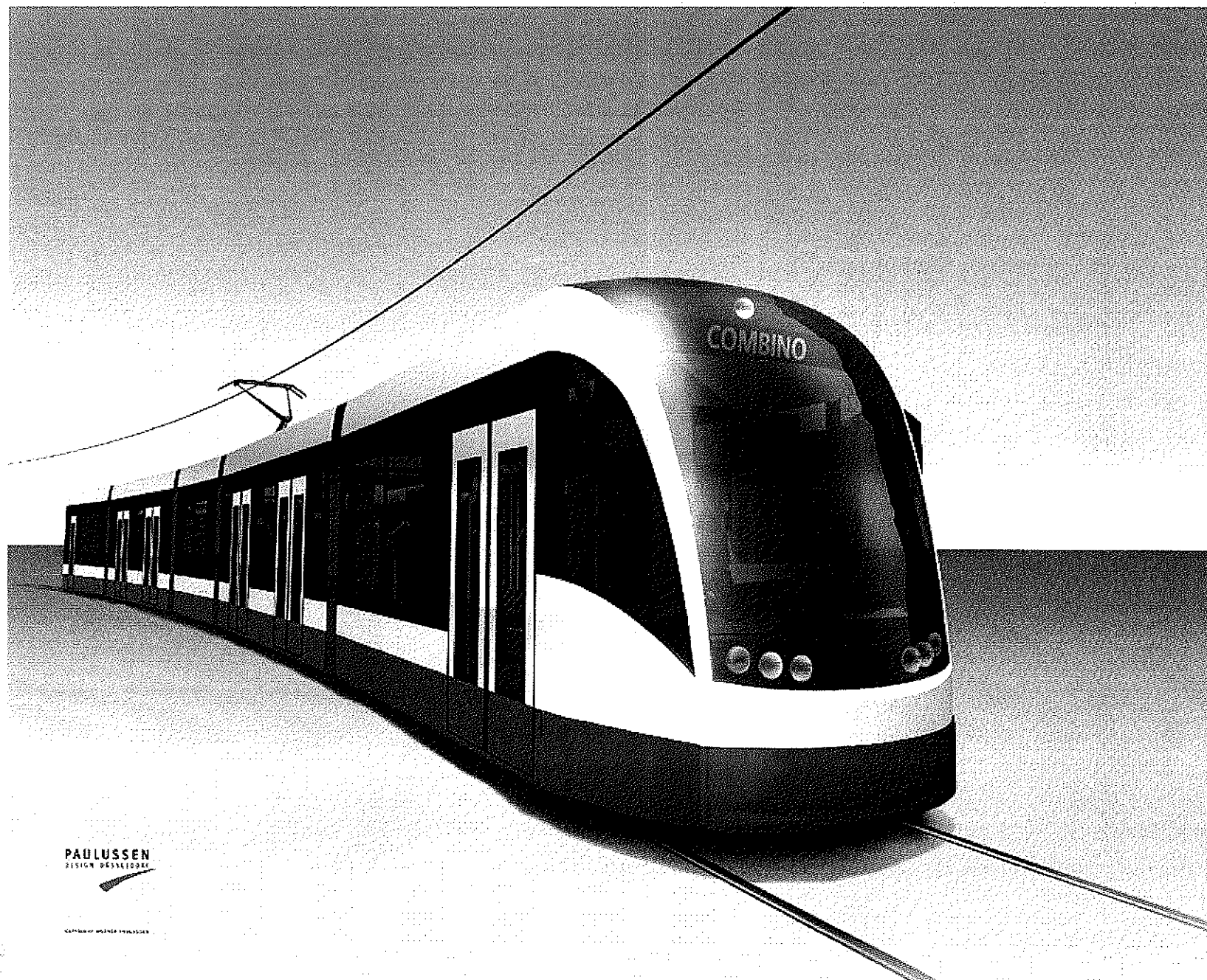
dynamic



PAULUSSEN
DESIGN OOSTVEEN



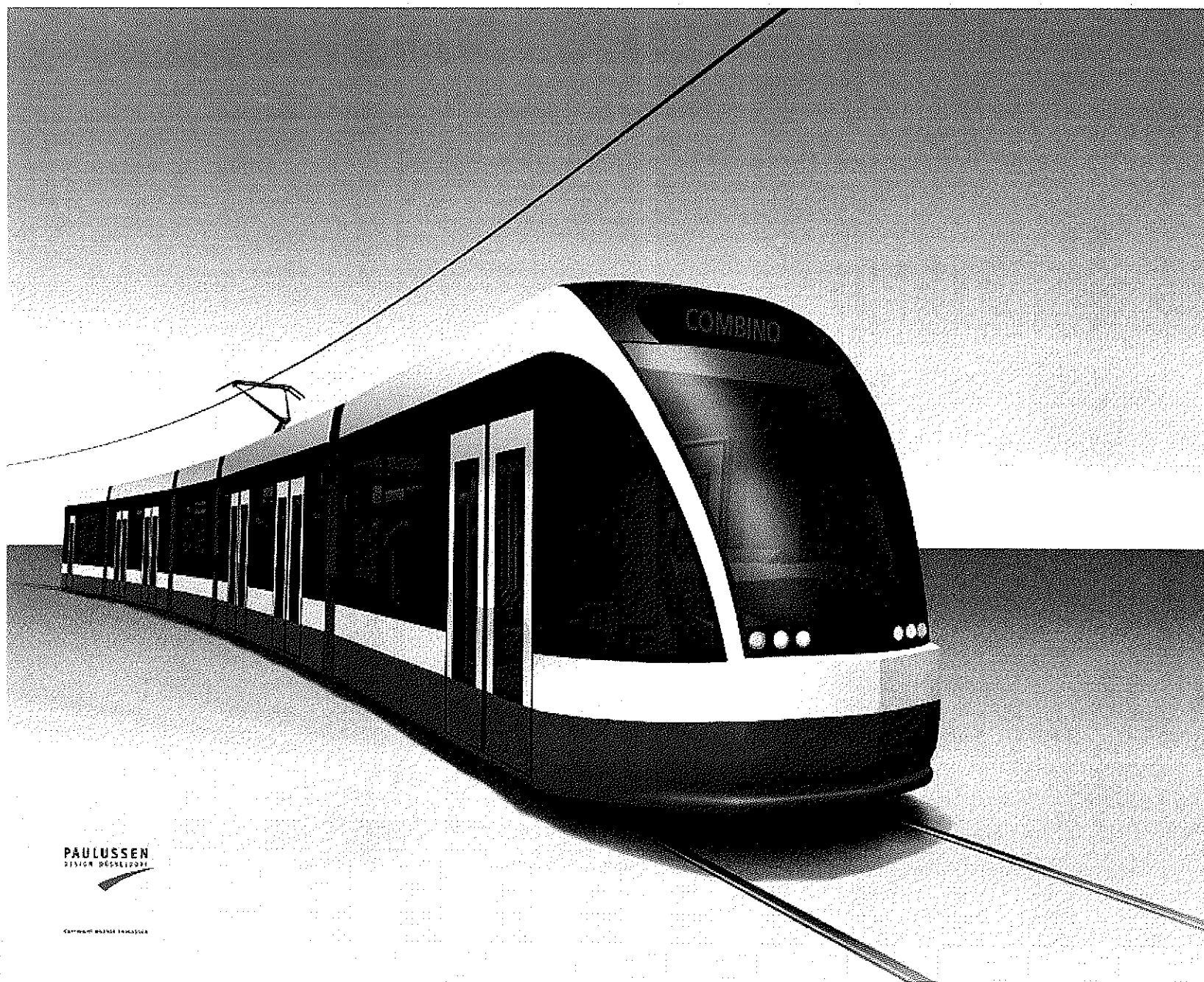
CONCEPT AND ART DIRECTION



PAULUSSEN
DESIGN RESEARCH

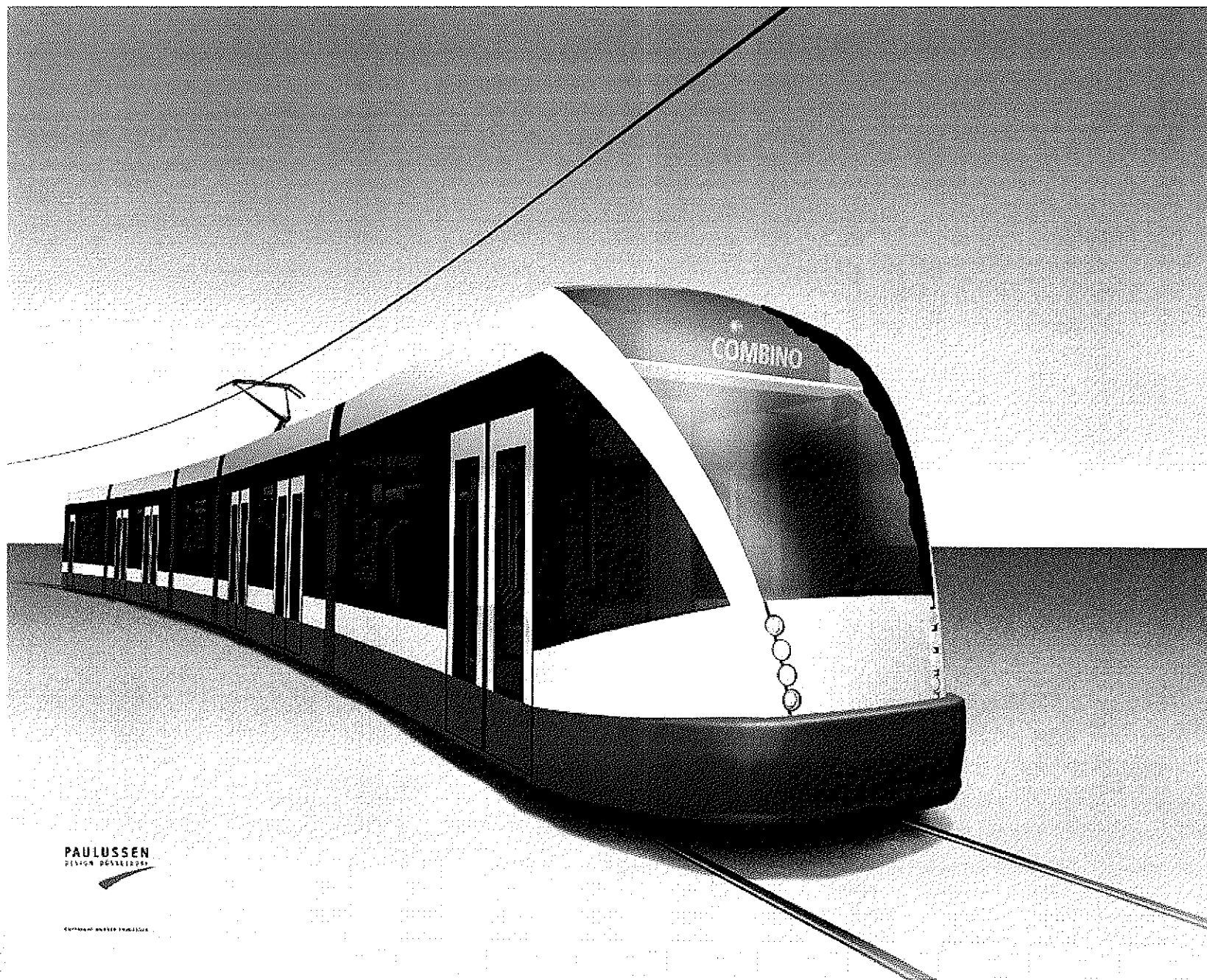


Copyright 2004 Paulussen



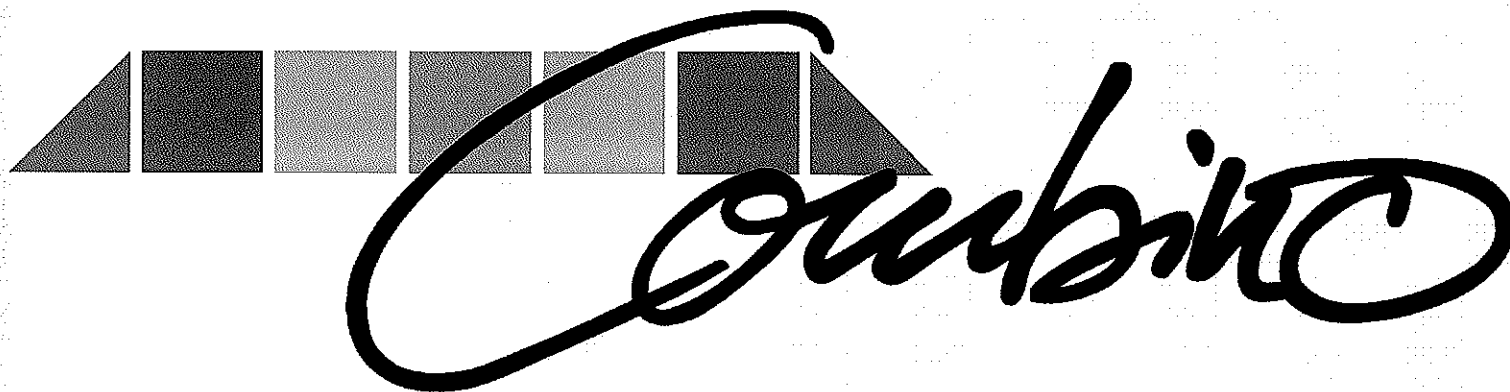
PAULUSSEN
DESIGN BÜRO

COOPERATION PARTNER: BUNDESBAU



PAULUSSEN
DESIGN DÜSSELDORF

ENTWURF: WOLFGANG PAULUSSEN



The Combino

Another Success Story for
Siemens Transportation Systems

