


**FIDEUS Final Open Forum**

**FIDEUS**  
Freight: Innovative Delivery  
in European Urban Spaces

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**FIDEUS Partnership and duration**

**EUCAR**  
EUROPEAN COUNCIL FOR AUTOMOTIVE R&D

- Partnership
  - OEMs (CRF, IVECO, Renault Trucks, ECA)
  - Cities (IMPACTS, Lyon, Hanover, Barcelona)
  - Delivery Operators (DHL, TNT)
  - Research and technology providers (ALTRAN, Mizar, Fraunhofer, Univ of Westminster)
- Coordinator : FIAT Research Centre
- FP6 Priority 6.2 Sustainable Surface Transport
- Duration of the project: three years
- Start: May 1st 2005
- End April 30th 2008

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**FIDEUS Motivation and Objectives**

- **Motivation and background for the project**
  - 80% of deliveries in urban areas (as source or/and destination)
  - 10 % of vehicles, but 20% of traffic and 50% of environmental effects
  - Policy of Local authorities based on restrictions, or access control
  - Extra costs and less efficiency
  - Propose innovative solutions to distribution logistics
- **Objectives**
  - Support an innovative approach to the organisation of urban freight transport, in line with political strategies to safeguard the 'liveability' of cities, while being compatible with efficient logistics

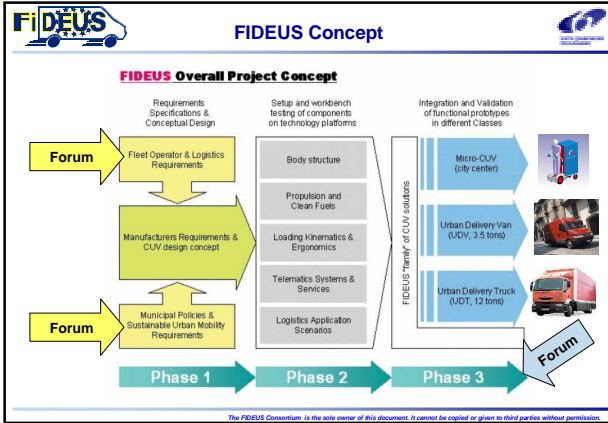



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**FIDEUS Approach**




- Innovative non polluting means of transport to achieve a more effective organisation of urban transport
- Main research topics:
  - New logistics solution
  - New type of vehicles (very light, medium)
  - Efficient loading/unloading operation
  - Noise reduction

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- ### Main Actions
- the proposal of new approach to the organisation of urban logistics, involving the co-ordinated use of different vehicle types, an innovative goods container, and support systems to improve the management of delivery operations;
  - the development of a complementary set of vehicles and equipment, specially conceived for undertaking urban deliveries and collection;
  - the provision of tools and information which will give practical support to city authorities in planning and management of strategies for dealing with urban delivery traffic.
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### Vehicle Types

<p>Microcarrier MCUV (for efficient delivery inside restricted urban areas)</p>	
<p>Urban Light Vehicle ULV (with solution for optimised loading/unloading, noise reduction, extended safety, operational efficiency)</p>	
<p>Urban Truck Vehicle UTV (with solution for optimised loading/unloading, noise reduction, extended safety, operational efficiency)</p>	

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- ### Vehicle technologies
- FIDEUS has develop functions and solutions, tested in real delivery operations.
- Safety, during urban manoeuvres and loading/unloading operations
  - New telematics solutions (based on RFID) to improve efficiency of transhipment operation and avoid mistakes
  - New, specific, ADAS functions, like reverse manoeuvres assistance
  - Noise reduction during (un)loading operations
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**FIDEUS Deliverables & Milestones**

- Main deliverables
  - Microcarrier, Urban Light Vehicle, Urban Truck Vehicle
  - Logistic management linked with City Traffic Control
  - Standard container for city delivery
  - New, efficient policy, for city authorities
- Milestones:
  - Specification completed (1Q 2006)
  - Vehicles tested (3Q 2007)
  - Final validation (1Q 2008)



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**FIDEUS Light Commercial Vehicle**



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**FIDEUS Functionalities**

*Green Van Urban Delivery Eco load*

- CNG engine
- Silent Vendor Door Action
- Automated Manual Gearbox
- Soundproof Engine & Wheelhouses
- Pneumatic Suspension
- Short Range Radar Sensor & Blind Monitoring
- EPB – Electric Parking Brake
- Operation Cameras & Variable Message Panel
- Reverse Driving Assistant
- Short Radar Sensor
- Twin Vendor Door
- External Spot lights



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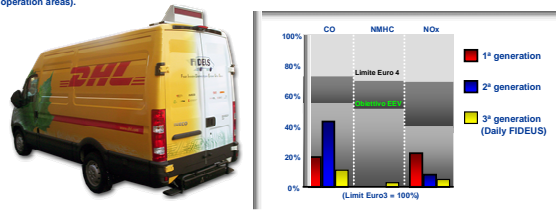
**FIDEUS Low Emission Engine**

**CNG Daily 3,5 t**

The new F1C CNG engine meets the EEV (Environmentally-friendly Enhanced Vehicle) emission thresholds in urban context (restricted operation areas).

	Nox [g/KWh]	NMHC [g/KWh]	CO [g/KWh]	PART. [g/KWh]
<b>Iveco Daily CNG</b>	0,81	0,019	2,18	0,017
<b>EEV Emission Limits</b>	< 2,0	< 0,40	< 3,0	< 0,02

*Start & Stop excluded*      **EEV - Environmentally-friendly Enhanced Vehicle**



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**FIDEUS** Loading area monitoring

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**FIDEUS** Automatic Park Braking

Parking Brake-by-Wire equipped with:

- Drive Away function
- Hill Hold function
- Auto Apply function

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**FIDEUS** Reverse Driving Assistance

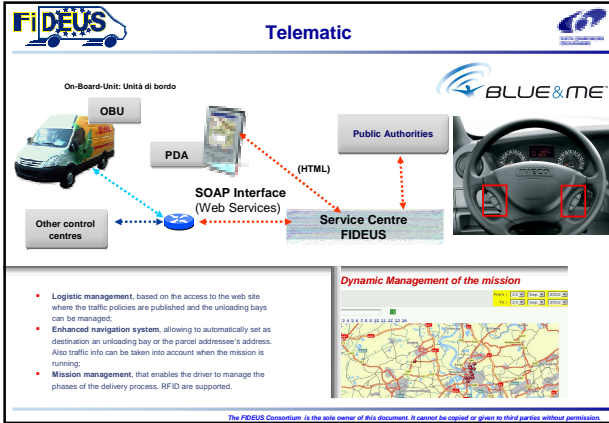
The function is a sort of "rewind" in backward direction, of the previous manoeuvre done by the vehicle, with the control of the Electric Power Steering, while the driver is controlling the vehicle speed.

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**FIDEUS** Reverse Driving Assistance

EPS system integrated in the vehicle steering column

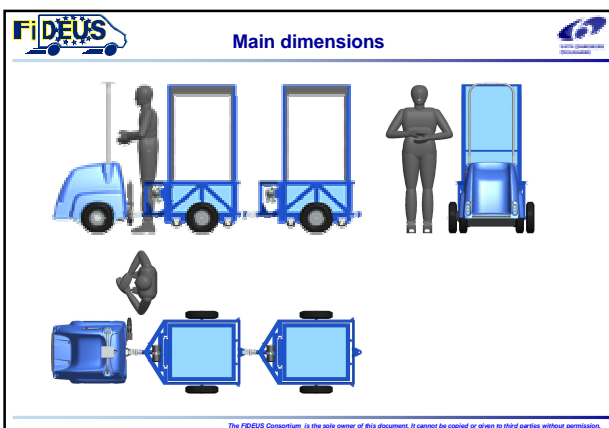
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### Micro carrier for city deliveries

Payload : 300 kg  
 Speed : 5 km/h  
 Width : 1090 mm ( tractor 800 mm)  
 Length : 3750 mm  
 High : 1700 mm  
 Autonomy : 2h displacement min  
 Slope : 10 %

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### Container Design




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### Microcarrier prototype




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### Medium Truck

**Main objectives**

- Reduction of the environmental impacts (noise and gaseous emissions);
- Logistic improvement thanks to the use of RFID technology for load/delivery operations
- The use of telematics tools to improve efficiency and city compatibility

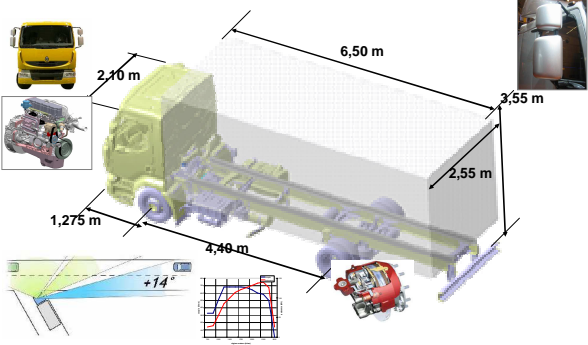




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### Dimensions of the 12T MIDLUM



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**FIDEUS** **Truck Features**

**Noise reduction**  
Acoustic shields (engine, gear box, refresh group, cab)  
Mode low noise in urban area to reduce noise engine at night

**Ergonomics**  
Electronic Park Brake, Stop & Start, Active wheel speed sensor to park with electronic IHM, automatic, dynamic emergency brake

**Safety**  
Front camera to see vulnerable users

**Accessibility**  
Passive Entry & Go  
To access without dislocking

Demotruck 246M in SRP Lyon

Global (200-600 Hz) in level of source strength per pitch  
Housing and 07 45 000 gearbox AZEA run up to 4<sup>th</sup> gear

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**FIDEUS** **TELEMATICS INTERFACE**

- Navigation with GPS system with regulation included (RT)
- Link with low emission mode & back office (authorities)
- RFID reader blue tooth with PDA : back office (operator)

Other Control Centres, InfoMax, SOAP Interface (Web services), IVECO OBU, RFID tags, CRF MIZAR Terminal Trucks OTHERS, CITY AUTHORITY TERMINAL, Transport firms using the Fleetcher Platform

**FIDEUS OPS CENTRE**

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**FIDEUS** **Noise Reduction**

- A reduction of up to 6 dB(A) 1 when operating in towns
- Soundproofing the engine, the vehicle's main noise generating source.
  - To attenuate acoustic emissions as much as possible, a new simulation device has been designed to define and optimally position the phonic insulation around the engine.
- A specific solution for the transmission, using a structural shock absorbing technology in composite material.
- Redesign of the exhaust line silencers

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**FIDEUS** **Safety**

- Fully Electronic Parking Brake, with hill start assistance
- panoramic rearview mirrors giving an extended vision around and in front of the vehicle.
- a reversing radar to facilitate vehicle manoeuvres: the driver is warned of obstacles by different coloured LEDs incorporated into the side rearview mirrors,
- a surveillance camera covering the vehicle's rear section,
- a laser detection system for the rear door which controls its reopening to avoid any risk of injuries,
- Improved vehicle signalling, stationary and travelling

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### Operation efficiency

- Hand-free vehicle access
- Continuous link with depot
- RFID recognition for parcel tracking





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### Validation and deployment



- Validation with city authorities (Lyon, Hannover, Barcelona)
- Validation performed by independent partners (Un. of Westminster and Fraunhofer Institute)
- Deployment by EC through recommendation of harmonised policy by city authorities



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### Scenario 1: ,City-Hub'

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### Scenario 2: ,Urban Life'



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**Scenario 3:**

**„2nd Lane Stop“**





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**FIDEUS**  **Dissemination** 



- TRA 2006- Gotheborg:
- IAA 2006 - Hannover:
- Post-Expo - Amsterdam
- Well-Tech 2007 - Milano
- TRA 2008 – Ljubljana
- Truck&Bus 2007– Lyon

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**FIDEUS**  *Thank you very much for your attention* 



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