

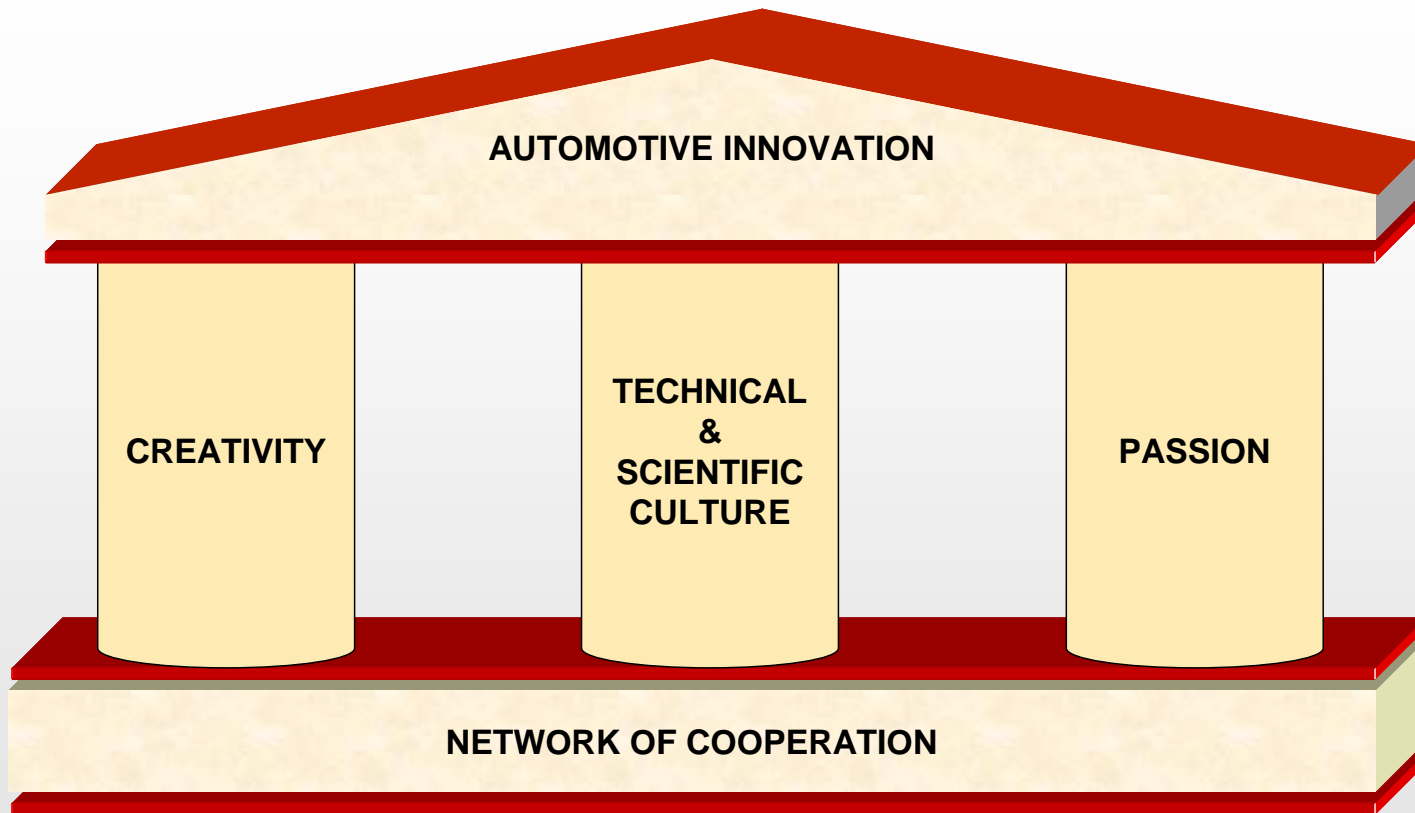


Research & Innovation in Mobility

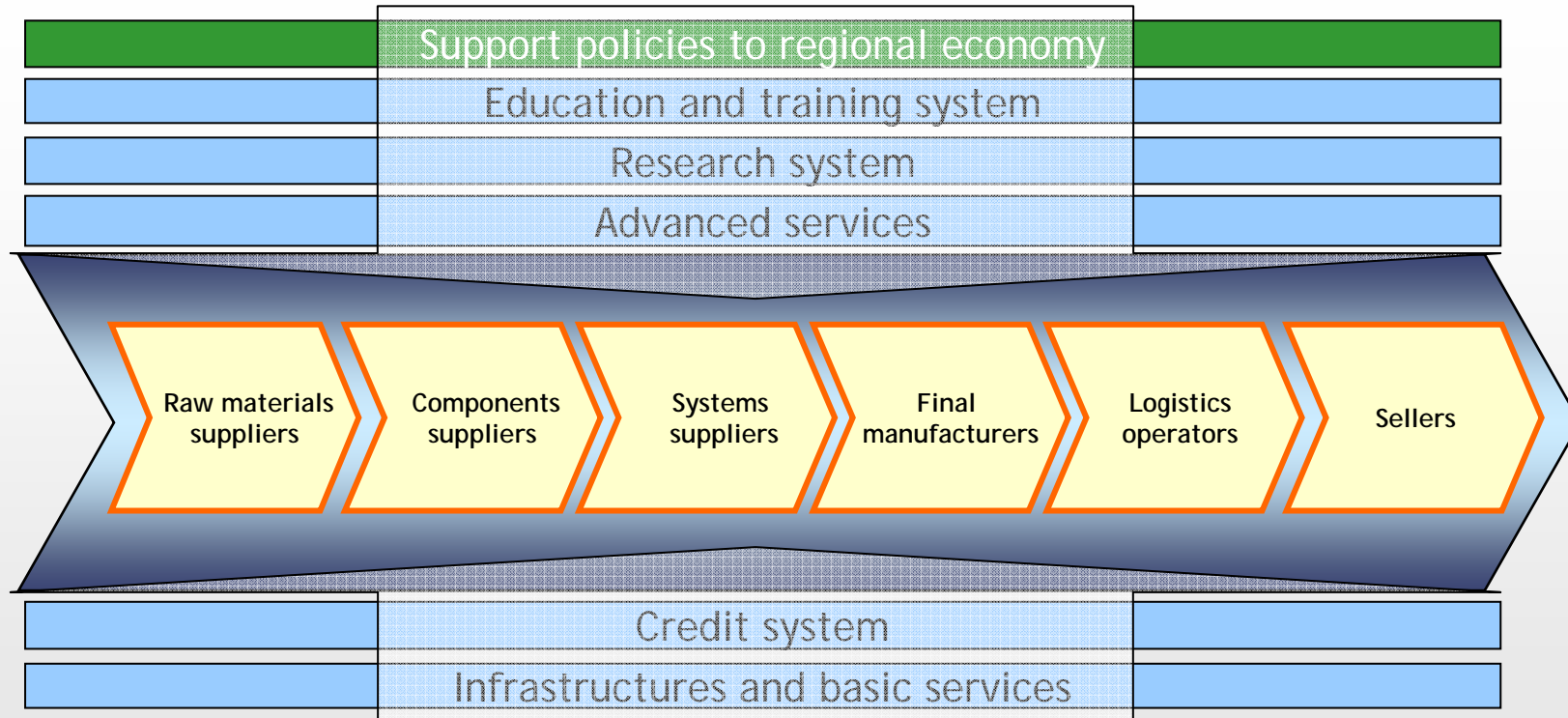
Nevio Di Giusto

CEO Centro Ricerche Fiat & Elasis

THE PILLARS OF AUTOMOTIVE INNOVATION IN ITALY



THE VALUE CHAIN AND THE TERRITORY





FIAT GROUP RESEARCH IN FIGURES

13.200 people in 116 centres

1.600 M€ spent in 2006 (3,2% of industrial revenues)

5.900 M€ foreseen in 2007 - 2009

CRF AND ELASIS: BRANCHES



CRF TRENTO

Technical and technological solutions for special and low volumes vehicles; info-telematics for urban mobility and logistics



Orbassano (TO)

Promotes, develops and transfers the innovative contents which give competitiveness and distinctiveness to the product



Pomigliano (NA)

Promotes the innovation and its application in projects, products and processes

ELASIS



Amaro (UD)

Optics, plastics, micro and nanotechnologies



CRF Foggia

Diesels and methane engines



CRF Valenzano (BA)

Injection systems for internal combustion engines

ELASIS Lecce

Agricultural and building machines



CRF CATANIA

Hybrid vehicles



CENTRO RICERCHE FIAT

Factory of ideas for the competitiveness



Mission:

Centro Ricerche Fiat aims to use innovation as strategic lever to the business of Fiat Group and to give value to the results of its activities by the promotion, the development and the transfer of innovative contents which give competitiveness and distinctiveness to the product.

Date of establishment: 1976

Employees: 870

Average age: 40

Patent portfolio: >2000

Industrial partners: >750

Headquarters: Orbassano (TO)

Branches: Trento,
Valenzano (BA),
Catania,
Foggia





Mission:

ELASIS is a distinctive element of FIAT Group: it represents the partner for the development and the innovation of the product using original methodologies and technical solutions based on its K-H giving value to people and the relations with the research and local institutions.

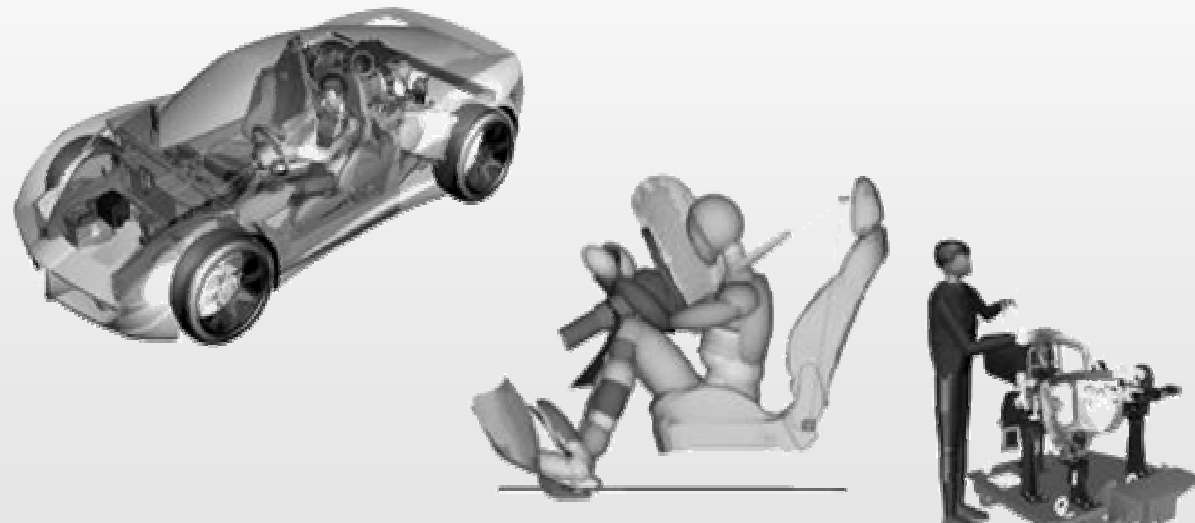
Date of establishment: 1988

Employees: 741

Average age: 37

Headquarters:
Pomigliano d'Arco (NA)

Branch: Lecce





Greening of surface transport

Developing technologies and knowledge for reduced pollution (air, water and soil) and environmental impact such as climate change, health, biodiversity and noise.

Research will improve the cleanliness and energy-efficiency of power-trains and promote the use of alternative fuels, including hydrogen and fuel cells.

Encouraging modal shift and decongesting transport corridors

This includes activities addressing the interoperability and operational optimisation of local, regional, national and European transport networks, systems and services and their intermodal integration in a global context.

Ensuring sustainable urban mobility

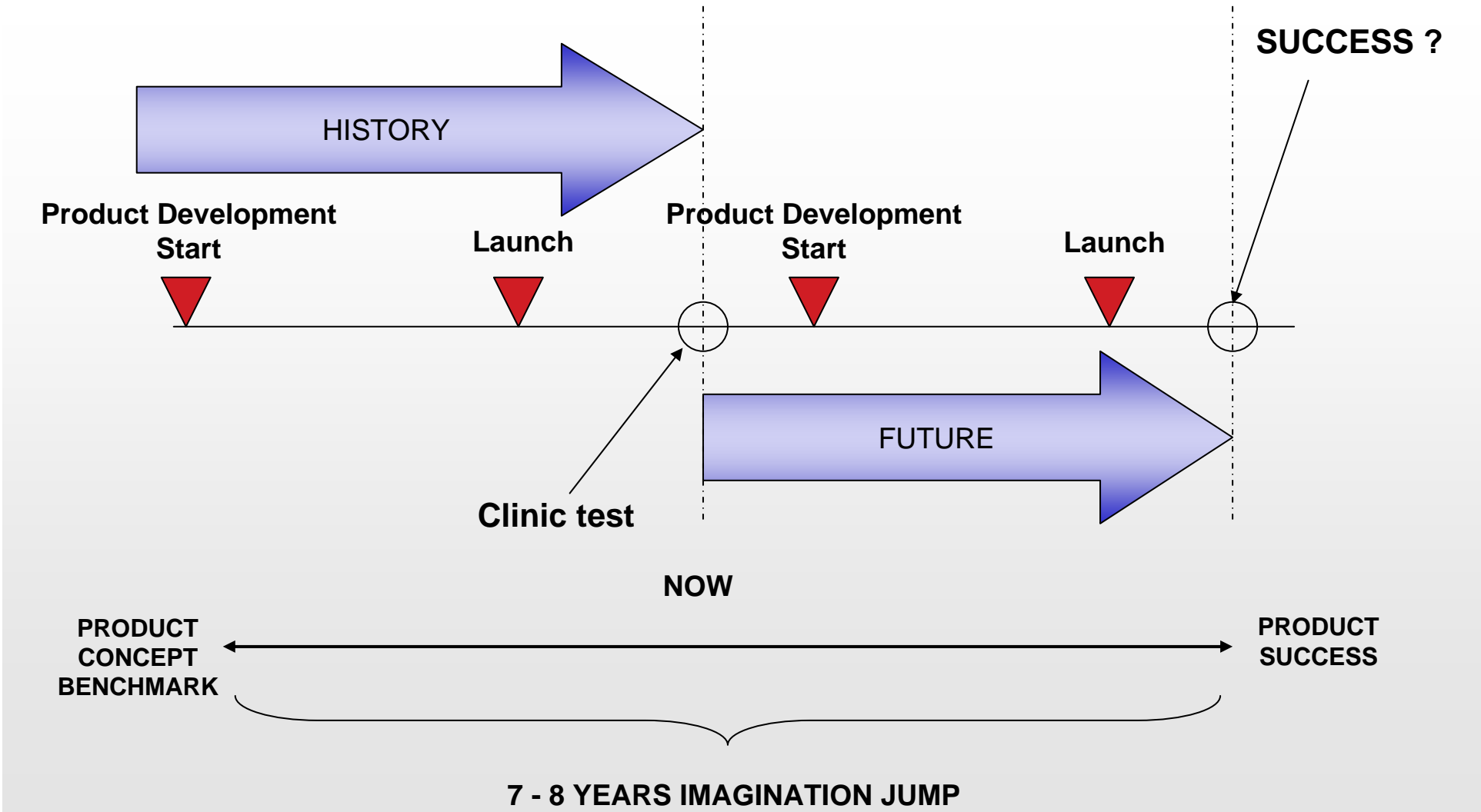
Focusing on the mobility of people and goods by research on the 'next generation vehicle' and its market take-up, bringing together all elements of a clean, energy-efficient, safe and intelligent road transport system.

Improving safety and security

Developing technologies and intelligent systems to protect vulnerable persons such as drivers, riders, passengers and pedestrians. Advanced engineering systems and risk analysis methodologies will be developed for the design of vehicles and infrastructures.

To promote safe, efficient and environmentally friendly mobility

THE CUSTOMER

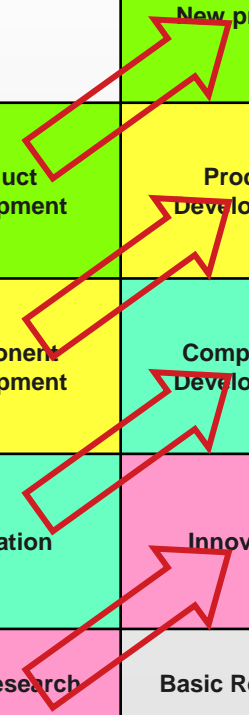


THE INNOVATION TIME-SCALE

		NOW			
CUSTOMERS		New product			
FIAT SECTORS		Product Development			
SUPPLIERS		Component Development			
CRF/ELASIS		Innovation			
UNIVERSITIES		Basic Research			

THE INNOVATION TIME-SCALE

	NOW-TTM	NOW			
CUSTOMERS		New product			
FIAT SECTORS	Product Development	Product Development			
SUPPLIERS	Component Development	Component Development			
CRF/ELASIS	Innovation	Innovation			
UNIVERSITIES	Basic Research	Basic Research			



THE INNOVATION TIME-SCALE

	NOW-TTM	NOW	NOW+TTM		
CUSTOMERS		New product	New product		
FIAT SECTORS	Product Development	Product Development	Product Development		
SUPPLIERS	Component Development	Component Development	Component Development		
CRF/ELASIS	Innovation	Innovation			
UNIVERSITIES	Basic Research	Basic Research			

THE INNOVATION TIME-SCALE



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	NOW-TTM	NOW	NOW+TTM	NOW+2TTM	
CUSTOMERS		New product	New product	New product	
FIAT SECTORS	Product Development	Product Development	Product Development	Product Development	
SUPPLIERS	Component Development	Component Development	Component Development		
CRF/ELASIS	Innovation	Innovation			
UNIVERSITIES	Basic Research	Basic Research			

THE INNOVATION TIME-SCALE



CENTRO
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	NOW-TTM	NOW	NOW+TTM	NOW+2TTM	NOW+3TTM
CUSTOMERS		New product	New product	New product	New product
FIAT SECTORS	Product Development	Product Development	Product Development	Product Development	
SUPPLIERS	Component Development	Component Development	Component Development		
CRF/ELASIS	Innovation	Innovation			
UNIVERSITIES	Basic Research	Basic Research			

THE INNOVATION TIME-SCALE



CENTRO RICERCHE FIAT



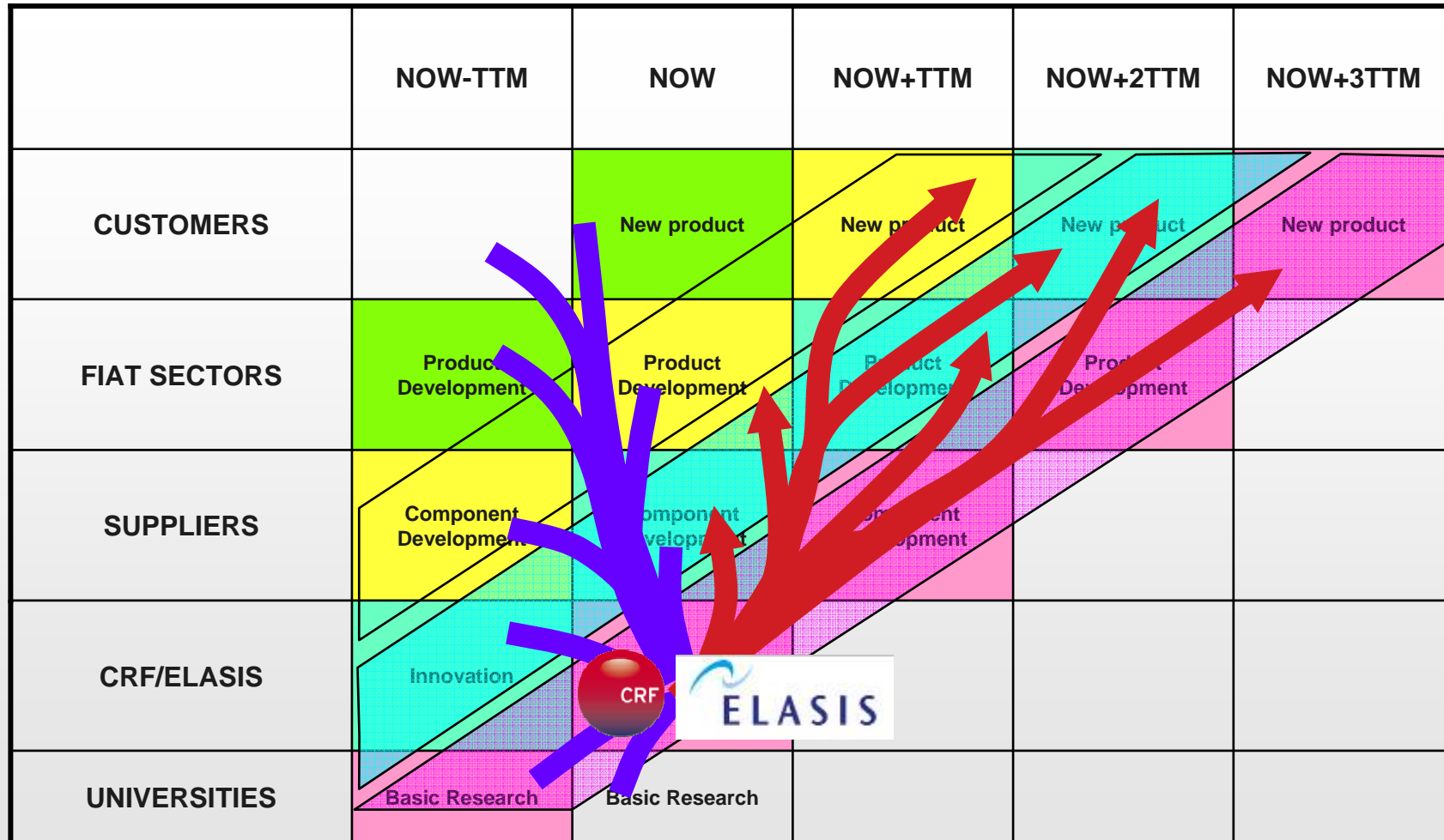
	NOW-TTM	NOW	NOW+TTM	NOW+2TTM	NOW+3TTM
CUSTOMERS		New product	New product	New product	New product
FIAT SECTORS	Product Development	Product Development	Product Development	Product Development	
SUPPLIERS	Component Development	Component Development	Component Development		
CRF/ELASIS	Innovation	Innovation			
UNIVERSITIES	Basic Research	Basic Research			

THE BEATING HEART OF INNOVATION

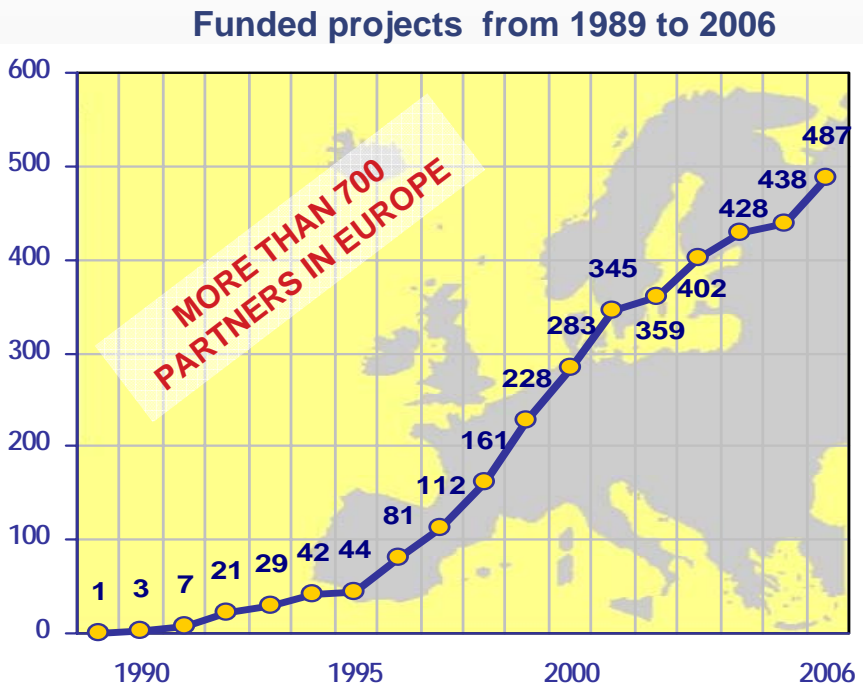
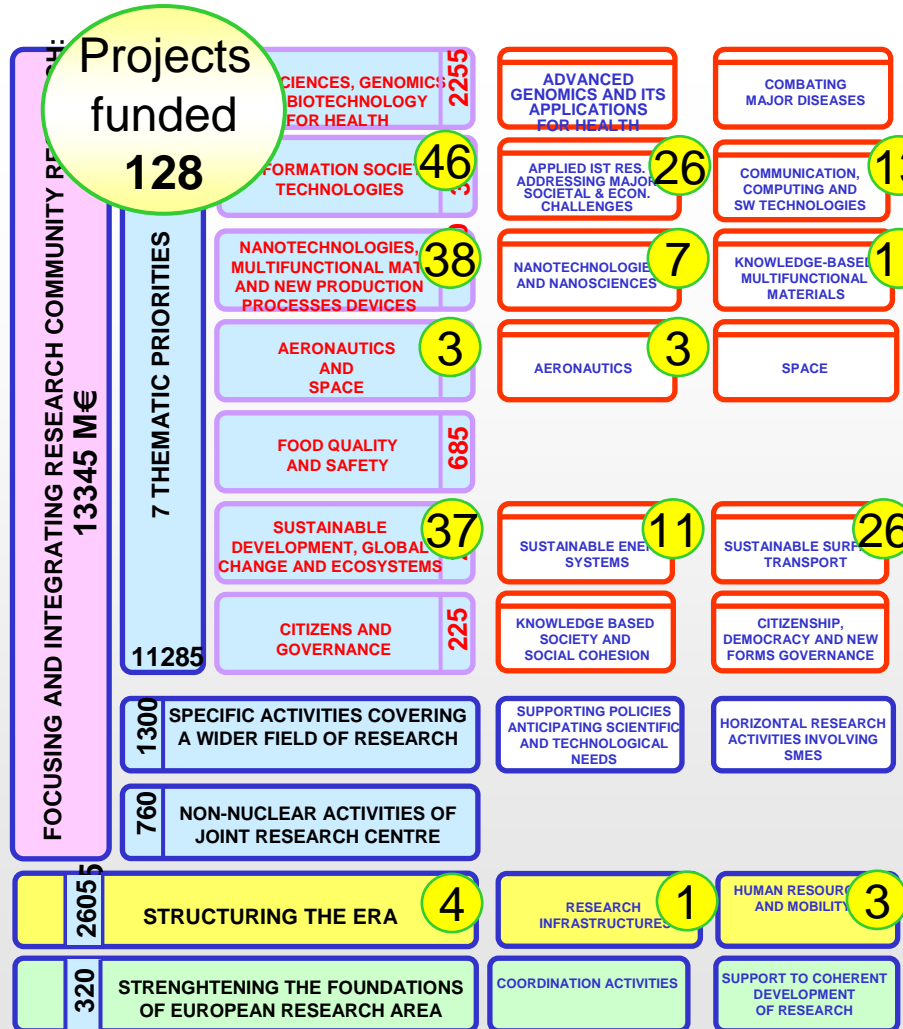
Multi - Timeframe Information Integration & Solution Providing



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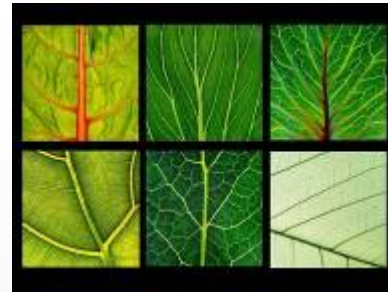
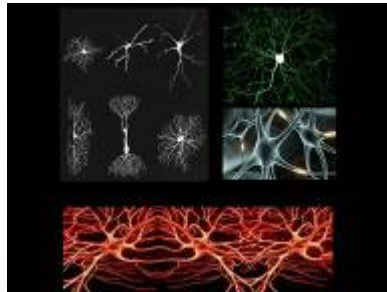


CRF PROJECTS FUNDED IN FP VI (Gen. 2003 ÷ Dec. 2006)

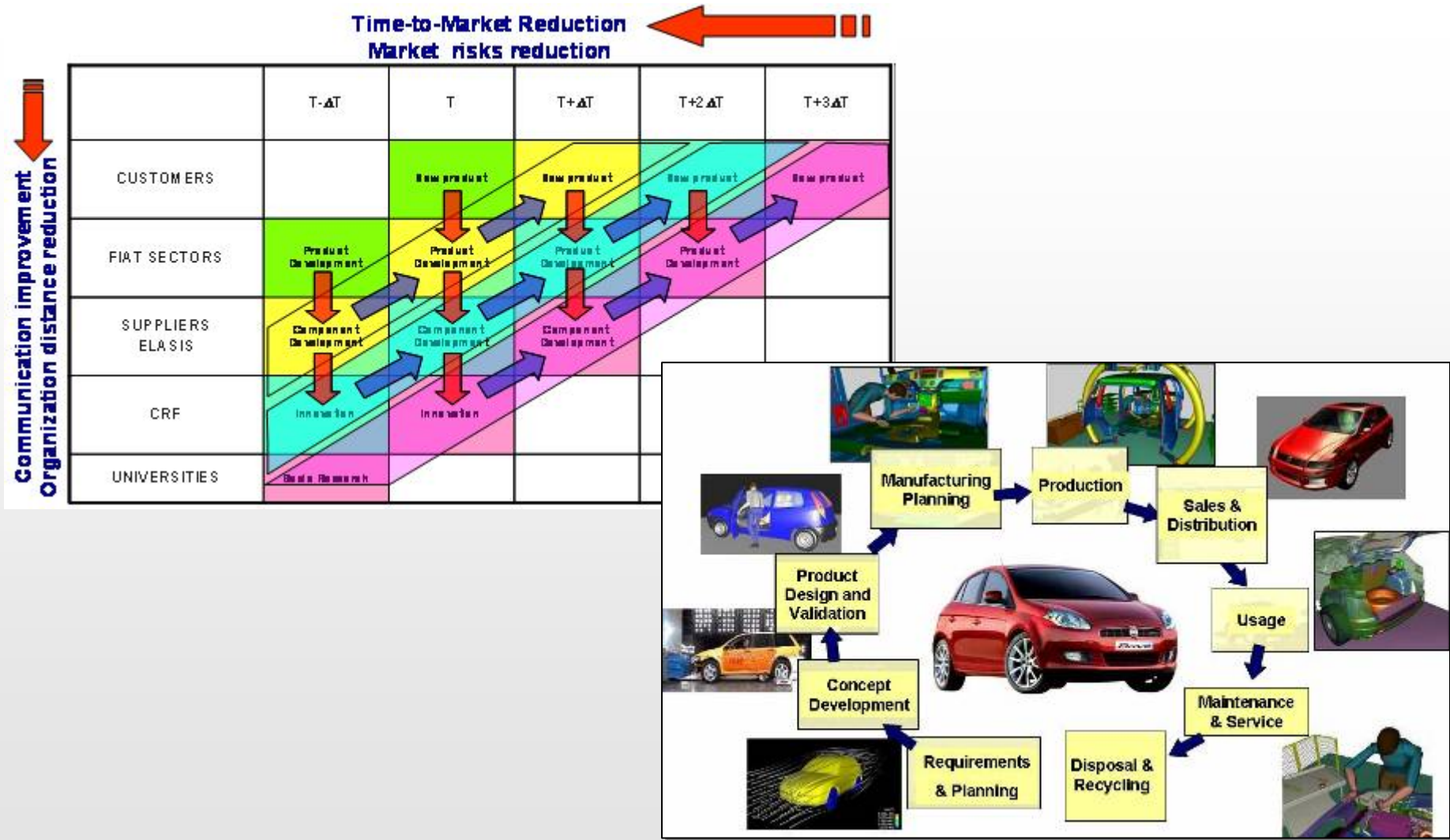


SOME METAPHORS OF NETWORK

NETWORKS
TO WIN
CHALLENGES



PRODUCT DEVELOPMENT INNOVATIVE METHODOLOGIES



- Modular vehicle's structures
- Hybrid and Hydrogen vehicle architectures
- Integrated chassis control
- Electro/electronic architectures for the distribution of signal and power
- Electromagnetic compatibility
- Ergonomy
- Methodologies and instruments to define and reach the product development objectives

To ensure the product competitiveness

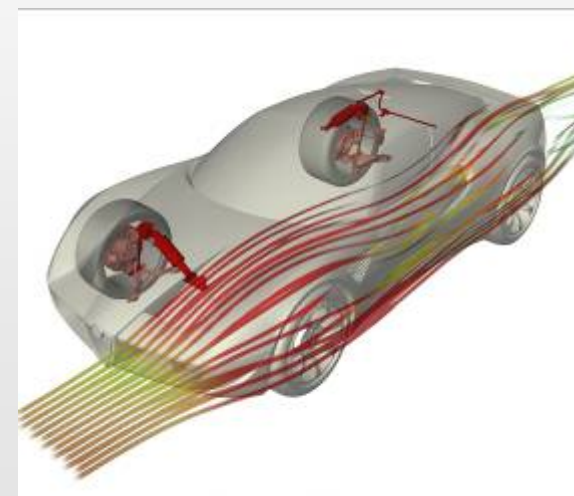
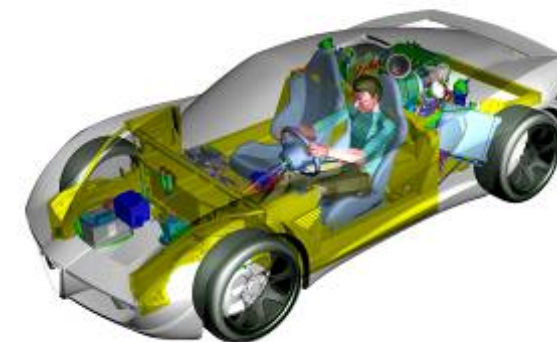
SPORTIVA LATINA: SPLIT-FRAME

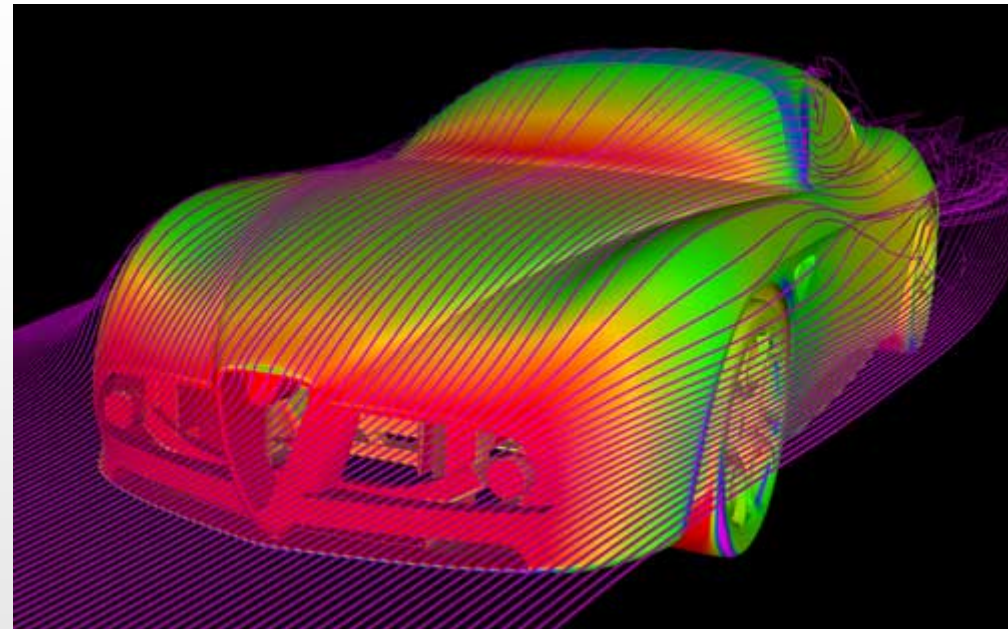
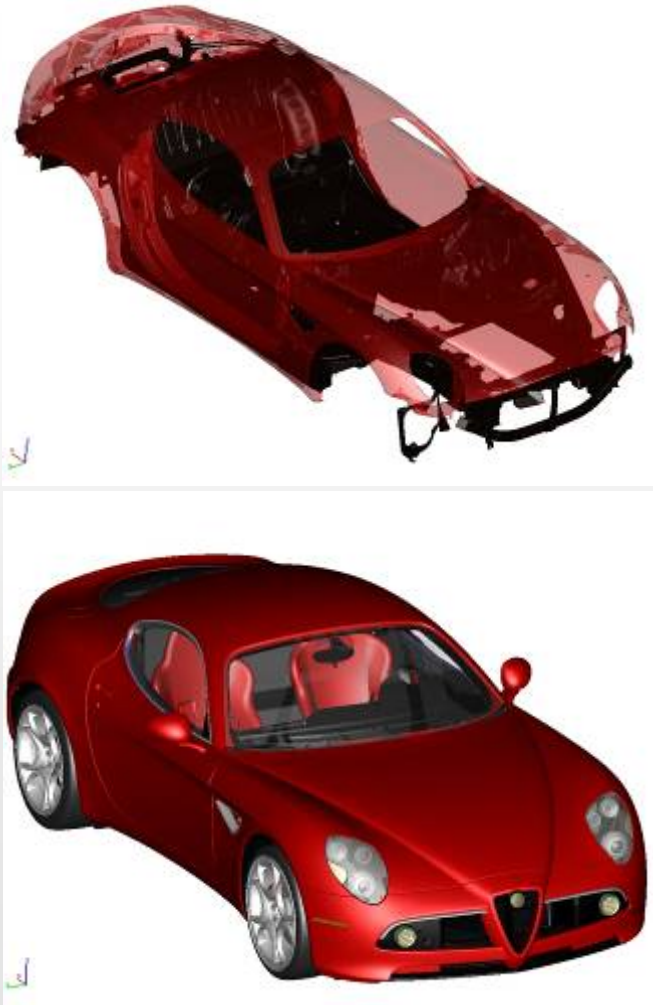


Alfa *Divina*



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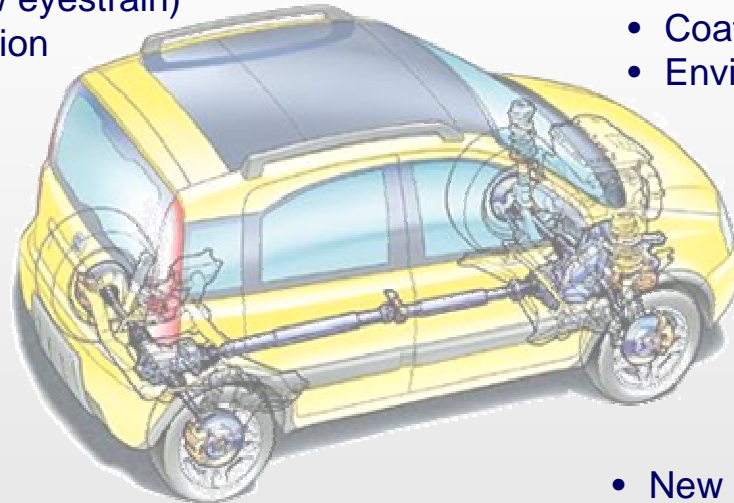


- Materials and technologies for interiors and for low weight vehicles
- Materials and systems for the engine emissions abatement
- End of life vehicle methodologies and treatment
- Flexible and low cost production technologies and high efficiency machining
- Cost engineering and factory logistics
- Process diagnosis and on-line monitoring systems
- Eco-efficient production processes and factory
- Integrated systems based on micro-optics, micromechanics and functional materials

**To contribute to the technological development of new products
taking into account the complete life cycle**

New light sources, dashboards and displays

- Higher efficiency and energy consumption reduction
- Higher safety and comfort during driving (vision enhancement, low eyestrain)
- Better access to information



Functional materials and coatings

- Advanced shape memory materials
- New composite materials with high mechanical and thermal performances
- Flame-retardant composites
- Corrosion resistant materials
- Coatings with high catalytic power
- Environmentally compatible materials

Sensors

- Pollutant monitoring
- Higher stability e sensitivity in environment monitoring
- Low cost processes and materials
- Engine control optimization
- Linear and angular sensors for non-contact measurements

Energy generation

- New distributed architectures
- Better efficiency devices
- Lower environment impact



- Diesel Common Rail Injection Technology (MultiJet)
- Innovative Diesel technologies for the NOx reduction
- Valve Electronic control Systems (UniAir)
- Injection and after treatment systems for CNG engines
- Dual Dry Clutch Transmission Technology
- Hybrid and alternative propulsion systems
- Electronic control innovative systems
- New methodologies for the engine design and analysis

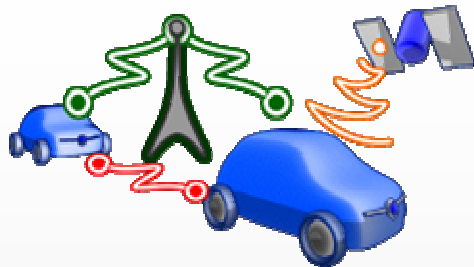
**To improve the engine performance and to reduce the emissions
and the fuel consumption of engines and vehicles**

- Telematics, mobility and intermodality systems
- Preventive safety systems and solutions
- Multimedia and HMI systems

To promote safety and to improve people's mobility

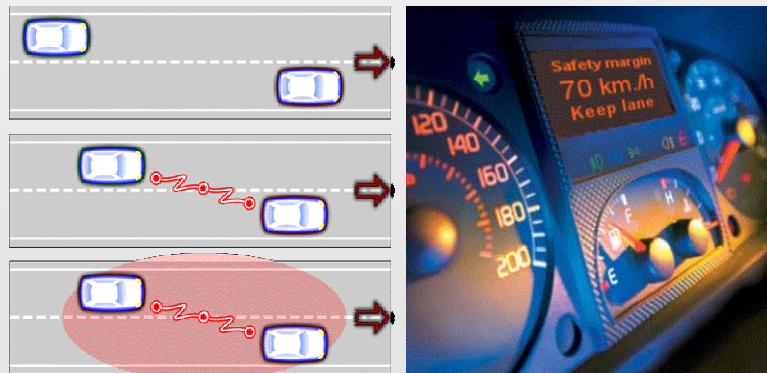
- High efficiency cogeneration systems

To reduce the environmental impact



COMMUNICATION LINKS:

VEHICLE TO INFRASTRUCTURE
INFRASTRUCTURE TO VEHICLE
VEHICLE TO VEHICLE



OBJECTIVES

- To use the infrastructure and the vehicles as sources (and destinations) of safety-related information and develop an open, flexible and modular architecture and communication platform.
- To develop the key enabling technologies: ad-hoc dynamic networking, accurate relative localisation, dynamic local traffic maps.
- To develop a new generation of infrastructure-based sensing techniques.
- To develop and test scenario-based applications to evaluate the impacts and the end-user acceptance.
- To define the practical implementation of such systems, especially in the initial period when not all vehicles will be equipped.
- To evaluate the liability aspects, regulations and standardisation issues which can affect the implementation.

What to do:

- ▶ Focus on the customer
- ▶ Believe in Innovation
- ▶ Appreciate people and their competencies
- ▶ Work on today product and tomorrow product
- ▶ Keep technologies and methodologies updated
- ▶ Innovate business processes and business models
- ▶ Exploit Intellectual Property value
- ▶ Work on the network
- ▶ Integrate with the territory
- ▶
- ▶ What else?



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THANK YOU