

Technology and Innovation in EADS: New challenges

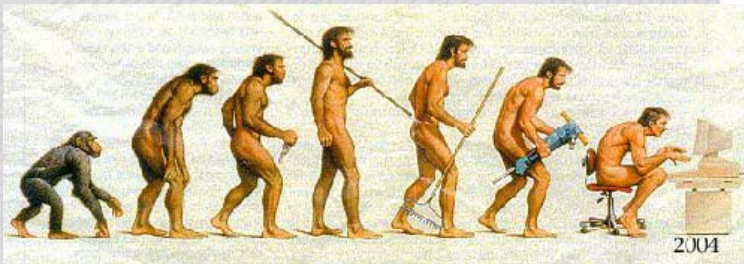
Jean-Louis Lacombe

Vice President Technology and Innovation EADS

Global Forum 2004, 4-5 Nov. 2004 , Malmö-Sweden 2004

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About Innovation

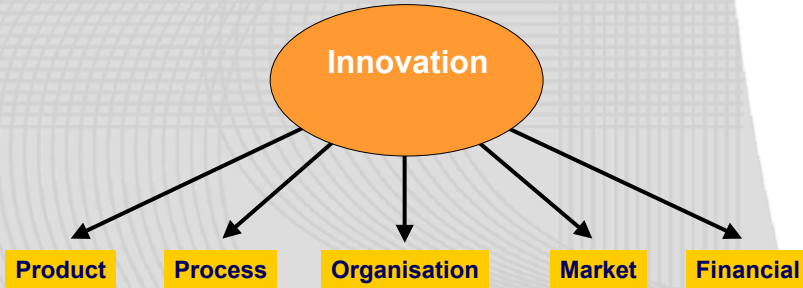


*"It is not the strongest of the species who survives,
not the most intelligent,
but the one **most responsive to change**"*

Charles Darwin

Innovation is a key process

Innovation is not just about technology



The Company

Date of foundation:

July 10, 2000

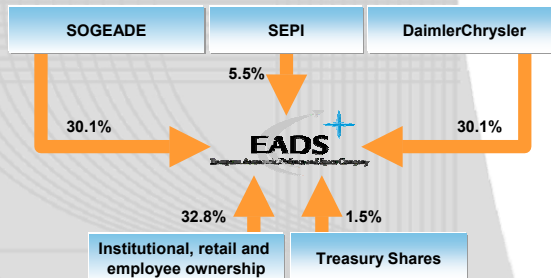
Foundation companies:

Aerospatiale Matra SA
CASA (Construcciones Aeronáuticas SA)
DaimlerChrysler Aerospace AG

EADS Capital Structure as of December 2003



Philippe Camus
Rainer Hertrich
Chief Executive Officers

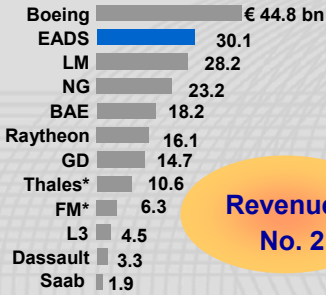


EADS today is the second-largest group in the global aerospace and defence industry, with a unique range of products and services

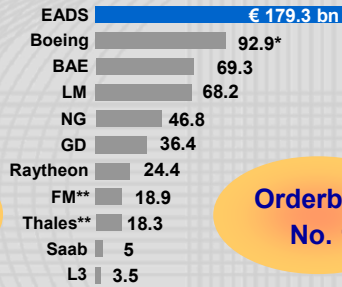
EADS: A Global Leader



2003 figures for Aerospace & Defence activities



**Revenues
No. 2**



**Orderbook
No. 1**

*Reported backlog of firm contractual orders
**Thales & FM backlogs are estimated

... with leadership in all segments

Commercial Aircraft (Airbus)	Helicopters (Eurocopter)	MTA	Military Aircraft	Satellites (Astrium)	Missiles (MBDA, LFK)	Commercial Launchers (Ariane)
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Growing Market Potential



For outsourced military services and increasing governmental demand for PPP/PFIs

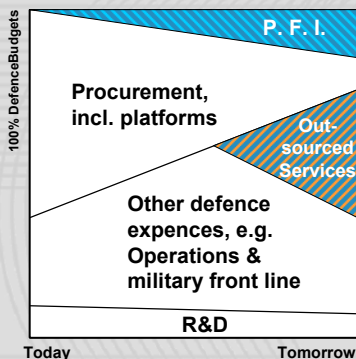
New Market Opportunities ...

Defence companies must adapt to **new service opportunities**

Traditional **Defence Business Model** must be aligned to the new form of customer demand

Higher competition, as market is open to other non-defence companies

... and growing demand for providing new financing options



Market Size for Outsourced Services and PFI



Military Services with Paradigm



Future Strategic Tanker Aircraft

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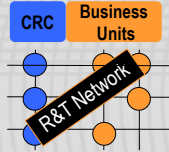
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EADS Group Research & Technology



Innovation in EADS through Research & Technology:

One core of the company's **sustainable growth of value** is the **innovation potential in our Business Units and the Corporate Research Center**



Supported by a **balanced system of decentralized and centralized R&T and R&D resources**, coordinated by the EADS R&T Network



Based on a **high degree of cooperation and integration** with public and private research organizations and institutions



Proven by numerous **first-time technology breakthroughs and international awards** given to EADS researchers

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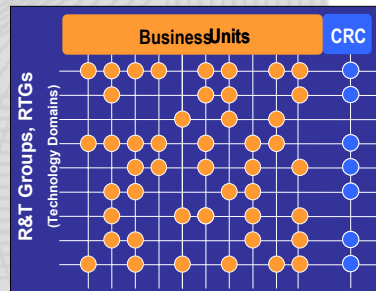
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Two Main Pillars and Innovation Drivers

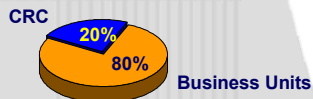


Corporate Research Centre
Main Sites: Suresnes & Otto-brunn
Sharing expertise, facilities, skills, experience, best practices



Research & Technology Network
Maximizing synergy between EADS entities through a shared Research & Technology Program

EADS R&T : 450 M€ (2003)



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Core Competencies

Materials & Processes and Advanced Manufacturing

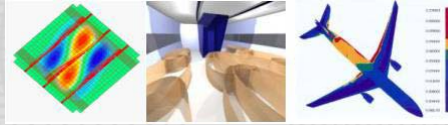


Composite Technology

Friction Stir Welding

Smart Structures

Structures Engineering and Acoustics



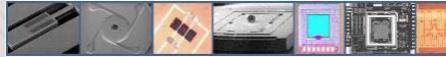
Adv. Structural Modeling

Advanced Concepts

EMC Simulation

Microsystems, Electronics and Image Processing

Systems Engineering and Systems Environment Science



Microsystems

Processes for Engineering and Information Management Techniques



Micro Aerial Vehicle Demonstrator

Virtual Product Engineering

Standardization, Patents, Intellectual Property Strategy and Knowledge Management

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EADS Top Technology Nominations

„Virtual Product Engineering“

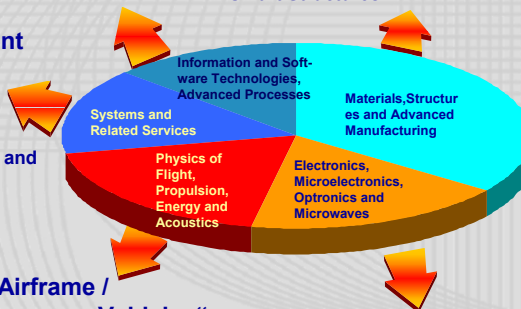
Simulation / Modelling
Configuration engineering
Concurrent engineering
PDM and KBE

„Advanced Materials, Structures Engineering and Manufacturing“

Advanced Manufacturing and Processes
CFRP / New alloys
Smart Structures

„Robust Intelligent Systems“

Integrated Modular Avionics
Guidance, Navigation and Control
Image processing
Onboard systems engineering



„Friendly Airframe / High Performance Vehicles“

Aerodynamics and acoustics
Stealth and signature control
Environment, Propulsion

„Integrated Smart Product“

Microwave technologies / Radar
Optics / Optronics
Microelectronics /-systems

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EADS Technology Innovation

Group Strategic Priorities



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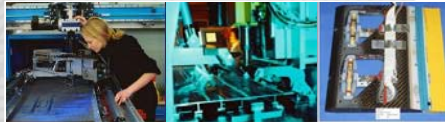
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Corporate Research Centre

Core Competencies

**Materials & Processes
and Advanced Manufacturing**



**Structures Engineering
and Acoustics**



**Microsystems, Electronics
and Image Processing**

**Systems Engineering
and Environmental Control
of Systems**



**Information Technologies
for Engineering,
Knowledge Management**



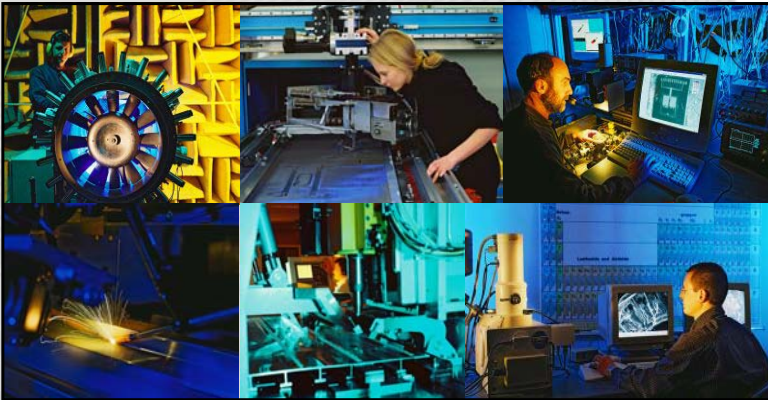
**Standardization, Patents,
Intellectual Property Strategy**

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EADS Technology Innovation



Research & Development (R&D) € 5 Billion 16% of Revenues

Research & Technology (R&T) € 450 Million 10,200 Patents

More than 120 Shared Integrated R&T Programs

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Innovation in Technology: Airbus Examples

1974

A300



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Innovation in Technology: Airbus Examples

1988 A320



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Innovation in Technology: Airbus Examples

2006 A380



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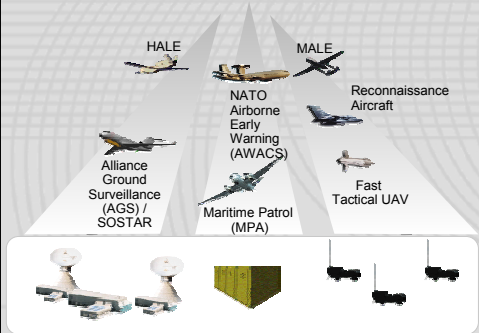
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Increasing Demand for Integrated Systems and Solutions in the Military Market



Netcentric Warfare

Navigation/Communication Systems



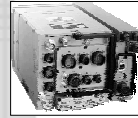
Information

Available to the right people



Speed

Real-time connectivity to ensure flexible planning & navigation technologies



Precision

Affordable through new sensor & navigation technologies



Defence markets are changing their focus from platforms to integrated netcentric warfare capabilities - requiring innovative features

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Innovation in Europe



- ❑ Innovation : cornerstone of the EU 'Lisbon Strategy »
- ❑ Objective : R&D effort up to 3% of EU's GDP by 2010
- ❑ Increased budget for EC Framework Programme (FP7)
- ❑ A coherent framework to foster competitiveness and contribute to Europe's economy growth
- ❑ Action plan for innovation between EU Commission and Members States

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European Initiatives : Political/Organisational Set-up Serving Innovation



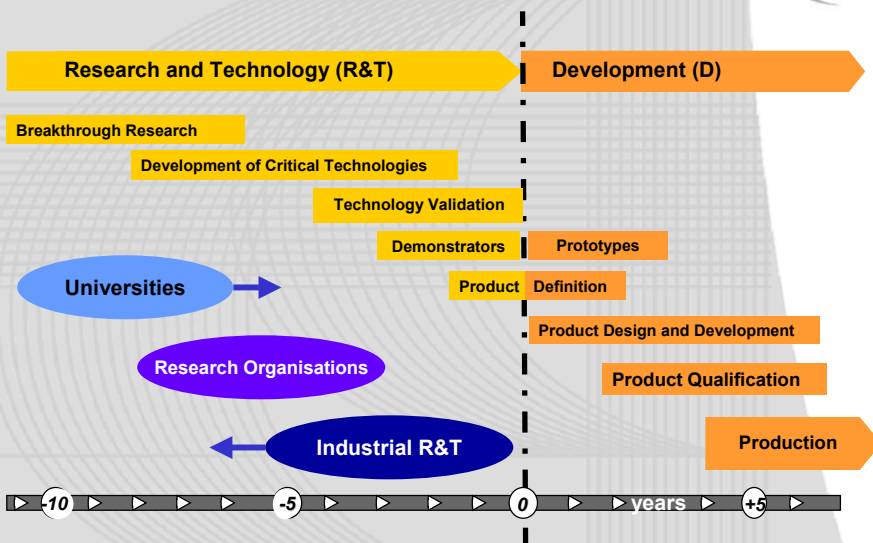
* ACARE : Advisory Council for Aeronautical Research in Europe - SRA : Strategic Research Agenda

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Research – Innovation - Market



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Innovation & Partnership Policy



EADS Corporate Research Centre

« A Global Research Partner »



Partnering with leading-edge universities, public/private laboratories enables superior return on innovation investment

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EADS Research & Technology



Innovation Policy

Innovation Promotion and Monitoring of Technology Intelligence

Benchmarking of Key Technologies and Innovation Trends

Coordination of Intellectual Property/More than 10.000 Patents



People are Key for Innovation

Competencies, Skills

Technical Experts

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Conclusion



Innovation is key

Involvement of governments is essential

Cooperation with scientific community is vital