



Tokyo IUMI Conference

Airbus A380 – How efficient insurance risk management can respond to this challenge

- Ingo-R. Zimmermann -

Movie 2 Minutes

EADS

The step beyond

A380
A340
A350
A318
A310
A300-600F

A400M
C-295
CN-235
C-212

Tiger
NH 90
EC725
EC135
EC145
EC225

Ariane 5
ATV
Helios II
Skynet 5
INMARSAT
Galileo

Eurofighter Typhoon
Mako
Meteor
EuroHawk
C7I Systems
Captor



Airbus



Military Transport
Aircraft



Eurocopter



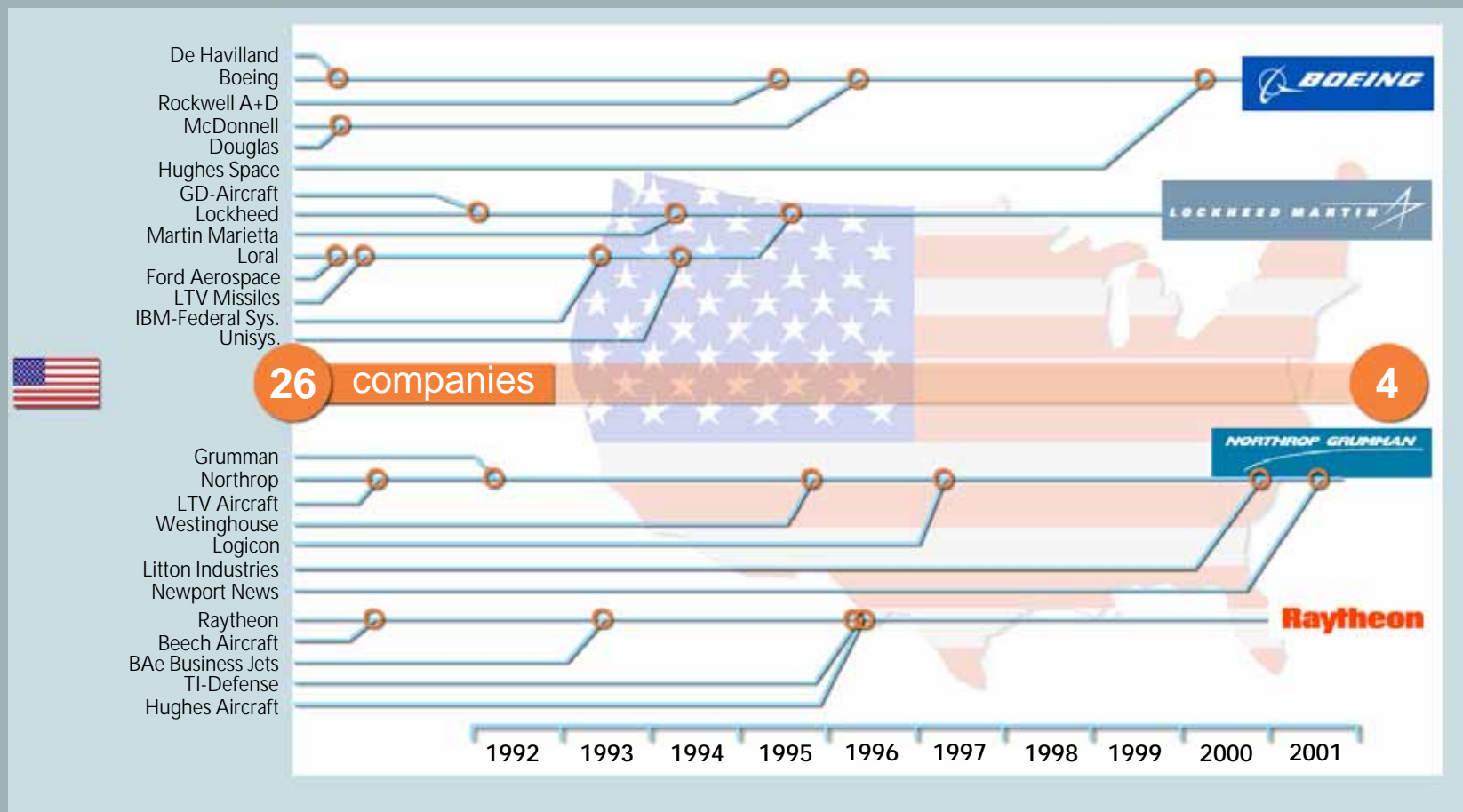
Space



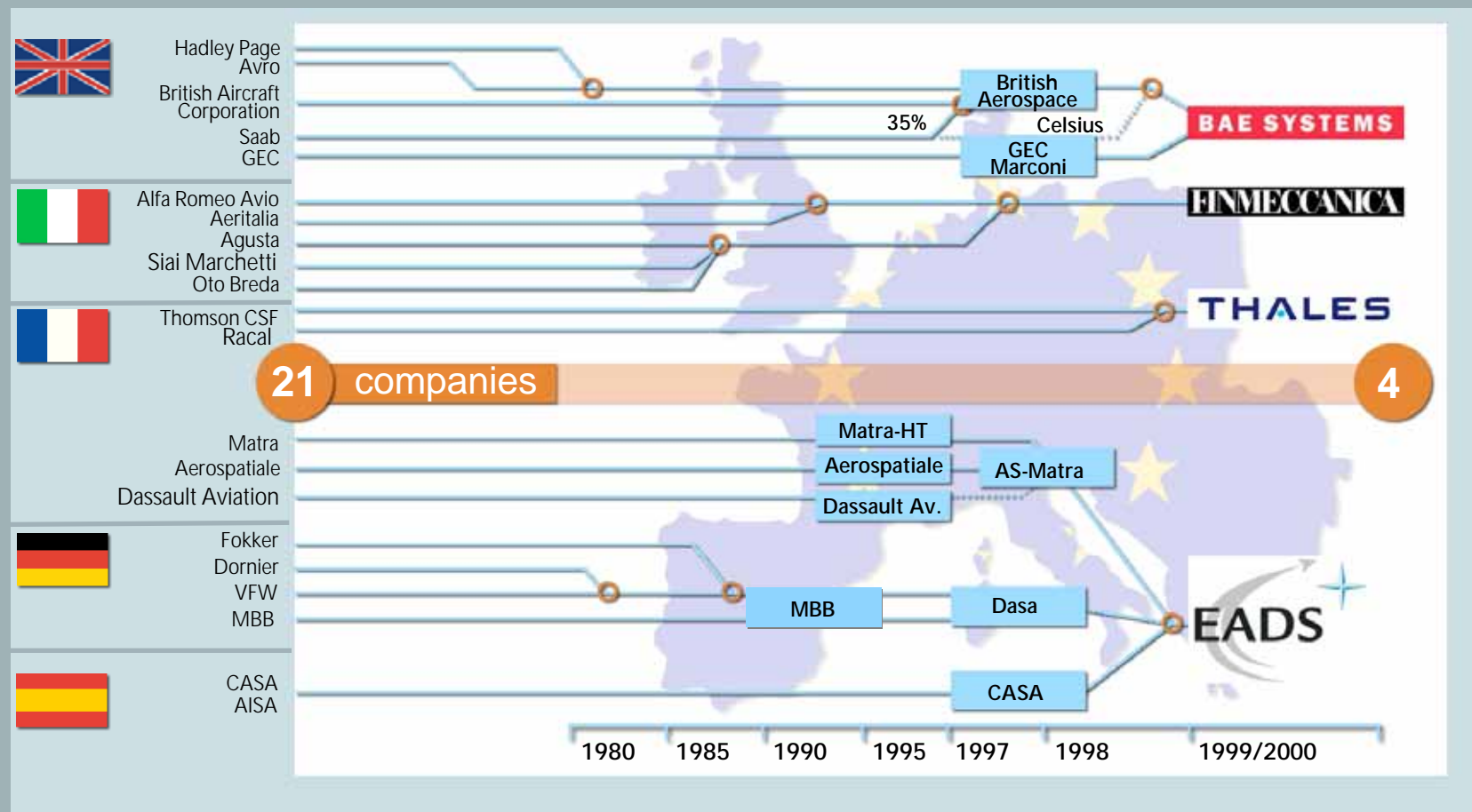
Defence & Security
Systems

European Aeronautic Defence and Space Company

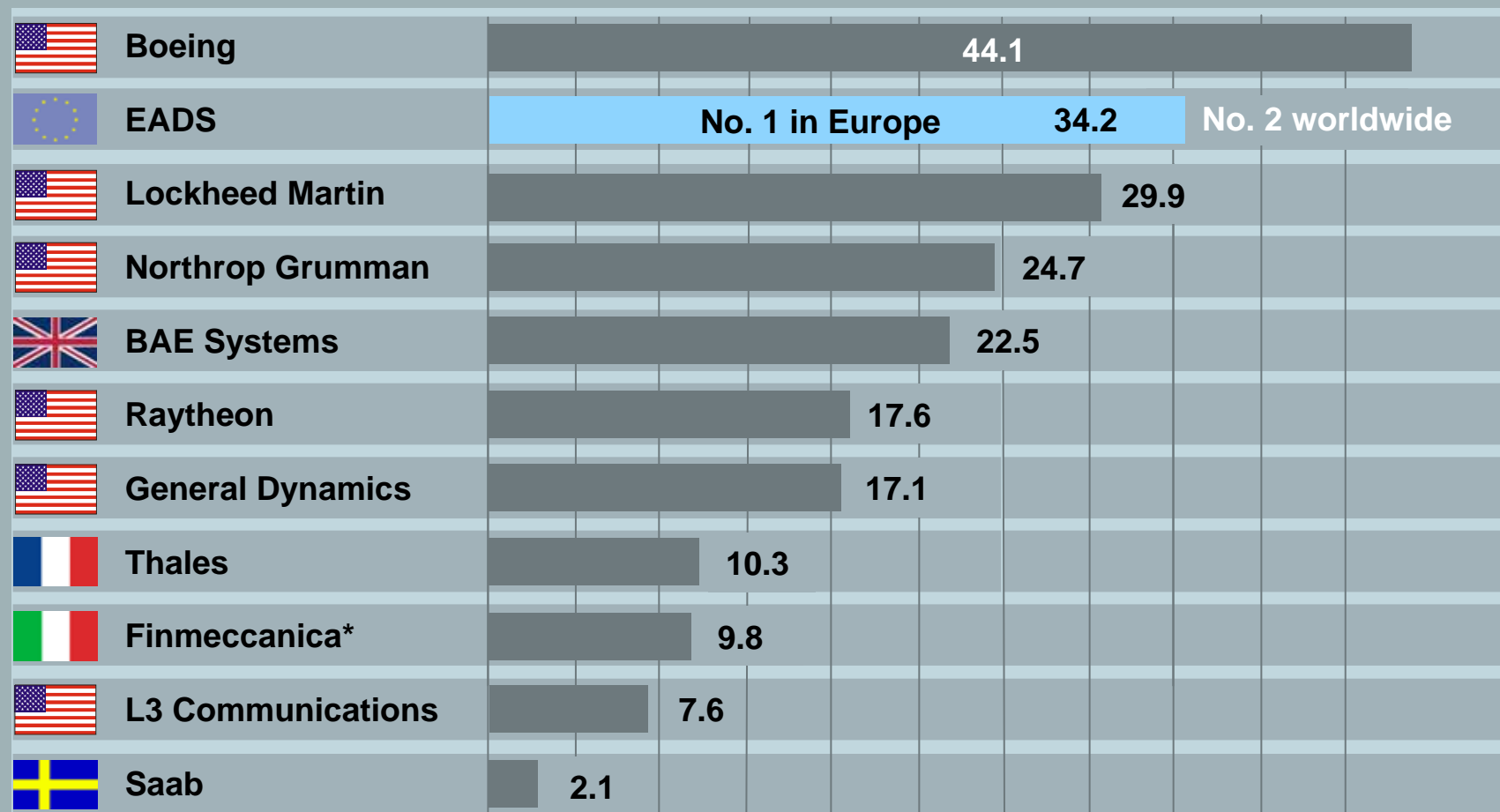
Consolidation of Aerospace Industry in the USA



Consolidation of Aerospace Industry in Europe



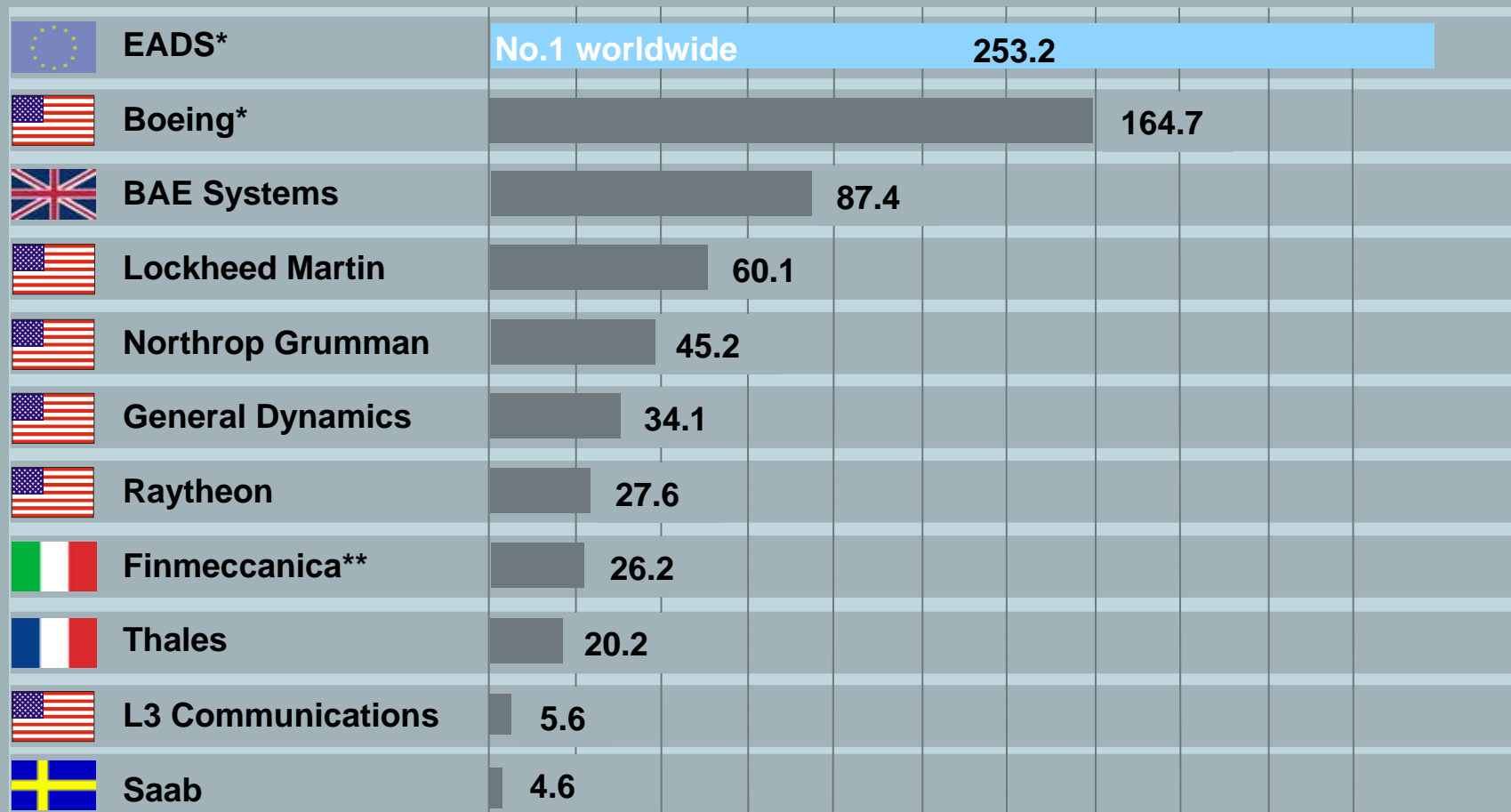
Competitive Position Revenues 2005 in bn €



* A&D activities only. Eliminations not considered

Based on 2005 average exchange rates: €/ \$ = 1.245; €/ £ = 0.684; €/SEK=9.269

Competitive Position Orderbook 2005 in bn €



* Commercial aviation based on catalogue prices for EADS, contractual prices for Boeing
For US players, the backlog presented above is the total backlog (Funded backlog for L3)

** Aerospace and defence activities only / AgustaWestland 100% consolidated. Eliminations not considered

Based on 2005 average exchange rates:
€/ \$ = 1.245; €/ £ = 0.684; €/ SEK = 9.269



EADS Insurance Risk Management

General

- ➔ Risk Management is part of Shareholders Communication. It has to be compliant with respective legal requirements in place.
- ➔ Risk is a basic part of corporate life that, while not avoidable, is nonetheless manageable.
- ➔ Insurance techniques are key financial tools to protect the assets and liabilities of EADS.



EADS Insurance Risk Management Organisation

- ➔ In order to know how to deal with insurance techniques it is essential that in-house competence is available.
- ➔ Therefore, a lean organization with clear responsibilities and clear control of the insurance purchased by the group is implemented on HQ-level since 2000/2001 when EADS was founded



EADS Insurance Risk Management

Tasks and responsibilities

- ➔ EADS Insurance Risk Management (“IRM”), centralized at EADS headquarters, is responsible for all corporate insurance activities and related protection for the Group.
- ➔ It includes identification, evaluation, prevention and protection of insurable risks.
- ➔ Insurance techniques are used to protect the assets and liabilities of EADS against financial consequences due to unexpected events.
- ➔ Harmonized insurance policies and standards are in place for all insurance risks underwritten by the Group.

EADS Insurance Risk Management

Tasks and responsibilities (cont.)

- ➔ EADS pursues an insurance risk management strategy that includes operating procedures as well as policies regarding procurement and sales agreements.
- ➔ A systematic review and monitoring procedure of protection systems applicable to all EADS sites is in place, fostering comprehensive and timely identification of risks and related adjustments of insurance coverage.
- ➔ EADS follows a policy of obtaining external insurance coverage for all main and individual risks that can be insured at reasonable rates, on sufficient terms and limits provided by the international insurance markets.



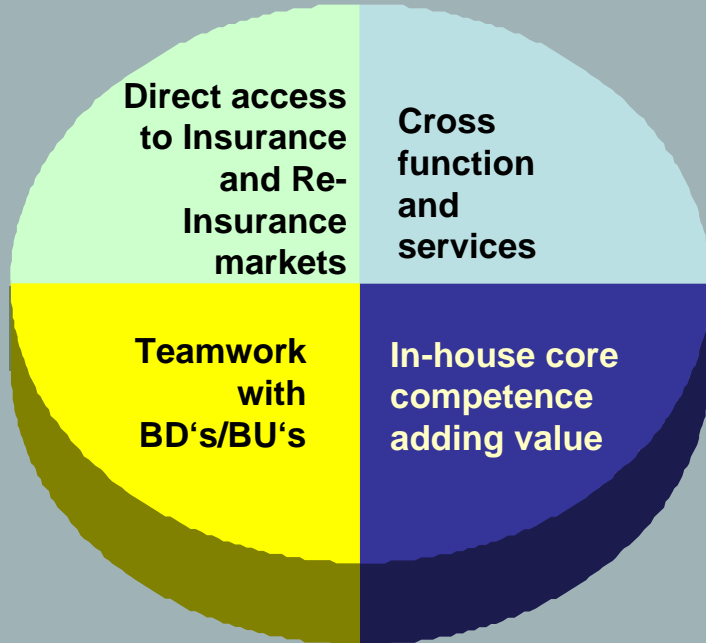
EADS Insurance Risk Management

Tasks and responsibilities (cont.)

- ➔ However, to be more independent from volatilities of the insurance markets, EADS uses the capabilities of a corporate-owned reinsurance captive.
- ➔ The captive is sufficiently capitalized and protected so as to ensure its ability to reimburse claims without limiting the scope of coverage of the original insurance policies and not additionally exposing financial assets of EADS.

The EADS Insurance Risk Management (IRM) approach

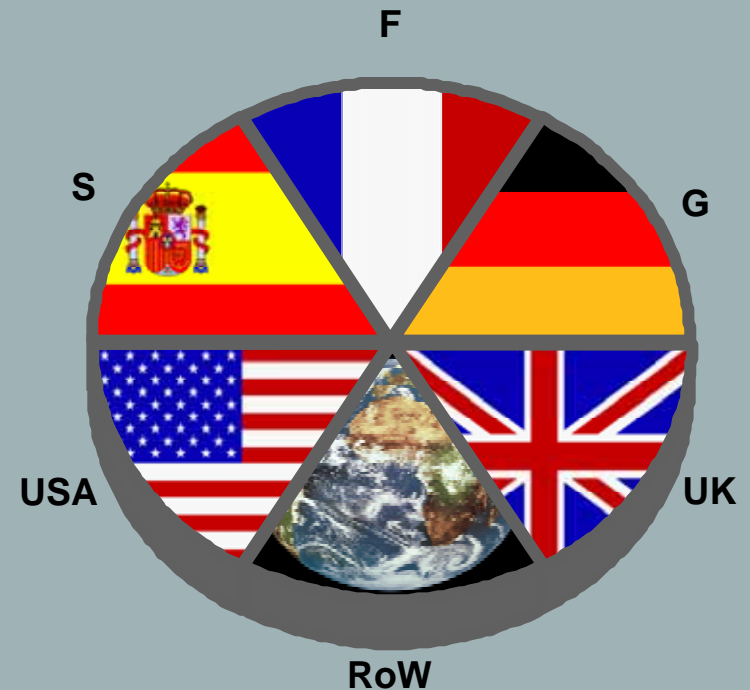
Headquarter IRM department reporting to CFO.
Dedicated responsibility within
Corporate Risk Management and Internal
Control (RiMaIC) process



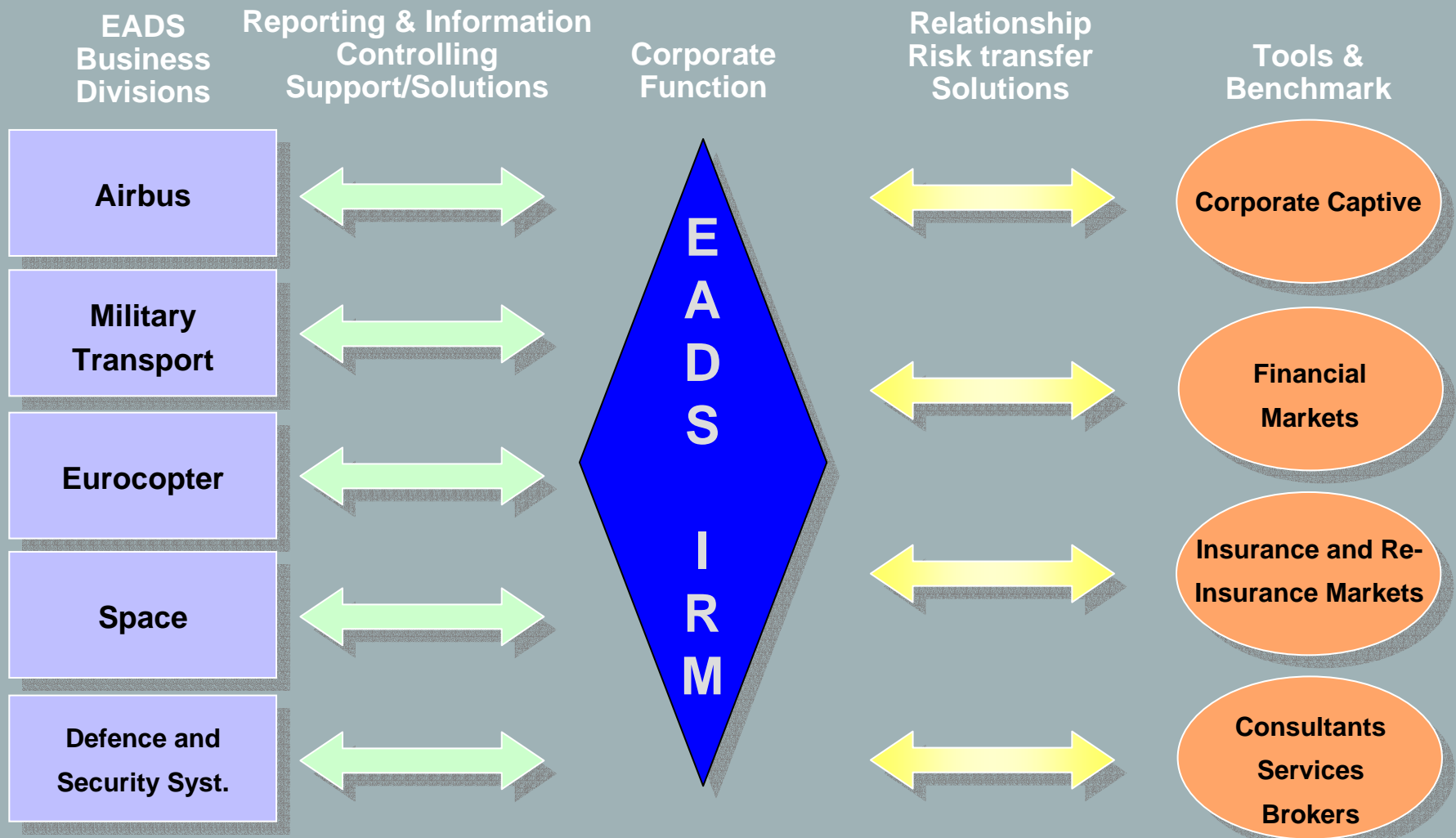
To the benefit of



EADS-Business
Divisions and
Business Units



Workflow and Tools EADS-IRM



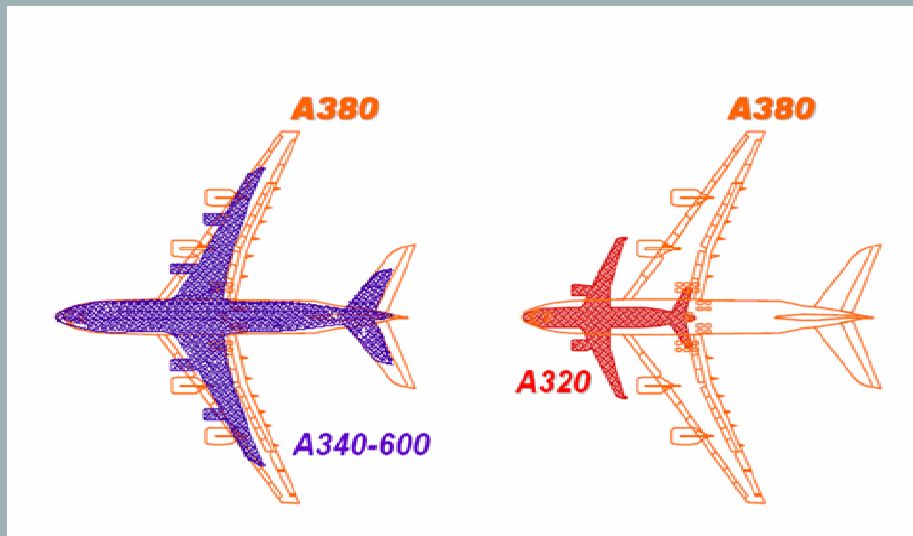
Milestones of the A380 project



A380

Challenges for insurance risk management

New dimensions ...	New production facilities ...	New transport concept ...
Length: 73 m Wing span: 79,8 m Pax: 555	FAL – Toulouse Customisation, Forward – Hamburg + Aft. Fuselage Wing – Broughton	Sea: Germany, UK, Spain River: UK, France Road: France Air: Europe



The IRM-process – Key elements

- ➔ Detailed and systematic risk assessment is mandatory for new exposures to achieve transparency of potential claims scenarios.
- ➔ Accurate timing is key for success
- ➔ Tasks of the IRM-process as an integrated element of the entire project – in all phases!

Project phase

Pre-industrial launch



Industrial launch



Start production



IRM tasks

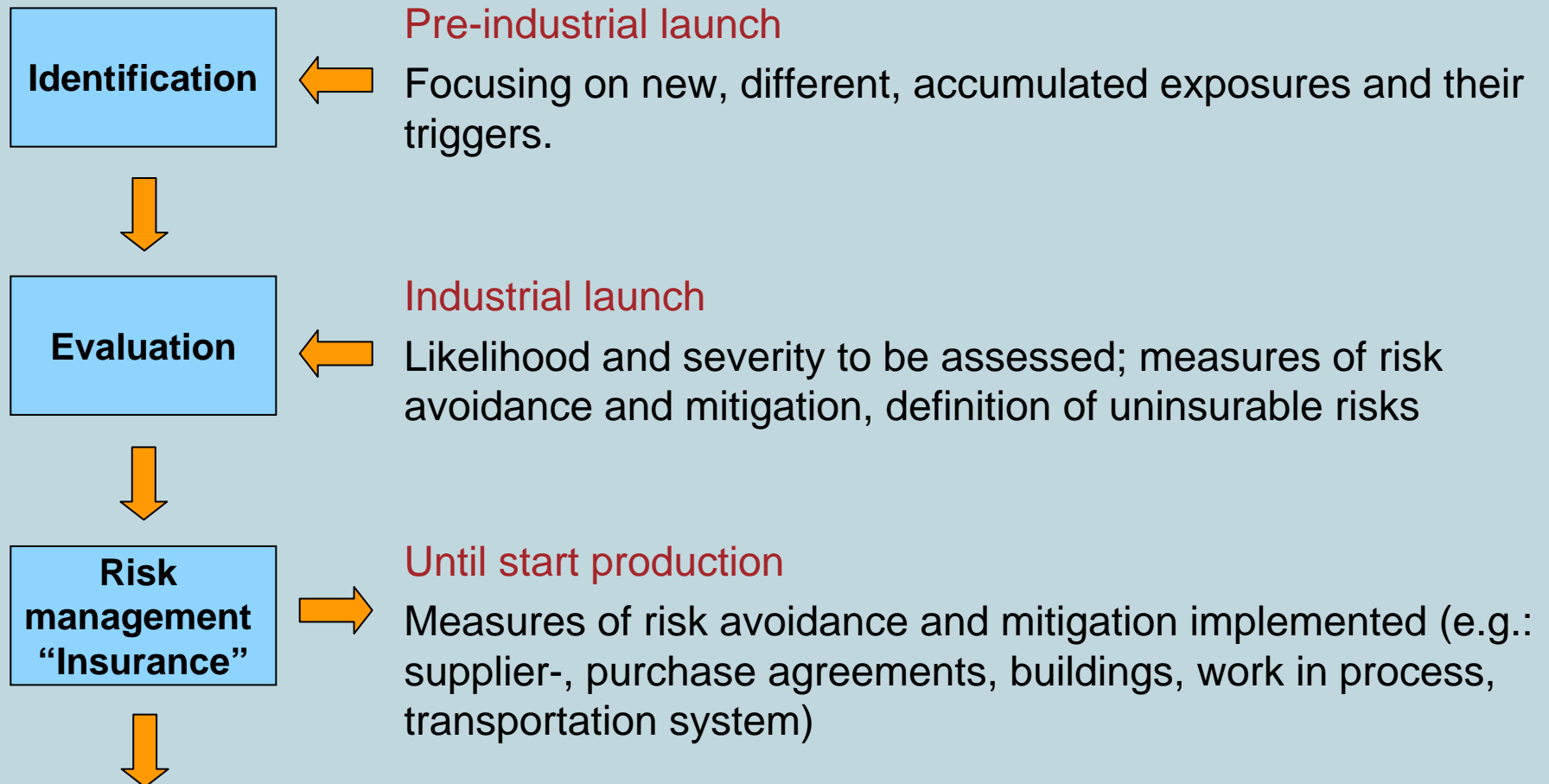
Core study

Detailed definition and final evaluation of IRM solutions

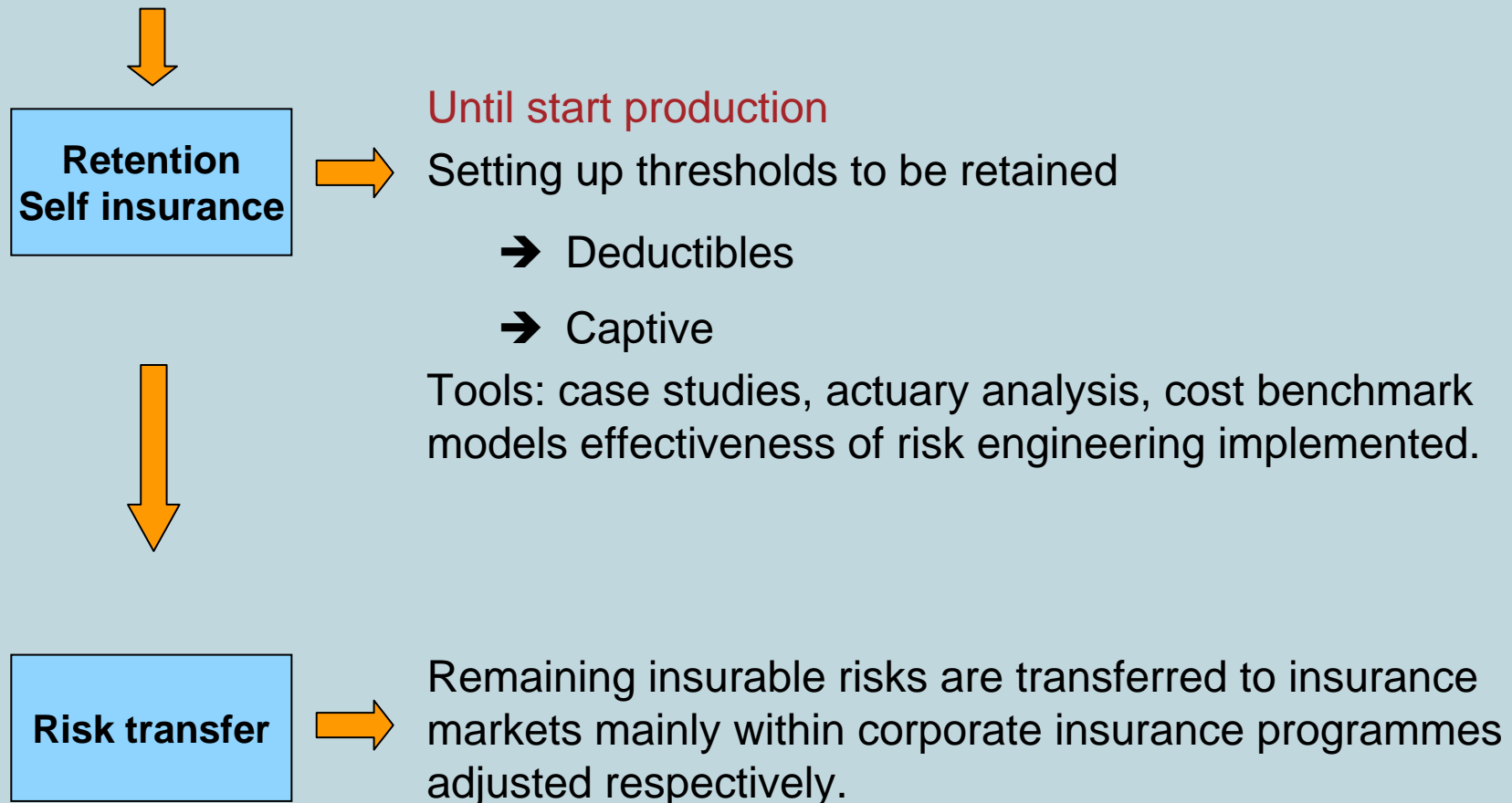
Risk-avoidance, - mitigation, SIR and transfer solutions implemented.

- ➔ Insurance markets always involved in time

Methodology and tasks of the IRM process



Methodology and tasks of the IRM process (cont.)



A 380 PDBI exposure*

Key sites assessed regarding interdependencies and PML's EMC's. Risk protection systems implemented (improved/new)

Meaulte (Cockpit)



Combined
€200M

Broughton (wings)



Combined
€700M

Hamburg
(body, equipment)



Combined
€1bln

Toulouse
(final assembly)

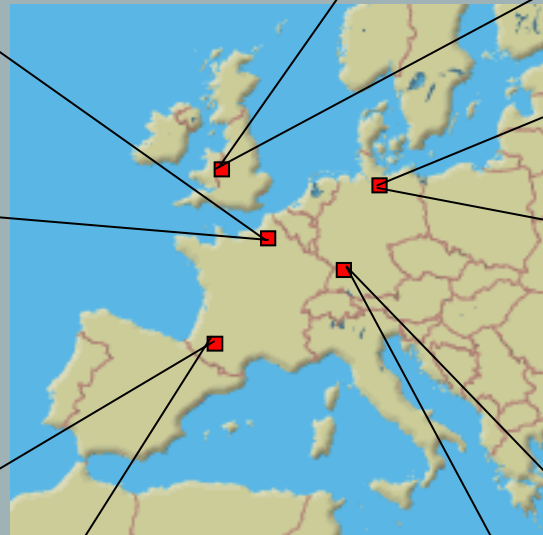


Combined
€1 bln

Laupheim
(cabin covering)



Combined
€200M



*preliminary 2006

Risk assessment and risk mitigation – Case study – A380 Transport system

Targets:

- Routes
- Transportation System
- Protection
- Values
- Interdependencies
- Liabilities

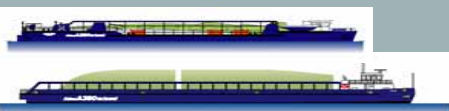
€30 M - €62 M

SEA



Max. €15 M

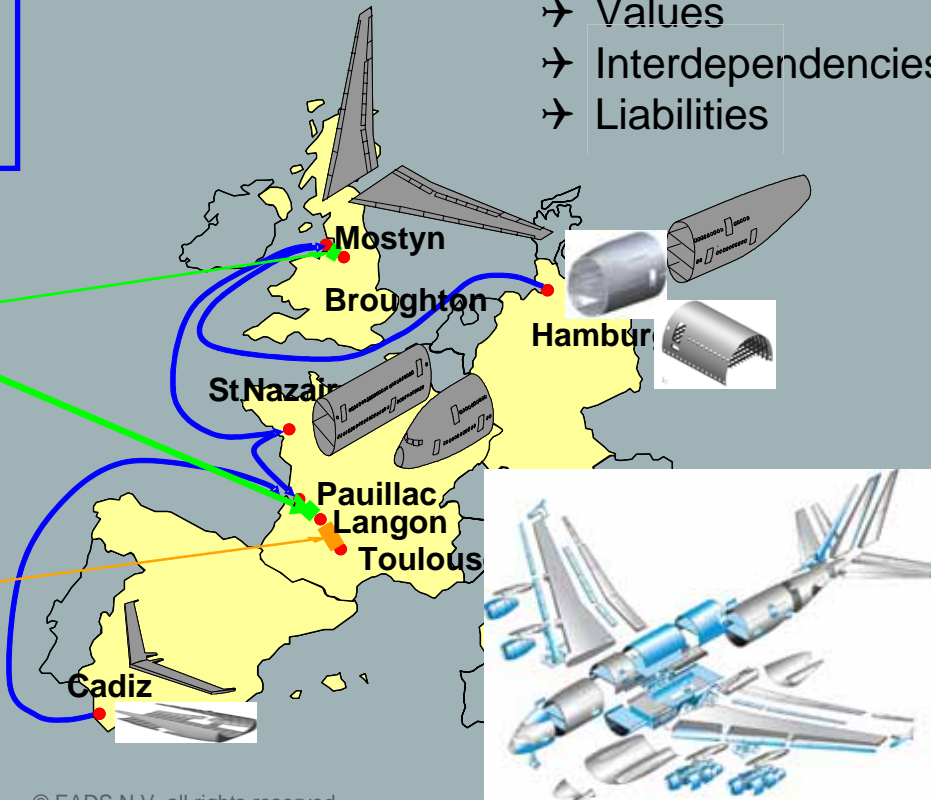
RIVER



ROAD



€4 M - €13 M
min./max. each



A380 Transport system

A380 Special Purpose RoRo ship



**Operated by
FRET CETAM**



Ro-Ro ship « Ville de Bordeaux »

- Double hull, car – carrier type
- Length 154 m, breadth 24 m, deadweight 2270 mt
- Max speed 21 knots, cruise 16 knots
- Cargo bay length 120 m, width 21 m, height 11 m
controlled atmosphere, acceleration recording
- Door 21 m, x 11,5 m, ramp 200 T, Ro-Ro lanes
1800 m
- Capacity = 6 Airbus components
- Deck area 6700 sqm
- 2 sets of Diesel engines, 8400 kw each

A380 Transport system Central Section Unloading



A380 Transport system

Cargo Bay with wing and front fuselage



A380 Transport system

Bordeaux Harbour – Pauillac Terminal



Transfer Station:

Our partner: SOCATRA

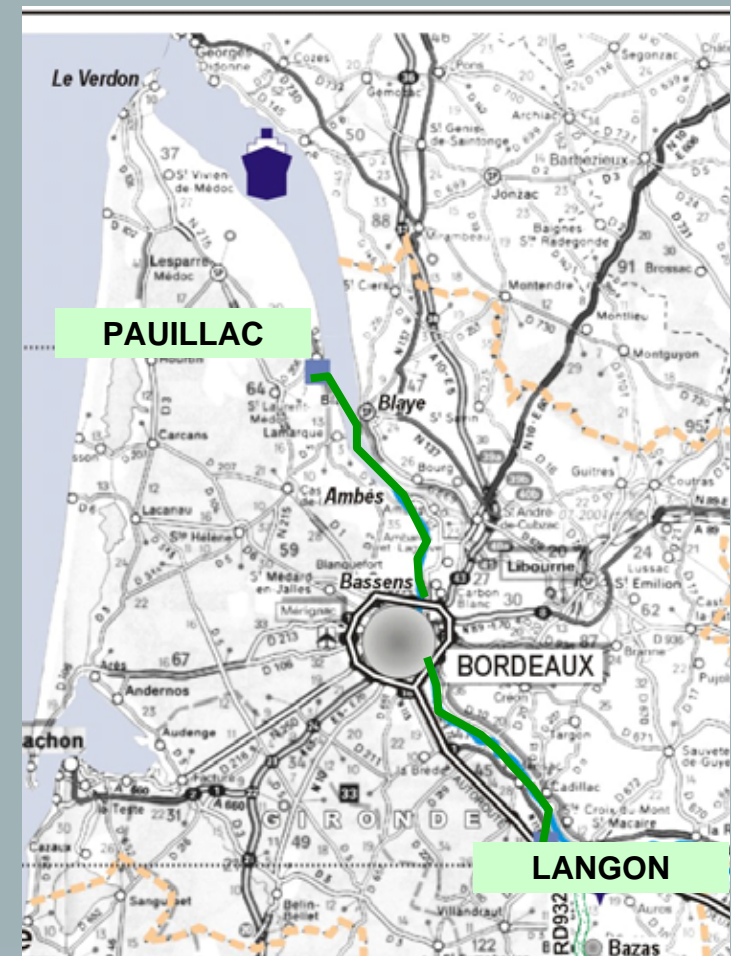
- ➔ Dimensions 150 x 35 m
- ➔ Transfer of 6 A380 components
- ➔ Ballasting capacity for adaptation to Ro-Ro ship and to barges
- ➔ SOCATRA investment
- ➔ REMONTOWA shipyard (Poland)

A380 Transport system

A380 Transport River Garonne

- ➔ 95 km between PAUILLAC & LANGON
- ➔ Barges capable to carry 2 components or 1 wing
- ➔ 4 voyages to carry 1 complete airplane
- ➔ Max rate 1 airplane per week
- ➔ Voyage schedule depending upon Pont de Pierre crossing time
- ➔ Transport time for one voyage: 1 tide cycle
- ➔ Transport of empty jigs during barge return trip

Operated by SOCATRA



A380 Transport system

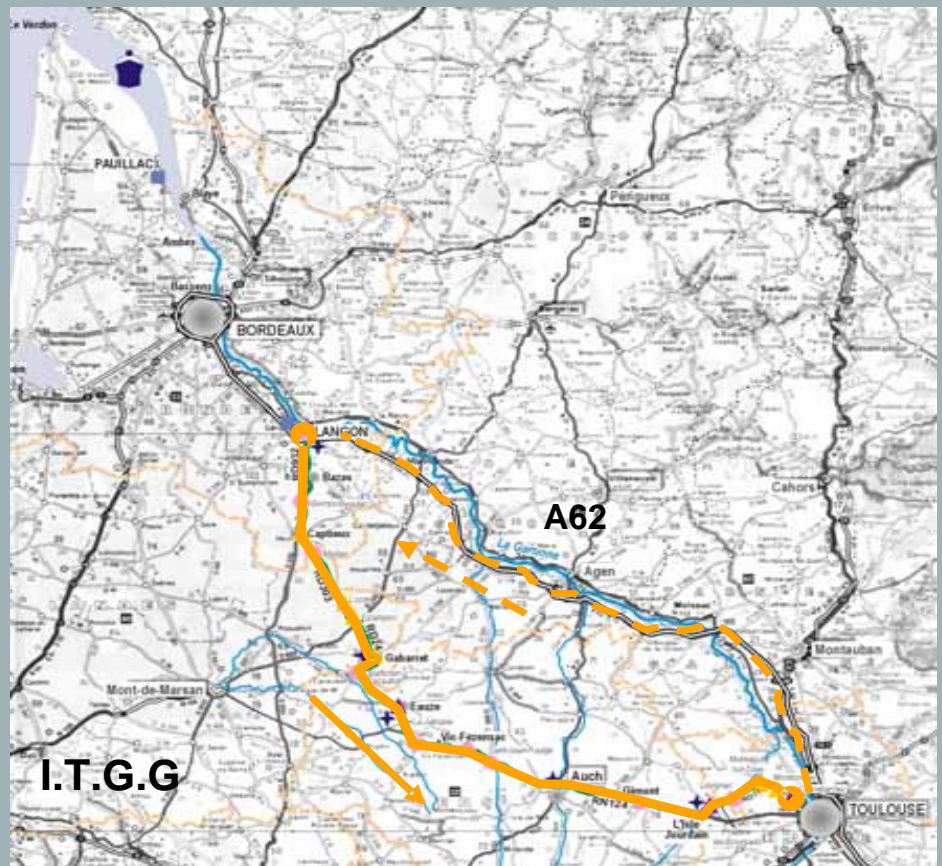
Road Itinerary

Road Transport LANGON TOULOUSE

Dedicated itinerary 240 km

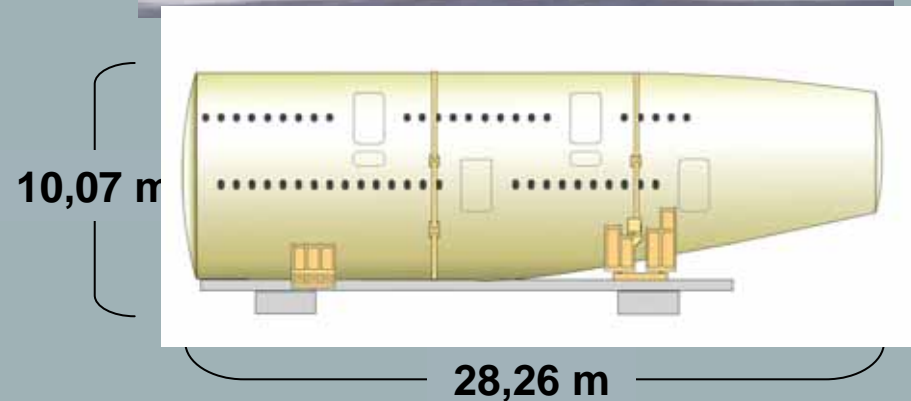
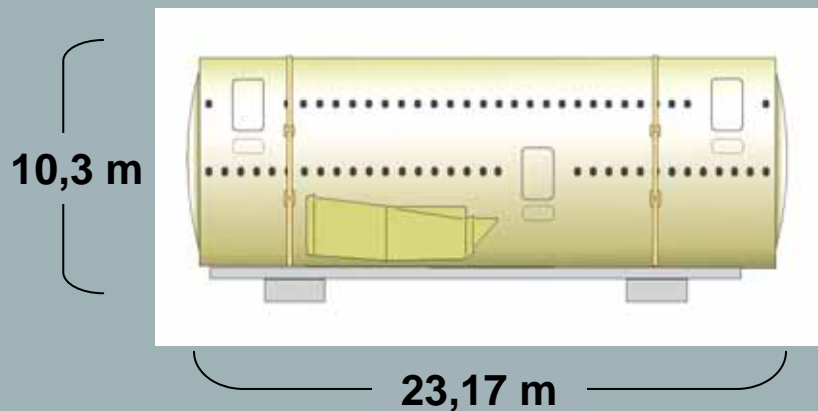
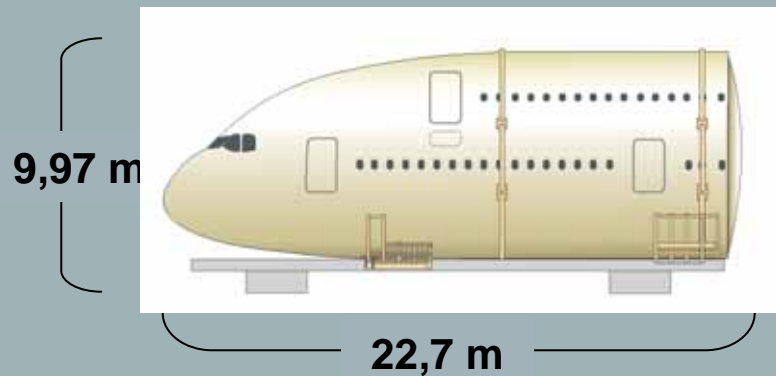
- ➔ Responsible: French State
- ➔ 1 departure area at Langon, 4 parking areas alongside the itinerary
- ➔ Night time only, weekend and bank holidays excluded
- ➔ Voyage over 3 nights, max 1 per week
- ➔ Max allowable dimensions:
 - Weight 250 T
 - Height 13 m/ Length 50 m
 - Width 5 m at ground level, 8 m at 1 m height
- ➔ Trailers, tractors, jigs return via A62

Our Partner: Transports CAPELLE



A380 Transport system

Fuselage Elements

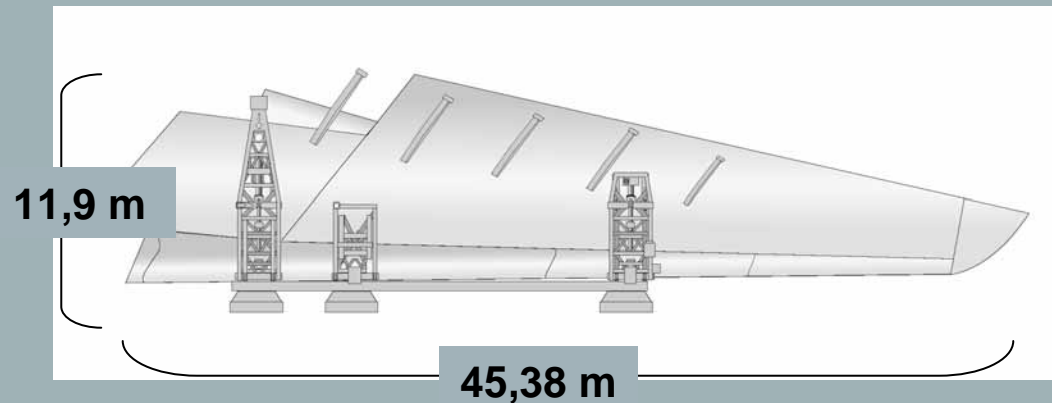


Road transport Langon → Toulouse

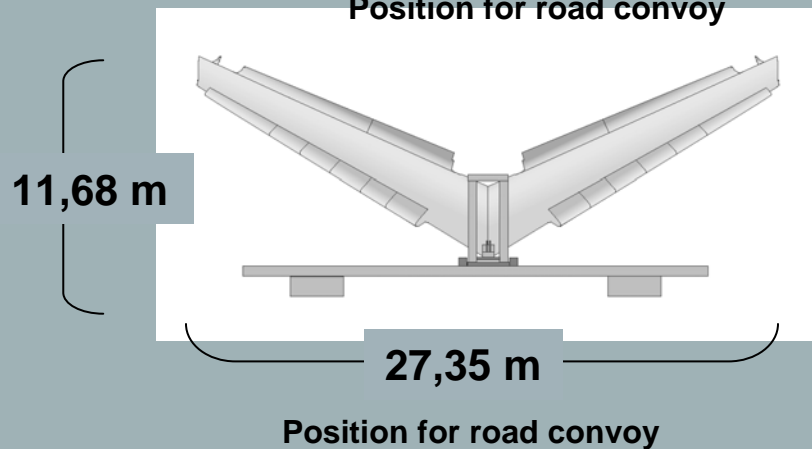
- Articulated trailers TII NICOLAS dedicated design
- Jigs designed for trailers and fuselage
- Tractors powered by 600 HP each

A380 Transport system

2 Wings + 1 Horizontal Tail Plane



Position for road convoy



Position for road convoy



Road transport Langon → Toulouse

- Trailers TII NICOLAS convertible width 5 m – 3m directional axles
- Jigs designed for trailers and wings, tail-plane
- Tractors each 600 HP, 4 axles

A380 Transport system

Convoy Organisation

Road signs dismantling



Workshop van



Convoy master



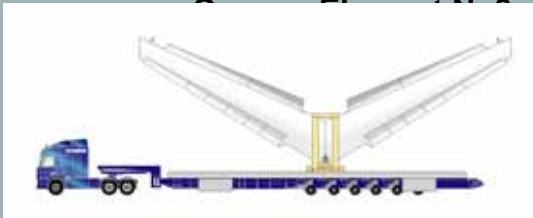
Convoy Element No1



Convoy Element No2



Convoy Element No3



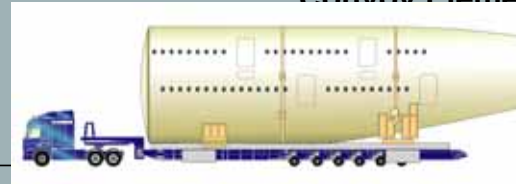
Convoy Element No4



Convoy Element No5



Convoy Element No6



Road signs reinstalling



+



Vehicle Police Officers

A380 Transport system

Final Assembly Line (FAL) Toulouse



A380 Transport system

Achievements to date – Sea, river, road

- ➔ Transport operations: 34
- ➔ More than 60 Pont de Pierre crossing
- ➔ 16 road convoys
- ➔ 7 complete aircraft transported
- ➔ All operations within schedule and no damages
- ➔ Good adaptation of the transport system to the industrial constraints

A380 Transport system

Air Transports: Beluga Network



→ Beluga operator:

**Airbus Transport Intl
(created 1996)**

French Airline,
subsidiary of Airbus

→ Fleet:

5 Beluga (A300 – 600ST)

→ Airbus Network:

10 Stations across Europe
(13 by 2006)

→ Flight Crew:

35 Crew Members

→ Activity since
1996

14 500 Flights

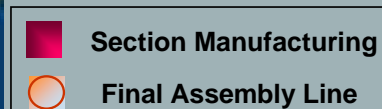
24 000 Flights Hours

→ Averages activity
per year all
Airbus types:

2 100 Flights

3 400 Flight Hours

**2 428 Aircraft Sections
delivered**



A380 Transport system

Rear Fuselage



Result of the IRM process A380 - PDBI

- ➔ All risks PDBI gross exposures in terms of severity and likelihood significantly decreased to become “remaining gross exposures”
- ➔ Financial consequences out of remaining gross exposures further reduced by transferring
 - Into Corporate self-insurance system (Captive) primary layer
 - Exceeding exposures into existing corporate insurance policy.
- ➔ Therefore, a predictable net exposure within common deductibles is left
- ➔ A robust physical and financial protection system is successfully implemented

Retention and Risk transfer matrix A 380 - simplified

	Suppliers	Prod.-line parts	Prod.-line components	Transportation FAL	Final assembly	Testflights	Pre-delivery
Product Liability	*						✓ Retention
All Risks incl. - FLEXA - EC - Transport - CAR/EAR		✓ Retention	✓ Retention	✓ Retention	✓ Retention		
BU - FLEXA - EC	*	✓ Retention	✓ Retention	✓ Retention	✓ Retention		
Hull Test-, training-, acceptance flights					✓	✓	
Aviation Third party liability						✓	

* = Contractual and monitoring

✓ = Transfer

Retention = Deductibles/Captive

Conclusion

- ➔ It is essential to consider technical risk engineering and insurance techniques from the beginning of each project.
- ➔ Dedicated investments and operating procedures to reduce severity and likelihood of unexpected claims are key for success.
- ➔ “Can we insure it” is the wrong question !
- ➔ Both, the manufacturer and the insurer having the same interests to avoid and mitigate claims
- ➔ Go together. Even there are only a few insurer providing leading edge expertise for technical risk engineering ➔ use them !

! Keep your risks manageable !

Movie 2 Minutes