4 SECTORS

- Satellites
- Orbital infrastructure
- Ground Infrastructure
- Launchers
LAUNCHERS

Guarantee of independent access to space for Europe: 1st priority

1. Technological and industrial European capabilities

2. Acceptable launch costs
   2.1 Launcher competitiveness
      - in normal market conditions
      - on equal footing with competitors
   2.2 Access to commercial market

3. Support from States
   Considerable budgets
      - big countries
      - other countries
CURRENT SITUATION

ARIANE 5

Commercialisation: ARIANESPACE

Prime Contractor: ASTRIUM SPACE TRANSPORTATION

Other Suppliers and/of Shareholders of Arianespace:
- AVIO
- CNES
- EUROPROPULSION
- L’AIR LIQUIDE
- REGULUS
- SAFRAN
- CLUB
CLUB

Grouping of industrialists shareholders of Arianespace
medium size

Alcatel Alenia Space ETCA
Contravès Space
Kongsberg
MT Aerospace
Saab Space
S.A.B.C.A.
Volvo Aero

Representing 16% of Arianespace capital
Good collaboration between Arianespace, Prime, other shareholders Club
CLUB Specializations

Liquid Rocket Engine Nozzles and Turbines
CLUB Specializations

Mechanical and Hydraulic Actuators and Control Electronics

Leader on Ariane 5

GAT (Groupe d'Activation Tuyères)

GAM (Groupe d'Activation Mécanat)

5000 psi technology

with Position Control
CLUB Specializations

Power Control, Distribution and Safeguard Equipments

Launchers On-board electronics equipment

- Power and Control equipment (power distribution and command units)
- Safeguard equipment (automatic launcher destruction)

Ground Test Benches
CLUB Specializations

Payload Fairings
CLUB Specializations

Boosters Segments, Upper, Lower, Intermediate Skirts

Ariane 5 Boosters: from Design...

Manufacturing & Assembly in Brussels Plant

Heat Protection

...to Delivery of a Pre-Integrated Product...

Pre-integration of skirts
CLUB Specializations

DIAS

Integrating High Technology

‘DIAS’ shock damper

Filters the vibrations
Allows movement of 12 cm under a load of 350 tons
CLUB Specializations

Tanks, Tanks Bulkheads and Domes

Pictures: By courtesy of the Club Members
CLUB Specializations

Activities, Skills and Financing schemes distributed over Europe:

Belgium,
Denmark,
Germany,
Switzerland,
Sweden

Fair return
VEGA

Prime Contractor : ELV

Suppliers : Astrium
Avio
Dutch Space
Europropulsion
Regulus
S.A.B.C.A.
Saft
S necma
Stork

Good collaboration between Prime Contractor and Suppliers

Financing schemes distributed over Europe
VEGA suppliers Specializations

SABCA steers all four Stages of VEGA

Complete system responsibility
Working for the Future

VEGA, the new European launcher
1.5 ton satellites on low orbit

First stage lower skirt
FUTURE

1. Development of capabilities
   1.1 technical
   1.2 industrial

2. Acceptable launch costs

3. Support from States
1.1 Development of technical capabilities

- Technical support program for existing launchers
- Preparation of future launchers
  - End of Ariane 5 developments
  - Important developments in VEGA almost finished

Not enough new Programs
No progress without new Program’s

Maintenance and development of skills: Major concern by Prime Contractor and SUB’s
1.2 Development of industrial capabilities

- Production Means owned by ESA:
  To be maintained by ESA

- Production Tools and Process modernization:
  To be decided
2. Acceptable launch costs

- Solidarity among States, ESA, Arianespace, Prime Contractor, Sub’s

- PA Contract of 30 launchers -50%
  Deliveries 2006-2010

  - S.A.B.C.A. 1st company to conclude with EADS-ST

  - Agreements reached with EADS-ST by all the Club companies regarding commercial efforts to be made

  - Industrial progress in all the Club companies in order to secure their activities after the commercial efforts
New efforts required

Modification of process design considering the level of commercial efforts

Dilemma

Evolution - no Evolution

Arbitration Role of ESA, Arianespace and Prime Contractor

Decisions needed
Especially in a growing market
PB and PB +

Development of specializations

- Coordinated by ESA, Agencies, Delegations
  up to now: Fair Return

- Carried out by
  Arianespace
  Astrium ST
PB and PB +

To maintain competitiveness:

- To continue specialization and avoid duplicates
  Many were cancelled

- To avoid possible competition between primes and sub’s on items to be provided
  * prime core business: to give priority to system activity, very complex and demanding significant experience
  * Sub’s core business: to propose solutions and elements progressing constantly and competitive

- developing openness among Arianespace, prime and sub’s
  - to coordinate the developments proposed by each of the players by favouring the activities most promising for the future
3. Support from States

- Fair distribution of - specializations
  - activities

- In a Group as well
  - rationalizations and specializations take the transferred volumes of activities into account
European launchers manufacturers

- ensure an independent access to space
- have confirmed their technical skills through the understanding of the failures and the actual mastering of the launcher
- have shown the capacity of progress among the Ariane family by PA
- on an equal footing with competitors, are competitive
- want to take part to the knowledge-based European society by pursuing technical progress
- wish progress in balanced specializations
European launchers manufacturers

- reaffirm the role of ESA, Arianespace and Prime Contractor to arbitrate rapidly on possible evolutions of the launcher

- request the extension of the programs safeguarding the technical competences also by Sub's before the 2008 Ministerial Conference