

The European Launchers between Commerce and Geopolitics

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The Report

- **Aim:** *to provide an in-depth reflection on the medium to long term prospects for the future European launchers, and to assess the scope, implications, opportunities and constraint of European access to space policies within the broader international context.*
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Background: challenges for the European launchers

The European launchers are a symbol of outstanding success for Europe in the global space sector. Yet:

- The successful exploitation of Ariane 5 on the commercial market relies on continuous and substantial support from ESA MS.
- A significant part of European institutional missions are dependent on the Soyuz launcher.
- The deficit of commonalities between Ariane 5, Soyuz and Vega strongly limit the synergies in their exploitation.
- The successful (and aggressive) commercialisation of competing launchers challenges Europe's future outlook on the worldwide commercial market.



Resolution on Europe's Access to Space

ESA Ministerial Council, 2 December 2014


Ariane 6, Vega-C

«to maintain an independent, reliable and affordable access to Space for institutional and commercial European customers»

- Main driver: decrease of launch costs, achieve commercial competitiveness without direct public funding.
- Exploitation of common design, increased modularity.
- Revolution in governance: unprecedented responsibility to industry.
- Independence from Soyuz (through Ariane 6.2 and Vega-C)



Worldwide Dynamics and Trends for Launchers

- Strengthening of autonomy and reduced interdependence
 - *U.S., Europe, Russia*
- Development of new modular families of launchers, and substantial efforts to decrease launch costs and prices
 - *U.S., Europe, Russia, China, Japan, India*
- Increasing role of the private actor, both in development and exploitation
 - *U.S., Europe, Japan*
- Decline of technology transfers, and rise of dedicated “launch packages” (satellite + launcher + ground support), targeting countries of interest
 - *Russia, China, Japan*

Access to space in 2020s: an evolved landscape

The supply side:

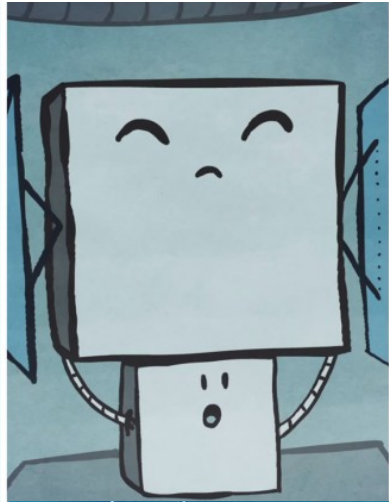
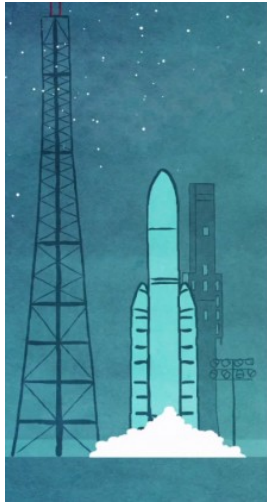
- Hardening of competition: renewed availability on the commercial market of upgraded rocket families for GTO could lead to a situation of overcapacity. An upcoming price war?
- Disruptive technologies (e.g. reusability, non-vertical launch, additive manufacturing) have the potential to strongly decrease launch costs.
- Established actors challenged by new entrants, new business approaches, new customer-tailored strategies.

The demand side:

- Satellite all-electric propulsion. Mass savings opens up two scenarios: more payload per satellite or lighter satellites (impact on dual/multiple launch solutions).
- Increasing interest of commercial satellite operators in LEO (e.g. proposed 1000+ broadband constellations), so far an almost-exclusive domain of institutional payloads.
- Exponential rise of small satellites, urging for small, flexible and cheap launch solutions.

Launchers: questions (and some options) for Europe

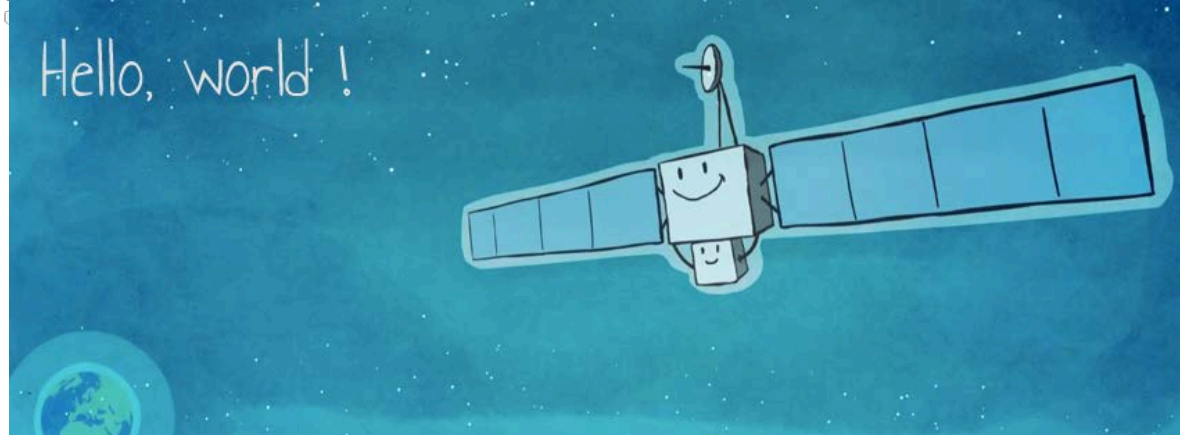
- Enhancing the commercial competitiveness of Ariane 6, Vega-C in an evolved landscape
 - *Ensuring and expanding a solid/guaranteed launch base*
 - *Expanding the performance at both sides of the mass spectrum (Ariane 6.6, mini-Vega?)*
- Space launchers as a geopolitical toolkit for Europe?
 - *Provision of ODAs to build up institutional demand from abroad (which actor? EEAS?)*
 - *Airbus-Safran Launchers with support functions to European foreign policy?*
 - *Leveraging Ariane 5 “discarded” technology?*
- Europe: a conservative force in R&D?
 - *Seed funding to target disruptive, leap-frogging innovation*
- “All eggs in one basket”? Considerations on Europe’s spaceports.
 - *Extending launch backup agreements*
 - *Small spaceports for small launchers (e.g. Andoya, Kiruna)*
- Europe and human spaceflight: autonomy vs/and cooperation



Thank you!

Questions?

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Every space story starts with a space launcher...