

# Le Monde

## **LET'S REINVENT THE ARIANE PROGRAM TO COMPETE WITH THE AMERICANS**

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[translated from French]

[http://www.lemonde.fr/idees/article/2014/01/08/reinventons-le-programme-ariane-pour-rivaliser-avec-les-americains\\_4344804\\_3232.html](http://www.lemonde.fr/idees/article/2014/01/08/reinventons-le-programme-ariane-pour-rivaliser-avec-les-americains_4344804_3232.html)

The three perfectly successful launches of the new American launcher Falcon 9, developed and operated by SpaceX, founded in 2002 in a Californian garage, bring many questions.

Indeed, it is the first time in history that a private corporation has managed to successfully fly – and on the first try, too - a space launcher conceived with an antipodal/totally different approach to what has been done before.

These successes call out to us especially since SpaceX has announced their intent to dominate this industry, at a time where Europe has begun, at the initiative of France, the development of future launcher Ariane 6, which aims to enter service early next decade, and so will have SpaceX launchers as competitors.

### **VERY ATTRACTIVE PRICING**

In coming months, Europe will have to decide on the final commitment to Ariane 6, as SpaceX has demonstrated that it can occupy the land (serve the market) with commercial launches at very attractive prices.

If we compare the SpaceX launcher to its competitors, it differs in three ways. First, it is perfectly adapted to government payloads: NASA and DoD satellites are an important part of its launch manifest, and an even greater one of its revenues, as the American government is willing to pay more for its own launches than is billed to commercial clients.

Second, its reduced size and ease of implementation lead to especially low operations costs that make it formidably competitive for commercial satellite launches: the last two Falcon 9 launches have brought the USA back to this market, from which they had been absent for many years, due to the lack of competitiveness and availability of their classic launchers.

Finally, its technical definition and industrial organization has, since the beginning, been designed with the goal of minimizing development and operations costs: instead of being a cutting edge technology

launcher, the Falcon 9 uses proven technology engines that were easy to develop and inexpensive to industrialize/mass produce, and there are very few sub-contractors involved in launcher construction, which reduces production costs.

### **THE SPACE RACE**

To sum it up, where classical methods have failed – in the past ten years, the USA has terminated development of many classic launchers, after wasting many billions of dollars on them - , the Falcon 9 may well bring the USA back as leaders of the Space Race, while today they share it with Russia and China for government launchers and Europe occupies it for commercial launches.

Not to mention that SpaceX has been working on evolved versions of its launchers that, as soon as this year, might fly in an even more powerful version that might eventually be reusable, bringing down launch prices even more – something that the Space Shuttle was never able to do, even though it had been designed to do just that!

Such an evolution would mean heavy consequences for Europe with, on the one hand the loss of market share and on the other, the embrittlement of our autonomous access to space that depends on the commercial success of our launchers, given the relatively limited number of European government satellite launches.

These are the findings that lead to define for Ariane 6 specifications that are related to Falcon 9's: a perfect adaptation to the launch of European government satellites, eased launch of commercial satellites, simplified design and tightened industrial organization to significantly reduce launch costs.

### **WE MUST REACT**

It is clear that today, the USA are challenging us to compete with them by showing us the way with a system that puts into practice all those recommendations. And while, for many years, we feared competition from emerging economies with their cheap labor, competition is instead coming from the USA and their ability to innovate and to challenge themselves.

This situation bring back memories of the world of IT/computers in the early 70s, shaken by the coming of new companies that had one thing in common – they all came out of garages in California. 40 years later, the space launcher industry, today considered a sovereign (government/national) industry, may well know the same upheaval.

Europe's space launch supremacy was hard-won/very expensive. Ariane 5 is the best launcher in the world, due to its reliability, conquering launch after launch since 2003, and it will remain the best since

Europe has decided to support its operation and its adaptations to the evolving market.

As such, we must react to SpaceX's challenge and move forth with the development of Ariane 6. The goal isn't to make yet another Ariane launcher, but rather to reinvent Ariane development by taking the same turn that IT did in the 70s and SpaceX is taking now. This is the lesson we learn from the Californian garages.

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