

## The New Space Economy, An Opportunity for Italy?

by Jean-Pierre Darnis

In 2011, the US brought the space shuttle programme to an end, with the last flight of the Atlantis, setting in motion a review of US space policy and a revolution in the integrated management of space transportation services. To do so, NASA developed a mechanism to involve private companies in the funding and maintenance of such technology in order to replace its failed space transportation system.

This initiative was the spark that ignited investor interest in the sector, creating a “new space economy”, with IT tycoons such as Elon Musk or Jeff Bezos entering the space business and developing a new set of launchers such as the Falcon or New Shepard families. This new public-private partnership model triggered research and development (R&D) strides that go far beyond space transportation, including all existing space technologies (Earth observation, positioning and

communication satellites) but also future needs for human space missions such as the development of a Lunar orbital station or Mars colonization (human flight, space infrastructures and asteroid mining).<sup>1</sup>

Recalling sci-fi imagery, IT tycoons have adopted a long-term strategic vision when investing in launchers, setting up space as the new frontier with huge economic potential. Growing investments in space technologies can also be linked to the expansion of the data economy. Earth observation (EO), positioning and communication satellites are very efficient tools to gather and transmit data. They contribute to an expanding value data chain, a factor enhanced by web based platforms able to merge data and provide services. These dimensions of the new space

<sup>1</sup> See Matthew Weinzierl, “Space, the Final Economic Frontier”, in *The Journal of Economic Perspectives*, Vol. 32, No. 2 (Spring 2018), p. 173-192, <https://dx.doi.org/10.1257/jep.32.2.173>.

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economy are fostered by technological progress, meaning cost reductions due to the miniaturization of satellites and the lowering of launcher prices, key factors for private investments in systems such as satellite constellations.

For a time, Europe appeared motionless compared to the growing dynamism and public-private investments in space technologies in the US. The decision to launch a new Ariane 6 launcher, able to catch up in terms of competition, was the first tangible reaction to this “new space economy” paradigm.

Following the Ariane 6 programme, the small European launcher family produced by Italy's Avio jointly developed an upgraded evolution of its Vega launcher, named Vega-C.<sup>2</sup> There was also mobilization of EU public actors (European Commission, member states) aimed at providing the sector with a pool of launchers to be defined on a yearly basis and able to sustain the high demand, a key factor for a successful competition with other actors, not least in light of the strong public support provided by the US administration to its domestic industry.<sup>3</sup>

The Vega launcher also appeared to be a good response to market trends: if satellites were becoming less heavy, a smaller launcher like Vega would

<sup>2</sup> See Anne Bauer, “Espace: l'Europe tente de mettre de l'ordre dans ses lanceurs”, in *Les Echos*, 16 March 2018, [https://www.lesechos.fr/16/03/2018/lesechos.fr/0301431054587\\_espace---l-europe-tente-de-mettre-de-l-ordre-dans-ses-lanceurs.htm](https://www.lesechos.fr/16/03/2018/lesechos.fr/0301431054587_espace---l-europe-tente-de-mettre-de-l-ordre-dans-ses-lanceurs.htm).

<sup>3</sup> See Véronique Guillermand, “Stéphane Israël: L'Europe spatiale doit s'organiser pour rester dans la course”, in *Le Figaro*, 11 May 2018.

be able to carve out a good position for itself in the emerging market for satellite constellations.

Vega has served as the flagship model for the entire Italian space sector. For decades, space in Italy was a field of excellence but at the same time quite anonymous, as satellite programmes were not well known or considered appealing to the general public. The successful development of the Vega launcher helped raise public awareness in the country. In December 2017, the parliament approved a new law about the organization of the space sector in Italy, with a strong coordinating role held by the chief of the government's cabinet.<sup>4</sup> Roberto Battiston's appointment as chairman of the Italian Space Agency (Agenzia Spaziale Italiana – ASI) was recently confirmed and a “space economy” plan was adopted by the Renzi government aimed at increasing private investment in the sector, one that has traditionally been funded through public expenses.<sup>5</sup>

ASI's budget stood at about 500 million euros in 2013, but it has increased to 800 million euros in 2018. Still, such numbers are modest for a sector that employs over 6,000 people and has a yearly turnover estimated at 1.6 billion

<sup>4</sup> See “Economia; Presidente Asi Battiston ‘saluta’ approvazione Legge riforma settore aerospaziale”, in *Teleborsa*, 23 December 2017, <https://www.teleborsa.it/News/2017/12/23/presidente-asi-battiston-saluta-approvazione-legge-riforma-settore-aerospaziale-5.html>.

<sup>5</sup> See “Dal Cipe via libera a piano operativo ‘Imprese e competitività’”, in *AdnKronos*, 1 December 2016, [http://www.adnkronos.com/lavoro/norme/2016/12/01/dal-cipe-via-libera-piano-operativo-imprese-competitivita\\_IBwOhs7mVpHZYawuhSEnPI.html](http://www.adnkronos.com/lavoro/norme/2016/12/01/dal-cipe-via-libera-piano-operativo-imprese-competitivita_IBwOhs7mVpHZYawuhSEnPI.html).

euros.<sup>6</sup> In this respect, Italy provides a good model for a resilient, sustainable and dynamic space sector. Resilience is derived from the importance of public investment. As shown by the US example, the space sector needs public assets in order for it to develop and grow. Italy can count on the ASI, but also on growing regional funding for innovation, a dynamic that tends to have carryon effects that help boost the entire sector.

A key point to keep in mind, is that Italy has mastered the entire set of space technologies, from the production of launchers to satellites, also involving ground stations, flight control and data transmission. Moreover, if we take the example of Italy's capital, Rome, one can observe how key industries and components of Italy's space sector – Avio (launchers), Thales Alenia Space (satellites), Telespazio (satellite services and data) and Vitrociset (ground segment) but also other small and medium enterprises specialized in space components such as Space Engineering – are all based around the city. This is a remarkable ecosystem which also tends to benefit from strong local research assets in space technologies, such as those provided by the Sapienza University of Rome, but also ESA-ESRIN facilities in Frascati.

The most important factor, however, is that European and Italian space

technologies are not that far off from US capabilities, demonstrating that Europe still has the potential to catch up with the US, which remains the market leader in this domain. Europe dramatically lacks digital platforms and has largely missed the train of smartphone development, but when it comes to space, it maintains an advanced technological base that can support and thrive with further investments.

One should, however, remember that the Russian space sector is still a strong competitor, and that emerging space powers such as China, India or Japan are catching up to the global space challenge. There is a worldwide acceleration around space technologies, which also requires a reinforcement of the competitive attitude from European players.

An interesting example is provided by Italy's "old" space companies, Telespazio and Thales Alenia Space, and their decision in 2018 to acquire minority stakes in the Seattle-based company Spaceflight.<sup>7</sup> This action was taken in order to develop the BlackSky EO satellite constellation and provide related services,<sup>8</sup> a means not only to develop hardware construction activities and flight related services, but also to enter the potentially booming space-based data market.

<sup>6</sup> See Celestina Dominelli, "Conquistare lo spazio business made in Italy. L'ora dei mini-satelliti", in *Il Sole 24 Ore*, 5 March 2018, <http://www.ilsole24ore.com/art/impresa-e-territori/2018-03-03/conquistare-spazio---business-made-italy-l-ora-mini-satelliti-213045.shtml>.

<sup>7</sup> See "Thales Alenia Space obligé de gérer les trous d'air de son carnet de commandes", in *La lettre A*, 7 June 2018.

<sup>8</sup> Thales Group, *Thales Alenia Space, Telespazio and Spaceflight Industries Finalize Alliance to Manufacture Smallsats at Scale and Deliver Innovative Geospatial Services*, 13 March 2018, <https://www.thalesgroup.com/en/node/2725081>.

One should also not forget that Italian space actors are highly integrated at the European level. This is true not only for the industry, with Telespazio and Thales Alenia Space being joint-ventures between Italy's Leonardo and France's Thales. It is also true for public policy, with ASI strongly contributing to the European Space Agency (ESA), and for the importance of the European Commission's flagship programmes, Galileo and Copernicus, which today represent a key set of activities for the whole European sector.<sup>9</sup>

Space represents a strategic asset for Europe, but the "new space economy" also reflects the fast evolution of the sector, which could easily turn from an opportunity into a loss. Airbus CEO Tom Enders has recently expressed strong criticism about space organization in Europe, calling for a revolution inspired by the US model, and criticizing today's public support policy for not being competitive on a global scale.<sup>10</sup>

A letter sent to the French and German governments reveals an important problem. In Europe, the space sector has grown under a public sustainment model strongly organized by national and European agencies. While NASA has deeply reformed its economic model pushing to increase industry competitiveness, the European model has to face competitive pressures but

also ensure the continuity of know-how and programmes managed by ESA and national agencies. It is a rather complex issue, which is also linked to the weaknesses of some business models, but it is also a sign of the importance and potentialities of the space sector in Europe.

Finally, these sets of technologies have huge economic but also strategic and political implications, as they support competition and cooperation with other states, exchange of data and possibilities for accords. There is a growing space-based diplomacy, and both Italy and the European Union are hopefully bound to play a greater role in this domain over the coming years.

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<sup>9</sup> See Stefano Pioppi, "Dove va lo spazio italiano", in *ASI News*, 17 May 2018, <https://www.asi.it/it/node/51508>.

<sup>10</sup> See Michel Cabirol, "Europe spatiale, la bombe incendiaire de Tom Enders", in *La Tribune*, 17 June 2018, <https://www.latribune.fr/entreprises-finance/industrie/aeronautique-defense/europe-spatiale-la-bombe-de-tom-enders-782059.html>.

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