The German company OHB, a new player in the space industry

Alain Bories

IN Ammales des Memes - Réaletés emdustreelles s019/s (May s019), PAGES 64 TO 68
ÉDITIONS F.F.E.

ISSN 1148-7941 DOI
10.3917/rindu1.192.0064

The German company OHB, a new player in the space industry

By Alain BORIES
HBOT

The emergence of OHB, a typical SME of the German "Mittelstand", as the third European prime contractor in the space sector, has surprised many players, but its development is the success of a family o f entrepreneurs who are passionate about the space sector and are convinced that they can
"This article takes up some elements of a family saga, whose founder's story was told in a book

Among the strengths of the German industrial model, the The "Mittelstand" is always cited as a great strength, envied by other countries, and in particular in France where the number of ETIs is three times less than in Germany. But this "Mittelstand" is especially mentioned for mechanical engineering companies, which are strong exporters. The case of OHB, a family-owned ETI in the space industry, is rather unique (Kayser-Threde was another, but it was bought by OHB in 2007, when its This is often the case when the descendants cannot - or do not wish to - take over.) HBOT's name was thrust into the limelight when the company won the tender for the manufacture of 14 Galileo satellites in January 2010, bringing it into the big league of space, at a key moment when the European Union, through the Commission, became a new player in the space field.

Photo © D.R.

Photo 1: Serial integration of Galileo satellites.

A family saga

To understand the "Galileo event", it is important to know the history of OHB, because if it is typical of the German "Mittelstand", it is atypical in the space world.

In 1981, Mrs. Fuchs took over a small hydraulic company, Otto Hydraulik Bremen (OHB), founded in 1958. In 1985, she hired her husband, Professor Manfred Fuchs, an engineer at ERNO (later Astrium Bremen and Airbus). The two entrepreneurs decided to develop a space business within OHB, which became so important that it completely overshadowed the hydraulics business: in 2000, the company was renamed Orbitale Hochtechnologie Bremen, and a partial listing on the stock exchange took place in 2001.

Photo © D.R.

2001 was also the year of the contract for the German military radar satellites SAR-Lupe, which OHB won against all odds (already!) at the expense of the big player in the sector in Germany, Dornier (now Airbus Friedrichshaffen). Let's take a look at this contract, which is also atypical in more ways than one. First, because, for the first time, in reaction to the American refusal to provide sa- tellite radar images during an intervention in Kosovo (Germany's first external operation), the German army decided to have its own resources in the future. Lacking technical expertise in the field of satellites, and after having refused an offer from Dor- nier deemed too costly, it organized an international competition with a very simplified satellite specification: a certain number of images per day, their level of resolution, and a commitment by the contractor to provide the service for ten years.

This type of call for tenders, which is highly oriented towards operational specifications, enabled OHB to present a very innovative response. For example, by providing for five satellites, where the specification required only three, to avoid having to relaunch a satellite in the event of failure and to save money by not taking out insurance...
"Or else, by going for an atypical technology for this type of mission, namely the altimetry technology developed by Alcatel Space (now Thales Alenia Space) to measure the height of the oceans, which was used on the Topex-Poseidon satellite.

Thanks to the flexibility of its response, OHB was able to present a very attractive offer in financial terms (€315 million), which was therefore selected by the German Ministry of Defense. At that time, OHB only employed 120 people!

The Ministry's decision was therefore, to say the least, a wise one. It did not have to regret it, since SAR-Lupe was delivered on time and within budget, a rare case! This performance was a major factor in OHB's recognition as a credible prime contractor in the satellite sector, and was confirmed in 2009 when the European Space Agency (ESA) awarded OHB the status of "Large System Integrator", alongside Thales Alenia Space and Airbus.

It is thanks to this new status that OHB became eligible to answer as a prime contractor to the Galileo calls for tender...

Galileo, a German-German competition on satellites

Of course, Galileo has become an emblem of European construction because it is the first infrastructure to belong to the European Union, because it is the realization of the role conferred on it in the field of space by the Treaty of Lisbon, and because no European country could have achieved it alone. In this respect, it is a symbol, all the more important in times of doubt about European construction. It is also symptomatic that the United Kingdom tried to use it as an argument in the Brexit negotiations!

After several ups and downs (first GNSS2 was mentioned in 1994, then Galileo), it was not until 2008 that the Commission launched the procedure for acquiring the satellites needed to deploy the constellation, with the support of ESA, with which it has since signed an agreement allowing ESA to be the system prime contractor for Galileo.

By splitting the contract into six lots and prohibiting the same company from being prime contractor for more than two lots, the Commission ensured a maximum of competition between the candidates, while allowing the major balances between the participating countries to be maintained, since formally, unlike ESA, there is no application of the principle of geographical return in the Commission's calls for tenders. It is in this new context that OHB must make its decision whether or not to enter the competition for the allocation of a batch of satellites, knowing that at the time it was one of the few companies in the space sector not to be involved in the program.

Several elements will convince OHB to take the plunge:

1) The Commission's introduction of a competitive dialogue procedure, which, through successive responses, makes it possible to refine and optimize the proposals

Photo © D.R.

Photo 3: Launch of 4 Galileo satellites by Ariane 5 on July 25, 2018.

formulated by the various competitors to respond more to a need than to a closed specification. All things considered, this is a context somewhat similar to that of SAR-Lupe as described above, as it truly allows the potential prime contractor to be a force of proposal in a process aimed at obtaining the "best value for money".

2) The availability of a "proven" team, namely the SAR-Lupe project team, which had successfully deployed a five-satellite constellation.

3) The convergence of interests with SSTL, a company which had launched a first satellite (GIOVE A) to occupy the frequencies necessary for Galileo: an agreement was quickly reached, OHB is prime contractor and responsible for the satellite, while SSTL is responsible for the payload... This is an identical configuration to that of another competitor, Astrium Germany (now Airbus) and Astrium UK, which respects the major unwritten balances whereby Germany is satellite prime contractor and the United Kingdom responsible for the payload.

4) The conviction that in any case, the Commission would not wish to put "all its eggs in one basket", the recurrent delays that have affected the manufacture of the first four satellites of the constellation (known as IOV, In-Orbit Validation) prompting it to have an alternative supplier, at least for some satellites.

After a long but successful process in terms of system optimization (and therefore final cost), the sentence was passed: OHB was chosen, to the surprise of everyone, to supply fourteen satellites... Much more than the few satellites dedicated to an alternative supplier!

In the meantime, SSTL has been bought by... Astrium, which allows the "loser", by adding the SSTL share and the equipment it supplies to OHB, to have a larger share than the prime contractor!

Then, as successive calls for tenders were issued ("batch 2" of eight satellites, then "batch 3" of twelve), the constellation was completed. Today, the first 22 satellites have been delivered and put into orbit, enabling the Galileo service to be declared operational, with performance that exceeds specifications and, to date, is much better than that of GPS.

The end of the story... We are not there yet, because Galileo is now an operational constellation. The Commission must ensure its continuity, as well as its diffusion throughout the world. But the success is already there, since almost all new generation *smartphones* have "Galileo Inside". The consecration will come when we no longer speak of GPS, but of the "American Galileo"!

From a German company to a European player

Since 2001, OHB has developed well, both through internal and external growth. In 2018, it had more than two thousand seven hundred employees (compared to only one hundred and twenty in 2001) and reached a turnover of one billion euros.

doings. It is now an SE (Societas Europaea), and no longer a GA...

Internal growth has been achieved through an increased presence on major ESA programs (Meteosat 3rd generation, Plato scientific program, SmallGEO telecommunications program, then Electra - electric propulsion) and national civil or mid-level agencies (EnMap and Prisma programs for hyperspectral Earth observation, SARaH program following on from SAR-Lupe, Optsat optical military satellite programs in Germany and NAOS in Luxembourg, etc.).

But OHB has also grown by buying companies in several European countries. First of all in Italy, because the Fuchs family has dual nationality (the father, Manfred Fuchs, was born in Bolzano), and the Italian fibre was a key element in the acquisition of Carlo Gavazzi Space (now OHB Italia).

This was followed by Luxspace (created from scratch when Luxembourg became a member of ESA), Antwerp Space (former subsidiary of Thales Alenia Space in Flanders) and OHB Sweden (former space systems division of the state-owned Swedish Space Corporation). OHB has recently established operations in the Czech Republic, Austria and Greece.

The largest acquisition was MAN's space business, which was acquired in 2005 and became MT Aeros- pace (MTA). MTA is the largest non-French contributor to the Ariane system, providing nearly 11 percent of the value of an Ariane 5 and as much for the future Ariane 6 launcher. MTA is also the largest non-French shareholder in the Ariane system.

of Arianespace, with about 8% of the capital. MTA is also present on French territory... seventy of its employees are stationed in Kourou, Europe's spaceport.

Of course, the sustainability of the European launcher is a crucial issue for OHB, and this involves enormous stakes in the context of competition exacerbated by the arrival of Space X. MTA has made significant efforts to reduce costs. This effort has been rewarded recently by contracts won in the U.S. market (not exactly known for its openness!), with Boeing (SLS launcher) and Blue Origin (New Glenn). Another example is the contract with ISRO (Indian Space Research Organisation) for the Indian PSLV launcher, which is a real achievement, given the comparative costs between India and Europe.

MTA is also developing a mini-launch vehicle that will allow it to participate in the competition organized by Portugal to launch from the island of Santa Maria in the Azores... Could this be the prelude to the establishment of HBOT in Portugal?

A family saga : continued

The sudden death of Manfred Fuchs in 2014 was a shock to the entire space community. His funeral mobilized far beyond the small town of Bremen. He was certainly one of the mythical figures of European space, having started his career in 1961... the year of the creation of CNES and the first manned flight in space (the Russian Yuri Gagarin).

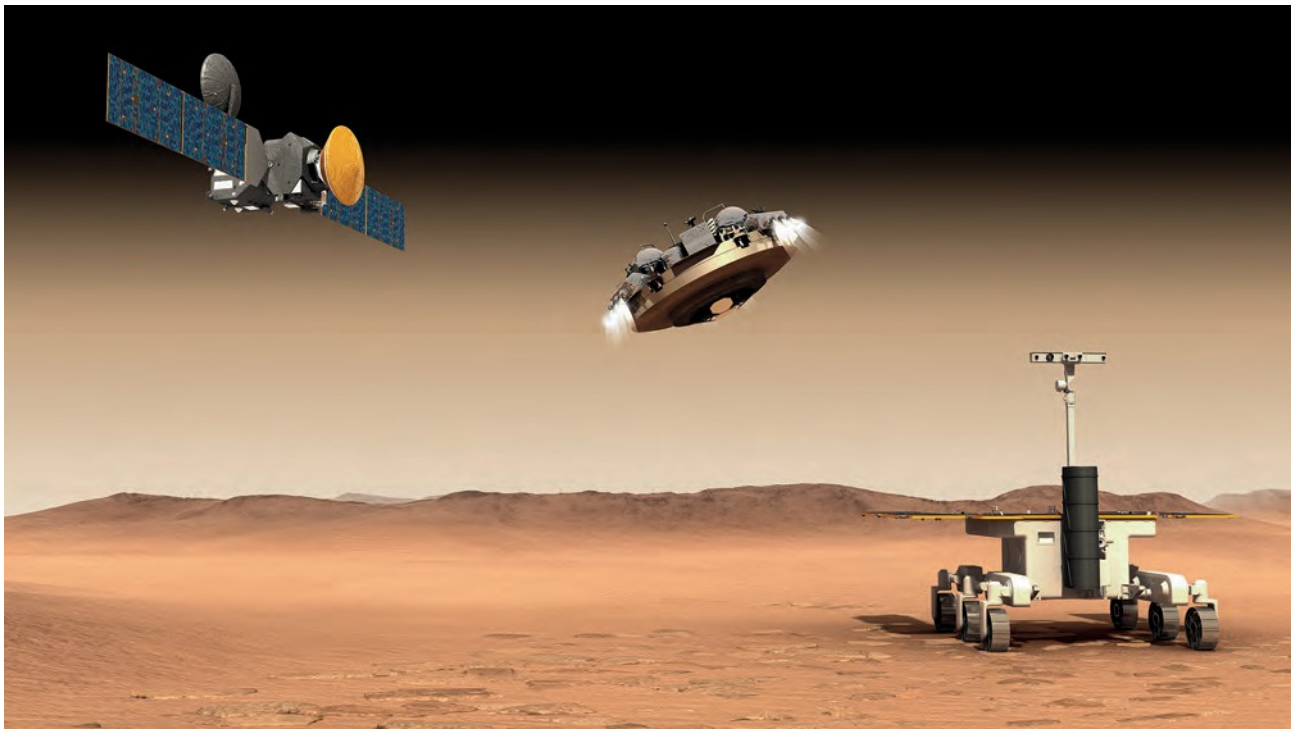

Photo © ESA_David-Ducros

Photo 4: OHB is one of the companies participating in the Exomars Mission 2016-2020 program developed by the European Space Agency.

To honor his memory, Luxspace (the Luxembourg subsidiary of OHB) built a small "space object" in four months, which was put into lunar orbit by a Chinese flight (the only lunar mission that took place that year, Chang'e 3). This "object", called 4M (Manfred Memorial Moon Mission), carried messages of sympathy from radio amateurs from all over the world, which were broadcast from lunar orbit on the frequency they use. A nice tribute to someone who campaigned for a long time for the Europeans to have a lunar program... A wish granted by ESA, with its "Moon Village" project!

But Manfred Fuchs had prepared his succession. His son Marco, who has been with the company for more than 20 years, took over the reins of a fast-growing company, which in 2018 reached a turnover of one billion euros: a rare example of successful succession, as the subject is always a risk factor for family-owned companies.

Conclusion: a *pure player* in space

OHB has certainly benefited from the important growth of the space industry in Europe, in particular since the arrival of the European Union in the landscape, but has also succeeded in making a "place in the sun" by showing perseverance and above all agility and competitiveness. It is of course a challenge to maintain these assets while continuing to develop, but fortunately the family structure allows us to remain highly responsive. The great autonomy given to the European subsidiaries is also a source of great flexibility.

OHB is a *pure player* in the space industry, which allows it to concentrate on its field of excellence. As its activity is mainly institutional, OHB is not affected by the inevitable decrease of the commercial space telecommunication market.

The other life insurance of OHB is the durability of its family shareholding, and a successful transmission between the founders and their descendants. Continuity allows to ensure the future, and while having always made profits, OHB has been able to make the necessary investments in a long term vision, very relevant for a long cycle activity like space.

Photo © ESA-Anneke-Le-Floc'h

Photo 5: Integration at HBOT of the Trace Gas Orbiter module of the Exomars mission.