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Thierry de Montbrial, Founder and Chairman of Ifri and the WPC

Now, I am happy to give the floor to Philippe Baptiste, who has been the boss of the CNES for about six to eight months. I remember during our first conversation at that time, you had already had some quite precise ideas, but I am sure that you have learnt a lot in those months, so how do you answer my initial question?

Philippe Baptiste

Thank you very much. First, allow me to reword your question. Basically, you want to know why there are so much traffic around Mars this year. Of course, there's the Emirates' highly successful Hope probe, the Chinese probe, which landed a few days later, and Perseverance, the American rover for which we are very proud to have made the camera, the head. Many more missions will follow.

We are talking about Mars, but we also could have asked ourselves why low-orbit traffic in space is doubling every two years, or why most agencies forecast that in 15 years or so the space industry will be doing approximately three or four trillion dollars of business a year. What is going on? Why are people going into space today?

The first reason, which has been around for a very long time, has to do with sovereignty, defense and quite simply putting a country's might and technological abilities on display. That was very true during the Cold War between Russia and the United States. Today it seems quite clear that this great rivalry is back with new actors, but the fundamentals remain the same. This is the first reason.

The second reason, which to me seems extremely important but may be perceived less directly, is climate. Without satellites, we would not be able to observe or measure climate change. Over half the IPCC indicators allowing us to track climate change and understand our planet's health come directly from satellite observations. This is a major reason. While it does not explain the soaring number of missions, etc., it is still a major reason that I wanted to remind you of.

The last reason is really new but increasingly important. It has to do with scientific and technological innovation, but especially with the business behind them. The space industry has turned whole sectors of the economy upside-down and the economic stakes are colossal.

This is why we have nations wanting to join the space race. But despite everything that has happened, we must try to understand why we have entered this new world where the appeal is much stronger.

The reasons often have to do with technology, where the industry has seen a number of major developments. There is the arrival of digital technology in order to model, reduce development times and go faster; 3D printing; and low-cost technology from digital companies as well as traditional industrial players. And then there is the miniaturization of components.

All of that suddenly cut costs in the space industry, not in every sector but in a number of key areas. Lower costs lower entry barriers that once kept out a number of countries or economic players.

Nowadays, private companies can join the space race by launching nanosatellites for a few million euros—perhaps a few hundred thousand euros tomorrow. That is how sharply costs have fallen.

To balance out this enthusiasm, remember that government loans account for approximately 90% of space funding. Everybody is talking a lot about SpaceX, an exciting, extraordinary company that over the past few years has received huge US government subsidies and contracts in the range of 10 or 12 billion dollars. It is a private business that is taking off and growing at a brisk pace yet still relies heavily on government funding.

This lifts the curtain on something very interesting. We lived in a bipolar world with the Soviet Union on one side and the United States on the other. Europe carved out a place for itself, but not in every area. For example, we were never really interested in manned flights, but the Ariane program made us the world's leading private company for launchers. Airbus and Thalès, our satellite champions, are two utterly extraordinary French and European companies. They are the best in a number of satellite technologies. So Europe has come into its own.

We see China gradually entering the field and India becoming a force to be reckoned with. The list goes on. Israel also has quite an interesting program, not to mention the Emirates. We see many other players joining in.

We are clearly entering a multipolar world with many emerging players. At the same time, despite everything, access to launchers—still a decisive factor of sovereignty for a number of countries—remains a key issue. I think Europe is very appreciative about having a launcher program that guarantees sovereign access to space. I will get back to launchers in a few moments.

Clusters are emerging and competition between the United States and China is growing with incredible speed. Right behind them are Europe and Russia, which directly or indirectly support various programs.

Competition very much revolves around the moon and Mars. Naively, my personal regret is that we didn't think of going to Mars together. I will keep this naivety under wraps.

I always think of the example of CERN, which I quote extensively. CERN is a great center that discovered the Higgs boson and works on very high-energy physics. Its motto is “peace through science”. I don't want to sound naive and I can see the gap between this high ideal and reality, but the example is touching and worth recalling once in a while.

The last point I want to mention is Europe. What are we doing today and what do we want to become tomorrow in the space industry, which is multipolar?

First, I deeply believe in the importance of space for all the reasons I mentioned. Access to space, defense, sovereignty, observing the Earth, monitoring its climate and scientific research are crucial issues. Europe has a long and proud history of scientific achievement and will continue to launch very ambitious programs to develop probes and instruments that will help us understand the universe and the great laws of physics.

Europe also has a major launcher program. Today we have a range of launchers, from Vega to Ariane and Ariane 5. In a few months, we will launch our first Ariane 6, which I hope will thrust France and Europe into the global launcher competition. You must always knock on wood when talking about launchers because they are highly complicated instruments on the border with physics. We are never out of the woods. The first launches will happen soon.

Ariane 6 will rely on all the Ariane program's experience when it comes to strength and reliability. It will be far less expensive than Ariane 5. The costs—and I think it is important to say this—will be in the market range. Of course, there is fierce competition with SpaceX, which continues and is getting organized.

Obviously, we will keep on investing. We are going to work on the technological bricks we do not have now, which we absolutely must develop. In particular, I am thinking of reusable parts. That is something we are going to work on.

We are also going to work hard on NewSpace, all the new start-ups that are emerging at the crossroads of digital and space technology. We have already accomplished a lot, and CNES has been a driving force behind not only the major firsts I mentioned earlier, but also the new players.

We are aiming to develop small satellites that can observe the Earth and do IoT and telecommunications at very low cost. This is really quite a major issue for all our countries because it is directly useful to citizens, whether it is letting your GPS guide you, knowing when to water your crops or monitoring your fishing activities if you are a fisherman. It is all these activities and satellite data.

I really think we are on the brink of a world where space technology is changing, but not completely because when we do science, we are still a very traditional agency. In any case, in many other areas we are moving towards a world where companies will really play a key role and be a driving force and where States would rather place orders than carry them out as they once did. This is the first point.

Nevertheless, the world is opening up and many players are at the table. Alliances will have to be built. France has always been very open to this kind of alliance and to working with many different partners. An exciting world will open up to us in the coming years.

Thierry de Montbrial

You have mentioned the European space policy several times. Can we really talk about a European space policy?

Philippe Baptiste

There is at least a European ambition on space and there is also a set of regulations on how you build space programs and make them real. I think the European Commission has a real ambition on space today, and Commissioner Breton in particular is really involved in this policy.

Thierry de Montbrial

He is French.

Philippe Baptiste

Yes, he is.

Thierry de Montbrial

Are France and Germany exactly aligned?

Philippe Baptiste

It depends on the topics. It is true that Germany is very ambitious about space and that is public. Of course, there is a kind of internal competition in Europe. This has always been the case between Italy, Germany and France and it has to be for the good of Europe; I think there is room for that. I think that we do not have to compete on very expensive programs like heavy launchers, but that does not mean that they do not have to be competitive. We should organize competition because they are very expensive and the European nations should not compete between each other. For example, on smaller launchers or other types of satellite technology the competition already exists, it is strong and that is a good thing. Having this kind of competition is usually good for our traditional industry.

Thierry de Montbrial

Thank you very much.