

Business Models

I have been writing these last few weeks about promoting the value in Earth Observation data, with the focus being on communicating the benefits to society at large and decision-makers. Underpinning this is another theme which I have talked about in the past which is about Capturing the Value. If you look at the value chain for communications satellites, the hardware represents about 1% with 99% of the revenue coming from downstream activities (services). The revenues for GNSS or location-based services are perhaps 10% upstream 90% downstream, whilst Earth Observation is more like 50:50.

But the value is there. In our studies into the value of Sentinels, the economic benefits being generated by the data coming from Sentinel satellites is way higher than I expected at the outset. From the 10 cases we have analysed so far, we can see benefits of perhaps €200m or more. Recent cases are showing €10m+ for each case which are based on one country. Extrapolating across Europe quickly leads to €100m+ for one application and there are literally hundreds of applications. Whilst the benefit is high, the revenue is still quite low. How do we capture more of this benefit for the sector?

This week, Joe Morrison wrote a very insightful blog [The Commercial Satellite Imagery Business Model is Broken](#) which gained traction on Twitter. Joe writes about the selling of data and the elephant in the room which is the DoD. Since the DoD are THE major customer, they are essentially setting the selling conditions. He regrets the policies adopted by major operators which makes it difficult for users like himself to get hold of data. He calls for 20% of the data to be available pro-bono for public-good use. A number of posters pointed out that the major operators already do this, but Joe's core point that the business model for Earth Observation services is not working is largely correct. However, I don't think it is as simple as saying the satellite operators are not setting the right conditions to sell to a mass market.

To my mind there are three forces operating here and a number of underlying issues:

1. The cost of the satellite infrastructure is high. Even if newcomers with smallsats and CubeSats are pushing costs down, it is still a heavy investment and will remain so – especially for high-performance imagery and for constellations.
2. There is a need for sustained data. For years, we have been launching one-off satellites (Landsat, ERS, Envisat etc) with no real continuity. Without continuity, customers are reluctant to incorporate geo-information into their business processes. With many more satellites in orbit, this has changed so that customers can be reassured that data will be available if they commit to using it. Copernicus and the Sentinels are doing this as are the commercial operators. However, assuring the data means more satellites which means more
3. The lack of a sustained market. As is noted by Joe, we have been going at this for nearly 50 years now, so it is not a question of time! But it is a question of capacity and confidence that needs can be met over a period of time. Once a customer commits to using and EO product or service, they will quickly stop if they are let down by their supplier.

We see in many of the SeBS cases that much of the benefit is potential – ie it is still to be realised, which is largely because the early adopters have not yet been followed by the mass users. This is where the change is needed. We are trying to push things, through our SeBS analyses, demonstrating how the benefits are driven right along a value-chain.

So, these three forces are all interlinked. A capacity to deliver sustained data requires a very high investment which drives the costs up and makes customers hesitate to commit to a new service. The defence business is a great anchor customer, but the large benefits will come from all the host of other applications once the capacity is proven. To gain the confidence of paying customers requires more than evangelism on the part of a few enthusiasts. To generate sufficient revenue flows to justify sustained investment in upstream, observing capacity will take time. A number of enthusiastic private investors and venture funds have come into the business, but they will need to be very patient to see a return. As Joe rightly states:

"It's a multi-decadal bet if you really believe in the power of satellite imagery to transform the commercial industries you talk about all the time."

How do we fix this broken market? Patience and a lot of communications. In Europe, we are seeing a good number of new players coming into the value-added services markets. The data itself is becoming a commodity due to the number of competing satellite operators and the phenomenon that Joe identifies of fixing on defence customers as the motherlode. In fact, we do not see just defence in that position as governments represent 50% of the market as I have reported many times before – and I do not see this changing.

Many of the new downstream players are basing their services on the free and open data coming from the Sentinels under the Copernicus programme. With free data, it is easier to experiment without incurring high costs – as Joe points out. It is easy to get hold of through portals like the [Sentinel hub](#). The commercial operators are also making data available free for these purposes and commercial data can also be obtained through dedicated portals for example: <https://geocento.com/>

EO is not a B2C market, although I do think this can grow, so convincing the public of its value must be based on a public-good argument. Climate change could be the driver, but it could equally be global political instability post-Covid. Whichever, it is, it will take some years to develop. Investors will need to be patient I fear.

.... and thanks to Joe for kicking off a good discussion!