

Data centres could tell us about the potential evolution of the submarine cable industry, and vice versa

October 2021

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The submarine cable industry has been around for much longer than the data centre industry. Nonetheless, there are a number of similarities between the two.

- **High capital intensity.** Constructing a state-of-the-art, fully equipped, high-quality data centre (typically certified as Tier III or Tier IV by the Uptime Institute) of a decent size (5–30MW) normally costs between USD30 million and USD300 million. Building a state-of-the-art submarine cable network that is several thousands of kilometres in length with a capacity of multiple terabytes per second requires a similar investment.
- **Long lead times.** Data centres have lead times of 1–2 years, while cable projects take 1–4 years or longer. Proper capacity planning is required to start building ahead of demand.
- **Growing demand in a fast-changing environment.** The demand for digital services supported by submarine cable or data centre infrastructure is growing quickly. However, specific requirements are still relatively difficult to predict because new digital services are continually appearing and the relevant digital industries are still evolving and maturing, unlike for conventional transportation infrastructure for example.
- **Disruptive technological innovation still ongoing.** The technologies used for submarine cables built in 2021 are considerably enhanced compared to those used for submarine cables built at the turn of the century. Similarly, there have been considerable technological evolutions in the data centre space to push the power usage efficiency (PUE) ratio close to 1, while increasing the density and evolving architecture (from hardware to connectivity). Unit economics are still improving.
- **Attractiveness to telecoms operators and hyperscalers.** Many submarine cables were initially funded and deployed by telecoms operators, as were many data centres (though there were also non-operator providers). Hyperscalers have entered both industries in a major way: they first built their own data centres and are now building their own submarine cable capacity. Most hyperscalers and some telecoms operators see these digital infrastructure assets as essential to their business.

One possible difference between the submarine cable industry and the data centre industry is that the demand/supply characteristics of the former are cyclical. In the past 20 years, there have been periods during which there was a relative over-supply of submarine cable capacity. This deterred further investment into new submarine cable systems on the same routes in the short term, even though the demand for submarine cable capacity continued to grow. Notably, there was a period of very limited investment into incremental capacity (a ‘low build-out period’) between 2003 and 2008, after 10 years of heavy expenditure on deployments of new submarine cable capacity and after the burst of the internet bubble.

It is not yet clear if the data centre industry is about to go through the same trend. There is a strong momentum towards the deployment of top-tier data centres worldwide as public/private/hybrid clouds develop and gain traction and the demand for regional data centres grows. Indeed, many hyperscalers are considering opening

new regions or availability zones in order to capture cloud revenue growth in new markets. Furthermore, relatively cheap financing for digital infrastructure projects is currently available. Markets in regions such as the Middle East are extremely buoyant and there are projects to deploy tens of megawatts of data centre capacity to cater for the demand of a population that is hungry for digital and cloud services. The same trend exists in Latin America and emerging Asia–Pacific. As such, there is a lot of capacity under construction. There is a real need for this newly deployed or soon-to-be deployed infrastructure, but there also needs to be the realisation that once an initial wave of supply has come into the market, demand will continue to grow only steadily, so there may come a point where deployments must be paused to allow the demand to catch-up with the significant increase in supply.

At the same time, the data centre industry is considering the concept of ‘edge data centres’. Building many more, smaller, less-sophisticated data centres closer to end users could be the future of the data centre industry once the basic regional facilities have been established. These edge data centres will typically be built with the aim of lowering latency and thus enabling new interactive services such as online gaming and augmented reality.

There may be a parallel here in the submarine cable industry: some specialist users (such as those in financial high-speed trading markets) may demand the lowest possible latency, thereby requiring ‘straight line’ routing with new cables (or indeed chains of microwave towers for crossing sufficiently small bodies of water such as the English Channel). Alternatively, lower-capacity submarine cables could become relevant for minor routes that have historically been served by indirect routing as traffic (and more generally, trade) increases between Africa and South America, for example. Business models for such infrastructure will probably need to evolve in line with these market trends.

Analysys Mason has supported data centre providers, telecoms operators and financial institutions in the assessment of the investment case for submarine cables, data centres and cloud services, as well as the development of strategies in these spaces. For further information please contact [Johann Adjovi](#).