The demand for advanced connectivity will drive new subsea investments and regional hubs

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The internet has become a critical part of people's lives and is now an essential part of the way in which consumers, businesses and governments communicate, learn, work and trade. The demand for online content and services has grown as the number of individuals accessing the internet has increased. Significant investments have been made in network infrastructure worldwide, including in subsea cables, in response to this demand.

Subsea cable network investments have traditionally been made by either telecoms operators or private owners and have largely been driven by the need to improve access to low-cost, high-bandwidth international connectivity. However, the growth in the demand for internet traffic in recent years and the development of 5G networks are together changing the role of subsea cables and the overall market dynamics.

The main driver of subsea cable network build-out now is content storage and distribution. This shift has resulted in investments from new players. For example, hyperscalers such as Amazon, Google and Meta are taking on a growing role in the supply of subsea cables, rather than simply being on the demand side. This is driven by their need for capacity and their growing infrastructure requirements as they seek to have full control over the quality of the services that they offer.

Huge technological improvements have enabled cable owners to raise the quality of their connectivity in terms of both capacity and latency. The improved performance of the transport network is a key enabler of new applications and new technologies, which, in turn, allows businesses to provide differentiated and specialised services to consumers. This is leading to a shift in the role that subsea cables play; they were formerly seen as the foundation of universal broadband access, but they are now also becoming an enabler of business-critical services.

Players are investing in subsea cables to provide low-latency connectivity and additional capacity

The advanced requirements of new services (such as those enabled by 5G networks) in terms of connectivity, resilience and quality are influencing investments in subsea cables.

Players are increasing their spending on subsea cables in order to support new routes, driven by the needs of hyperscalers to add capacity and to connect those parts of world that are currently not connected. For example, Meta announced a partnership, in March 2021, with regional and global partners to build two new subsea cables, Echo and Bifrost, that will connect Singapore, Indonesia and North America. These cables will be laid through a new route across the Java Sea and will increase the overall transpacific capacity by 70%.

The development of shorter and alternative routes is also under way in order to expand the availability of low-latency connectivity, which is increasingly important for end users. Some examples are as follows.

- The **Firmina subsea cable** was announced in June 2021 as the latest addition to Google's list of subsea cable investments. The cable will run from the east coast of the USA to Las Toninas, Argentina and will offer South American users low-latency access to Google's products.

- The **BlueMed subsea cable** is fully owned by Sparkle and was announced in 2019. The cable will connect Sparkle's hub in Palermo with the open landing station in Genoa (which is connected to the hub in Milan). BlueMed will provide advanced connectivity between the hubs in Palermo and Milan, with a latency reduction of up to 50% compared to existing terrestrial cables.

Subsea cable investments enable the creation of new routes and new connectivity hubs

Advanced connectivity will play a central role in supporting the adoption of new internet-based services and will therefore be a competitive differentiator for service providers. This will lead to several shifts in the market, including the creation of new connectivity hubs and new end users gravitating to specific subsea cable ecosystems. As a result, there will be further investment in subsea capacity in regions where data traffic is expected to grow and where additional benefits are likely to be realised from improved connectivity and cloud adoption.

BlueMed is one of the many cables that Sparkle is deploying in order to strengthen its position as a connectivity provider in the Mediterranean, which is a key geographical area for connecting the Middle East, Africa, Asia and Europe. Sparkle has also announced that it will invest with Google to build and operate two new subsea cable systems. The first (Blue) will connect Italy, France, Greece and Israel and will be closely linked to Sparkle's own private cable, BlueMed (the two cables will share fibres and wet components). The second cable (Raman) will connect Jordan, Saudi Arabia, Djibouti, Oman and India. Both cables are expected to be ready for service in 2024.

Sparkle will be able to use these cables to deliver high-speed, high-capacity connectivity through a new route in the Mediterranean, while promoting the open landing station in Genoa as an alternative entry way into Europe. In doing so it is strengthening Italy's role as a digital gateway and is gaining a leading position in regions such as Africa and Asia where data traffic is expected to grow significantly.

India is another increasingly important connectivity hub where international data use continues to soar. Reliance Jio (together with several partners) is currently deploying two subsea cables to enhance India's access to content and cloud services in response to the increase in demand. The India-Asia-Xpress (IAX) system will connect India to Singapore and other countries in Asia, while the India-Europe-Xpress (IEX) system will connect India to the Middle East and Europe. The two systems will be interconnected and will provide more than 200Tbit/s of capacity.

The structural changes to the subsea cable industry, driven by the requirements of content and cloud providers, reduce the need for operators to invest in international connectivity. Traditional operators risk losing control of important assets and missing out on future opportunities in the subsea cable industry (for example, as providers of wholesale connectivity with value-added services on top) if they fail to engage with hyperscalers and with the larger ecosystem that is contributing to the deployment of new cables.