The Business Post

"We ask investors for $200m to finance a fibre-optic cable project and then we bury that investment under the sea"

The Sunday Interview: Nigel Bayliff

Nigel Bayliff, chief executive of Aqua Comms, the undersea fibre-optic cable carriers' carrier, insists that if Ireland wants to win big tech projects, the planning system needs a drastic overhaul

Lorcan Allen @lorcanallen 29th August, 2021

Nigel Bayliff, chief executive of Aqua Comms: 'The global communications network will always need physical assets and cables. It's a simple matter of physics.' Picture: Andrew Downes

In brief

Name and role: Nigel Bayliff, chief executive of Aqua Comms

Lives: Hampshire, England

Age: 55

Family: married to Elsa with a nine-year old daughter, Kate

My perfect weekend: "I like trying somewhere or something new with my family. Hopefully when travelling is easier again, we'll be able to go overseas."

Early bird or night owl: "I've worked on projects that have required both. However, I love the sunshine on a frosty cold morning."

Twitter, LinkedIn or Instagram: "LinkedIn, mostly."

In depth:

It's more than 150 years since the very first trans-Atlantic telegraph cable between Ireland and the US was successfully installed. After multiple failed attempts due to cables snapping or being lost at sea, the Atlantic Telegraph Company finally connected both sides of the Atlantic Ocean in July 1866, when the last leg of the connection was brought ashore in Newfoundland.

Over 3,000 kilometres away on the other side of the Atlantic, the cable ran ashore at Valentia Island just off the Kerry coast. The very first message sent on this new telegraph line was a simple news bulletin that read: "A treaty of peace has been signed between Austria and Prussia."

The once-proud German state of Prussia doesn't exist any more, but the world's communications network still depends on a series of underwater cables passing information from one continent to another.

The technology has improved greatly in the intervening 150 years and the volume of information moving around the world has grown exponentially. The same hard infrastructure sitting hundreds of metres below the sea, however, remains the backbone of modern communications and as the globalised digital economy continues to expand, the demand for it continues to grow at an astonishing pace.

Which is where Nigel Bayliff comes in. Having graduated as an electronic systems engineer from the University of Essex in the mid-1980s, he started his career with Cable & Wireless, the former British telecoms giant, and has worked on multiple undersea cable projects around the world that have connected more than 40 countries.

Today, he serves as chief executive of Aqua Comms, a Dublin-headquartered company that specialises in undersea fibre optic cable projects.

Originally founded in 2014, Aqua Comms recorded almost $30 million in sales for its 2019 financial year and made an operating profit of just over $3.6 million.

Earlier this year, the company was acquired for $215 million by Digital 9 Infrastructure, a newly formed investment company that listed on the London Stock Exchange in April.

Some companies operate below the radar, but it's more accurate to say Aqua Comms operates below the sonar. "The nature of our business is that we ask investors for $200 million to finance a fibre-optic cable project and then we bury that investment under the sea. It's a bit unusual because you can't see our business as the infrastructure is sitting on the sea floor," Bayliff says.

The company owns and operates two trans-Atlantic fibre optic cable networks known as America Europe Connect-1 (AEC-1) and America Europe Connect-2 (AEC-2) that connect the east coast of the US with Ireland and mainland Europe.

AEC-1 connects New York with Dublin and London via a low-latency fibre-optic network, while AEC-2 was launched in December 2020 and links New Jersey with Denmark. A second branch of the AEC-2 network is on the way that will connect into Ireland via a planned connection station at Old Head in Co Mayo.

Aqua Comms also owns and operates two shorter fibre-optic cable systems that link Ireland to Britain and mainland Europe.

The company is often described as the "carriers' carrier", as its series of cables act as the international telecoms network for many of the largest telecoms businesses in Europe and the US.

Dramatic fall in costs

When Bayliff first joined Cable & Wireless in the 1980s, the development and operation of undersea cables was handled exclusively by telecoms companies.

"The original cables laid down in that time were usually done by a consortium of telecoms companies who collaborated on projects to share the costs. So you might have BT, Eircom, Deutsche Telekom, and France Télécom all working together on a cable project because it could meet all their needs for trans-Atlantic network capacity," Bayliff says.

“But deregulation of the telecoms market has dramatically changed all that. We’re an independent company that specialises in undersea fibre-optic infrastructure. Our customers are many of the same telecoms companies that laid down the original cables but also modern technology companies,” he says.

Bayliff says the development of the internet in the 1990s and the subsequent dotcom bubble fuelled growth in the amount of cable capacity built in the Atlantic market, which is the busiest undersea telecoms highway in the world.

“In the past 20 years since the dotcom bubble burst, two things have happened in this industry. The first thing is we’ve seen a new breed of private tech companies that are disrupting their industries, like WhatsApp, which is simply substituting the traditional phone service through digital communications,” Bayliff says.

“The emergence of these tech companies has led to an exponential growth in demand for data. Since 2004, the rate of growth for data demand has averaged 41 per cent every year. By 2035 it’s estimated the trans-Atlantic route alone will need 40 petabytes of undersea fibre-optic capacity. Right now, we have just two petabytes of capacity.

“The second thing that has happened in this industry is that the cost of communications has fallen dramatically. Over the last 15 years, the cost per megabit of data has declined by 27 per cent a year on average.”

Bayliff says the economics of the industry remain underpinned by double-digit growth in demand coupled with continuously falling costs due to ever improving technology. He added that the typical cost of laying a fibre-optic cable across the Atlantic is in the region of $200 million and will take three to five years to complete.

“We start with extremely detailed surveys checking every metre of sea floor along a planned route. We need to know exactly how the cable will sit on the seabed. We then look at landing positions before we move onto the regulatory process, which is very complex because you’re dealing with maritime laws and other industries that are also operating in the sea like oil and gas companies.

“Once we select the route and agree the framework for the project we then begin looking for investment backing. We then contract the cable to be manufactured by one of just five very specialist companies that make undersea cables. In all it takes about a year for the cable to be made.

“Right now Aqua Comms and other players in the industry are in the midst of a new investment phase where we are laying new cables that will have dramatically higher capacity thanks to fibre-optic technology,” he says.

Bayliff says the modern cable is about the diameter of a bottle cap in size but it has six to ten times more capacity than those of just ten years ago. They are laid on the sea floor by specialist ships that cost about $150 million to build.

“There are only about 30 of these ships in the world, and they’re constantly working laying down cable. It takes about three months to lay one across the Atlantic and these ships have incredible technology.

“They can stay exactly above the point on the sea floor where the cable is being laid down even in times of high waves and storms.

“The modern cables are much more efficient. And our business is all about improving efficiency. For modern consumers and businesses, communications is now quite a cheap part of their activities. And I think the growth in communications and how affordable it has become has really facilitated globalisation over recent decades,” he says.

New set of customers

Although telecoms customers remain a big part of Aqua Comms business, Bayliff said the growth of the tech industry, in particular giants like Apple, Amazon, Facebook and Google, had created an entirely new set of customers for the undersea cable industry.

He added that while these companies may offer streaming services or cloud computing, the transfer of data around the world was still reliant on hard cables sitting on the ocean floor.

“If you take a Tesla car, for example – no matter where in the world that car is, it’s always collecting information about the driving environment and the performance of the car, and it’s constantly sending that information back to the enormous data-lake Tesla has in California, where it is always analysing the data. But for the data in a Tesla car in Europe or Asia, or any part of the world, it has to travel through undersea cables to make it back to the west coast of the US,” he says.

Bayliff says a similar principle applies to every photo or piece of data captured by the smartphones we all carry around with us. The very first thing the phone will do is try to send a new photo or piece of information to the cloud, which is a data centre hub closest to the phone’s user.

However, if people are moving around in different countries, the smartphone will continue to send all data it collects back to its home data centre hub, wherever that may be – meaning it will often need to move via the global cable network.

“Almost everything is digitised in some capacity today,” says Bayliff, “and our data is increasingly stored in these huge data centre hubs. I call it the ‘cloudification’ of everything. If you think about it, the office has really just become a physical meeting place, rather than a requirement to do business. The last year, with everyone working from home, proves that because businesses were still able to operate.”

The other big driver of demand for undersea fibre-optic cable has been streaming service providers of television and film , or what is known as over-the-top (OTT) media companies. The evolution of how we consume television and film on demand is only facilitated by the network of undersea cables that link the world.

At either end of the fibre-optic cable networks, the tech industry is developing enormous data centre hubs to create resilience in their networks, Bayliff says.

“The original telecoms carriers simply wanted capacity in the network. But the modern tech industry is trying to create resilience in the system. And that’s why you see the tech sector developing these data centre hubs in Dublin, London, Denmark, Norway, Spain, Singapore, India, Japan and back around to the US west Coast. It’s what’s known in the industry as a data-lake,” he says.

“Trans-Atlantic cables from the US are landing in Ireland, Britain, France and Spain. On the opposite side, the cables are landing in Halifax, Boston, New York, New Jersey, Virginia and Florida. Having multiple cable lines reduces the physical risks of damage or disruption to one cable.

“You have to remember, these cables are buried under the sea in some incredibly harsh environments. And they may be running close to areas where there’s oil or gas exploration taking place or sea floor mineral extraction. So you don’t want to be too reliant on a single fibre cable in case it gets chopped in half by something like that.”

When asked where he sees Ireland’s position in the global telecoms industry, Bayliff says the country is really well placed to continue to attract investment from the telecoms and technology industries. He adds that Ireland currently has three new era cables (ie, less than five years old)

connecting it with North America, which is the highest number of any European country.

“Ireland has three new era cables that will act as the hyper-scale expressway for data around the world. The new smart city Neom, that’s being constructed in the middle of the desert in Saudi Arabia, is going to be hugely reliant on the network between Ireland and the US. Even though that city is being built in the Middle East, the most direct route to connect it with the world is still via fibre-optic cables to Europe, up to Ireland and from there to the US,” he added.

It’s not something we think about when we sit down to watch our favourite show or send another photo via WhatsApp, but when you strip it all back, our modern connected world is still dependent on a series of small cables buried at the bottom of the ocean.

“The global communications network will always need physical assets and cables. It’s a simple matter of physics,” Bayliff says.

In his own words: Why Ireland’s planning system needs to be overhauled

In this line of work, the biggest unknown for developers is whether you will be granted the appropriate licensing permits to land a cable in a country. Some countries have made this process easier than others because they want to encourage connection infrastructure.

Ireland has improved its licensing process, but it’s still not great. The nature of public interaction for all planning applications and developments delays a lot of important infrastructure projects. Apple’s planned data centre in Athenry is a good example of this and something we watched quite closely.

What Ireland really needs is a much more streamlined and straightforward planning process for large infrastructure projects. The system needs to give more certainty to businesses on the timeframe of when to expect an answer. It’s not about if the answer is yes or no. It’s about having certainty around the time an application is going to take. Because right now, you could be hoping to get planning permission for a new project within 12 months, but it could just as easily take 24 or 36 months.

If we knew it was going to take a maximum of 18 months to get an answer on planning permission, then that would be fine. We could work around that because the development timelines of large infrastructure projects are quite long.

As it stands, the timeline uncertainty is a huge issue for infrastructure developers and Ireland is losing ground because of it. What I can see from my position is that over-the-top media companies are investing in countries where they can be sure of a more fixed timeline on projects.

If Ireland wants to win projects from tech multinationals, it really needs to overhaul its planning framework for infrastructure developments.