AMP CAPITAL

COMMUNICATIONS AND INFORMATION INFRASTRUCTURE

Investing today for tomorrow's needs

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A digital transformation has revolutionised how the world communicates and how information is accessed, processed and stored. From interfaces that allow companies to operate seamlessly around the world to connecting friends and family, technological advances have made instant interactions and content access reliably routine. Creating, storing and accessing reports, media content and other data can be done with a click and sent worldwide in seconds.

But this is revolution, not evolution. Underpinning the trillions of daily communications and masses of newly created data is a vast network of infrastructure that needs constant innovation and development. AMP Capital's communications sector experts explain how investing in the systems that connect people, business and things can harness the growth and progress of our digital journey.

INFRASTRUCTURE INVESTOR AWARDS 2018
Telecoms and Broadband Investor of the year
Global

INFRASTRUCTURE INVESTOR AWARDS 2018
Telecoms and Broadband Investor of the year
North America

The rapid expansion and scope of the digital network

From the first electronically delivered message to the prototype portable telephone, the development of the communications sector has exploded over the past 50 years. There are now trillions of messages sent every day using billions of laptops and smartphones that are more powerful than NASA's computers that put a man on the moon.

- 1984 - The first mobile phone launched, costing around $4,000. A 10-hour charge provided 30 minutes use.
- 1992 - Commercial dial up internet becomes available.
- 2000 - Broadband is introduced to the UK, providing much faster internet access.
- 2007 - The iPhone is launched - smartphone usage explodes[1].

Through these new communication methods travel quantities of data that were unimaginable just a few decades ago. Instead of recounting a story or episode using a single, vocal medium, pictures, music and videos are regularly used to communicate with friends, colleagues and the wider world. This all adds to an ever-expanding data mountain, which is sent through a mixture of mobile and fibre networks to be hosted in the rapidly expanding cloud, powered by servers that are integral to corporate and international security.

But the growth story is not over – the advent of the Internet of Things will connect autonomous cars; people will demand more content such as 4K Netflix; and businesses will process and store more data – indeed the race to control data, often dubbed 'the new oil' is a key value driver for FAANGs (Facebook, Amazon, Apple, Netflix and Google) the market capitalisation of which is greater than the UK economy.

While back in the first stages of development, consumers were happy to wait for existing, analogue systems to respond, they have become less patient. Messages must now be delivered immediately, and data uploaded or accessed accurately and without delay – and most importantly, the whole process must be secure.

The technology that supports this innovation is developing all the time and provides a wide range of investment opportunities. Fibre optic cables are replacing copper lines and new data centres are coming online to support the weight of the expanding cloud services being launched around the world. As mobile telecommunications grow alongside fixed line networks, there is a continuing push to maximise spectrum efficiency whilst building and repurposing masts and towers to transmit increasing volumes of radio waves.

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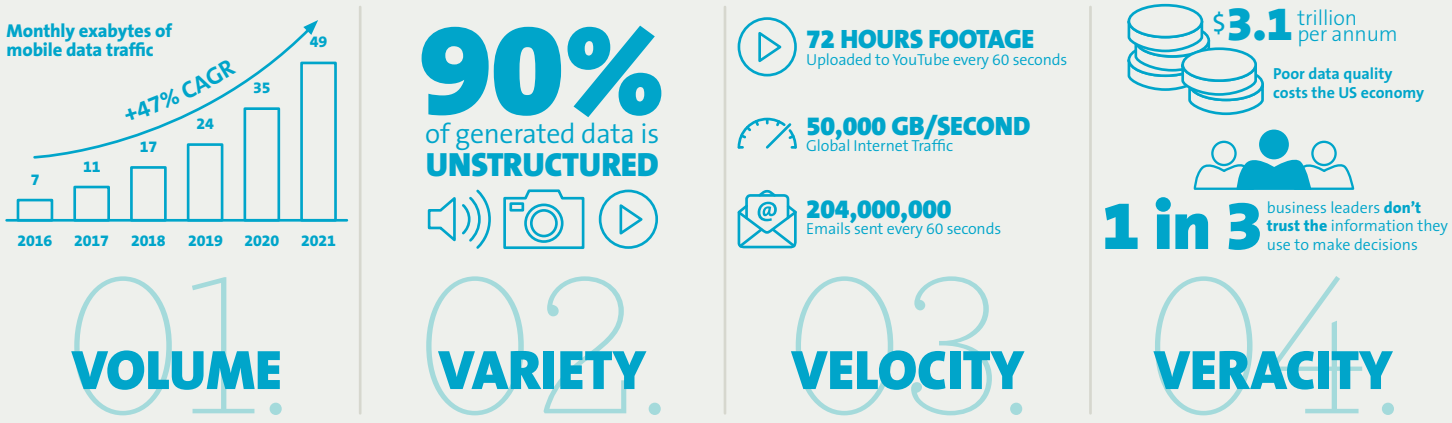
1. https://stfc.ukri.org/files/digital-revolution-infographic/

Understanding the basis for development in a burgeoning sector

We explore several themes driving growth and development in the communications space

An explosion in data demand is the fundamental driving force behind growth across the telecommunications sector – this phenomenon is summarised by the '**four Vs of big data**':



Source: Cisco VNI; IBM Big Data Hub

In addition to rapidly growing demands on digital networks, emerging themes are creating sectoral shifts.

For instance, analogue radio transmission revolutionised communications over the last century, but the spectrum over which radio is transmitted is finite. Trying to match ever growing mobile data demand with available spectrum has resulted in record prices paid across Europe by operators. We are seeing governments repurposing spectrum to maximise capacity, whilst supporting the growth of fixed line networks (fibre is essentially unlimited) which increasingly connect homes, businesses and towers.

We're seeing enterprises the world over increasingly outsourcing their IT infrastructure, with rapidly increasing demand for co-location data centres and fully integrated cloud services including Infrastructure as a Service (IaaS). Outsourcing can be cheaper, more scalable and push highly critical work to independent expert providers. But, this revolution again needs network investment to build and connect the data centres that power our businesses and deliver the media content we demand.

The amount of data we send, compute and store is rising exponentially – whether it be streaming 4K Netflix at home, autonomous cars and other IoT devices communicating or searching email archives on Office365 at work. To maximise network efficiency, much more infrastructure needs to be deployed at the edge of the network – right where we use it. This means greater fibre deployment (FTTx) and more small scale 'edge' datacentres.

Small cell networks and the advent of 5G will have a significant part to play in delivering this too, but this will take time due to the cost mobile operators face in rolling out new equipment (and the fibre that connects it) against a backdrop of stagnating revenues and no clear path to increase them sustainably with a 5G offering.

These themes are the corners of a framework that are essential when considering where the sector is set to expand next. While a company or venture does not have to provide solutions to all these themes to be considered for investment, it must at least acknowledge their direction of travel as the sector gains momentum.

We are not yet at the end point of the transition out of our analogue history. We believe the world is between a third and half of the way through its conversion to a digital network. As even more of the processes that affect our daily lives begin to move online, the need for data centres, fibre connections and reliable connectivity will only increase.

Not only corporations of all sizes, but government and regulators are increasingly dependent on digital outreach to stay up to date with the public they serve.

Regeneration

> “Turning today’s technology into future growth”

Regeneration of old technology is a key theme in communications and data infrastructure. The mantra of “reuse and recycle” is applicable to the apparatus these sectors rely on to function and it enables the owners of these assets to tap into future growth.

By establishing where and how the communications and data sector is set to move next, we can look at existing infrastructure and work out how it can be used in the future, while keeping it operational today.

While there has been a sensational lunge towards new technology in the previous couple of decades, it has not yet taken over completely. Traditional forms of communication still have a part to play and, at least for the time being, the world does not rely entirely on the cloud for storage.

For example, some international governments still rely on an analogue broadcasting system through which they can communicate with the public in the case of an emergency. While there is little development needed to maintain that service, by taking control of the assets that provide it and updating them, an investor can be ready for when the next step in the journey is taken.

Data centres, too, rather than continue to grow in number, will need to start boosting their capacity to process and store information more quickly and securely.

Upgrading assets, while maintaining current service is a key aspect to infrastructure investing.

Opportunities to update and innovate lie everywhere, and while there is no lack of capital to fund and facilitate transformations of existing assets, it is the expertise of investors and managers to develop and shape the future that is key – and increasingly scarce.

Innovation and expert knowledge of the sector is crucial to coming up with new, practical ideas that can transform an existing structure into something fit for the digital age. Adapting something to a new environment unleashes its potential, while enabling it to continue to carry out its original function.

In looking at infrastructure assets this way, it is clear they do not have to behave like bonds or other fixed income instruments. The returns on fixed income securities rely on something that has already been created and pay out regardless of any improvement to the underlying company – this is not the aim of transforming existing infrastructure assets.

In classing infrastructure as a bond-like asset, an investor risks being unable to create upside to a project but is susceptible to any downside slip that is out of their hands. Disruption, as we have seen, can come when a sector least expects it, leaving assets that have no ability for flex and change becoming rapidly outdated.

When this happens, any perceived predictable and dependable income stream could dry up and the asset rapidly fall in value.

Instead, infrastructure investments can be managed like growth assets to be improved and reconfigured towards changes and advancements in society.

The mammoth investment in communications infrastructure to meet the needs of tomorrow will also depend on new and emerging business models. For example, mobile operators may not be best placed for the huge capital investment required for 5G (and whatever succeeds it in the future) – especially as they consider record levels of leverage. We expect to see new business models and partnerships to invest in the likes of spectrum, communications equipment and infrastructure – with expert investors offering deep sector knowledge and strong relationships best placed to benefit from these shifts.

Regeneration of old technology is a key theme in communications and data infrastructure.

Case study
Turning dark into light

The partnership between an AMP Capital portfolio company and Spain's national gas network is set to deliver additional fibre connectivity to the Spanish market through a new joint venture.

In 2016, AMP Capital acquired Spanish telecoms infrastructure business Axión with a plan to grow and evolve its business. At the time of the acquisition, Axión's primary focus was media broadcasting, but managers envisaged how it could be developed to have a broader emphasis on telecommunications, keeping pace with society's growing demand for data connectivity.

Through a partnership with Spain's gas network owner and operator Enagás, Axión, led by AMP Capital, created Axent - a new fibre business.

By bringing the capabilities and assets of these two companies together, Axent can utilise 4,600 km of optical fibre owned by Enagás and more than 300 radio links operated by Axión.

Axent holds around 5% of the dark fibre currently available in Spain.

The integration of fibre and radio technologies is an advantage for customers, including mobile operators, content and so-called Over-The-Top service providers, who are increasingly demanding efficiency, greater capacity, flexibility and durability. Infrastructure providers are expected to offer robust and competitively priced solutions, which Axent's scale and diversified networks can supply.

Communications infrastructure businesses need to keep moving to keep up with demand, both for increased capacity and speed, and quality of service.

As the joint venture primarily makes use of existing fibre networks that were originally laid by Enagás for its own needs, something many utilities companies have done historically, Axent expects to be more efficient and cost-effective than if it were to put in place new fibre and related infrastructure as it expands with further connections. It plans to roll out a further 1,000km of fibre to broaden its network reach, enhance connectivity and develop redundancy (back-up). Eventually, Axent hopes to connect 25 Spanish cities using both fibre and radio networks.

By marrying the two companies' experience – Axión as an operator of wireless telecommunications infrastructures and Enagás's technical knowledge related to fibre deployment and maintenance – the joint venture has been able to innovate and capitalise on where the technical revolution is heading next.

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Authors

Matt Evans
Partner

Adam Ringer
Investment Director

Alastair Small
Associate Director

Contact details

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Infrastructure Investor Review 2018: AMP Capital was awarded Investor of the year in the following categories and regions: Telecoms and Broadband Investor of the Year, Global, Telecoms and Broadband Investor of the Year, North America and Transport Investor of the Year, Europe. Infrastructure Investor draw up a shortlist of worthy candidates per category based on coverage of the market throughout the year and on the many submissions received, which is then voted on by other industry members