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Perspective

Enhancing operator business services with 5G

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RESEARCH

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1. Executive summary

Operators need new sources of revenue growth in the business market. 5G, especially 5G standalone (SA), provides opportunities for operators to generate new revenue from features such as ultra-reliable connections, low latency, massive connectivity and integration with edge services.

These services will be sold and delivered in different ways from traditional services (for example, they can be consumed on-demand and controlled via APIs). Customers will value the features enabled by 5G in different ways from traditional services. Operators will need to experiment with alternative pricing models and package features in new ways. For example, services such as unified communications could be sold with guaranteed service levels. The new features, delivery and pricing models will require mobile operators to change their thinking and to invest in new systems.

Operators will be able to add 5G-related features to the connectivity-related products that they can sell, increasing the revenue opportunity and strengthening their position in the value chain. Operators with the relevant assets will also link 5G features into other cloud, security, UC and fixed propositions, potentially creating a unique bundle of products. The most ambitious operators will use the extra features of 5G to enhance propositions in markets such as drones and healthcare.

A potential weakness in the argument for many 5G SA services is that they remain theoretical. However, many of the features being developed in 5G SA are already available in the private networks market, which has seen strong growth. Over 50 operators are also exploring the opportunity presented by edge computing, another area with close links to 5G SA networks. Interest in private 5G networks and edge computing is evidence that the case for enhanced 5G networks is not purely theoretical.

These developments all have implications for an operator's current strategy. Operators need to:

- **watch the developments in private networks and edge computing closely**, because they will indicate where the demand will come from and provide lessons that can be applied to future projects
- **consider how the introduction of enhanced features will affect market positioning**, helping operators to strengthen the current strategy and possibly explore alternative, and more ambitious, options
- **experiment with pricing models for the new services that are enabled by 5G SA and be prepared to invest in the systems that are required to support and deliver those services**
- **consider how to address new customer types, who will** require different engagement models (such as API-based consumption of network resources) and new business models
- **consider how an operator needs to be organised to iterate and experiment with 5G SA rapidly.**

This report explores how telecoms operators should prepare themselves to benefit from the 5G opportunity in the business market.

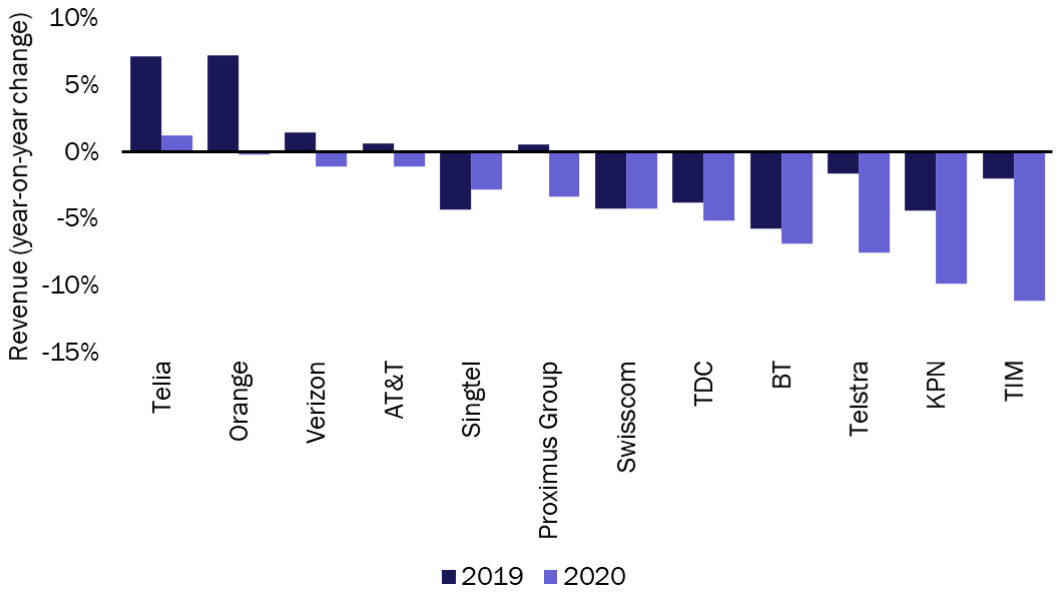
2. Introduction

Operators need new sources of revenue growth for their business divisions, and 5G can help to deliver this

Revenue from businesses accounts for around a third of telecoms industry retail revenue. This revenue is under pressure; the business divisions of most operators in high-income countries are performing less well than their consumer divisions because of technology changes and competition.

The pandemic has exacerbated these differences; business revenue for most operators is falling faster than before, mainly due to the loss of mobile roaming revenue. Longer-term changes in how people work also threaten the opportunity with the business market. Continued high levels of working from home will decrease the need for office connectivity. At the same time, it is unclear whether international travel, and therefore roaming revenue, will ever return to previous levels. The pandemic has created new opportunities, such as providing mobile back-up to fixed home broadband connections, but these opportunities can be difficult for a business division to capture.

Figure 1: Business revenue, year-on-year percentage change for selected operators, calendar years 2019 and 2020



Source: Analysys Mason

Operators need new sources of revenue in the business market. Many are pursuing cloud and security services, but it can be challenging for operators to differentiate their propositions in these markets. In contrast, services based on 5G depend on scarce spectrum resources and provide network operators with market opportunities that are unavailable to others.

Operators have so far struggled to make new money from 5G business services

The operators that have launched a 5G network are failing to differentiate their offers, and the appeal of 5G connectivity for smartphones is limited as far as most businesses are concerned. In a recent Analysys Mason

survey, businesses ranked 5G as less important than nine other factors when selecting a new contract, behind aspects such as coverage, security and price.[1] New business-focused services are appearing, particularly fixed-wireless access based on 5G[2], but these seem unlikely to drive significant revenue growth since they typically replace existing services.

The services offered to businesses on 5G networks do not take advantage of what 5G can offer, other than higher speeds. The capabilities that will be built into 5G SA networks, such as lower latency, higher reliability, integration with edge computing, on-demand and flexible capabilities either have not yet been launched or are only offered on a small scale.

Simply offering a faster version of an existing service seems unlikely to generate significant additional revenue. Operators will need to provide something different. This will require new thinking and new systems; the traditional models and dimensions of the mobile offer may not be sufficient.

This paper explores how telecoms operators should prepare themselves to benefit from the 5G opportunity in the business market and is structured as follows.

- Section 3 explores the different features that 5G make possible.
- Section 4 outlines some of the new business models that mobile operators will need so they can offer these new services.
- Section 5 examines the implications of these new services and models on the operators' positioning in the value chain.
- Section 6 argues that what 5G will offer is not purely speculative but that we already see some proof of the demand for these services.
- Section 7 brings the different strands in the report together to generate a series of recommendations for operators addressing the 5G market.

3. New features enabled by 5G

This section will discuss how 5G adds new capabilities to an operator's offer beyond additional speed.

Pricing plans for 5G have so far followed the same model as those for previous technology generations

The differences between 4G and previous generations of cellular technology were primarily about increased speed. 4G did have greater capacity and lower latency than 3G, but the main advantage experienced by users and marketed by the operators was the increase in connection speed.

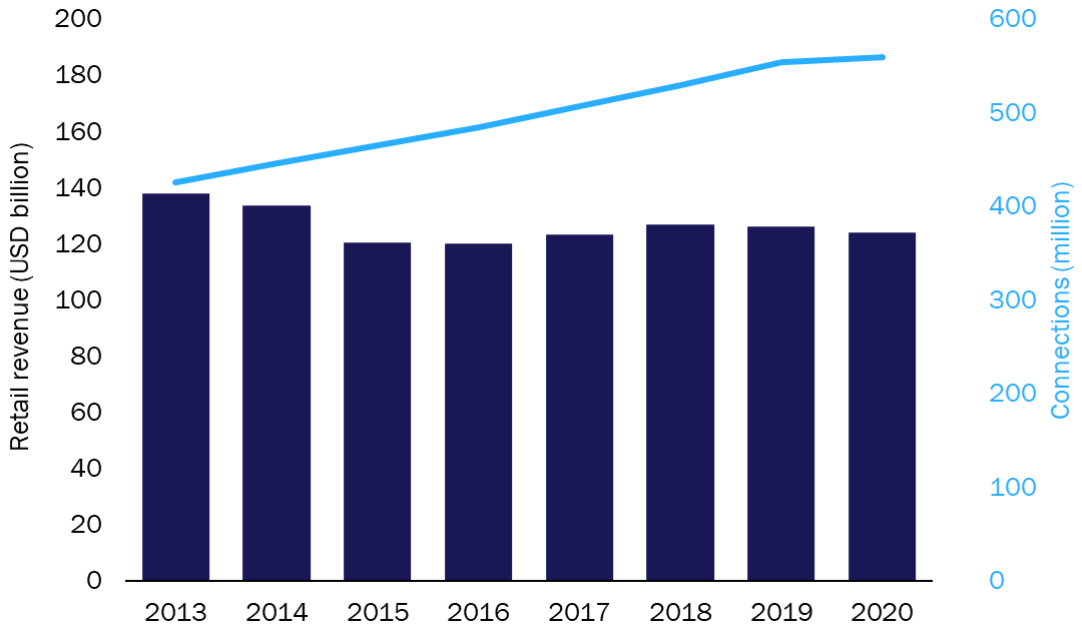
When telecoms operators introduced 4G they could, to a large extent, rely on the same basic models that they had used for 3G and 2G. The service price was based only on a few dimensions (the volume of voice calls, text messages or data). The increased speeds of 4G over 3G helped to support higher levels of usage. Despite

1 For more information, see Analysys Mason's *Most SMEs consider 5G services to be a low priority as COVID-19 restrictions begin to ease.*

2 For example, see T-Mobile USA's May 2021 announcement, *The Un-carrier Unlocks Big Opportunities for Small Businesses.*

increases in connection numbers and data usage, operator revenue was flat because unit prices (for example, the price per megabyte) declined (Figure 2).

Figure 2: Operators' business mobile revenue and connections, worldwide, 2013–2020



Source: Analysys Mason

This relatively simple pricing model, mostly based on data volumes, has also been adopted by operators that are selling 5G services to businesses. Operators have focused on products like fixed-wireless access and smartphone connectivity, which fit well with this model. However, as we can see from the experience of 4G, these services are unlikely to help operators to increase mobile revenue.

5G allows operators to add new features to mobile propositions

5G, especially 5G standalone (5G SA), gives operators options to break the cycle of chasing extra data usage and new connections to counter falling unit prices. 5G has more features to offer and weakens the link between data volumes and revenue.

Each of these features is described below:

- **Ultra-reliable communications.** Mobile operators have not offered service-level guarantees for previous network technologies, but they will be able to with 5G.
- **Low-latency communications.** 5G SA can deliver the sub-5m/s communication that time-sensitive applications require.
- **Massive connectivity:** 5G will support more simultaneous connections than previous generations (over 1 million per square kilometre), which could support IoT services, such as dense sensor networks.
- **Integration with edge computing.** Businesses are making greater use of edge computing where the computing stack is closer to the end device than is the case with established cloud computing models. Edge

nodes could be on-premises (sometimes called customer or private edge) or within a telecoms operator's network (network edge or public edge). Edge computing has many benefits; low latency is a key one. 5G can help to support low-latency services in a private network (typically using customer edge) or in the public network, combined with network edge.

- **Good coverage**. A high level of coverage are not necessarily unique to 5G, but operators will need to offer it if they are to provide new types of connectivity into different market segments. Some customers will want deep indoor coverage, potentially provided by a private network that seamlessly roams onto the public network. Other customers may require full national coverage.

Notably, many of these features are already offered on fixed networks. For example, operators offer strict service-level agreements for business fixed connections, and low-latency communications are essential for some sectors, such as financial services. For operators with fixed divisions, the capabilities of 5G SA are not entirely new but can be combined with mobility, and therefore offer greater flexibility.

Businesses may also want to use these new 5G features in different ways. They may not need continued access, but features could be switched on or off, or capacity increased at peak times. Again, these are not entirely new concepts for the telecoms sector – some operators are already offering fixed capacity on-demand – but they are new to the mobile industry.

The inherent flexibility of mobile connectivity and these new ways of consuming services, such as on-demand, may even be a good match. Fixed connections are static, and costly and slow to install. Mobile should suit applications that cannot be connected by a fibre because they need mobility, are needed rapidly or do not support the upfront costs of a fibre connection.

4. New business models

This section discusses how the new features will require mobile operators to adopt new types of business models.

Operators' business customers will value the new features that are enabled by 5G in different ways. The value to customers will not be purely based on data volumes but measures of reliability, latency, integration with other features, or even on the final outputs that the network enables (that is, outcome-based pricing).

Operators will need to experiment with different pricing models for customers and be willing to price and package features in new ways.

Pricing options could include:

- usage-based pricing (today's prevalent model)
- pricing based on service levels, such as a guaranteed throughput or sub-5m/s latency
- time-based pricing (for example, access to a set of features within a given period)
- coverage-based pricing includes options for deep indoor coverage (potentially combined with a private network)
- volume of devices, which could include not just the number of devices connected, but the number of devices connected in a square kilometre

- API-based pricing.

Operators could charge for each of the different features of 5G connectivity separately, offer them as a bundle of connectivity and SLAs, or as a bundle of a service with SLAs. For example, a unified communication service could be sold with guaranteed SLAs. Bundles could be tailored to particular types of applications. For instance, connectivity designed to support applications that make heavy use of AI or ML could include a combination of very low latency and high availability along with edge computing capacity.

The challenge of adopting new models should not be underestimated. Telecoms operators with fixed divisions will have some experience with these models, but the number and range of features are increasing even for converged operators. For mobile-only operators, many of these features will be new and will require new thinking. All operators will need to invest in support systems.

Mobile operators will also need to develop new methods for selling and delivering new features. The predominant sales model for selling mobile contracts to the business sector often involves some degree of discussion and negotiation, even if the number of parameters is relatively limited (typically the number of connections, usage and price).

This sales model becomes more complex in the 5G world, with the overall price driven by the many new features. Almost certainly, this will mean that the new services will be too complex to be sold and delivered using manual processes – more of the sales, delivery and management of connections will need to be automated and managed dynamically (for example, via APIs).

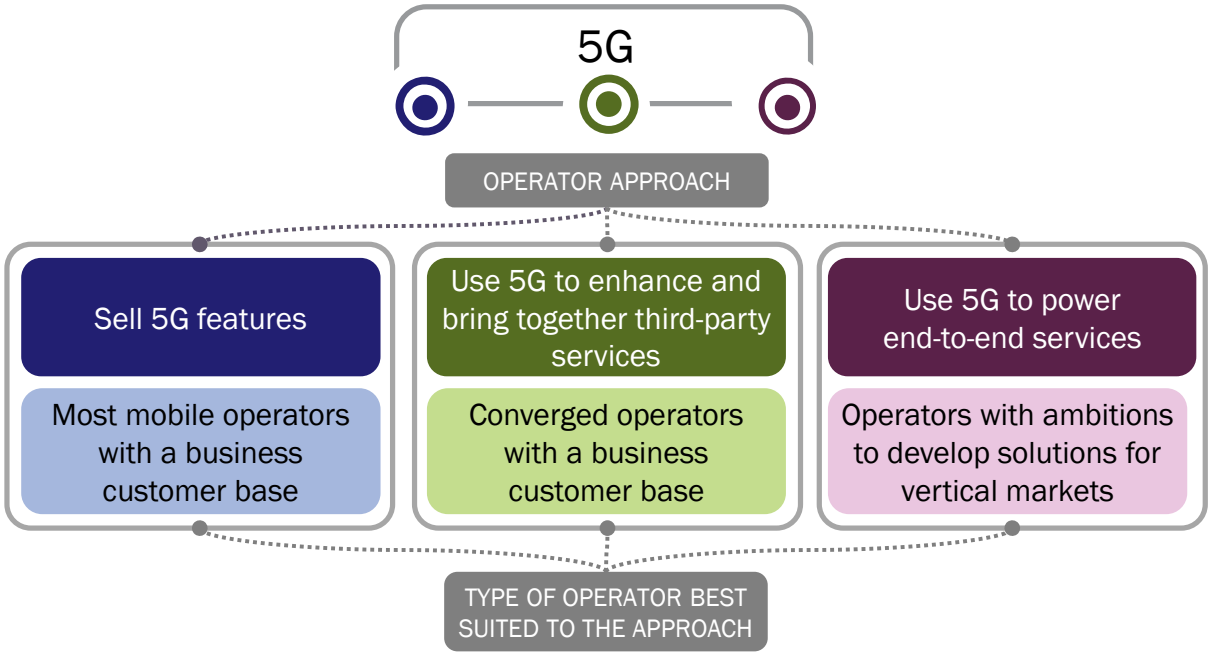
5. Operator positioning

This section discusses how the new features sold by mobile operators will affect their positioning.

Operators have three broad options for positioning 5G services

Figure 3 summarises the three basic options for operators, and these are described in more detail below. These options are not mutually exclusive – an operator can take one position or a combination of multiple positions. Furthermore, the capabilities that 5G brings may encourage operators to take alternative strategies from the historical approaches.

Figure 3: Three basic positions that operators can take with regards to 5G capabilities



Source: Analysys Mason

Selling 5G features

The increase in the number and type of features that 5G provides is unlikely to fundamentally change the position of mobile operators in the value chain. For most customers, connectivity and other services bought from a telecoms operator will be a relatively small proportion of the total spend on a solution.

For example, we calculate that for the average IoT solution that uses cellular, connectivity is worth 7% of total spend. The increase in revenue from new 5G features may increase this by a few percentage points, but operators would remain a relatively minor supplier.

Given this relatively low share of spend, telecoms operators will not be ideally positioned to be the lead contractor in most product areas, even with 5G. For most solutions, operators are likely to retain a position similar to the one they currently occupy as an important supplier providing services that are crucial for the whole solution to work, but not a lead supplier or prime contractor.

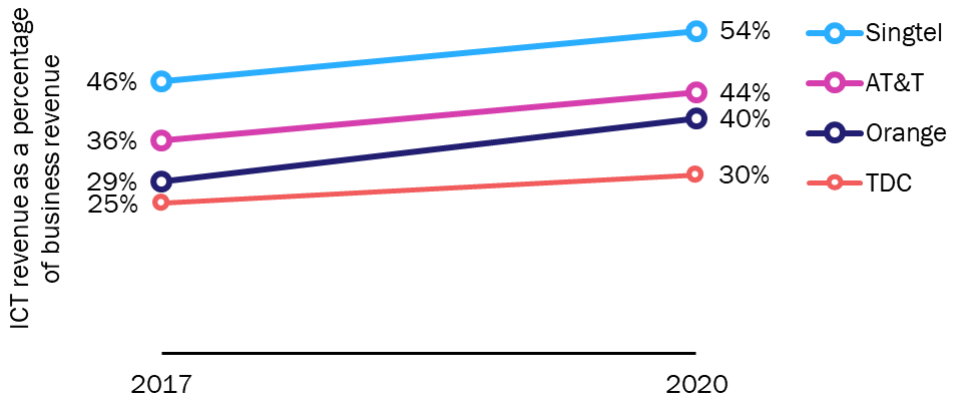
This is the position that we expect operators to take with most customers for most services, but operators should not disregard the importance of this role. It will provide an opportunity to generate additional revenue alongside existing products but it will also act as a differentiator for the basic connectivity of operators that offer enhanced services. Even if a customer does not immediately require features such as low latency, it may want to have the option of adding them later. As such, enhanced 5G features will also help to defend core revenue – current mobile revenue may be under threat if services are not offered.

Using 5G to enhance and bring together third-party services

Some operators will be more ambitious in their use of new 5G features to enhance current strategies. Most of the large global operators already have substantial cloud and security teams. They are successfully providing solutions that combine connectivity, cloud services from multiple public cloud providers, and security solutions from various vendors.

For example, Orange has reported that it is generating just over 40% of its enterprise revenue from IT services, up from 29% in 2017 (Figure 4). Other operators are also reporting sharp increases in their IT service revenue.

Figure 4: ICT revenue as a percentage of business revenue for selected operators, 2017–2020



Source: Analysys Mason

The addition of 5G network-embedded services, such as low latency and high reliability, will fit well with these efforts and provide telecoms operators with differentiators. Combining services is also increasingly important for telecoms operators that are attempting to win a higher share of the enterprise market. Selling an individual service (for example, selling a single 100Mbit/s Ethernet circuit) is not the strategy of most of the larger operators.

Operators want to sell a combination of the basic underlay connectivity and security, cloud services, unified communications offers and others. The link between many of these services and mobile has often been weak. Many businesses, especially the larger ones, procure mobile services separately from fixed and others.

The capabilities that 5G enables will help to embed mobile services into the broader portfolio offered by a telecoms operator. The revenue uplift and cost advantage from selling fixed and mobile to the same customer may be more substantial than the incremental value of selling extra features enabled by 5G. The additional revenue from selling fixed plus mobile plus cloud, edge and security services will be greater still.

The operators that are best placed to benefit from this approach will be those with fixed and mobile networks, plus capabilities in areas such as cloud and security. Mobile-only operators, or operators with small business divisions, will need to consider how to pursue this approach – it may require partnerships with fixed operators or service providers in other categories, such as edge, cloud and security. The addition of 5G SA to their portfolio should put these operators in a stronger position when setting up these partnerships than was previously the case.

Using 5G to power end-to-end services

The third option for operators is to be even more ambitious and provide solutions for vertical markets. In IoT, many operators are doing this in fleet management. Some, like Verizon and Orange, have made substantial acquisitions to support these activities. Operators may be able to use 5G to differentiate their fleet management products.

Operators are also looking to provide more than generic connectivity or cloud capabilities in the drones market. BT, Deutsche Telekom, Vodafone and others are working with partners to develop solutions for drone operators.[3] These solutions include enhanced coverage, integration with aviation systems, tracking, data analytics and visualisation.

Many of these services will require or benefit from the additional capabilities that 5G SA can offer. The drones market may not be large, but it could be a high-profile means of promoting advanced capabilities.

Operators are playing a significant role in the health sector, and 5G could enhance services. Telstra has made over 15 acquisitions in the health sector, spending more than USD500 million in the process. Most recently, in August 2021, it bought MedicalDirector for AUD350 million (USD250 million).

While there may be scepticism about the combination of 5G and some healthcare applications like remote surgery, many areas, such as connected ambulances, could benefit from the advanced features offered by 5G. Telstra is hoping to take a more significant role in the value chain than just as a supplier of capabilities, as are KPN, Swisscom, TELUS and others.

Most of the activity around providing solutions to vertical markets has come from the larger operators, but the addition of 5G SA may encourage other operators to have the confidence to expand into new markets.

5G will help operators to sell to new segments

Fixed operators have plenty of experience of selling services into different parts of the value chain for other industries. They provide connectivity to business sites but also sell network inputs to a wide range of companies, for example, providing connectivity between data centres to support cloud service providers or to distribute media for broadcasters and other content companies.

For mobile operators, however, the focus in the business market has been on selling handset and mobile broadband contracts. Other than in IoT, mobile operators do not typically have a direct role in supporting the onward services offered by their customers. The deployment of 5G will change this. 5G connectivity will be used in manufacturing, retail, distribution, media and many other sectors to support not just handsets but also critical business operations.

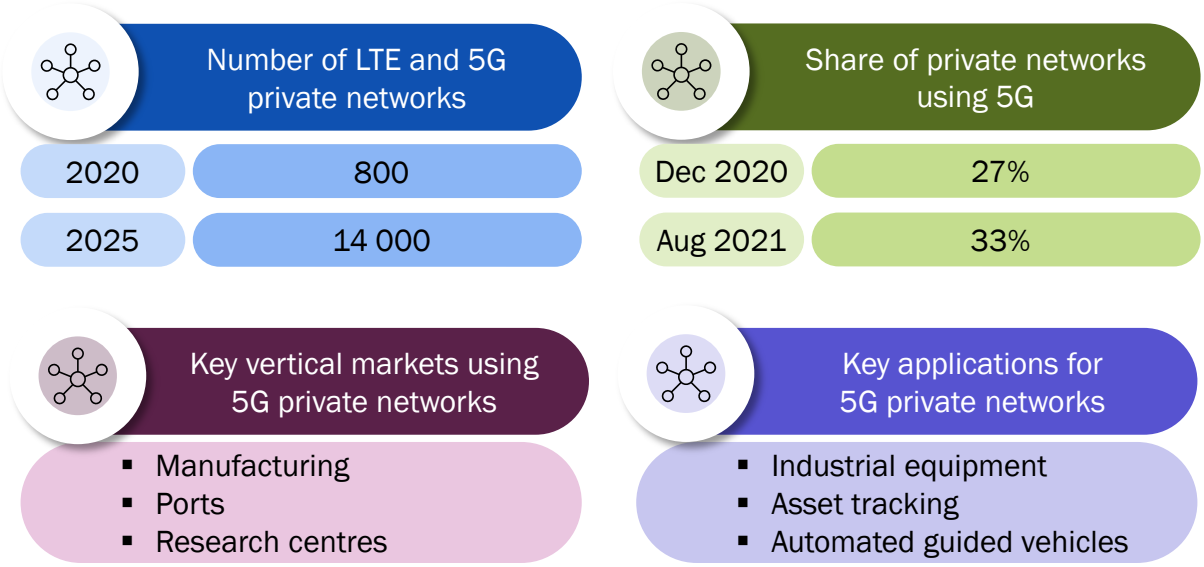
These new opportunities will require a different sales team and approach for mobile operators or mobile divisions of integrated operators. Integrated operators may need closer co-operation between their various divisions than was previously the case.

6. Examples of demand

A potential weakness in the argument for many 5G SA services is that they remain theoretical. However, many of these capabilities are already available in private networks market, which has seen strong growth. Analysys Mason believes that over 800 private networks already use either LTE or 5G, with 5G taking a growing share (Figure 5).

3 For more information, see Analysys Mason's *Cellular drones: opportunities for operators.*

Figure 5: Key data on LTE/5G private networks



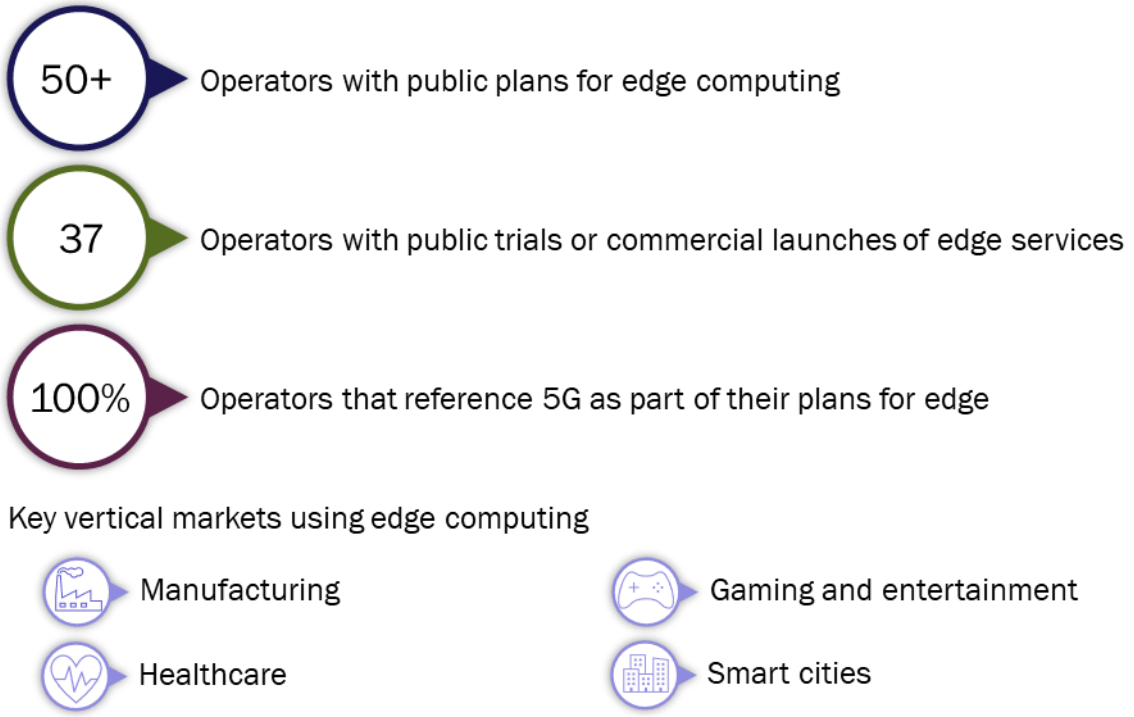
Source: Analysys Mason

Analysys Mason tracks the details of all of the LTE and 5G private networks where information is in the public domain.[4] The networks using 5G are heavily skewed to particular sectors, such as manufacturing, and certain applications, such as industrial equipment. We believe these are sectors that want to take advantage of the greater sophistication of 5G.

We are also seeing heavy involvement from telecoms operators in edge computing. At least 50 operators have publicly announced their interest in edge computing, and more than two-thirds of these have either public trials or have launched commercial services (Figure 6). Mostly, operators are working with AWS, Microsoft and Google on these edge initiatives, but some are developing their own technologies.

4 For more information, see Analysys Mason's *Private LTE/5G networks tracker 1Q 2021.*

Figure 6: Key data on operator edge computing initiatives



Source: Analysys Mason

Some operators, such as Verizon and Vodafone, have announced a long list of commercial customers across various sectors for their edge computing offers. All of the named customers use 5G connectivity in some form (either on the public network or with a private 5G network). We would expect these companies to become customers of the enhanced features that 5G SA will offer when it is available.

The current interest in private 5G networks and edge computing does not prove that there will be strong demand for enhanced 5G services. Still, it does provide evidence that the case for enhanced 5G based on standalone networks is not purely theoretical. As well as giving examples of demand, these implementations can also offer lessons that can be implemented on a broader scale.

7. Recommendations for operators

The ability to offer enhanced services on top of 5G SA will arrive quickly, perhaps as soon as 2023 for some more advanced operators. Operators need to start planning how to market, sell, deliver and support these services when they are available.

Our recommendations for operators on how to tackle the business market are as follows:

- **Watch the developments in private networks and edge computing closely**. These two markets are developing fast and are an early indicator of what operators can expect to see with 5G SA networks. Some

of the critical aspects for operators to watch are which industry verticals adopt these technologies and which applications. It will also be crucial to understand the reasons for adopting private networks or edge computing and whether these are aspects that can be replicated on the public network, such as low latency, or whether they are factors that cannot be copied. Operators with private networks and edge initiatives will have an obvious advantage over those that do not.

- **Consider how the introduction of enhanced features will affect market positioning.** We do not expect new network features to transform an operator's positioning in the market, but they can be used to strengthen a current strategy, especially for operators with large systems integration divisions or ambitions to sell end-to-end services. Operators should start considering how to integrate the new 5G features to enhance their offers.

- **Experiment with new models enabled by 5G SA.** There is a risk that the prevailing model for selling mobile services – volume-based – will hamper operators' attempts to develop more dynamic models. Operators will need to be prepared to experiment with alternative pricing models for these new services. This will require organisational as well as technical changes; operators will need to think differently. This will be less of a change for operators with fixed divisions, because some of the capabilities, such as guaranteed service levels, are already offered by this part of the business.

- **Consider how to address new customer types.** The opportunity in the business market for mobile operators today centres on selling handsets. In future, though, mobile operators will be able to sell services that are crucial to the value proposition of more businesses. Operators should consider preparing for this change by beginning to build internal capabilities and exploring possible partnerships. Operators that already have fixed divisions, or are strong in IoT, should have a head start in this planning.

- **Consider what changes need to be made to iterate and experiment with 5G SA rapidly.** Mobile operators were historically dependent on a small number of products, for which demand was well understood. Operators, therefore, had little incentive to pursue risky strategies. The situation with 5G SA changes this; operators will have more features to offer but less understanding of the potential demand for these features. Operators know that they need to experiment to benefit from this market, but less thinking has gone into facilitating that experimentation. Operators may need to change their organisational architecture to allow experimentation, and invest in platforms and systems that can support different models.

8. About the author

Tom Rebbeck (Partner, Research) leads Analysys Mason's Operator Business Services and IoT research practice drawing on more than 20 years of experience in the telecoms sector. He is based in our London office, but works for clients worldwide. Tom is a specialist on the Internet of Things (IoT) and other enterprise services and has written widely on the role for operators as telecoms markets develop. As well as published research, he has worked on projects for a range of clients – including operators, regulators, industry bodies and vendors. Many of these projects have been supported by original research, such as expert interviews and customer surveys.

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