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Intelligence

Operator revenue in the enterprise market

Tracking the journey,
measuring growth

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GSMA™ Intelligence

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Shape of the market

1

Operators are taking different approaches to addressing the enterprise segment. This has resulted in a range of enterprise contributions to total operator revenue (from 10% to 50%). Traditional communications (mostly connectivity) generates the most enterprise revenue, but adjacent services – such as IoT, security, cloud and data analytics – are the new growth drivers. AT&T leads on size of enterprise revenue (at more than \$70 billion including media); China Mobile leads on growth (9% year-on-year for 2018).

2

The dual challenge. Defending market share in traditional communications and capturing growth in adjacent services is now a common strategy (and challenge) for major operators. In practice, the two areas of the enterprise business are highly interrelated as adjacent services are increasingly seen as a way to retain customers and increase overall spend on enterprise solutions with operators.

3

Enterprise revenue is growing, slowly. Enterprise services are the only source of revenue growth for half the operators analysed, as consumer revenue is stagnating or declining. Enterprise revenue is not growing significantly (at low single-digit rates for many operators) as the B2B connectivity market is increasingly competitive, with smaller operators winning share from incumbents (diluting prices), while the new growth areas have yet to reach scale.

4

New organisational structures are emerging to drive focus and results. These include B2B subsidiaries (e.g. Vodafone, Verizon, Deutsche Telekom, Orange, Telefónica, China Mobile), dedicated units for individual sectors (Verizon Connect, Vodafone Automotive, Orange Healthcare) and joint ventures with tech companies (China Unicom, KDDI). The common aim is to increasingly leverage ICT capabilities and better serve enterprise requirements. 5G and IoT should add impetus to the vertical-focused model.

5

Enterprise is the incremental opportunity in the 5G era. However, getting the capabilities (5G, slicing, edge computing, spectrum) in place to fully service enterprises will take time. Some of the use cases, such as autonomous driving and smart manufacturing, also require greater tech maturity beyond the connectivity/platform layer. The enterprise opportunity brings new competitors – the likes of Amazon, Microsoft, Google and other ICT companies including professional services firms – targeting the same enterprise digitisation opportunity.

The market in numbers

Enterprise as a share of total operator revenue on average in 2018

30%

Enterprise revenue as a share of total operator revenue varies significantly, with 30% the average across the 10 operators analysed. Four operators exceeded 40%, with M&A in the media space a key driver for AT&T, SoftBank and, to a lesser extent, Singtel. For AT&T and SoftBank, enterprise revenue is almost equally split between telecoms and media.

Enterprise revenue for the 10 operators analysed

\$200 billion

Enterprise services are already a \$200+ billion business in aggregate for the 10 operators analysed. AT&T leads on size of enterprise revenue (more than \$70 billion including media), while China Mobile leads on growth (9% year-on-year for 2018).

Contribution of key emerging services to total enterprise revenue

<10%

Traditional communication services (mostly fixed and mobile connectivity) generated more than 60% of total enterprise revenue on average in 2018. IoT, cloud and security are the new drivers of revenue growth but their individual contributions to total enterprise revenue have yet to surpass 10% (for those operators reporting data).

SME share of enterprise revenue

~50%

Few operators report enterprise revenue by type and size of customer. For Telefónica and Vodafone, the SME segment generates half of total enterprise revenue. For Verizon, SMEs account for nearly 40% of total enterprise revenue and are the largest driver of enterprise revenue growth (almost 10% growth in 2018).

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How we track operator journeys in enterprise services

Methodology

- We looked at several major operator groups around the world to measure their enterprise revenue (group figures; 2017 and 2018; annual figures based on fiscal-year reporting periods).
- Revenue disclosure for enterprise services is still limited. The traditional model (fixed and mobile) remains the dominant way of breaking down revenue for operators.
- However, we were able to compare enterprise revenue for 10 major operator groups, laying the groundwork to track future performance.
- Enterprise revenue (and its key components) is calculated based on data as reported by operators and GSMA Intelligence reclassifications and minor estimates (where applicable and appropriate). These adjustments allow a better like-for-like comparison, as in some cases reported data is inconsistent across operators.
- Further data collection and research is ongoing, along with a data update (based on 2019 figures).

Key components of enterprise services

Services beyond communications

- Cloud, IoT security
- Big data and analytics, industry applications, professional services
- Specific solutions for vertical sectors (e.g. automotive, health, utilities)
- Media (advertising, digital marketing, B2B media and entertainment content)

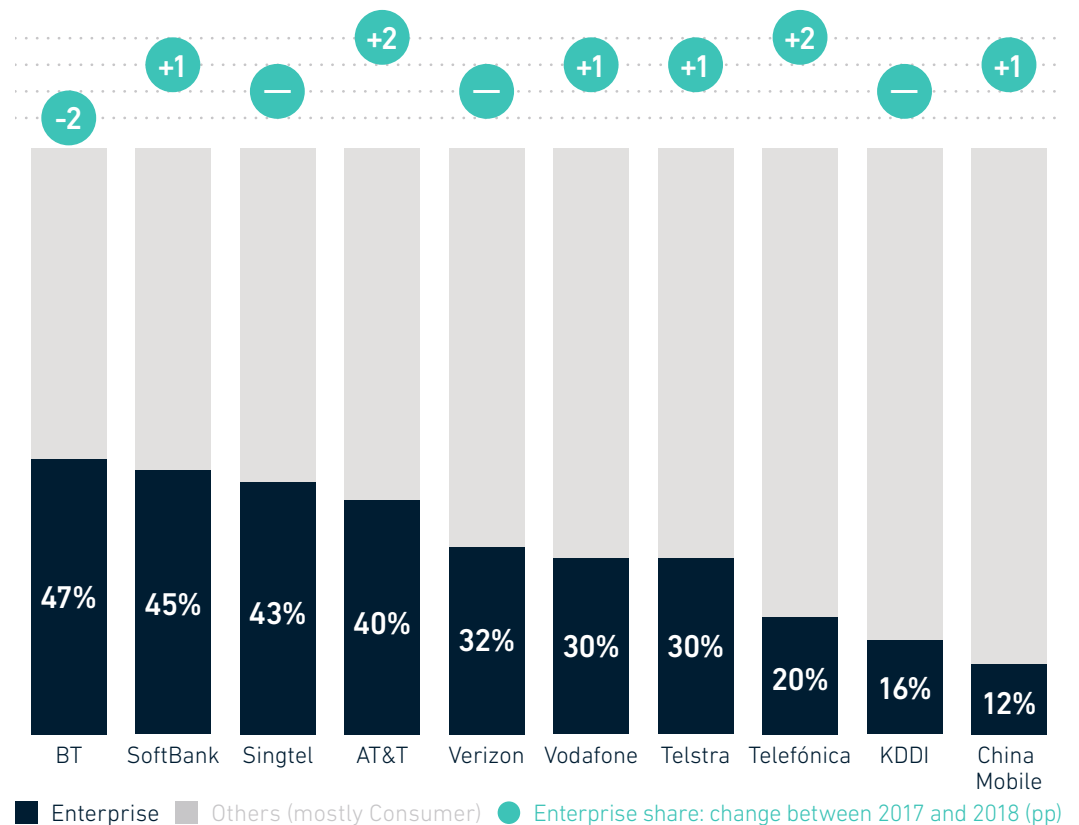
Traditional communications

- SD-WAN, edge networking, private wireless networks
- MPLS WAN, IP-VPNs, leased lines, Ethernet, business communications (unified communications and web conferencing)
- Traditional fixed voice and broadband
- Traditional mobile voice and data

Enterprise as a share of operator revenue varies significantly

- **Operators are taking different approaches to addressing the enterprise segment.** This results in a range of enterprise contributions to total operator revenue (10–50%, with 30% the average).
- **Four operators exceeded 40%, with M&A in the media space a key driver for most.** Media is a significant contributor to B2B revenue for SoftBank (which acquired Yahoo Japan), Singtel (which acquired Amobee, a digital marketing and advertising business) and AT&T (which acquired WarnerMedia), on top of their telco enterprise businesses. For AT&T and SoftBank, enterprise revenue is nearly equally split between telecoms and media. BT's enterprise revenue mostly comes from traditional communications services, with 20% from BT Global Services and the rest from the operator's B2B business in the UK and Ireland.
- **China Mobile has the lowest enterprise share.** This is the result of running a large consumer mobile business (accounting for 70% of total revenue) rather than having a small presence in the enterprise market. In fact, China Mobile reported a market share of nearly 40% by revenue in the Chinese enterprise market in 2018.
- **Enterprise shares (slowly) on the rise.** For the majority of operators analysed, enterprise as a share of total revenue grew 1–2pp year-on-year in 2018. Large-scale M&A offers a boost but is an option for only a handful of operators.

Enterprise as a share of total operator revenue
2018



For AT&T: last 12 months to June 2019 (to reflect 100% of WarnerMedia, fully consolidated since Q3 2018). For SoftBank: SoftBank Corp. plus Yahoo Japan. Other revenue largely refers to B2C revenue (consumer mobile revenue and residential fixed and pay-TV revenue).

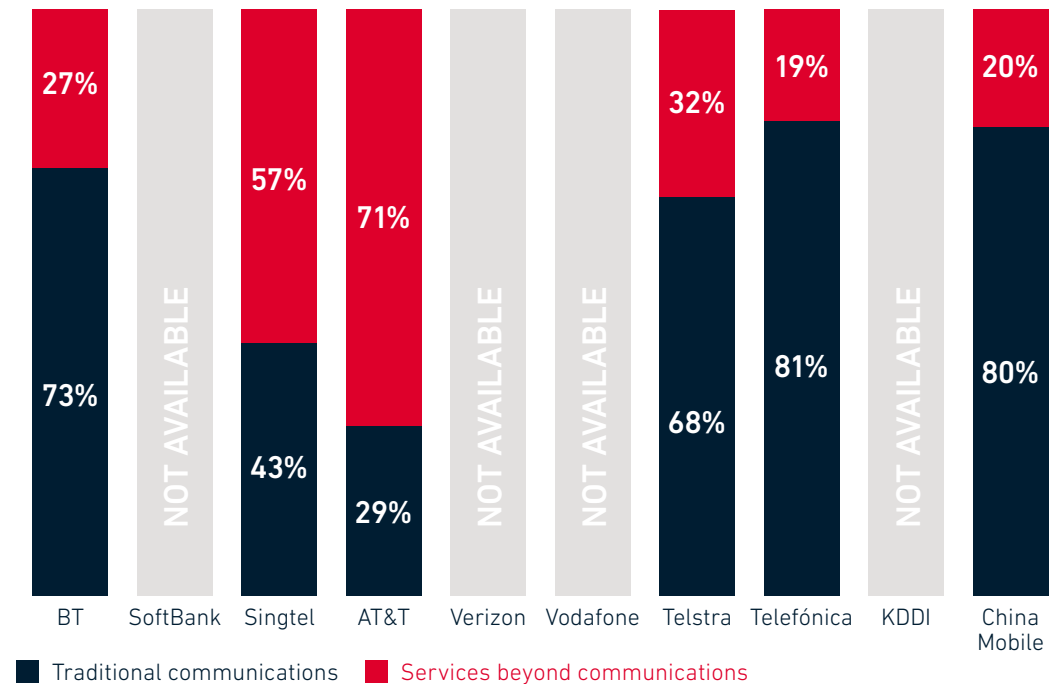
Source company figures (at group level) and GSMA Intelligence reclassifications and estimates

Most enterprise revenue comes from traditional communications services

- **Two main categories of enterprise services.** We split enterprise revenue into traditional communications and services beyond communications.
- **Connectivity leads.** From a revenue perspective, the enterprise segment has mostly been about fixed and mobile connectivity so far for operators. Traditional communication services generate on average more than 60% of total enterprise revenue.
- **Fixed services lead.** For most operators, fixed is bigger than mobile revenue given that most new areas of growth are in the fixed space. 5G should help boost mobile's contribution to total enterprise revenue, but its impact will likely materialise over the longer term.
- **AT&T is an outlier.** Following the large-scale acquisition of Time Warner in 2018, media makes a significant contribution to services beyond communications. Most of this revenue comes from licensing programming to distribution affiliates and from theatrical and TV product (content made available for initial exhibition in theatres or for initial airing on TV or OTT services).

Enterprise revenue by segment

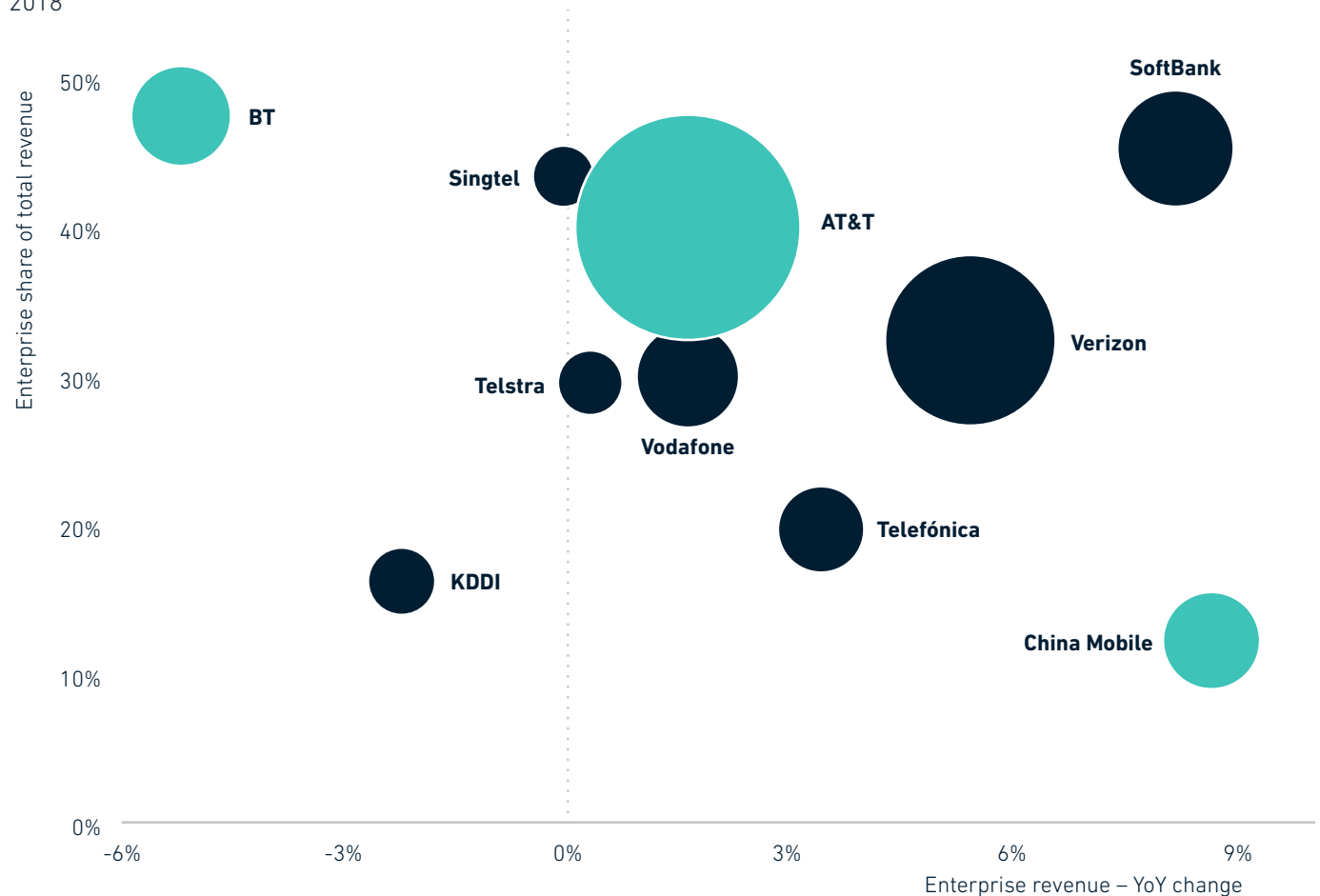
2018, share of total enterprise revenue



AT&T leads on size; China Mobile on growth; BT on share of total revenue

- Significant size of the enterprise business.**
 A lower share of total revenue for enterprise compared to consumer does not necessarily mean a low strategic importance. Consumer is big business (especially mobile) so any other services would inevitably generate smaller revenue. However, looking at size of revenue rather than contribution, enterprise services are already a \$200+ billion business in aggregate for the 10 operators analysed.
- Enterprise revenue is growing, slowly.**
 Enterprise is the only source of revenue growth for half the operators analysed, as consumer revenue is stagnating or declining. However, enterprise revenue is not growing significantly (at low, single-digit rates for many). The B2B connectivity market is increasingly competitive, with smaller operators winning share from incumbents (diluting prices), while new growth areas (IoT, cloud, security, data analytics) have yet to reach scale.

Enterprise revenue: size, growth and share 2018



Bubble size represents size of enterprise revenue

Source company figures (at group level) and GSMA Intelligence reclassifications and estimates

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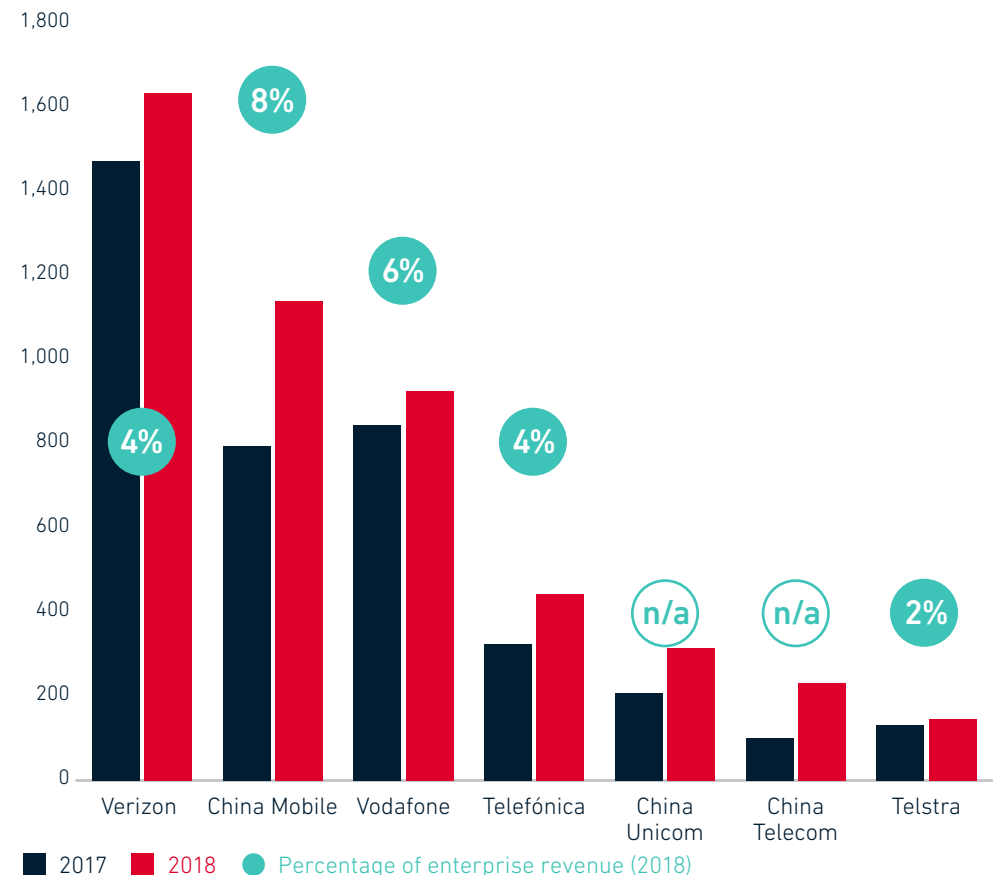
Organisational changes and future outlook

IoT: targeting revenue opportunities beyond connectivity in a growing ecosystem

- The \$1 billion IoT revenue club.** Verizon, China Mobile and Vodafone almost reached or exceeded \$1 billion IoT revenue in 2018, making IoT a key driver of their enterprise strategies. For China Mobile, the largest operator by number of licensed cellular IoT connections (1.7 billion in 2019), IoT generated 8% of its total enterprise revenue (30% excluding traditional communication services).
- Automotive is a key focus for many, supported by acquisitions.** In 2018, Verizon Connect accounted for around 60% of Verizon's IoT revenue, while automotive generated 22% of Vodafone's IoT revenue.
- China is a benchmark.** The three Chinese operators generated a total of \$1.7 billion in IoT revenue in 2018. IoT revenue grew around 50% in local currency, driven by the boom in connections and a faster rate of IoT deployments; three quarters of Chinese enterprises have deployed IoT already – the highest proportion globally.
- Connectivity and beyond.** While connectivity is likely to represent the bulk of IoT revenue (79% for Vodafone), future growth will increasingly come from end-to-end solutions that involve other IoT capabilities such as platforms, security and analytics. GSMA Intelligence forecasts that connectivity will account for 5% of the \$1.1 trillion IoT revenue in 2025, with applications, platforms and services at 68% and professional services at 27%.

IoT revenue by operator

\$ million. IoT revenue may include consumer IoT.

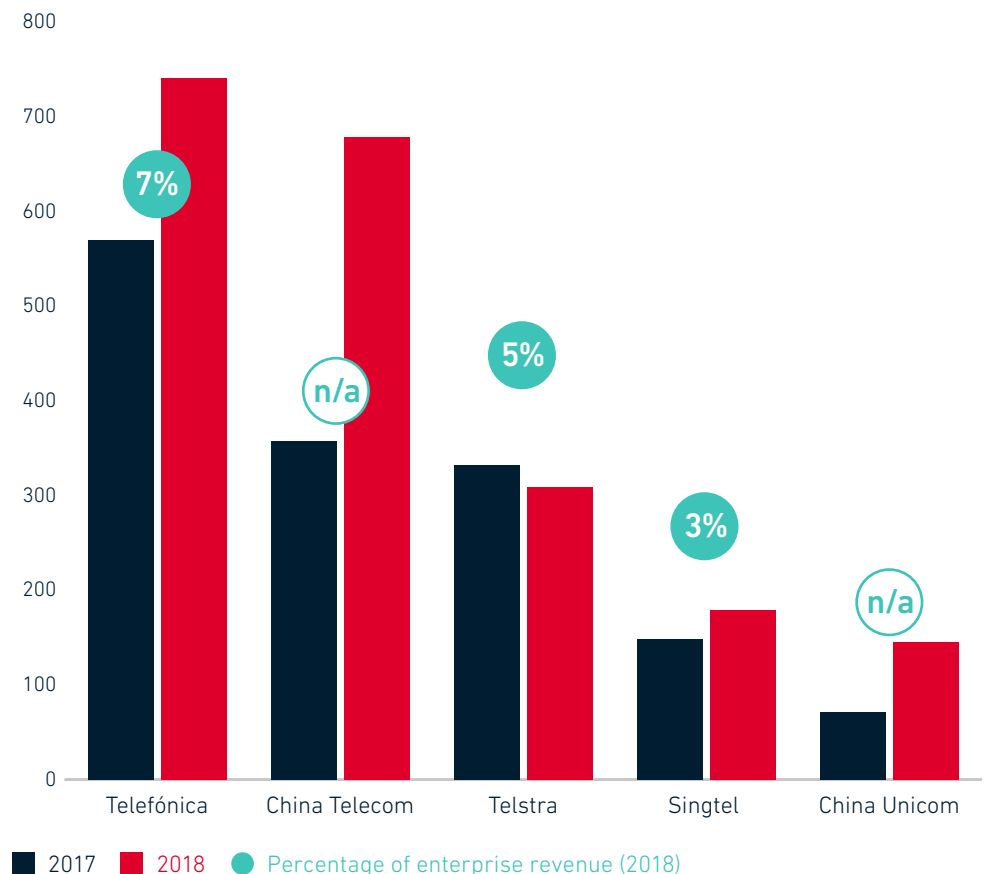


Cloud: a common play for operators and a key driver to refine roles in the enterprise market

- **Revenue disclosure is still limited.** Just five of the operators analysed report cloud revenue, despite most having longstanding cloud offerings for enterprises. Across the board, cloud's contribution to operator enterprise revenue is still in single digits in a global market led by a few players. According to Deutsche Telekom, AWS, Microsoft Azure and Google Cloud dominate the global cloud space, with more than 75% of the IoT cloud market.
- **Cloud a key pillar of the new Telefónica Tech.** Telefónica's cloud revenue was the highest among the five – not just in terms of value but also in contribution to total enterprise revenue. The company is making good progress in IaaS and SaaS and is developing strong professional and managed services to help clients migrate to the cloud.
- **China on the rise.** Operator cloud revenue is growing significantly in China, but the market is still dominated by Alibaba and Tencent. The Chinese operators are likely to have around a 10% share of revenue in aggregate, with China Telecom leading. For operators, extracting new use cases from the integration of cloud, edge and core telecoms networks offers more promise. China is also a leading market in edge computing. As the edge computing ecosystem will be mostly centred on 5G, Chinese operators could take a share of the nascent edge revenue opportunity significantly above 10%.

Cloud revenue by operator

\$ million

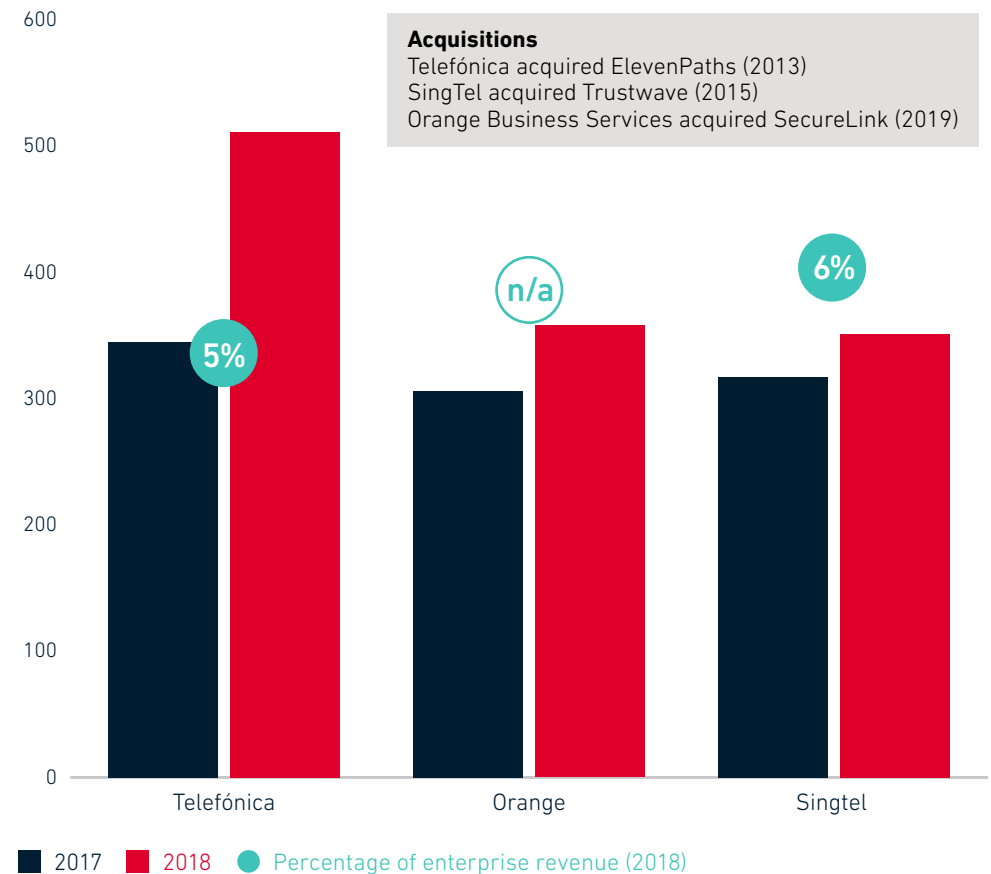


Security: acquisitions and organic growth feed operator ambitions in an evolving cybersecurity landscape

- **Double-digit growth.** Security revenue grew in double digits in 2018 for operators reporting data. Security is bigger than IoT in revenue terms for Telefónica, and bigger than cloud for Singtel. Acquisitions play a key role. For example, Telefonica's acquisition of ElevenPaths was instrumental in expanding the operator's security portfolio to include traditional network security products and emerging security services such as those for IoT, cloud and edge.
- **€1 billion revenue target.** Orange announced its ambition to grow its cybersecurity revenue to €1 billion by 2022. This represents a CAGR of 35% for 2018–2022, compared to 12% year-on-year growth in 2018.
- **Deutsche Telekom's automotive security offering.** DT, which reported more than \$300 million in security revenue in 2017 has big ambitions too, having launched a dedicated security operations centre for the automotive sector in 2019.
- **Access to network data gives operators a competitive advantage.** Operators' ability to leverage telecoms network data and cloud & edge resources that analyse behavioural patterns of users, devices and data should provide a competitive advantage against other security players in providing granular security assurances. As operators expand their cloud and IoT capabilities, they have also enhanced their security offerings beyond point solutions to a wider range of security services.

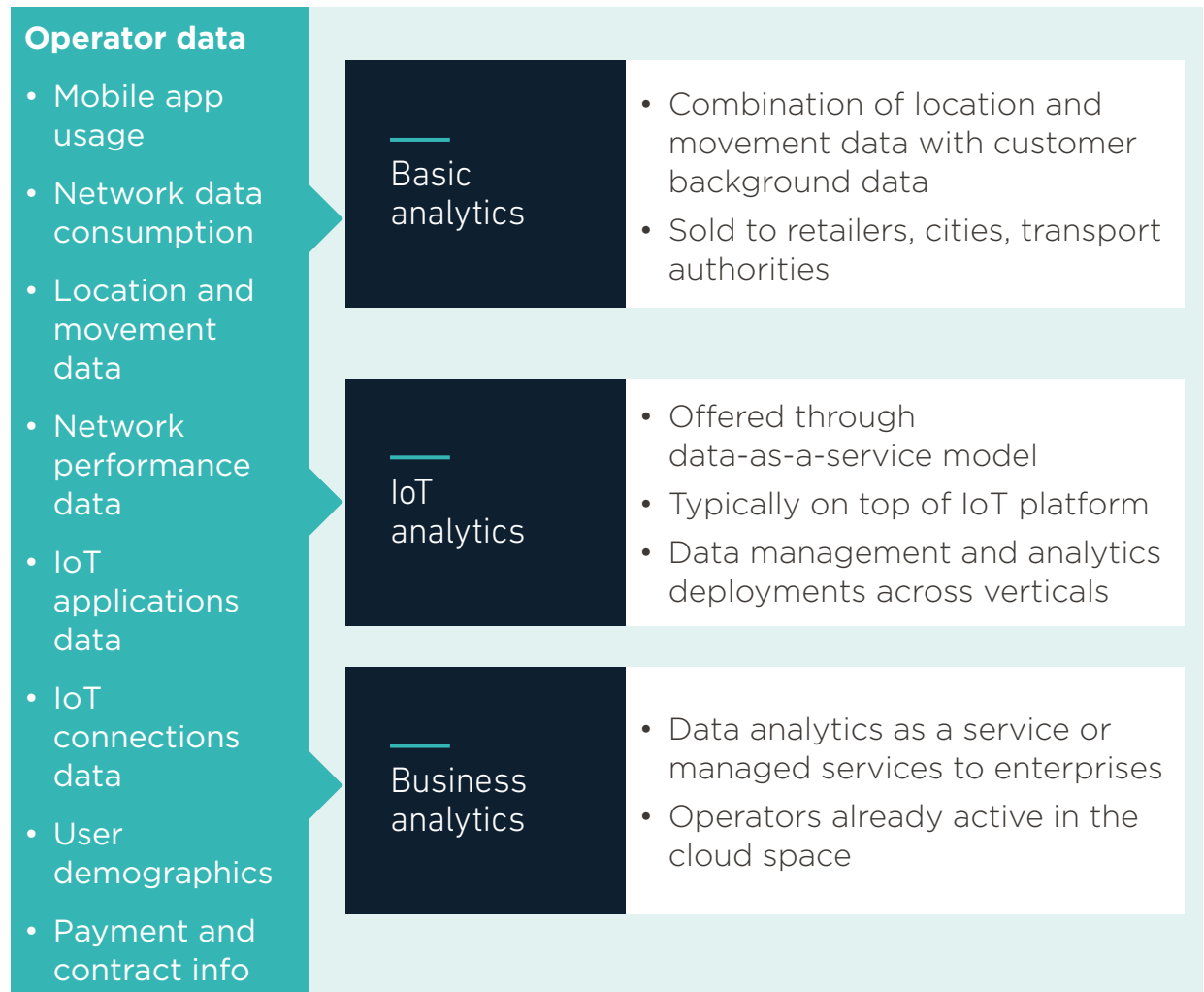
Security revenue by operator

\$ million



Data analytics as a service: an essential building block in operators' digital enterprise capabilities

- **Only one of the operators analysed reports big data as a standalone revenue metric.** China Unicom achieved nearly \$100 million in revenue from big data in 2018. While this grew four-fold year-on-year, it is still a relatively small business compared to IoT and cloud (around \$300 and \$150 million in revenue respectively). The other operators typically include big data revenue within the broader category of ICT services or within industry solution categories.
- **Incremental paths.** Operators started their data analytics and AI journeys by leveraging anonymised data generated by their networks and customer devices. A second wave involves IoT data analytics offered through a data analytics-as-a-service model. Looking ahead, data analytics and big data will become integral to operators' IoT, cloud, security and 5G B2B offerings, as a stepping stone for operators targeting the digital transformation of industries.
- **Various growth models.** Operators are building their data analytics capabilities in various ways: acquiring specialised data analytics companies (e.g. Telefónica acquiring Synergic Partners), organic expansion (Orange) and joint ventures (KDDI-Accenture).



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The rise of new organisational structures to better serve enterprise requirements

- **Dedicated subsidiaries.** This model, adopted by many major operators, allows a holistic approach to enterprise digitisation across industries, strengthens operators' credentials for partnerships and helps navigate the enterprise learning curve. Subsidiaries vary in size and capabilities, depending on operators' market footprints and strengths. Telefónica Tech – which combines security services, IoT, big data and cloud – is the latest addition to the group.
- **Dedicated vertical subsidiaries.** This model entails a focus on specific vertical sectors and is often the result of acquisitions (e.g. Vodafone Automotive – formerly Cobra – and Verizon Connect). Orange Healthcare is a notable example of an operator subsidiary in the health sector (it is a subsidiary of Orange Business Services), providing B2B and B2G solutions in France and across Africa.
- **Joint ventures.** Operators are also exploring partnerships with other tech companies to pursue the enterprise opportunity, especially for IoT data analytics and AI. This model does not require huge investment and can serve as a complement to more structural initiatives.
- **There is no single route to success.** All three models – not mutually exclusive – are valid, and align well with operator enterprise strategies. The choice depends on various factors such as financial resources (especially for M&A), strategic priorities, or specific opportunities in individual sectors that require dedicated efforts and targets.

Examples of new organisational structures

Dedicated subsidiaries	Vertical subsidiaries	Joint ventures
Vodafone		
Vodafone Business	Vodafone Automotive	Vodafone and IBM
Deutsche Telekom		
T-Systems		1NCE (Deutsche Telekom and 1NCE)
Orange		
Orange Business Services	Orange Healthcare	
Verizon		
Verizon Enterprise Solutions	Verizon Connect	
Telefónica		
Telefónica LUCA and Telefónica Tech		
KDDI		
		Arise Analytics (KDDI and Accenture)
NTT		
NTT Data		
China Mobile		
China Mobile IoT Company		
China Unicom		
Unicom Big Data		Yunli Zihui (China Unicom and Alibaba)

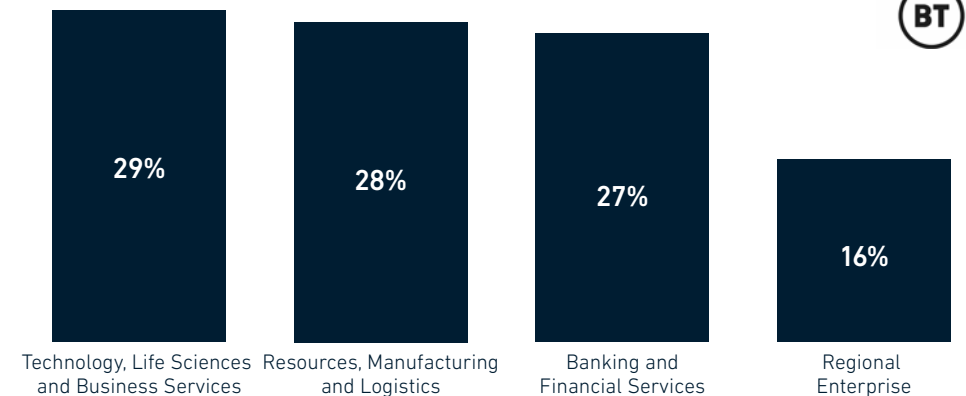
5G and IoT should add impetus to the vertical-focused model

- **Revenue data by vertical sector is rare.** This makes it hard to assess and compare operator performance across verticals.
- **BT Global Services.** Banking and financial services is the largest *individual* contributor to revenue (2018). The challenge is that revenue from Global Services as a whole is not growing (6% year-on-year decline for full year ending March 2019) due to intense competition and the impact of divestments. The majority of services provided to enterprises are also mature (traditional connectivity, MPLS and Ethernet services, unified communications).
- **China Mobile.** The Chinese operator started to report revenue by sector in the first half of 2019. IT and Internet is by far the largest segment. Around a third of revenue comes from seven different verticals including commerce & trading, finance, industrial manufacturing, utilities and healthcare. Industrial manufacturing generates 5% of China Mobile's enterprise revenue in a country that is highly reliant on the industrial sector (accounting for 41% of GDP). This indicates a significant opportunity for revenue growth in the 5G era.
- **5G and IoT require greater vertical specialisation.** According to our IoT Enterprise Survey, less than 10% of enterprises consider operators as their go-to IoT vendor. Cloud incumbents such as Microsoft, AWS and Google are more likely to be first choice. As IoT scales and 5G powers new enterprise use cases, vertical specialisation may help overcome this barrier.

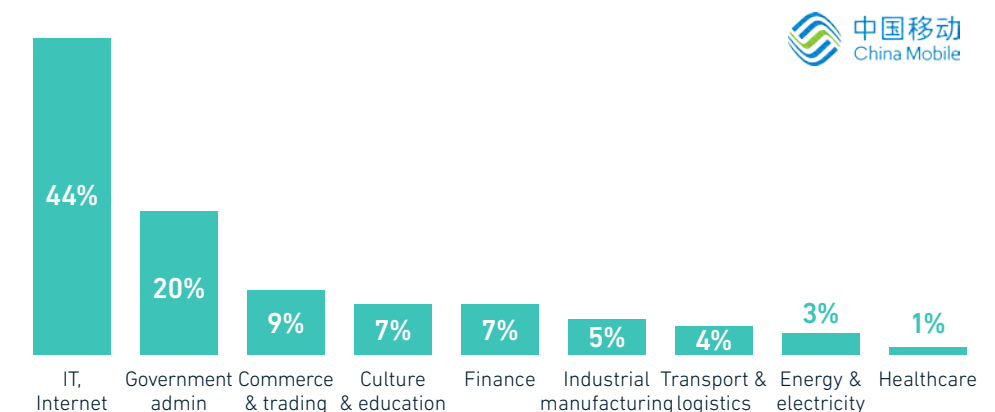
Revenue by sector

2018 for BT Global Services, H1 2019 for China Mobile

Share of BT Global Services revenue



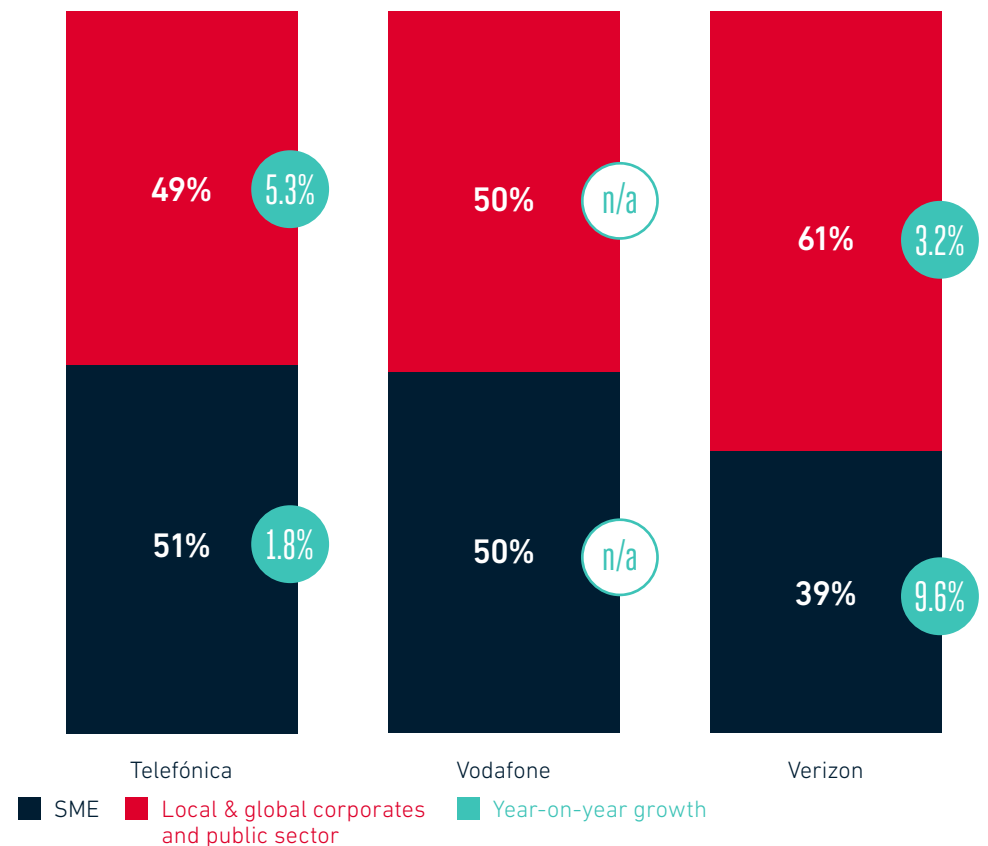
Share of China Mobile enterprise revenue



SMEs: a significant contributor to revenue and key measure of success for operator journeys in enterprise

- SMEs are a key source of operator enterprise revenue.** Few operators report enterprise revenue by type and size of customer. However, data from Telefónica, Verizon and Vodafone provides some insight. For Telefónica and Vodafone, the SME segment, as reported, generates half of total enterprise revenue. This comes as little surprise given that the European enterprise landscape is dominated by SMEs, and Europe is a large contributor to Telefónica and Vodafone's enterprise revenue.
- Most of Verizon's growth comes from SMEs.** For Verizon, the SME segment accounts for nearly 40% of total enterprise revenue, but this is the result of running a big Global Enterprise business as opposed to a smaller presence in the SME segment. SMEs are also the largest driver of enterprise revenue growth for Verizon (nearly 10% growth in 2018).
- The SME market is also diverse.** Targeted efforts are key to help operators get on the radar of small enterprises – as is a vibrant developer and partner network. A model that builds on operator established strengths (secure connectivity, wide-coverage networks, SD-WAN, local presence and resources) with adjacent services (IoT, security, cloud, edge) is now a common strategy for operators targeting the digitisation of enterprises and industries. The upsell opportunities arise not only from the migration from legacy to IT-based networking but also from related cloud migration requirements and security assurance needs.

Enterprise revenue by type of customer, 2018



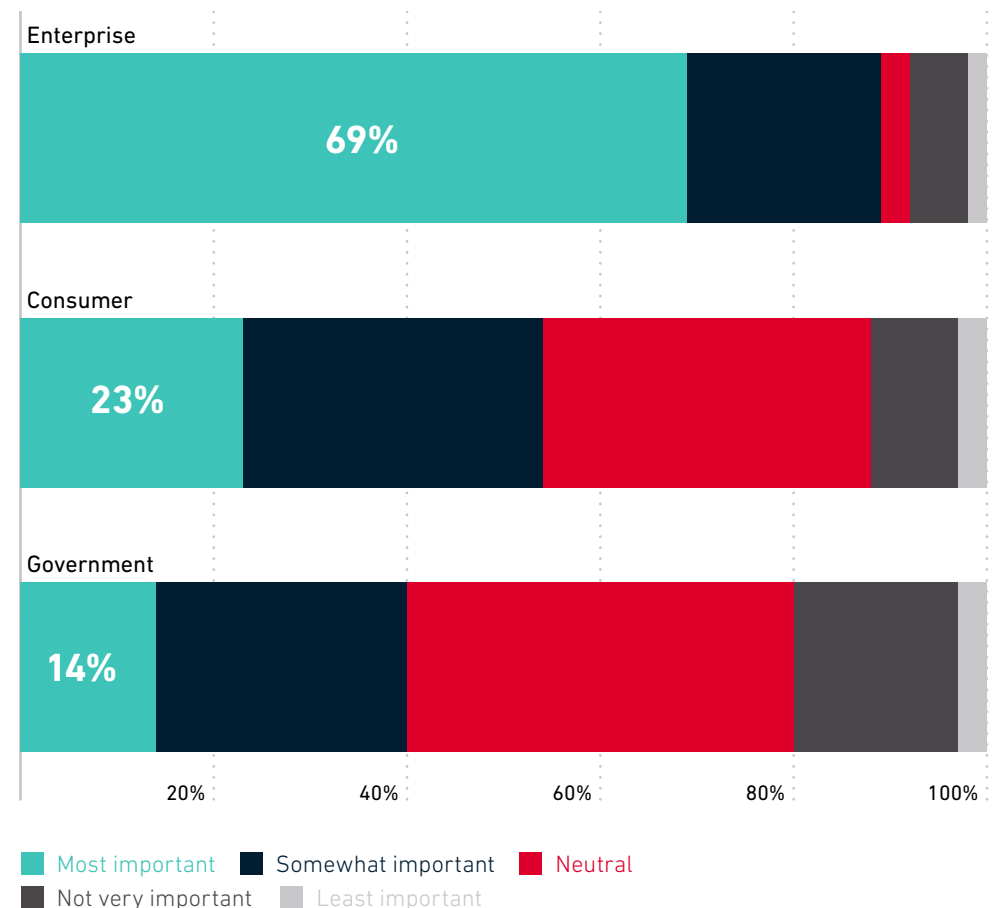
Year-on-year growth refers to revenue in absolute terms (not contributions to total revenue). For Verizon, we exclude Wholesale revenue from the calculations (for consistency with Vodafone and Telefónica).

The incremental revenue opportunity in the 5G era is in enterprise, but it will take time

- **The dual challenge and opportunity.** Traditional enterprise communication services generate the most enterprise revenue (thus bringing in the most cash flow), while services beyond communications are a key driver of growth. In practice, the two are highly interrelated in most cases. Adjacent services should be seen as a way to retain enterprise customers and increase overall spend on enterprise solutions.
- **The incremental revenue opportunity is in enterprise, but it will take time.** Around 70% of operator CEOs agree enterprise is the incremental opportunity in the 5G era. However, getting the capabilities (5G standalone networks, slicing, edge, spectrum) in place to fully service enterprises will take time. Some of the use cases, such as autonomous driving and smart manufacturing, also require greater tech maturity beyond the connectivity/platform layer. Greater focus on enterprise sales is also key.
- **The enterprise opportunity also brings new competitors.** Much of the opportunity lies in providing customised network functionality through edge computing, private networks and slicing to serve various verticals. Amazon, Microsoft and other incumbent cloud players are targeting the same opportunity, boasting global scale and solid balance sheets to fund the rollout of edge infrastructure. Competition between telcos and ICT companies will be intense. However, if the enterprise opportunity materialises at scale, all players, including operators, will likely gather for a piece of the growing revenue opportunity.

Incremental revenue from 5G

N=750



Source GSMA Intelligence. Based on global survey of operator CEOs.

