5G and beyond: Connecting the dots at MWC20

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5G isn't just 5G. Much more than a new wireless communications standard, 5G represents a wide-ranging technological transformation that will catalyze a major strategic pivot for communications service providers (CSPs) and all those involved in the technology, media, and telecommunications (TMT) ecosystem.

5G will have wide-reaching impacts, affecting diverse markets stretching from enterprises to entertainment, from semiconductors to subscribers and beyond.

The CSPs' adoption of 5G is characterized not only by network investments, but also by the creation of more complex and capable networks. 5G will trigger the merger of enterprise IT and communication equipment in the network, blending edge and cloud together and pushing fiber deep into mobile cells. The arrival of 5G will also compel CSPs to deploy network virtualization and artificial intelligence (AI) to efficiently and effectively orchestrate all the different types of traffic.

This evolution in network capabilities will generate new business opportunities and mitigate risks. Since 5G has benefited from a straightforward standards process, components and devices will reach the market quickly, enabling consumers and businesses to reap the benefits of full 5G service almost immediately.

The three main improvements offered by 5G are enhanced mobile broadband, ultra-reliable low-latency communication (URLLC) for critical communications, and scaled Internet of Things (IoT). Each of these benefits represents a new market opportunity for TMT participants.

In the 5G era, on-the-go consumers using high-speed mobile data will start to access greater quantities of content, games, and services. These mobile consumers will seamlessly transition between mobile and Wi-Fi networks. Meanwhile, the URLLC and large-scale IoT capabilities of 5G will enable a range of new applications, spanning everything from automotive connectivity to industrial networks.

This paper explores the opportunities and challenges facing the wireless industry and the entire TMT ecosystem as it gathers for MWC20.

Covering areas as diverse as sports, wireless components, and AI, this indispensable preview of 5G developments at MWC20 is produced by Omdia – the new technology, media, and telecommunications research powerhouse that is connecting the dots, revealing risk, identifying business opportunities, rethinking business practices, and delivering the diligence that is essential to make tactical and strategic decisions at any scale.

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CSPs bundle up: Communications providers offer 5G combined with other services to cash in on cross-market growth opportunities

"Situated between consumers and end-users, CSPs are in an optimal position to unlock major revenue streams in the 5G segment"

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Evan Kirchheimer
Vice President
Service Provider and Communications Research

Dario Talmesio
Principal Analyst & Practice Leader
Fixed and Mobile Telecommunications

The 5G era presents staggering growth opportunities, with global 5G mobile subscription count set to rise to 1.9 billion at end-2024, up from 13 million at end-2019. In 2024, 5G-based fixed wireless access (FWA) is set to account for $7.4bn, or 29%, of global FWA revenue.

However, the revenue opportunity in 5G spans far beyond wireless data and communications themselves, encompassing markets like gaming, entertainment, music, security, smart home, over-the-top (OTT) video, banking, insurance, healthcare, and a plethora of other services. Situated squarely between consumers and producers, CSPs find themselves in an optimal position to unlock major new revenue streams within the 5G segment. However, to capitalize on this opportunity, CSPs must evolve beyond being utility-like purveyors of connectivity.

CSPs – including telcos, cable services, and internet providers – are expected to announce new services at MWC20 that will move their businesses into new realms.

These services will include offering 5G as a medium for FWA home broadband, both in areas where conventional fixed-line broadband is not available and in direct competition with cable, DSL, and fiber.

CSPs also are set to offer consumers bundled packages of 5G and third-party OTT services such as Netflix and Amazon Prime Video. Revenue from mobile telco/OTT media bundles is expected to rise to $4.9bn in 2024, of which $1.6bn is for video-on-demand.

Global, 5G mobile subscriptions, 2017–24
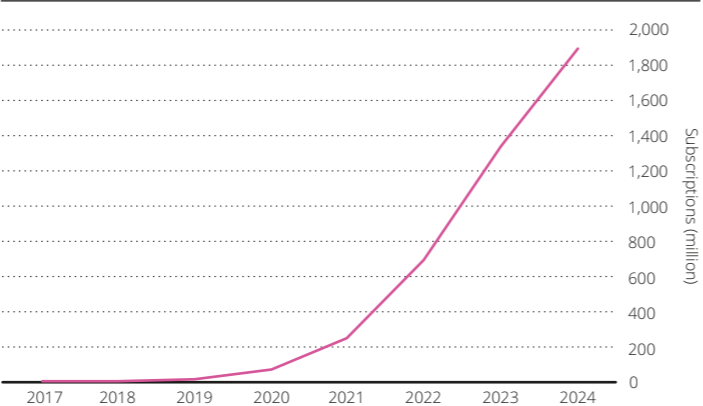
Source: Omdia

To succeed in this approach, CSPs must effectively manage their two major audiences: consumers and producers.

On one side, it will be critical to understand consumers and analyze their behaviors, preferences, and willingness to spend – while preserving consumer privacy and becoming a trusted advisor that can facilitate transactions with producers.

On the other side, CSPs must demonstrate to producers that they maintain a relationship with a captive audience of buyers and that working with a CSP can be more beneficial than going direct-to-consumer.

Managing both challenges may seem impossible for some companies. However, some CSPs have a legitimate platform role to play, and they will not be shy about saying so at MWC20.

Global 5G radio access network market set to quintuple as communications providers focus on turning hype into reality

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Gabriel Brown
Principal Analyst
Telecommunications

Stéphane Téral
Distinguished Analyst
Telecommunications

The 5G market's hype phase is coming to an end, as CSPs at MWC20 shift their focus away from issuing abstract promises and toward actually demonstrating how 5G can deliver value to all kinds of applications.

"The investment cycle won't be cheap, so CSPs must make smart and bold RAN choices"

To realize the promise of 5G, CSPs now are investing extensively in radio access networks (RANs) to expand and enhance 5G coverage. As a result, the global 5G RAN market is set to more than quintuple during the coming years, rising to $21bn in 2024, up from $3.9bn in 2019.

The proliferation of 5G RANs is a critical element in the establishment of an end-to-end architecture for 5G that will enable the delivery of advanced services for diverse markets including factory automation and self-driving cars.

These services include network slicing and ultra-reliable low-latency communication (URLLC). URLLC delivers the high speeds and minimal delays required to support such time-sensitive applications.

Beyond simply expanding 5G coverage, CSPs are pursuing other opportunities with their RAN upgrades. These include supporting in-building systems; small cell densification; low-band frequencies such as dynamic spectrum sharing; and RAN software features such as downlink carrier aggregation.

This investment cycle won't be cheap, so CSPs must make smart and bold RAN choices.

Global, 5G RAN revenue, 2017–24

Subscriptions (million)

25,000

20,000

15,000

10,000

5,000

0

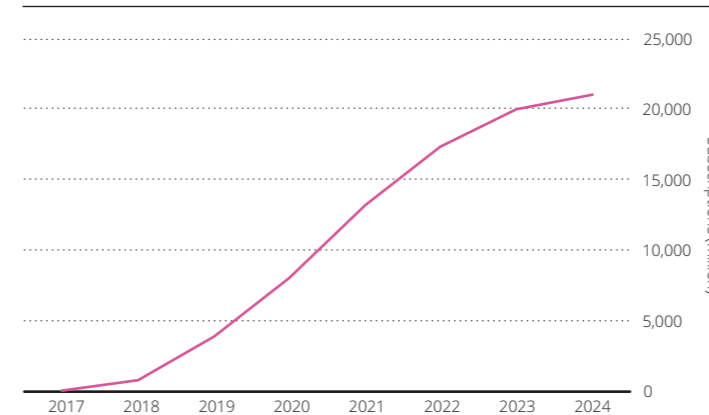2017 2018 2019 2020 2021 2022 2023 2024

Source: Omdia

In addition to RANs, major themes at MWC20 include 5G-specific transport network and backhaul investment, which is driving cell site connections to 10Gbps speeds, along with the deployment of wider-network fiber. On top of building out their core networks, CSPs will be investing in edge network capacity to manage IoT applications and to embed capabilities closer to the end user.

More advanced networks will introduce 5G standalone deployments alongside non-standalone deployments. This presents an opportunity to deploy network function virtualization infrastructure using virtual network functions and cloud-native network functions.

While it's probably too early to see a full cloud-native 5G core, these more complex networks will require AI-enabled automation to optimize infrastructure usage across technologies such as network slicing and edge compute. Expect to see AI in 5G network planning, deployment, optimization, and maintenance operations in 2020.

The 5G market has entered a new phase, and hype alone isn't good enough anymore. Now is the time for CSPs to stick to their plans and follow through on commitments to deploy and scale 5G and deliver the benefits of the technology to new markets and applications.

Edge computing – will it get real at MWC20?

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Bill Morelli
Vice President
Enterprise Research

Julian Bright
Senior Analyst
Network Infrastructure and Software

"MWC20 will see a drive for greater collaboration among operators, technology companies, enterprises, and application developers"

Much of the buzz around edge computing that was evident at last year's Mobile World Congress will carry over into MWC20. The technology remains as crucial as ever – not only to CSP plans for 5G but for the complex and diverse ecosystem on which 5G's success depends.

Few companies participating in this year's event, whether from a service provider, IT hardware, cloud computing, or software background, will be without a strategy of some kind relating to the edge. However, after all the theory, an injection of realism will be required at MWC20.

The edge market is headed for strong growth over the next few years. For example, global revenue for edge devices and edge networks deployed for AI is set to reach $827.6bn in 2025, up from $127.5bn in 2019, with revenue expanding at a compound annual growth rate (CAGR) of about 37%.

Many service providers believe they can play a major role in building and developing edge networks, but public cloud providers and OTT players, among others, also have ambitions for the space. There is evidence that parties from all sides see cooperation as the way forward, but partnerships such as those between network operators and public cloud providers are still only at an exploratory stage.

Even a year ago, nobody expected to see significant moves toward commercializing the edge before 2020, so much work in the interim has tended to focus on exploring which use cases offer the greatest potential in early deployments. Enterprise networks are expected to provide one focus, and latency-sensitive applications such as gaming and AR/VR are also attracting attention. Industrial automation and IoT is another important area where edge networks will have a key role to play, and this will be in evidence at MWC20.

Global, revenue from AI edge deployments, 2019–25
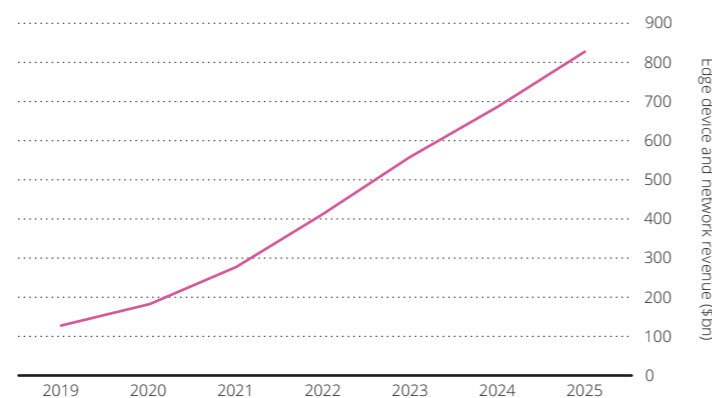
Edge device and network revenue ($bn)

Source: Omdia

At the same time, the challenges of building both the physical edge and the wider ecosystem, and of fostering an environment for the creation of new applications and services, have come more firmly into focus. These more immediate challenges can be expected to feature prominently at MWC20, with a drive for greater collaboration among operators, technology companies, enterprises, and application developers.

If the coming year is to see some of the first commercial deployments of edge computing, these are issues that need to be urgently addressed – because the sector's future success will be decided by the choices players are making today.

Wireless brands and component suppliers align to bring 5G to the mass market, spurring eightfold growth in 5G smartphone shipments

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Jusy Hong
Research Director
Smartphones

Wayne Lam
Principal Analyst
Mobile Devices and Networks

Tom Morrod
Research Director
Consumer

"Flagship 5G handsets will be those with flexible OLED screens, foldable form factors, and advanced streaming capabilities"

With the wireless supply chain completely aligned behind the 5G standard, the market for 5G smartphones is primed to go mainstream, with shipments soaring by a factor of eight in 2020.

The global 5G smartphone market is expected to surge to 231 million units shipped this year, up from 29 million in 2019, and is forecast to more than double from 2020 to 2021.

Price will be the key factor driving the shipment explosion this year, with 5G smartphone average selling prices declining compared to 2019. Just as occurred in the 4G LTE era, 5G phone pricing is expected to decline quickly. Prices will begin to decrease next year as phone manufacturers use more efficient designs employing multimode modems. Within the next few years, prices will fall to the $700–800 range, making them more affordable for price-conscious consumers.

The rollout of the first 5G smartphones in 2019 was associated with high prices, particularly for consumers. This first generation of phones established design requirements for chips, antennas, and power consumption. However, their acceptance in the market was inhibited by high costs and a disparity between consumer expectations and network performance.

This situation is changing rapidly in 2020. The ramping up of 5G component and device manufacturing will drive the fastest sales increase of any wireless generation. The supply chain's undiluted support for the 5G standard is the one of the main factors driving down costs and pushing up volumes.

Global, 5G smartphone shipments and penetration, 2019–23

- 5G penetration of smartphone shipments
- 5G smartphone shipments
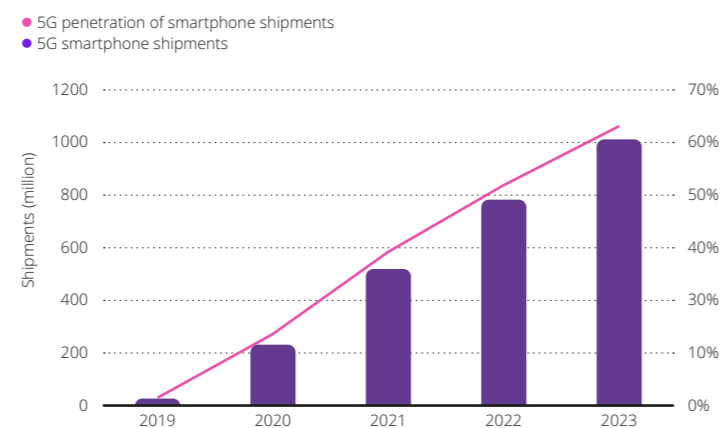
Source: Omdia

Whereas both 3G and 4G faced competition from rival technologies vying for dominance, 5G has unanimous industry support, enabling the component and device supply chain to get lined up more quickly and to develop uniform integrations.

Confidence in the technology roadmap for 5G has prompted component suppliers to embed essential 5G support into system-on-chip (SoC) devices. The availability of 5G SoCs is opening the midtier smartphone market to 5G much earlier in the technology's deployment than happened with 3G or 4G. Overall, the average semiconductor content in high-end smartphones is expected to rise to $157.25 in 2022, from $121.51 in 2019.

At the same time, the expected feature set for smartphones has become more predictable, with dramatically improved computational power, screen resolution, camera quality, and other technologies being baked into consumer expectations. This means 5G is being used by brands as a differentiator on already high-end smartphones. It also means that flagship 5G handsets will be synonymous with features such as flexible OLED screens, foldable form factors, and advanced video streaming capabilities to complement the high data rates of 5G.

While 2019 marked the beginning of 5G, many of the benefits of the technology remained unrealized due to the immaturity of the component and manufacturing supply chain. In 2020, a perfect storm of technology standardization, competitive supply chain, and evolving consumer use cases is pushing 5G phones into the mainstream.

5G can be an Industrial IoT accelerator – but manufacturing brings a unique set of challenges

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Bill Morelli
Vice President
Enterprise Research

Sam Lucero
Senior Principal Analyst
IoT Platforms

Julian Watson
Principal Analyst
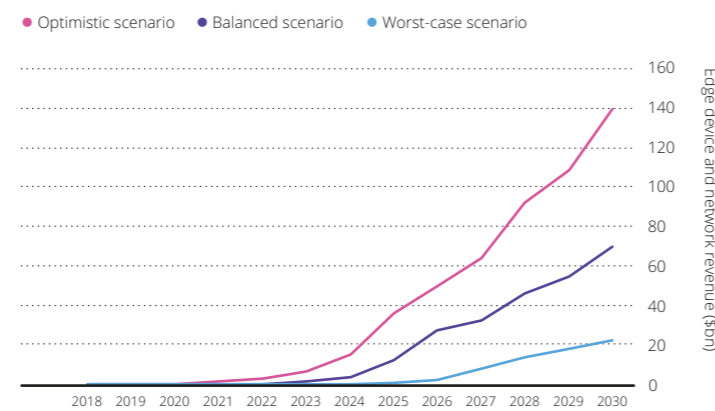*IoT*

Christian Kim
Senior Analyst
IoT and Connectivity

Pablo Tomasi
Senior Analyst
IoT

"The absence of key industrial players on the conference floor at MWC20 demonstrates the obstacles CSPs face"

With its potential to accelerate and augment the Industrial Internet of Things (IIoT), 5G technology is poised for major growth in the industrial sector. The number of new 5G IIoT connections could rise to nearly 140,000 in 2023, up from only about 1,000 in 2021, according to an optimistic scenario forecast from Omdia.

Networking enables data to be collected and analyzed to improve operational efficiency, reduce downtime, and offer superior production quality.

Last year, more than 3.5 billion industrial automation devices were shipped, yet only 2% of these were IIoT-enabled, and most of these used wired connections. There remains a huge untapped market to address via cellular technology, including 5G. The expected industrial uses for 5G include augmented reality for information-rich, hands-free operations; control of automated mobile robots; asset tracking; and fleet management.

Global, 5G IIoT device shipments, by scenario, 2018–30

● Optimistic scenario ● Balanced scenario ● Worst-case scenario

Source: Omdia

The source of funding for the deployment and operation of the private networks required for IIoT will be a key question at MWC20. CSPs will showcase private 5G networks optimized for industrial applications such as automated robotics, delivery vehicles, production inspection, and information display.

However, there is a significant gap between the realities of the industrial world and CSPs' aspirations. The absence of industrial players like Honeywell, Bosch, and Schneider Electric on the conference floor at MWC20 demonstrates the obstacles CSPs face when trying to align with the industrial world.

Industrial is a new and unexplored market for CSPs, and only 5% of manufacturing and industrial enterprises that are using IoT now view CSPs as preferred providers of IoT solutions. There are strong incumbent technology providers and a widespread preference for wired technologies such as fieldbus or industrial Ethernet.

If CSPs are to succeed in the IIoT world, they need to face these challenges and identify the areas where they can play effectively, even if they find only niche opportunities initially.

Consumer brands employ 5G to alleviate fears about AI privacy

"29% of people are uncomfortable with the idea that AI will soon become smarter than they are"

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Bill Morelli
Vice President
Enterprise Research

Aditya Kaul
Research Director
AI

While the media frets about computer superintelligences potentially usurping the human race, the general public is just as concerned about a more immediate issue related to AI: the prospect that AI will have a negative impact on personal data and privacy.

To alleviate this concern, makers of tablets, smartphones, and smart speakers are developing products that use the capabilities of 5G to perform visual AI processing tasks in edge servers and appliances, bypassing the privacy risks involved in sending data to the cloud. By 2025, two out of three smartphones are expected to include built-in AI capabilities. Global revenue for AI smartphones is forecast to increase to $378bn in 2025, up from $29bn in 2017.

In a survey conducted by Omdia in 2019, 29% of respondents indicated that they are uncomfortable with the idea that AI will soon become smarter than they are. This is the same percentage that expressed discomfort with AI's impact on privacy.
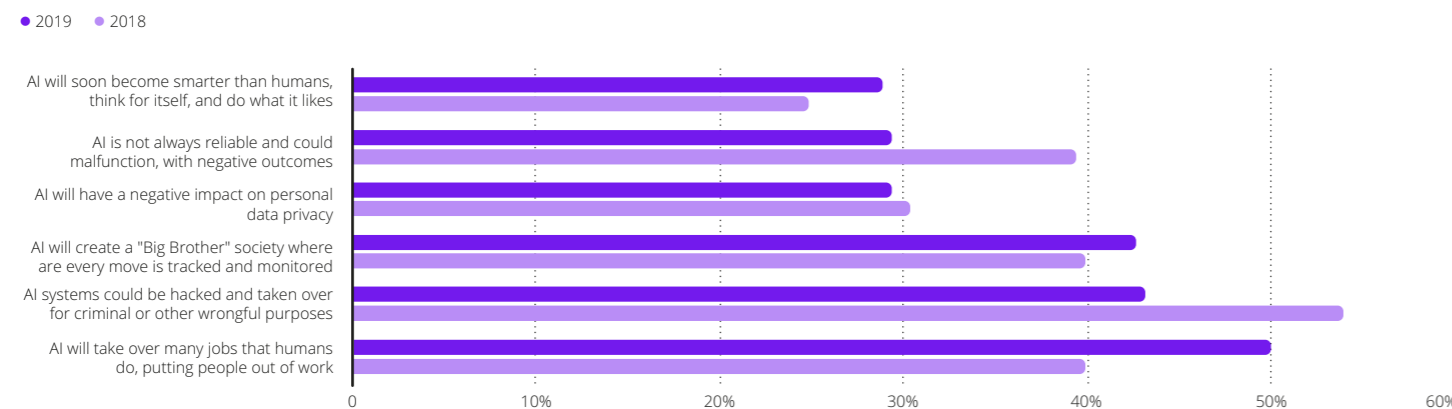
Visual AI applications raise particular privacy concerns, since consumers are worried about what images and data are being captured and shared with third parties and how much of this information is being used to train AI models.

Deep-learning object detection and image and face recognition are the primary drivers for vision-based AI applications. In 2020, expect to see an acceleration of this trend, as the visual AI software and hardware stack becomes commoditized and scalable. In the consumer domain, embedded vision-related AI will be most prominent in tablets, smartphones, and smart-home speakers.

Today, visual AI processing is mostly implemented on-device at the edge. However, 5G allows for AI inference processing to be offloaded from the device to an edge server or an appliance. The recent announcement by

Qualcomm of a 5G-enabled intelligent edge appliance being built for a certain hyperscaler is proof that AI applications and 5G go hand in hand.

At MWC20, NVIDIA will be beating the AI and 5G drum in relation to its EGX platform announced last year at MWC Americas. There is a chance that other mobile infrastructure vendors and CSPs will chime in as well. Edge processing has benefits over cloud processing when it comes to latency, bandwidth, cost, and privacy.

On-device AI processing is the best antidote to privacy concerns, with Apple using on-device AI to dispel any privacy questions for the iPhone. However, edge server or edge appliance processing is a gray area, and it's often unclear to users who owns these edge appliances, whether there is any data being passed over the cloud, and what must be done to ensure privacy protection.

Survey question: Which of the following aspects of AI are you most concerned about or uncomfortable with?

● 2019 ● 2018

AI will soon become smarter than humans, think for itself, and do what it likes						
AI is not always reliable and could malfunction, with negative outcomes						
AI will have a negative impact on personal data privacy						
AI will create a "Big Brother" society where are every move is tracked and monitored						
AI systems could be hacked and taken over for criminal or other wrongful purposes						
AI will take over many jobs that humans do, putting people out of work						

Source: Omdia

New regulations and rising consumer awareness elevate cybersecurity to the top of the priority list for mobile products

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Bill Morelli
Vice President
Enterprise Research

Maxine Holt
Research Director
Information Security

The worldwide installed base of IoT devices is set to total nearly 35 billion units this year – representing 35 billion chances for hackers to compromise security. As a result, cybersecurity has become a major priority for organizations worldwide, with global spending on cybersecurity expected to swell to $157bn in 2023, up from $60bn in 2019.

However, in the rush to bring new mobile products and services to market, security and privacy concerns too often have fallen from their top positions on the priority list for enterprises, technology firms, and service providers. Fewer than 11% of organizations have fully implemented a proactive approach to cybersecurity and digital risk, according to a survey conducted by Omdia. Luckily, this situation is changing for the better.
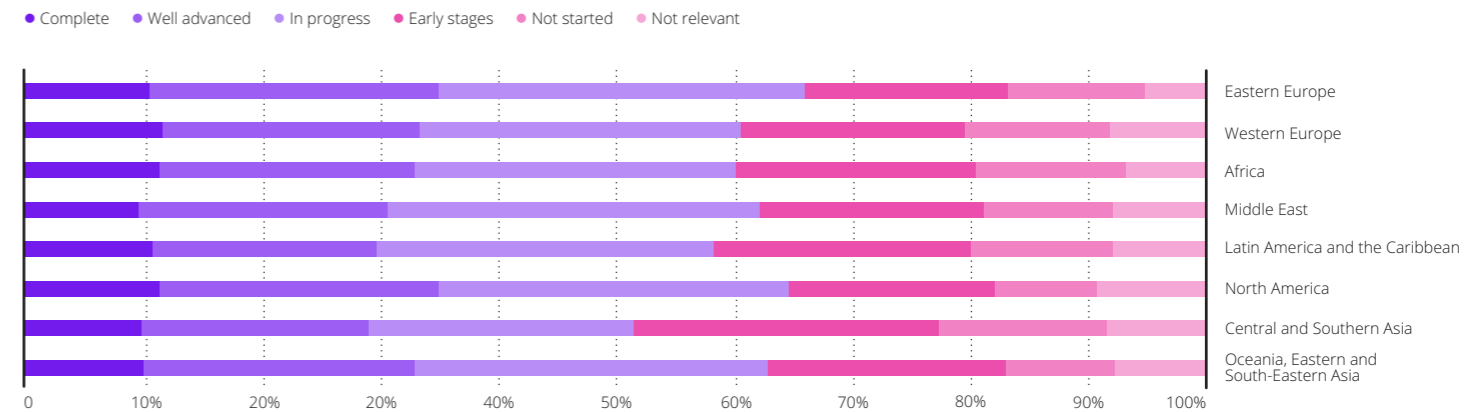
Regulation has played a big role in effecting change: the EU General Data Protection Regulation, the California Consumer Privacy Act, and dozens of other pieces of legislation around the globe have driven security and privacy up the list of importance. This regulation in turn has raised standards and visibility among company decision makers,

backed up by imposing sanctions for companies that fail to take cybersecurity seriously enough.

On the consumer side, there is also growing security awareness. This doesn't necessarily mean consumers are practicing security-positive behavior, but it does mean that they are more attuned to security incidents and breaches when they hit the headlines. As a result, enterprises that have suffered breaches can incur reputational damage, lose customers, and see a temporary or longer-term impact on share price.

"Expect to see an increased focus at MWC on embedded security and privacy capabilities from vendors and CSPs"

Survey question: How would you rate your organization in terms of taking a proactive approach to cybersecurity and digital risk?

● Complete ● Well advanced ● In progress ● Early stages ● Not started ● Not relevant

Eastern Europe
Western Europe
Africa
Middle East
Latin America and the Caribbean
North America
Central and Southern Asia
Oceania, Eastern and South-Eastern Asia

Source: Omdia

Enterprises must continue to pursue mobile digital transformation projects with the objective of improving the services they provide to customers. However, this must go hand-in-hand with assessing, accepting, mitigating, or transferring the risks that these projects present.

At MWC20, expect to see an increased focus on embedded security and privacy capabilities from vendors and CSPs. However, presenting these capabilities as all-encompassing would be a mistake. Instead, we're looking for a description of where each of these capabilities supports an organization's security posture.

The enterprise 5G market offers massive growth – but communications providers must prove their business case

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Camille Mendler
Chief Analyst
Enterprise Services

Ken Rehbehn
Research Director
Critical Communications

"The real enterprise 5G winners will be companies that can match the right network technology to the right usage context"

The growth prospects for 5G in enterprises are enormous, with global 5G business mobile subscription count set to rise to 175 million at end-2024, up from 500,000 at end-2019. However, despite the vast and multifaceted market for enterprise 5G products and services, the opportunity for the technology is still largely unproven.

Enterprise 5G is not just the province of blockbuster telcos and equipment vendors. Established and emerging vendors from different domains are also moving in, such as wireless vendors Cambium and Redline, disruptors including Athonet and JMA Wireless, industrial entities such as Bosch and Hitachi, and new managed-service providers like Ukkoverkot.

A wide range of industries are investing in private 5G networks. Around 40% of the announced deployments of enterprise 5G networks since 2016 are for manufacturing, followed by 18% of deployments in transportation and logistics. Utilities, energy, and mining together make up a further 20% of deployments, followed by public safety at 7%. The remaining deployments are spread over a further nine industry verticals.

It's questionable whether enterprises really want to go it alone on 5G – even if self-determination via access to spectrum is available in a growing range of countries,

including Germany, Japan, the UK, the US, and beyond. Nine out of 10 enterprises are seeking a partner to manage their campus and in-building networks. But it is still up for debate whether that infrastructure should migrate to 5G or Wi-Fi 6 or simply stay the same.

Global, enterprise 5G announcements by industry, 2016–19

- Education ● Public administration ● Retail ● Telecoms ● Agriculture
- Media and entertainment ● Real estate ● Healthcare ● Public safety/defense
- Energy and mining ● Utilities ● Transportation and logistics ● Manufacturing

1% ▪️▪️ 2%
2%
3% 3% 5%
5%
5%
10%
16%
16%
27%
59%
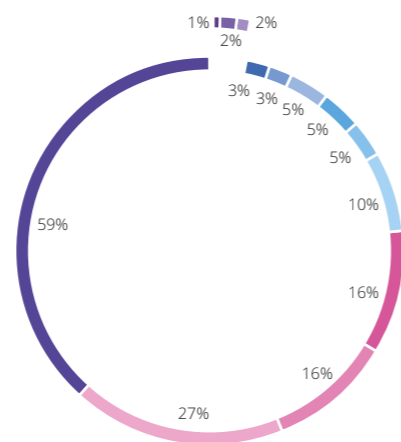
Source: Omdia

The real enterprise 5G winners will be those companies that help enterprises identify friction points where valid use cases exist, those that can match the right network technology to the right usage context, and those that remain agnostic and rational in the face of hype.

What's certain is that CSPs' enterprise network revenue is stalling, and that they need a new source of growth. Some believe that building, operating, and managing private 5G networks is the answer. Either way, everyone will need an ecosystem of expert partners to act on their 5G ambitions. Expect more news of such partnerships at MWC20.

Today, nearly 40% of private networking activity focuses on manufacturing. Surely, no one will get rich or recoup the cost of a national 5G network by simply targeting factories, ports, and mines. The focus of enterprise 5G is currently on 1% of the B2B universe: what about the 99%? Let's hope for answers to this question at MWC20 too.

Automotive stakeholders seek to monetize vehicle data as installed base of connected cars soars to 350 million in 2021

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Alexandra Rehak
Practice Leader
IoT

Sam Lucero
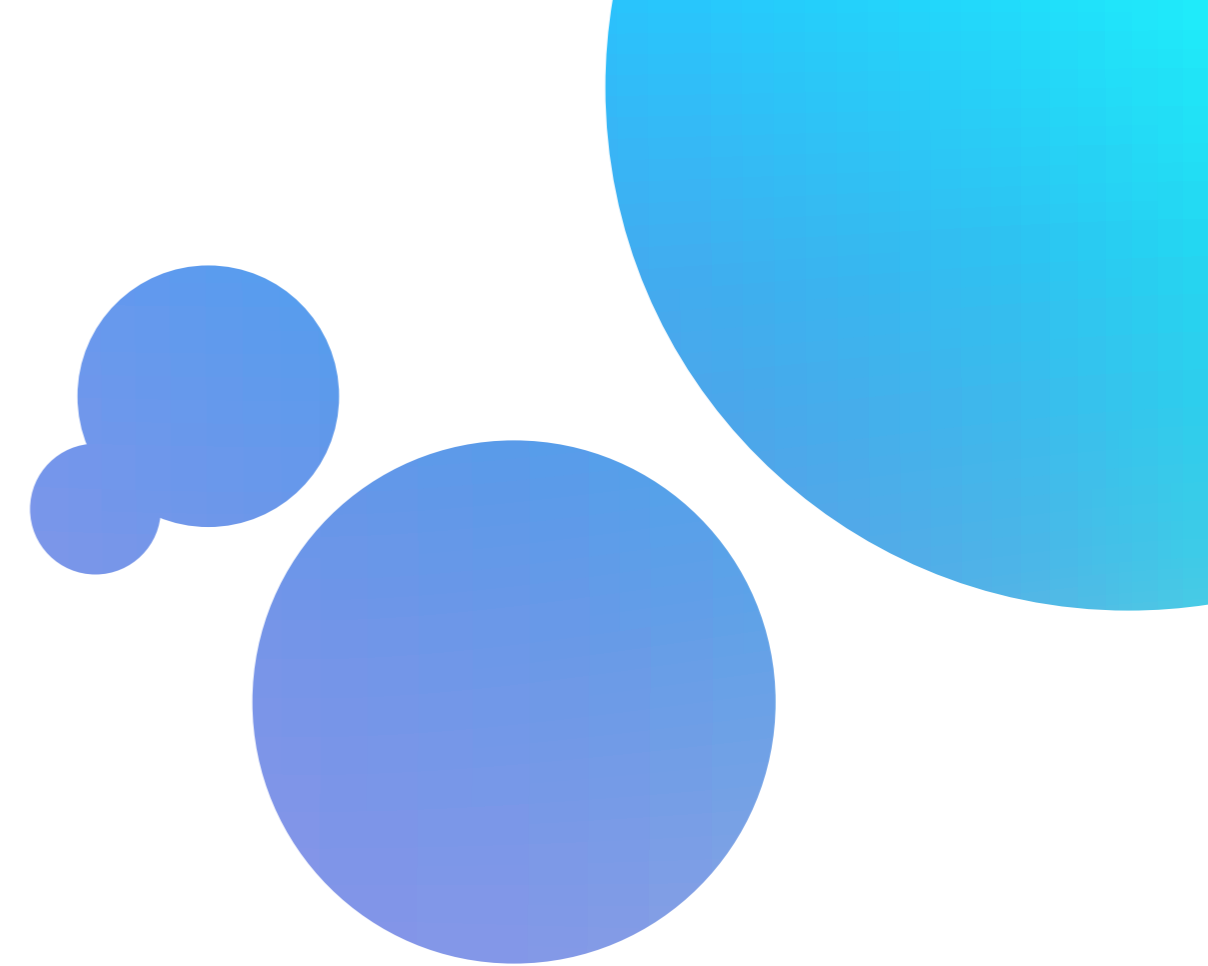Senior Principal Analyst
IoT Platforms

Christian Kim
Senior Analyst
IoT and Connectivity

The global installed base of connected cars and light-duty vehicles is expected to expand to more than 360 million units at end-2021, up from slightly more than 250 million at end-2019, presenting a massive opportunity for collecting and selling the data generated by these vehicles.

MWC20 will highlight the emergence of automotive and vehicle data as a currency. The proliferation of connected vehicle sensors and cameras has led to the collection of vast databases. Although car makers have been unwilling to share this data, it will become far more powerful coupled with other data sources across the smart-city, insurance, and CSP industries.
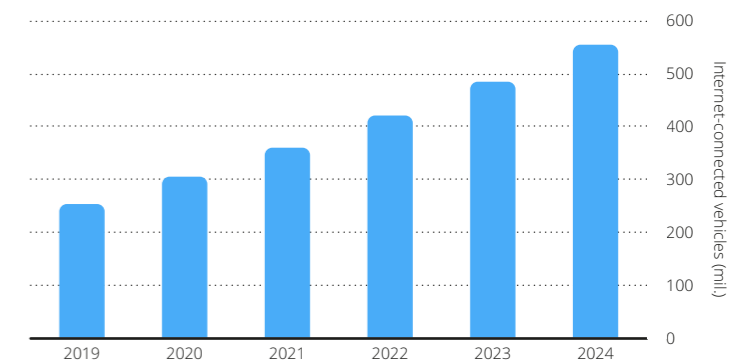
There is a clear opportunity for cloud platforms, cloud storage systems, application developers, and analytics partners to help monetize connected car data. Joining together data sets could also accelerate the progress of autonomous driving, especially with the introduction of AI and machine-learning tools. Expect to hear about 5G uses in automotive and transport at MWC20.

While CES was a muted show for most CSPs, MWC20 will be the forum where they market their transportation vision to consumers as well as to car makers. New opportunities for connectivity and automotive partnerships are coming up, with the expiration of existing connectivity contracts providing an entry point for potential new service collaborations.

For example, the PSA Group – which acquired GM's Vauxhall and Opel brands and signed a contract with AT&T for vehicle connectivity in 2017 – might be seeking new CSP partners because the AT&T contract expires in 2020. Omdia would not be surprised to see several such partnership announcements at MWC.

Car makers also are likely to use MWC20 to focus on near-term opportunities in the autonomous vehicle segment, such as partially or fully autonomous shuttles deployed on campuses and closed environments, using existing 4G LTE or upcoming 5G connectivity.

Global, installed base of connected cars and light-duty vehicles, 2019–24

Internet-connected vehicles (mil.)

2019 | 2020 | 2021 | 2022 | 2023 | 2024

Source: Omdia

> "MWC20 is where CSPs will market their transportation vision to consumers as well as car makers"

5G and sports are becoming a winning combination, with $2.6bn in bundled-service revenue in 2024

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Rob Gallagher
Vice President
Consumer Research

Maria Rua Aguete
Distinguished Analyst & Research Director
Media, Service Providers, and Platforms

"The intersection of 5G and sports will be a key theme at MWC20, especially given the upcoming Tokyo Olympics"

Communications service providers (CSPs) and rightsholders are collaborating to offer bundled services combining 5G and live sports events, a market expected to grow to $2.6bn in global revenue in 2024.
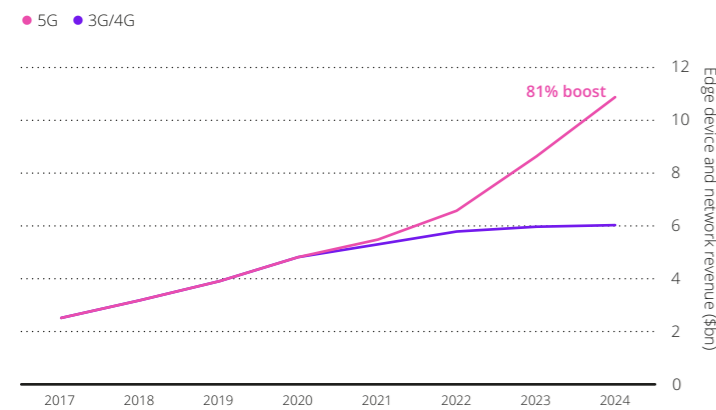
These sports bundles are part of a larger market for combined 5G and over-the-top (OTT) services that will deliver $4.9bn in media revenue in 2024, providing an 81% boost to total telco-OTT bundling revenue.

With an eye on this lucrative opportunity, major players will make the intersection of 5G and sports a key theme at MWC20, especially given the upcoming Tokyo Olympics.

The 5G standard and sports will make for a timely fit in 2020, technically and commercially. Live streaming video of events is already one of the most popular and demanding applications on 4G networks. The arrival of 5G promises to enable more people to watch at higher quality and experience sports in new ways, such as via augmented and virtual reality.
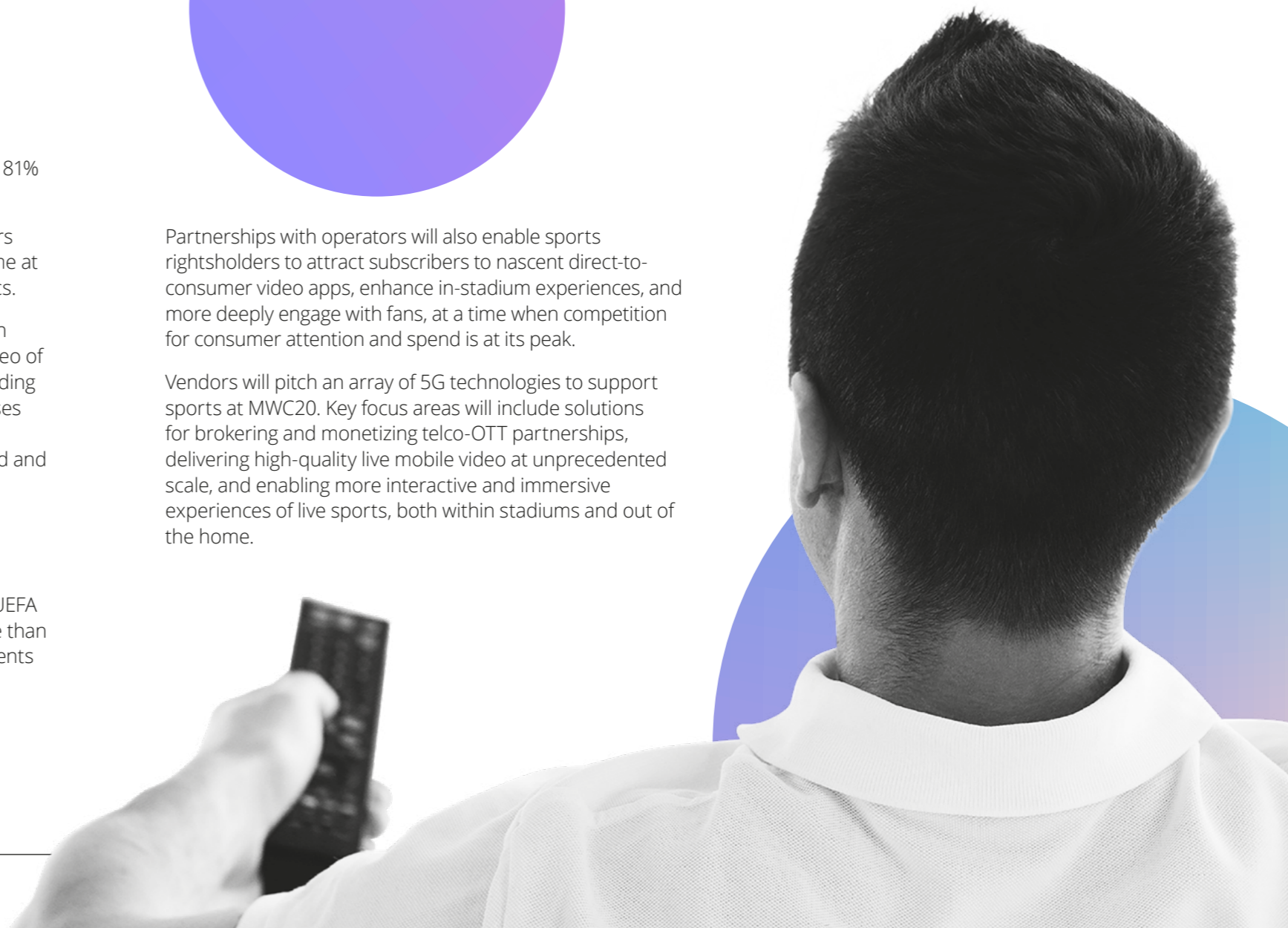
Sports will also provide a powerful platform to win consumers over to 5G. At MWC20, expect operators and rightsholders to detail how they plan to harness international competitions like the Olympics and the UEFA Euro Championships to promote their products. More than 70% of operators said the timing of major sporting events had influenced their 5G rollout decisions.

Partnerships with operators will also enable sports rightsholders to attract subscribers to nascent direct-to-consumer video apps, enhance in-stadium experiences, and more deeply engage with fans, at a time when competition for consumer attention and spend is at its peak.

Vendors will pitch an array of 5G technologies to support sports at MWC20. Key focus areas will include solutions for brokering and monetizing telco-OTT partnerships, delivering high-quality live mobile video at unprecedented scale, and enabling more interactive and immersive experiences of live sports, both within stadiums and out of the home.

Global, telco-OTT media revenue from bundling, by network technology, 2017–24

● 5G ● 3G/4G

81% boost

Edge device and network revenue ($bn)

12, 10, 8, 6, 4, 2, 0

2017 2018 2019 2020 2021 2022 2023 2024

Source: Omdia

Telcos double down on video gaming as 5G boosts esports and expands the business to new platforms

Meet with Omdia experts in AI, 5G, consumer, cybersecurity, games, infrastructure, IoT, media, semiconductors, smartphones, and other areas at MWC20, including:

Rob Gallagher
Vice President
Consumer Research

George Jijiashvili
Senior Analyst
Consumer and Entertainment Services

"The second coming of cloud gaming could turn almost any device capable of video streaming into a gaming platform"

The gaming market is on a winning streak, with global revenue set to expand to $162bn in 2021, up from $121bn in 2019. Now with the arrival of 5G, the business is experiencing growth in areas including cloud gaming and esports, attracting intense interest from telcos.

Global, video game revenue by segment, 2019–24

● Total cloud gaming revenue ● Esports revenue
● Other video game revenue (console/PC/mobile)

Revenue ($bn)

Source: Omdia

Never before has gaming been so relevant to so many technology, media, and telecommunications players.

The second coming of cloud gaming – heralded by the launch of Google Stadia, Microsoft's ongoing xCloud trials, and Sony's renewed focus on PS Now – could turn almost any device capable of video streaming into a gaming platform. This phenomenon is expanding the video-game conversation beyond the traditional market incumbents to include makers of other kinds of devices.

Partnerships between cloud gaming technology providers and network operators have emerged as a mutually beneficial affair, more of which will be evident at MWC20. Cloud gaming is predominantly delivered as a premium, subscription-based service, making it suitable for bundling. Gamers are also an attractive demographic for 5G network providers, since they tend to be early adopters of technology and among the highest-spending digital consumers.

Esports are another natural fit for telcos, and 5G's advent makes mobile esports a far more viable proposition. A battle is on to become the leader of the mobile esports experience, and MWC20 should give us a clearer idea of which telcos are on the hunt.

However, network operators should set realistic expectations around cloud gaming, since its true impact will be felt only in the longer term. Uptake will be gradual, particularly since technologies, content availability, and business models are still being worked out. Cloud gaming is set to account for only 5% of total gaming revenue in 2024.

The focus at MWC20 will be on planning for the future; investments still need to be made and partnerships struck before cloud gaming really starts to take off.

Connecting the dots... by the numbers

$378bn
Global revenue for AI smartphones in 2025

360m
Installed base of connected cars and light-duty vehicles in 2021

>50%
Share of smartphones with active-matrix OLED displays in 2023

2 of 3
smartphones will include built-in AI capabilities in 2025

$828bn
Global revenue for AI edge devices and networks in 2023

2%
of the billions of connected devices are IIoT-enabled

$157.25bn
Average semiconductor content in high-end smartphones in 2022

133%
IoT device growth from 2025 to 2030

1.9bn
5G mobile subscriptions at end-2024

4x
Growth of the global 5G RAN market from 2019 to 2024

$7.4bn
5G-based FWA revenue in 2024

$157bn
Global cybersecurity spending in 2023

$2.6bn
Global 5G sports bundling revenue in 2024

MWC20 sessions to attend

Monday 24th

GSMA, NTT DoCoMo, VEON, Orange SA, Telefónica SA

→ Hall 4, Auditorium 1

9AM–10:30AM

Top global service providers will be on stage, setting the scene for the entire show. Look out for Stéphane Richard, chairman of Orange SA and chairman and CEO of the GSMA; Ursula Burns, chairman and CEO of VEON; José María Álvarez-Pallete López, chairman and CEO of Telefónica SA; Kazuhiro Yoshizawa, president and CEO of NTT DoCoMo, Inc.; and Mats Granryd, director general of the GSMA.

ViacomCBS

Keynote 2: Industry X Transformation

→ Hall 4, Auditorium 1

12:30PM–1:30PM

Expect the newly merged mega media company to position itself as a key supplier of high-quality content and direct-to-consumer apps for operators' 5G services and bundles. It's a good chance to learn about how media companies will benefit from 5G and vice versa.

Tuesday 25th

5G Automotive Association (5GAA)

Driving Connected Mobility Forward with C-V2X, Increasing Safety for Everyone

→ Hall 8.0, Theater D

9:30AM–1PM

This is a good opportunity to connect the dots between 5G and automotive. Keep an eye out for speakers from Audi, Harman (Samsung), Hyundai, Ontruck, Porsche, Toyota, and Toyota AI Ventures in various tracks at the conference.

FC Barcelona

Keynote 6: Diversity – An Economic Driver

→ Hall 4, Auditorium 1

12:15PM–1:15PM

The soccer club is likely to explain how it sees 5G enhancing the fan experience, after working with Spanish operator Telefónica last year to establish Europe's first stadium with dedicated 5G coverage.

Companies to watch at MWC20

Amazon
→ Hall 1, stand CC1.2

It's always worth looking at AWS to gain an insight into the future of many key technology areas, including compute, storage, databases, networking, analytics, robotics, machine learning and AI, IoT, security, hybrid, virtual and augmented reality, media, and application development, deployment, and management.

Amdocs
→ Hall 3, stand 3G10

Look out for an update on the leading telco software vendor's ambitious MarketONE strategy to establish a two-sided platform for brokering and monetizing operator and OTT provider partnerships. Amdocs will also update on CES20, including their cloud-native, network slicing and data intelligence solution to help automate, modernize, and digitize businesses.

AT&T
→ Hall 4, stand 4C10Ex

AT&T recently stated that 2020 will be the year of the edge. It's worth seeing AT&T to understand how 5G and edge will work together to deliver solutions to businesses. AT&T will articulate its strategy at MWC, which will be a key learning opportunity for many vertical industries.

Deutsche Telekom
→ Hall 3, stand 3M31

DT has demonstrated its clout as a leading global operator across several growth areas. Look out for its MagentaGaming service on show, following the surprise announcement at Gamescom 2019 and ahead of the launch this year. Expect to see others following this route. Also in the spotlight will be its IIoT strategies and private/campus network solutions.

Ericsson
→ Hall 2, stand 2O60

The focus will be on how service providers can use 5G as an enabler to provide additional value to consumers and business customers. Ericsson will demonstrate use cases within manufacturing and automotive as well as both existing and future consumer services within gaming, media, and communications segments, enabled by a state-of-the-art 5G platform along with IoT and AI technology.

Google Cloud
→ Hall 3, stand NG2-3

Google will offer insight and vision on the role of 5G in cloud and the role of cloud in 5G. In addition to exhibiting, Thomas Kurian, Google Cloud's CEO, will deliver a speech in Keynote 7 on Wednesday, Feb. 26, from 09:15am–10:45am.

Huawei Technologies
→ Hall 4, stand 4A30

In addition to advances in 5G networks and devices, the Chinese vendor will heavily push its plans to establish a third major app ecosystem to challenge those of Apple and Google. Huawei will demo its recently launched intelligent 5G operation solution, featuring automation and intelligence capabilities to handle 5G network operation challenges. Also worth looking out for is Huawei and China Mobile's private 5G IIoT network, which was built for Haier in China.

Kia Motors
→ Hall 3, stand 3B13Ex
→ Hall 6, stand 6B50

For an open approach to designing for mobility solutions, Kia is worth looking in on. Kia sells around 3 million vehicles a year in 190 countries, with more than 52,000 employees worldwide, annual revenue of over $49bn, and manufacturing facilities in five countries.

Nokia
→ Hall 3, stand 3A

Expect software and services announcements. The company is positioning itself as an end-to-end 5G solution provider. Addressing those industries directly can boost revenue and efficiencies with 5G, industrial IoT, private wireless networks, AI, and machine learning.

NTT DoCoMo
→ Hall 3, stand 3D31

Expect the Japanese operator's keynote to detail how it plans to make Tokyo 2020 the most connected, digital, and mobile Olympics yet. Widely anticipated, the Tokyo Olympics will be the first and major global showcase of 5G in sports and cities. Expect a good performance.

NVIDIA
→ Hall 3, stand 3A27Ex

Look out for NVIDIA's AI edge offering, the EGX platform, which allows for high-performance GPU to accelerate applications. NVIDIA will showcase various AI and 5G use cases, demonstrating how to monetize 5G. Various applications will be on show across retail, manufacturing, smart cities, cloud gaming, cloud AR/VR, and live sports. NVIDIA will also provide instructor-led training sessions for developers and executives if you want to get hands-on.

Orange
→ Hall 3, stand 3K10

Orange has made some significant investments in its cybersecurity capabilities, not least elevating Orange Cyberdefense to one of its three major sub-brands. This is a good place to learn about the cost and scale of offering high-profile cybersecurity services – Orange offers 24/7 local operations in 19 locations, 10 CyberSOCs for managed detection and response, 16 SOCs, four computer emergency response teams, and three scrubbing centers to mitigate DDoS attacks.

Siemens
→ Hall 6, stand 6N26

To learn the point of view of the industrial market, visit Mentor, a Siemens company. It's one of the few leading industrial companies showing at MWC20, offering a good opportunity to gain insight and perspective from a specialist in industrial.

Telefónica
→ Hall 3, stand 3K31

There will be plenty of announcements around several developments, including the use of big data and AI in improving customer experience, edge strategy, IoT, and FWA in mmWave and the overall network. Keep an eye out for Telefónica's private 5G network for Daimler in Germany, built with Ericsson.

VMware
→ Hall 3, stand 3M11

VMware is expected to come to the show with some announcements following its acquisition of Uhana, a specialist AI vendor focused on using AI to improve CSP networks. Edge, private, and hybrid cloud will remain important areas of focus for VMware at MWC.

Vodafone
→ Hall 3, stand 3D30

Vodafone pioneered 5G in many markets last year. It advocates 5G as a business, enterprise, and industry verticals solution. Given the firm's leadership in the sector, expect to see it showcase advances in 5G for enterprises. In addition to Vodafone's exhibition booth, we recommend attending the speech by Vodafone Business CEO Vinod Kumar for an outlook on 5G and edge.

Connecting the dots… upcoming events

In partnership with Informa Tech's more than 100 media and event brands, Omdia will be participating in the following upcoming events after MWC20. We are everywhere for you.

March

Channel Partners Conference & Expo
→ 09–12.03.2020

Cable Next-Gen Technologies & Strategies
→ 16–18.03.2020

Data Center World
→ 16–19.03.2020

GDC
→ 16–20.03.2020

5G MENA
→ 29–31.03.2020

Enterprise Connect
→ 30.03–02.04.2020

IWCE
→ 30.03–03.04.2020

Blackhat Asia
→ 31.03–03.04.2020

April

IoT World
→ 06–09.04.2020

Taking Streaming Video to the Next Level
→ 20.04.2020

5G Latin America
→ 27–29.04.2020

MVNOs World Congress
→ 27–30.04.2020

May

The Big 5G Event
→ 18–20.05.2020

June

MVNOs Latin America
→ 02–03.06.2020

London Tech Week
→ 08–12.06.2020

Featuring: 5G World Summit, AI Summit, AR & VR World Summit, IoT World Summit, and TechXLR8

About Omdia

Omdia is a global technology research powerhouse, established following the merger of the research division of Informa Tech (Ovum, Heavy Reading, and Tractica) and the acquired IHS Markit technology research portfolio*.

We combine the expertise of more than 400 analysts across the entire technology spectrum, covering 150 markets. We publish over 3,000 research reports annually, reaching more than 14,000 subscribers, and cover thousands of technology, media, and telecommunications companies.

Our exhaustive intelligence and deep technology expertise enable us to uncover actionable insights that help our customers connect the dots in today's constantly evolving technology environment and empower them to improve their businesses – today and tomorrow.

*The majority of IHS Markit technology research products and solutions were acquired by Informa in August 2019 and are now part of Omdia.

The Omdia team of 400+ analysts and consultants are located across the globe

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Brazil	China	France
Canada	India	Germany
United States	Japan	Italy
	Malaysia	Kenya
	Singapore	Netherlands
	South Korea	South Africa
	Taiwan	Spain
		Sweden
		United Arab Emirates
		United Kingdom

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