GSMA Intelligence

2023 Research Themes

Topics shaping the industry and driving our focus

DATE

December 2022

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

We invite you to find out more at gsma.com

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GSMA Intelligence is the definitive source of global mobile operator data, analysis and forecasts, and publisher of authoritative industry reports and research. Our data covers every operator group, network and MVNO in every country worldwide – from Afghanistan to Zimbabwe. It is the most accurate and complete set of industry metrics available, comprising tens of millions of individual data points, updated daily.

GSMA Intelligence is relied on by leading operators, vendors, regulators, financial institutions and third-party industry players, to support strategic decision-making and long-term investment planning. The data is used as an industry reference point and is frequently cited by the media and by the industry itself.

Our team of analysts and experts produce regular thought-leading research reports across a range of industry topics.

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Introduction: behind our 2023 themes

Scope

Building on the research delivered in 2022, this document outlines the key industry themes set to shape the industry and drive the GSMA Intelligence research agenda in 2023.

2023 Themes

The 2023 research themes address the key trends and questions shaping the evolution of the telecoms ecosystem in 2023 and beyond, and what they mean for players across the industry.

What's ahead?

The themes set the direction of our 2023 Research Agenda and will be addressed throughout the year by means of reports, blogs, webinars, presentations, infographics and briefings with clients.

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2023 Research Themes

Operator growth strategies in the digital era

Together with connectivity and
beyond connectivity

5G acceleration in the consumer market and for FWA

Monetisation routes
Scaling adoption to 1.5 billion users

The next wave of telco network transformation

Strategy and technology priorities
Balancing investments and returns

The rise of digital industries and the B2B opportunity

The role of enabling technologies
The challenge of scaling deployments

The changing shape of digital entertainment

Gaming is the new video
Immersive is the new end game

A new value story for devices

Hardware innovation and digital services
in support of incremental value

The emerging metaverse in practice

From hype to reality
Preparing for the next big thing

Spectrum for growth and impact

Optimising the use of spectrum to
deliver its full potential

The unique value of mobile for socioeconomic development

Reducing the internet usage gap
Driving social and economic impact

The sustainability imperative in full force

Advancing network and device sustainability
The rise of the circular economy

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Operator growth strategies in the digital era

Together with connectivity and beyond connectivity

Operator strategies continue to evolve in the digital era as the telecoms industry seeks to capture new growth opportunities in the consumer and enterprise markets. Assessing operator innovation and achievements is more important than ever before.

There is no 'one size fits all' in terms of revenue growth strategy. Most operators are focusing on enhanced connectivity (mobile and fixed) to provide incremental value to customers. A range of major operators are pursuing both enhanced connectivity and diversification strategies, with non-connectivity services (a growing and diverse range of B2B and B2C services) now a key component of their growth stories (24% contribution to total revenues in 2020 – on average for major operators). For most of the diversified operators, enhanced connectivity is a key enabler of progress beyond connectivity.

Building on our operator revenue/service diversification research and longstanding relationships with operators, we will look at how operators are reshaping their growth strategies, their achievements, the role of enhanced connectivity to accelerate growth in B2B and B2C digital services, and new trends in business models and organisational structures. Our recently launched operator case study series provides a concise and consistent way to shine some light on operator strategies and business models, as well as how they are launching new services.

Key 2022 research

- The future of telco retail: towards an omnichannel world
- Operator retail strategies for stores, omnichannel and devices: key survey findings
- Gaming is the new video: gamers' behaviour and operator opportunity
- The growing e-sports business: operators look for skin in the game
- FMC: Europe continues to lead as operators seek new growth beyond quad play
- 5G for the enterprise: headway, hurdles and the horizon for operators
- The edge opportunity in the enterprise market: progress, challenges and future outlook
- The changing shape of smart cities: new trends and new roles for operators

Topics driving our 2023 deliverables

- Business trajectories: operator revenue performance (overall and by category of service) and main drivers of growth
- Innovation in digital services: together with connectivity (mobile and fixed) and beyond connectivity
- Business success beyond connectivity: speed of revenue growth, operators and services leading the way
- Operators in B2C: revenue growth, non-connectivity services driving progress, strategic objectives and value propositions, the role and value of enhanced connectivity
- Operators in B2B: revenue growth, non-connectivity services driving progress, strategic objectives and value propositions, what is needed to accelerate future growth
- Beyond services: new trends in operator business models, main changes in organisational structures

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5G acceleration in the consumer market and for FWA

Monetisation routes and scaling adoption to 1.5 billion users

2022 has confirmed that the rollout and adoption of 5G has been faster than that of previous network generations, with ecosystem support key across areas such as global standards, devices and spectrum. As of September 2022, 205 operators in 79 markets had launched mobile 5G services, with consumer adoption set to reach the 1 billion user milestone at the end of 2022. Meanwhile, momentum for 5G FWA is building, with 84 5G FWA service providers across 44 markets as of September 2022.

New milestones are expected to be reached in 2023. Some 30 new markets will launch 5G mobile services; many of these will be developing markets across Africa and Asia, making 5G a truly global trend. 5G adoption will scale from 1.0 to 1.5 billion users, making monetisation a global imperative. 5G FWA connections will almost double, though from a small base, with an acceleration in subscriber net adds.

Building on our granular, continuous coverage of 5G deployments (including network launches for mobile and FWA; SA and NSA rollouts; and spectrum assignments), we will look at how the industry will scale 5G adoption, what monetisation looks like, and device progress. Assessing the behaviour of 5G users through our global consumer survey will also be key; as adoption scales, we will analyse what makes the new wave of 5G users different to the early adopters – and the impact on data traffic and ARPU levels.

Key 2022 research

- 5G in Context: Data-driven insight into areas influential to the development of 5G (quarterly series)
- 5G in the consumer market: the growth and monetisation story
- How much more are consumers willing to pay for 5G?
- 5G device evolution and outlook: the search for a spark
- 5G FWA: assessing trends, rollout and adoption
- The 5G FWA opportunity: series highlights
- 5G FWA in action
- FWA leads the way in consumer interest in 5G use cases

Topics driving our 2023 deliverables

- 5G user behaviour: satisfaction/dissatisfaction with 5G experiences, willingness to pay more for 5G subscriptions, interest in 5G use cases and 5G bundles
- Transition from 1.0 to 1.5 billion 5G users: countries driving the next wave of users, what makes the new wave of 5G adopters different to the early adopters
- Consumer 5G monetisation: operators, markets and use cases leading the way, the challenge of turning higher data traffic into higher ARPU
- 5G consumer devices (smartphones and beyond): new trends in device availability, pricing and innovation
- 5G FWA: household adoption, operators and markets leading the way, rollout challenges and economics, operator value propositions
- FMC: impact of 5G and the shifts in the fixed broadband access technology mix on the outlook for convergence and bundling

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The next wave of telco network transformation

Strategy and technology priorities, and balancing investments and returns

Network innovation has always been a major force driving growth in the telecoms industry. The global commercialisation of 5G continues to drive network transformation strategies and decisions, in support of evolving enterprise and consumer businesses. Now that early 5G technology has matured, operators are also beginning to look at what comes next, including 5G-Advanced and 6G. Meanwhile, new market demand is focusing on energy efficiency and network security.

Momentum for new network technologies including vRAN, open RAN, edge networking and private networks is also growing, with vendors increasingly vocal. This brings new opportunities but also challenges as operators' budgets for network investments are not infinite. Determining priorities and balancing them with resources is key. Beyond mobile, the fixed broadband access technology mix continues to change, with an acceleration of fibre rollout, 5G FWA network launches, and satellite deployments in rural areas to help address network gaps.

Building on our primary and secondary research on 5G and network transformation, we will look at the rollout of 5G SA, the path to 5G-Advanced, the strategy and technology priorities that will drive operator network agendas in 2023. We will examine how operators will balance investments and returns and the impact of the three S's (sustainability, security and spectrum) in future networks technologies.

Key 2022 research

- Network Transformation 2022
- Operators in Focus: Network Transformation Survey Dashboard 2022
- Open RAN security: what worries operators the most?
- 5G-Advanced: the near-term remedy to 6G hype
- The green generation: bridging 5G and 6G
- Building on 10 years of VoLTE
- Reading between the lines: the changing mix of fixed broadband access technologies
- The fibre rush: altnets make a push for further growth

Topics driving our 2023 deliverables

- Network transformation: changing operator agendas, network strategies and spending plans, network supplier and technology priorities
- Strategies, priorities and RoI: comparison of new network capabilities and models (cloud, edge, vRAN, openness, automation, private networks and beyond)
- 5G SA rollout: timelines and impact on operator RAN and core network investments, global capex and regional pacing
- The three S's: sustainability, security and spectrum in future networks, where operators are paying attention against a backdrop of growing demand
- Beyond 5G: the path to 5G-Advanced and 6G, industry expectations around new features, timelines and operator/vendor messaging
- Fixed broadband networks: shifts in the access technology mix, acceleration of fibre rollout, 5G FWA deployments, cable upgrades, and satellite in rural areas

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The rise of digital industries and the B2B opportunity

The role of enabling technologies and the challenge of scaling deployments

Enterprises are increasingly adopting technologies such as 5G, cloud, edge, security, AI and IoT to advance their digital transformation – a trend accelerated by Covid-19. Beyond the shock of the pandemic, they are also facing new external pressures such as disruption to supply chains, rising energy costs, new work patterns and compliance with sustainability targets. Digital technologies are helping address such challenges. In 2022, we saw important digitisation developments across all vertical sectors. 2023 will take these even further, with a growing shift from single initiatives to sector-wide deployments – a key prerequisite to realising the real vision of digital industries.

Digital transformation of vertical sectors is the biggest catalyst for the B2B opportunity. Unsurprisingly, operators, network vendors, hyperscalers and tech specialists are all seeking to monetise it through service innovation and partnerships. For operators, in turn, B2B is the main driver of revenue growth (30% contribution to total revenues in 2020, on average for major operators), with further potential going forward as enterprise digitisation scales.

Building on our primary and secondary research on IoT and the wider enterprise space, we will look at the digital transformation of verticals across multiple areas: enterprise demand, the role of enabling technologies, the opportunities/challenges for B2B monetisation, the rise of private networks, the early days of the enterprise metaverse, and competition/collaboration dynamics.

Key 2022 research

- 5G for the enterprise: headway, hurdles and the horizon for operators
- Radar: Digital transformation in a post-pandemic future
- The edge opportunity in the enterprise market: progress, challenges and future outlook
- Hyperscalers get serious about private 5G
- The changing shape of smart cities: new trends and new roles for operators
- Mobile operators look to the skies with connected UAV opportunity
- Network slicing: assessing the gap between enterprise expectations and operator deployments
- Visualising the emerging enterprise metaverse space

Topics driving our 2023 deliverables

- Digital transformation of vertical industries: enterprise needs, challenges, outlook by vertical industry, focus on certain technologies or verticals (e.g. drones)
- Enterprise 5G: market landscape, competition and partnerships, key stakeholders in focus (operators, vendors, hyperscalers, end-user enterprises)
- Operator enterprise business: growth, strategic objectives and propositions, the value of 5G SA, IoT, cloud, edge, security and private networks to unlock the B2B opportunity
- Private wireless networks: state of deployments, verticals leading the way, operator strategies, competitive dynamics (e.g. operators, hyperscalers, network vendors)
- IoT: market size and outlook, new trends and drivers, operator strategies and plans, the role of new enabling technologies (e.g. RedCap, eSIM, iSIM, ambient IoT)
- Enterprise metaverse: applications and their fit with enterprise settings, the role of mobile networks and connected devices

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The changing shape of digital entertainment

Gaming is the new video; immersive is the new end game

Digital entertainment is a popular pastime for people of all ages, with 50–60% of adults (across major markets) engaging weekly with video, gaming and music content through their phones. The sector is undergoing significant transformation driven by technology advancements and shifting consumer behaviour (the advent of mobile and on-demand as the leading platform for consumption). New business models are emerging (e.g. subscription models for gaming) or returning in vogue (e.g. ad-supported video streaming). More immersive devices and content formats are making inroads in the XR world and in the build up to the metaverse.

While developments span all areas of digital entertainment, gaming is the leading area of innovation. M&A is on the rise, reshaping competition and consumer offerings. As the video streaming market approaches saturation, ecosystem focus is shifting to gaming as a new area of growth. Operators are increasingly involved, seeking to monetise the transformation of gaming via B2C and B2B routes.

Building on our global consumer survey and the analysis of the strategies of major players in the sector, we will look at how the consumer behaviour for video and gaming is evolving, the impact of 5G on consumption and user experience, the implementation of AI, blockchain and cloud, and the role of digital entertainment in the build up to the metaverse. We will look at the competitive dynamics and monetisation routes for the industry.

Key 2022 research

- Pay TV in flux: consumer behaviour, competitive dynamics and future trends
- Gaming is the new video: gamers' behaviour and operator opportunity
- Consumers in Focus: Gaming Behaviour Survey Dashboard 2022
- The growing e-sports business: operators look for skin in the game
- Fixed and Pay-TV Markets, Q2 2022: developments and future outlook (quarterly series)
- Advertising-supported video streaming emerges from the shadow of SVOD
- Blockchain in media and entertainment: a promising future with challenges along the way
- IBC 2022 takeaways: five media developments to note, from the studio to the cloud

Topics driving our 2023 deliverables

- Gaming and e-sports: consumer behaviour, new trends and developments, competitive dynamics, emerging business models, operator routes to gaming and e-sports
- Traditional pay TV versus video streaming: competitive dynamics and impact on market shares, new video content formats, new business models
- Immersive reality: state of devices, content and platforms, impact on data traffic, the challenge of scaling XR adoption beyond tech-savvy customers, operator involvement
- 5G impact: the role of 5G to drive greater consumer engagement with digital entertainment and to enable new or enhanced B2C and B2B2C customer experiences
- Cloud, AI and blockchain: deployments and impact across the digital entertainment value chain, companies driving progress and investments
- Digital entertainment in the metaverse: what changes, what makes the user experience different, drivers and enabling technologies

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A new value story for devices

Hardware innovation and digital services in support of incremental value

2022 was a tough year for smartphone sales with reduced volumes compared to 2021. As supply-chain issues, geopolitical tensions and rising inflation are still ongoing, sales are not expected to recover before H2 2023. Nevertheless, innovation continues, including new 5G and eSIM capabilities (e.g. eSIM-only phones), foldable designs and breakthroughs in some of the features that consumers value the most including camera and battery quality. These trends will be even more important in 2023 as vendors look to take advantage of the recovery of smartphone sales.

Hardware innovation is important (and will continue at a sound pace) but the value for consumers will increasingly lie in two areas beyond the smartphone itself: smartphones as a central control platform for other devices (e.g. smartwatches and smart TVs) and as the platform most frequently used for digital entertainment and services. New developments in such areas will be key to building a new value story for smartphones.

Building on our global consumer survey and device research, we will look at how the consumer behaviour for devices (smartphones, wearables, smart home and beyond) and digital services is evolving, the changes in retail purchase habits, and the drivers of incremental value for consumers and the industry. We will also assess the impact of 5G on device and service innovation, and the opportunities and challenges from the market transition to eSIM.

Key 2022 research

- Smartphones and beyond: device innovation continues but incremental value lies in digital services
- Consumers in Focus: Devices and Services Behaviour Survey Dashboard 2022
- 5G device evolution and outlook: the search for a spark
- eSIM: market progress, consumer behaviour and adoption to 2030
- eSIM vendors in focus: crucial calls to action to accelerate consumer adoption
- The outlook for smartphone retail: do the stores align for operators and consumers?
- New ways of working: what hybrid work means for connectivity, security and devices
- Satellite 2.0: going direct to device

Topics driving our 2023 deliverables

- Consumer behaviour: the smartphone features consumers value the most, device replacements drivers, loyalty to brands, sales channel preferences
- Smartphone value: hardware innovation drivers, the value of smartphones beyond the device itself (central platform for other devices and for digital entertainment/services)
- Digital services: the smartphone services most used, usage segmentation by age, incremental value drivers, opportunity for operators
- Beyond smartphones: wearables renaissance driven by health/fitness, smart TV as the new big-tech battleground, immersive reality devices for gaming and the metaverse
- 5G devices (smartphones, FWA equipment and beyond): new trends in device availability, pricing, innovation, D2D
- eSIM: state of the consumer market (device and service commercialisation), the acceleration effect of eSIM-only phones, consumer behaviour, future adoption

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The emerging metaverse in practice

From hype to reality, and preparing for the next big thing

The metaverse is in its early days (still lacking a universal definition), but the pace of metaverse-related developments and announcements has accelerated in the last six months. These developments span areas including standards, devices, platforms and content. The metaverse will likely develop in waves over the next 5 to 10 years. Because of its immersive nature, gaming will be a foundational use case, but over time the metaverse will be much more than gaming, with use cases spanning consumer and enterprise markets. Many industries are already devising their plans for the metaverse.

While major tech companies get the most attention, a few operators are making inroads in the metaverse, with SK Telecom, for example, adopting an international strategy. Our research shows that for most operators the metaverse is not part of their strategies for the time being as it is unclear whether there is a business opportunity. That is understandable (and may change in the future), but 5% claim they have already defined a strategy. All eyes in 2023 will be on them and the progress they make.

Building on our secondary and primary research on the metaverse, we will look at how the metaverse will gradually turn from hype to reality, assessing the new developments in devices, platforms and content, and the future outlook for consumer and enterprise use cases. We will assess the opportunity and monetisation routes for operators.

Key 2022 research

- Visualising the emerging enterprise metaverse space
- Metaverse developments and use cases redefine the retail experience
- Exploring the metaverse and the digital future
- Stepping into the metaverse: opportunities and challenges in the future digital reality
- Video, gaming and the metaverse: how AI is helping transform media and entertainment
- Telefónica Spain: Digital Home innovation takes FMC to the next level while paving the way for the emerging metaverse experience
- Blockchain in media and entertainment: a promising future with challenges along the way

Topics driving our 2023 deliverables

- Metaverse drivers: technology enablers, competitive dynamics, standards and interoperability, government initiatives, policy and regulation
- Waves of deployment: how the metaverse will develop over the next 10 years, what makes each phase different, opportunities and challenges
- Consumer versus enterprise metaverse: similarities and dissimilarities, stages of adoption, companies and use cases leading the way
- Consumers in the metaverse: awareness and expectations, benefits, who the first consumers in the metaverse are and what they will do, monetisation routes
- Enterprises in the metaverse: benefits and vertical sectors benefiting the most, what is needed to make it a reality, monetisation routes
- Operators in the metaverse: who is doing what, what they think about the opportunity, how they are defining their strategies, monetisation routes

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Spectrum for growth and impact

Optimising the use of spectrum to deliver its full potential

5G spectrum assignments have accelerated during 2021-2022, with mid-band frequencies leading the way. At the end of September, over 230 operators in 69 countries had received spectrum for 5G use. This trend is set to continue in 2023. As 5G adoption scales, spectrum migrations by way of sunsets and tech-neutral spectrum awards will be key to ensuring availability of sufficient spectrum resources. At least 102 networks will be shut down during 2022-2025, of which 39 will be 2G networks and 63 will be 3G networks.

As spectrum is a limited resource, maximising the use of spectrum resources is central to expanding and upgrading mobile services, and will be core to the success of 5G. Optimising the use of spectrum to deliver its full potential will be a focus in 2023 for the industry. From a regulatory perspective, this may include a more rationale approach to spectrum pricing (balanced with obligations around coverage and quality of service) and a more thoughtful approach towards spectrum set-asides for verticals. WRC-23 will pave the way for the 5G and beyond spectrum outlook while setting the agenda for WRC-27, offering glimpses into 6G spectrum considerations.

Building on our granular spectrum data (Spectrum Navigator) and extensive spectrum research, we will examine the key trends shaping the spectrum landscape (e.g. new spectrum models, pricing, network sunsets) and the implications for industry stakeholders. We will also look at policies for effective spectrum management and the long-term outlook for spectrum, including WRC-23.

Key 2022 research

- Spectrum Navigator, Q3 2022: new insights and trends to watch (quarterly series)
- Maximising the socio-economic value of spectrum
- Vision 2030: mmWave Spectrum Needs
- The socioeconomic benefits of the 6 GHz band: considering licensed and unlicensed options
- The socio-economic benefits of mid-band 5G services
- Spectrum leasing in the 5G era
- India's 5G auction becomes second-most costly in the C-band
- Mobile network sunset: trends, regional variations and implications for IoT

Topics driving our 2023 deliverables

- 5G spectrum: new auctions and outcomes across low, mid and high frequency bands, pricing dynamics, new trends in spectrum assignments requirements
- New spectrum models: sharing, new licence obligations, new assignment models, local licensing, the optimal approach to assigning spectrum for enterprise verticals
- Effective spectrum management: efficient use of spectrum to maximise benefits to society, economic growth and climate change mitigation
- mmWave spectrum: assignment, pricing, network launches, evolution of devices and services
- Network sunsets and tech neutrality: state of 2G/3G sunsets, drivers, new trends, regional approaches, implications for mobile services (e.g. VoLTE, tech neutrality)
- Future spectrum and WRC-23: what’s needed for IMT services, licensed/unlicensed balance in the 6GHz band, spectrum for 5G-Advanced and 6G

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The unique value of mobile for socioeconomic development

Reducing the internet usage gap, and driving social and economic impact

Mobile technology has been a key enabler of socioeconomic value and developments for years, with the Covid-19 pandemic reinforcing the importance of connectivity. Across the world, 55% of the population was using mobile internet at the end of 2021. Mobile is the primary – and in some cases only – way most people in low- and middle-income countries access the internet, particularly for women and those living in rural areas.

With 95% of the world's population covered by a mobile broadband network, addressing the usage gap – the 40% of the global population covered by a mobile broadband network but not using the internet – is the main challenge. Reducing the usage gap is key to closing the digital divide, as is understanding the extent of this reality and the regional challenges. Industry stakeholders and governments are also increasingly looking at mobile technologies to drive social and economic development, as demonstrated by the rise of national digital transformation agendas.

Building on our regular research on the state of mobile internet connectivity and the socioeconomic impact of mobile, we will look at industry progress with tackling the usage gap and with achieving the SDGs, and the increasing value of mobile connectivity and 5G technologies to accelerate digital inclusion and drive socioeconomic impact. We will look at policy and regulatory strategies to address investment gaps and maximise the impact of mobile for consumers, businesses and society.

Key 2022 research

- The State of Mobile Internet Connectivity 2022
- 2022 Mobile Industry Impact Report: Sustainable Development Goals
- Digital societies in Asia Pacific: progressing towards digital nations
- 5G in Africa: realising the potential
- Making Digital Pakistan a reality
- India: on the road to a digital nation
- Mobile Economic Impact: India
- Building ecosystems: identifying tech start-up enablers in ASEAN

Topics driving our 2023 deliverables

- Mobile internet connectivity: industry progress on reducing the mobile broadband usage gap, the drivers and the key barriers to mobile internet adoption and use
- Mobile in the digital economy: the role of enhanced mobile connectivity and 5G technologies to accelerate digital inclusion and drive economic impact
- Digital nations: progress in developing countries, the importance of digital infrastructure, digital governance and digital empowerment of citizens
- Policy and regulation: strategies to unlock investments and maximise the impact of mobile for consumers, businesses and society
- Investment gap: analysis of the market frontier and the financing gaps to achieve public policy ambitions (universal connectivity, 5G digital transformation)
- Sustainable Development Goals: progress, the growing impact of mobile, the road ahead to meet long-term goals

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The sustainability imperative in full force

Advancing network and device sustainability, and the rise of the circular economy

Momentum continues to build across the telecoms industry for investments in sustainable technologies and a reduction in carbon emissions. Commitment rates to key international benchmarks have increased; carbon-neutral targets are now embedded in operators that account for 50% of global telecoms revenue, compared to only 3% in 2020. Unsurprisingly, operator network investment priorities now feature sustainability as top of the agenda, even ahead of must-haves such as security. Beyond green networks, however, sustainability developments increasingly involve devices, SIM cards, data centres and beyond.

The use of mobile and digital technology is a key enabler of the decarbonisation transition, with operators, vendors and supporting ecosystem partners playing a key role in the move to digital and low-carbon economies. Meanwhile, initiatives to support the circular economy are on the rise, and ESG propositions are top of the agenda for companies across all sectors of the economy.

Building on a history of research on green networks and our energy efficiency benchmarking work, we will look at progress with building a sustainable industry, strategies to lower energy consumption using digital technology and renewables, and the importance of energy efficiency being incorporated into the standards governing 5G-Advanced and 6G networks. We will also look at what the rise of the circular economy and ESG propositions means for the telecoms industry.

Key 2022 research

- The green generation: bridging 5G and 6G
- A blueprint for green networks
- Mission sustainable: 5G efficiencies and the green network
- The carbon-neutral mobile network
- Fixed on sustainability: broadband providers adopt a diverse approach
- Industry pathways to net zero – Decarbonisation in transport
- Industry pathways to net zero – Decarbonisation in energy and utilities
- Industry pathways to net zero – Decarbonisation in manufacturing

Topics driving our 2023 deliverables

- Energy efficiency: improvements across full network portfolios (mobile, fibre, data centres), energy implications of shifting 4G and 5G workloads to the cloud and edge
- Future mobile networks: importance of energy efficiency being incorporated into the standards governing 5G-Advanced and 6G networks
- Enablement effect: mobile and digital technology implementation strategies to decarbonise other industries
- Circular economy: monetisation paths and strategies in devices and networks, partnership models needed to address the circular economy
- Net zero: industry progress, outstanding questions and barriers that could hold back progress towards net zero by 2050
- ESG: implications for telco operations and supply chain partners

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Where themes are reflected in our modules

	Mobile Operators & Networks	Fixed, TV & Convergence	IoT & Enterprise	Digital Consumer	Spectrum
Operator growth strategies in the digital era					
5G acceleration in the consumer market and for FWA					
The next wave of telco network transformation					
The rise of digital industries and the B2B opportunity					
The changing shape of digital entertainment					
A new value story for devices					
The emerging metaverse in practice					
Spectrum for growth and impact					
The unique value of mobile for socioeconomic development					
The sustainability imperative in full force					

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GSMA Intelligence: our content, data, research, insights…and value

Mobile Operators & Networks	Fixed, TV & Convergence	IoT & Enterprise	Digital Consumer	Spectrum

50 million data points updated daily. 170 data metrics modelled and forecast to 2030. More than 150 reports published annually.

Data

Mobile Operators & Networks	Fixed, TV & Convergence	IoT & Enterprise	Digital Consumer	Spectrum
• Covers 782 mobile operators and 343 mobile metrics across 239 markets • Historical data and forecasts to 2030 • Mobile subscribers/connections, network and operational data, ARPU and financials • Operator Network Transformation Survey	• Covers 180 FBB service providers and 183 pay-TV providers across 36 of the world's largest markets (90% of global FBB connections) • Historical data and forecasts to 2030 • Fixed voice, broadband and pay-TV connections, bundling and convergence, financials • Product and Service Tracker	• IoT connections and revenue • Historical data and forecasts to 2030 • Cellular & non-cellular connections, enterprise & consumer connections across vertical use cases • Operator Enterprise Opportunity Survey	• Global consumer survey of major markets • Interactive consumer survey dashboards covering 5G, gaming, video services, devices, eSIM, and the metaverse. Filters for specific consumer segments • eSIM: devices, services, adoption forecast to 2030	• Tracker of spectrum auctions, assignments, pricing, licence duration and obligations • Granular data covering 200 countries and 1,120 operators worldwide, from 1980 to today • Spectrum for 5G and previous generation networks • Network sunsets

Research

- **Spotlights:** weekly reports covering important trends, developments and events in the telecoms/digital ecosystems and their implications for ecosystem players
- **Industry deep dives:** quarterly reports on specific topic streams with in-depth analysis of the market and future outlook, including major trends, ecosystem mapping and competitive dynamics
- **Insightful charts:** a monthly graphic providing a visual way of telling an important story or development in the industry – turning data into insights
- **Operator case studies:** a concise and consistent way to shine some light on operators' strategies and business models, as well as how they are launching new services
- **Regional research:** Mobile Economy reports and Region in Focus series examining major trends (technology, market, policy and regulation) shaping the regional telecoms landscapes
- **Bespoke consulting:** on-demand, customised research on industry topics including megatrends, technology/service innovation, economic and social Impact of mobile technology and spectrum

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