

How is eSIM technology changing the consumer experience

CONNECTIVITY

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Four simple letters with a growing impact: eSIM. This technology is quickly gaining momentum in the consumer market. The GSMA forecasts that by 2025, 35% of all smartphone network connections will be made using eSIM technology. But what are eSIMs, and how are they changing the consumer experience for the better?

eSIM: smaller size, bigger possibilities

An eSIM, also known as an “embedded SIM” or eUICC, has the same purpose as a traditional, removable SIM : to store the information that a device—smartphone, tablet, IoT object or laptop—needs to access a mobile network. However, with a traditional SIM, the subscriber must insert a physical element into their device. With eSIM technology there is no need for physical manipulations: the eSIM is soldered into the device’s motherboard during manufacturing. The specifications of this embedded secure element, such as data format and security mechanisms, are standardized¹. Rewritable and compatible with all leading carriers, eSIMs enable interoperability and remote eSIM profile provisioning on any device.

eSIM technology on the rise

The eSIM has been around for a few years; it was at first targeted to industries for uses in IoT integrations. However, once Apple added eSIMs to the iPhone, others like Google and Samsung followed suit. Today, most recent high-end phones are eSIM-enabled. In fact, the number of eSIM devices commercially available for purchase reached **110 models by the end of 2020**, across smartphones, laptops, smartwatches, and tablets.

These days, it is much easier to find a mobile network that supports eSIM services². As of the end of 2020, at least **175 mobile service providers**³ had launched commercial eSIM services for smartphones across 69 countries. It is just a matter of time before eSIM becomes the standard. In the UK, for example, you can choose eSIM from EE, O2, and Vodafone; in the US, AT&T, T-Mobile USA, and Verizon Wireless all support eSIM.

This is nothing but good news for consumers. As the eSIM takes up less space, it allows for thinner devices, permitting more **durability, simpler form-factors, and water-resistance**. Beyond these practical considerations, eSIM technology brings a lot of benefits: enabling new connectivity services and further **digitization of the subscriber journey**.

A mobile subscription anywhere, anytime

eSIM is powering a shift in how consumers get connected. Since the eSIM is embedded into the device, the setup of the eSIM device is much simpler: no need to insert a SIM, no need to retrieve it at a retail store or to wait for it to arrive in the

mail; the device can be instantly and remotely activated, and provisioned with an eSIM profile.

eSIM brings subscribers **a true out-of-the-box experience**, especially if combined with remote identity verification techniques—in compliance with the local data privacy regulations. Subscribers can browse different subscription plans directly on the device through the carrier's app or web page, complete the **enrollment process** and provide proofs of identity, by scanning ID documents and submitting their biometrics with the phone camera (no need to go to a shop to prove one's identity), then instantly download the eSIM profile onto the device for remote eSIM activation.

As a result, consumers can contract a mobile connectivity plan and use it immediately, anytime and anywhere—from the comfort of their home or on-the-go, such as in public transportation, or when travelling abroad.

Enhanced, personalized onboarding experience

“Just-in-time” management of eSIM profiles enables subscribers to **dynamically manage eSIM profiles** and modify them until the last moment prior to the download on the device and the eSIM activation. This means that subscribers can choose their PIN code or phone number at the very moment they enroll and activate a new device for a truly personalized and instantaneous service.

Multiple eSIM devices on a single contract...

eSIM technology facilitates the addition of “companion” devices. When owning multiple devices (for instance a smartwatch, or a tablet, plus a smartphone), it can sometimes be complicated to activate them with a traditional cellular plan. With eSIM, subscribers can add other devices on a single contract more easily than with traditional SIMs, by quickly scanning a single QR Code, for example. This makes it easy for consumers to **link other devices or phone lines to their main mobile subscription plan**, such as opening a connection for their children. Each cellular connection remains independent but linked to the “master” subscription. It's also an interesting opportunity to take advantage of **bundle subscriptions** under one offer.

... And multiple profiles on a single device

Some people must carry multiple SIMs and mobile phones for different needs such as using a second phone to separate personal and business calls, or carrying several SIMs adapted to the different countries where they live or travel.

eSIM, on the other hand, can simultaneously **store multiple operator profiles on a single device**—consumers can switch between those profiles remotely and use the best connectivity service available in terms of coverage and cost based on where they are.

Business or leisure? Seamless mobile connectivity when travelling

When travelling abroad, connectivity can be an issue. Searching for a free Wi-Fi network is time-consuming and using paid Wi-Fi services in a hotel or a coffee bar can prove to be costly. Furthermore, public Wi-Fi networks are often less secure than cellular 3G, 4G, or 5G networks that provide data encryption, authentication, and cryptographic mechanisms.

But searching for a pay-as-you-go SIM in an unfamiliar country can be tricky. More than 25 percent⁴ of business trips are just a day long: why waste time struggling to get a physical SIM each time for such a short trip?

eSIM technology enables subscribers to **stay connected globally**, while ensuring simple, hassle-free and secure connection. Upon arrival in their destination country, users can get mobile connectivity by simply scanning a QR code linked to a local operator. The local mobile subscription is downloaded and activated in a flash directly on the device with remote eSIM activation.

This **always-on connectivity** is not only useful when traveling abroad. One of the core advantages of eSIM technology resides in the associated remote activation capabilities, which enables instant profile download on a device for always-

on connectivity. Indeed, many situations—from work assignments to personal emergencies—require reliable connectivity.

Try before you buy: discover the benefits of new mobile connectivity services

The “Try and Buy” trend is pervading many industries, including retailers, software, and streaming services—and this trend is only expected to grow with the rise of a new generation of young demanding consumers.

The “Try and Buy” business model allows customers to test a service for a fixed amount of time before engaging with a paid subscription. Until now, the mobile connectivity industry had not widely embraced this trend, but eSIM could make it easier for mobile operators to propose such services, thus enabling their customers to better understand their value and their additional benefits. **“Try and Buy” connectivity offerings** could support the adoption of 5G services such as streaming, gaming, Augmented Reality (AR) and Virtual Reality (VR).

In terms of cost, security, saved time and ease-of-use, eSIM is without rival. It helps MNOs bring their customers a great, seamless experience. This enhances user satisfaction, improves brand perception, and creates **new business opportunities**. Figures are impressive: according to a study by Juniper Research⁵, the number of eSIMs installed in connected devices will increase from 1.2 billion in 2021 to 3.4 billion in 2025—a 180% growth! Along with these eSIM devices, new high-value services can also be sold. More reasons to let the public know more about this great technology.

¹ <https://www.gsma.com/esim/esim-specification/>

² <https://support.apple.com/en-us/HT209096>

³ <https://data.gsmainelligence.com/research/research/research-2021/esim-state-of-the-consumer-market-and-the-road-ahead>

⁴ <https://www.smallbizgenius.net/by-the-numbers/business-travel-statistics/>

⁵ https://www.juniperresearch.com/press/press-releases/esim-device-installations-to-reach-3-4-billion?utm_campaign=pr1_esims_technology_devices_mar21&utm_source=Twitter&utm_medium=social
