



## SURVEY REPORT

# How eSIM is transforming connectivity for consumers and enterprises

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# Executive Summary

eSIM's promise to reinvent how services are provisioned to connected devices is becoming even more pertinent with the advent of 5G. With the number of devices able to tap into cellular connectivity growing exponentially, Mobile World Live conducted an online survey of mobile network operators, consumer and M2M device manufacturers to discover the changing appetite for eSIM, the perceived benefits of the technology and where its future success lies. The survey confirmed how operators are continuing to play a pivotal role in how successful it will be, both in positive and negative ways, as well as which devices and use cases the technology best supports.



## Key Findings

- **A majority of operators surveyed (61%) feel they are guilty of holding back the eSIM market.** While not to the same extent as the wider industry, the findings show a surprising level of self-consciousness among MNOs. The fact 90% of operators plan to offer eSIMs by 2025 suggests they are working to rectify that.
- **Consumer devices are best suited to eSIMs today.** Smartphones and smartwatches are taking the most advantage of the technology, with automotive and smart meters identified following closely after. Almost 40% of respondents said smartphones used the greatest number of eSIMs, despite the perception of the tech's strength within the M2M sectors.
- **Lack of availability is the biggest challenge facing eSIM providers** While the eSIM sector's easy access to global connectivity is its greatest strength, actually being able to deploy the tech is a different matter. This is expected to change in the 5G era, with 50% of those surveyed saying eSIMs will play a vital role.

## Survey methodology

This report is based on responses from an online survey of 371 respondents conducted by Mobile World Live on behalf of Truphone. Mobile network operators with annual revenues of more than \$10 billion accounted for 17.5% of respondents and 14.0% were from MNOs with annual sales of under

\$10 billion. A total of 6.2% were from consumer device manufacturers and 4.0% were from M2M device manufacturers.

Geographically, the largest group of respondents (50.4%) were from companies headquartered in Europe, followed by North America

(20.0%), Asia (15.6%), Africa (6.5%), South America (5.4%) and the Middle East and Africa (2.2%).



# Introduction

eSIMs are a means of meeting greater demand for more flexible connectivity as the industry moves into the 5G era. Their ability to be reprogrammed at will, as well as embedded directly into the device itself, means it can enable easier ways of connecting and changing communication service provider, and also offer innovative form factors, opening up the possibility of the likes of bigger batteries as a device's real estate is reduced.

The technology has the support of the world's biggest device manufacturers. Samsung was the first device manufacturer to

introduce an eSIM to a consumer device when it launched the Samsung Gear S2 in 2016 and the 2020 launch of the S20 was its first smartphone to use the technology. Apple built an eSIM into its Apple Watch Series 3 in 2017, before introducing it to the iPad the following year and every iPhone iteration since 2018. Google has also offered eSIM compatibility in every model of its Pixel handset since 2017.

This technology will become even more pertinent now that the industry has moved into the 5G era and mobile operators are pushing

cellular networks as a means of connecting a large number of devices. A variety of industries – including automotive, logistics, utilities, manufacturing and security – are expected to further experiment and deploy the technology as it becomes cheaper and more sophisticated and mobile networks are able to support reliable networks connecting devices at a massive scale.

This report explores how eSIMs are being used today, the most popular types of deployment, the benefits of the technology and its challenges, and its role in the decade ahead.

# Part one: The changing face of eSIM usage

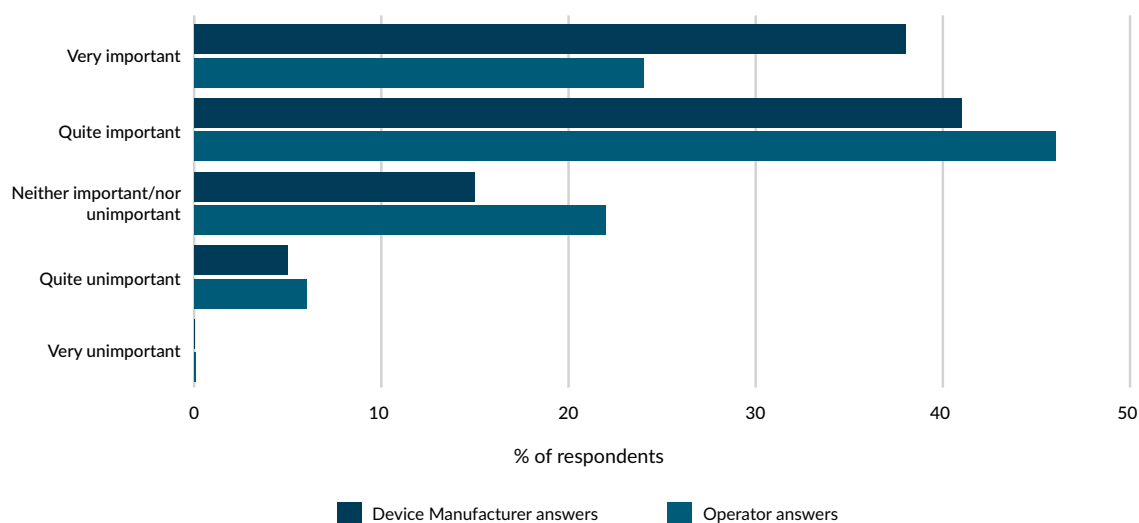
Today, 67.0% of mobile network operators surveyed offer eSIM, with only 31.4% saying they do not. However, only 48.7% of device manufacturer respondents – whether consumer or M2M – say that they use it (43.6% do not). This disparity suggests a rump of device manufacturers are unconnected, could be using the likes of Wi-Fi, or a more traditional soldered SIM card (without the flexibility of eSIM).

There is growing momentum for eSIMs across both operators and manufacturers though – 58.5% of the former and 53.9% of the latter have started using it over the past two years. And there is similarly a realisation that eSIMs are an important technology today.

More than 60% of respondents said it was either “very important” or “quite important”. Among device

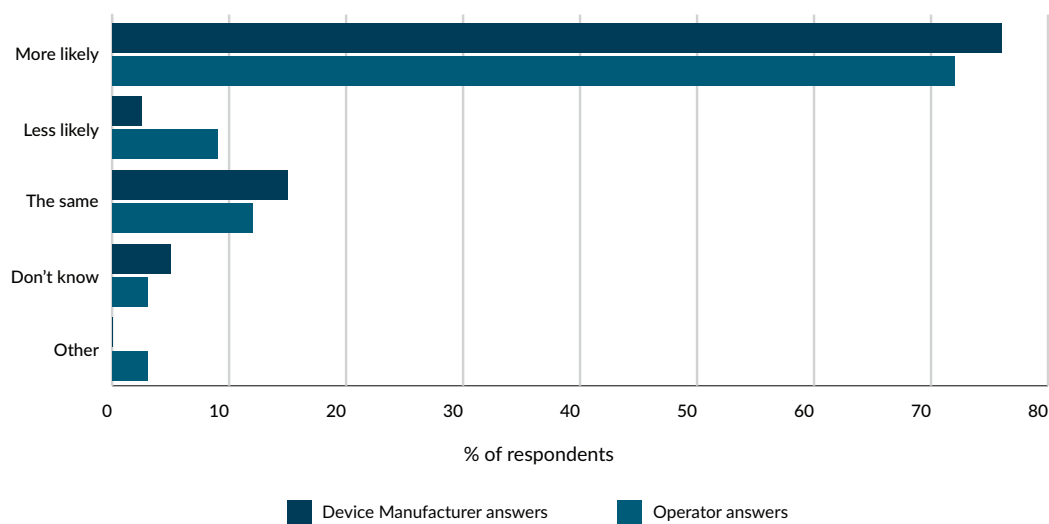
manufacturers, this number jumps to 79.5%. Given the gap between this enthusiasm and adoption figures, this could suggest there is latent demand for the tech that is not being met.

Figure 1: How important is eSIM to your business today?



This is underlined by changing attitudes towards the technology, with a large share of both device manufacturers and operators more likely to adopt or offer it than 12 months ago. In another sign of latent demand potentially existing, a greater share of manufacturer respondents (76.9%) said they are more open to adopting the technology than in 2019.

Figure 2: Are you more or less likely to offer or adopt eSIMs compared to 12 months ago?





## Part two: How eSIM are being deployed

The Samsung Gear S2's inclusion of an eSIM when it launched in 2016 was a landmark for the technology and demonstrated what a low impact, innovative piece of cellular technology could achieve. Apple followed suit with its smartwatch including an eSIM a year later, so it is no surprise that respondents found smartwatches the device or industry best suited to the technology (12.4%).

Apple's enthusiasm for eSIMs has also been a key development in

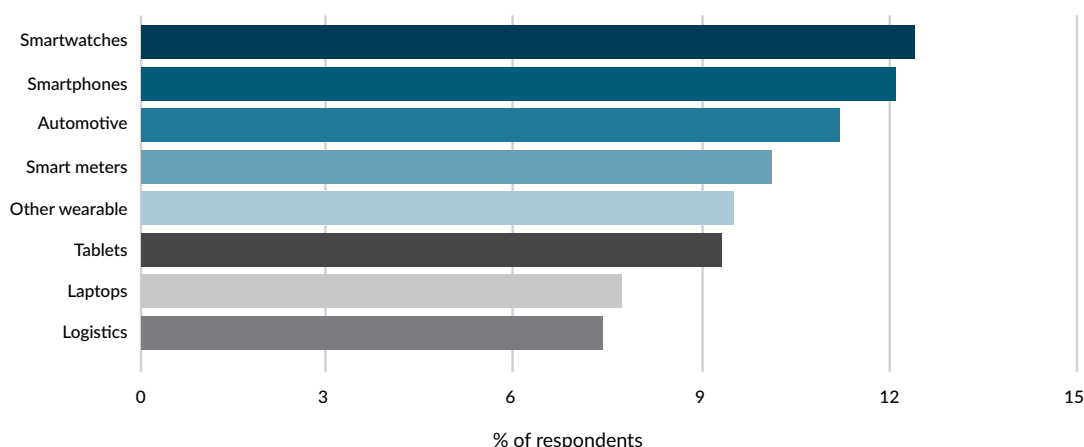
recent years. While Samsung has only recently introduced eSIMs to its handset range, several generations of iPhone have used the technology. Respondents indicated Apple's strategy was a sound one, with smartphones dubbed the second-best suited device to eSIMs (12.1%).

The responses suggest consumer facing products are currently eSIMs' natural home, a finding underlined by how the automotive sector (11.2%)

was seen as the next area that could take advantage of the tech the most.

This is further confirmed by which industries and devices respondents felt account for the greatest demand of eSIMs. Smartphones were first (38.3%), perhaps indicating that respondents feel eSIMs will become the norm in handsets. Smartwatches were next (15.4%), followed by automotive (14.0%) and smart meters (9.2%).

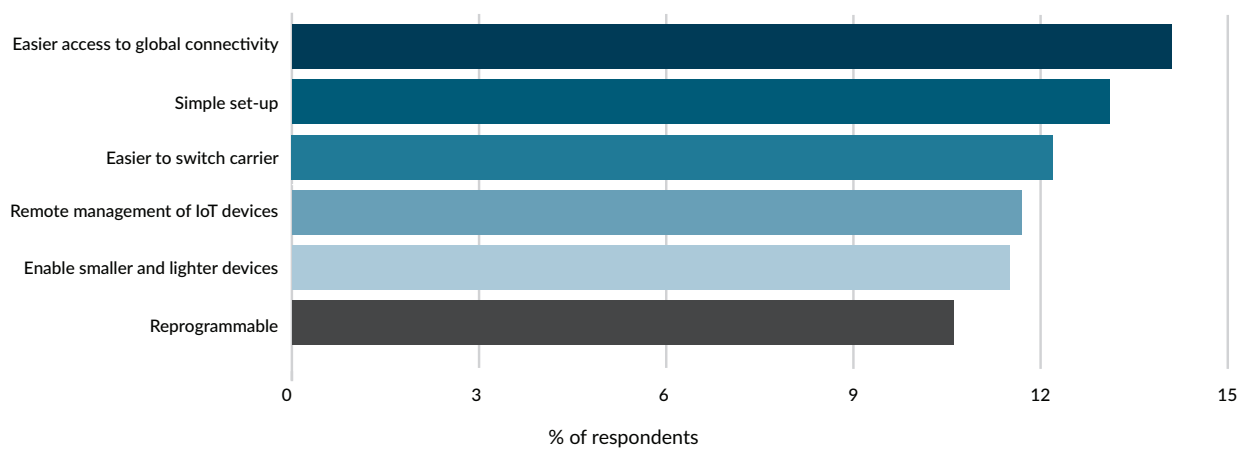
**Figure 3: Which industries or devices are best suited to adopting eSIM?**  
(All respondents, top eight answers were selected)



# Part three: The benefits of using eSIM and its challenges

eSIM service providers highlight the technology’s flexibility as one of its key advantages, as it removes the friction associated with the traditional physical SIM. Respondents were largely in agreement, with a narrow spread between the majority of the advantages of the technology. Gaining easier access to global connectivity was first (14.1%), closely followed by the tech’s simple set-up (13.1%). The ease in switching carrier (12.2%), remote management of IoT devices (11.7%), and the tech’s ability to help foster smaller and lighter devices (11.5%) were also highlighted.

Figure 4: What do you think are the benefits of using or offering eSIM?  
(All respondents, top six answers were selected)

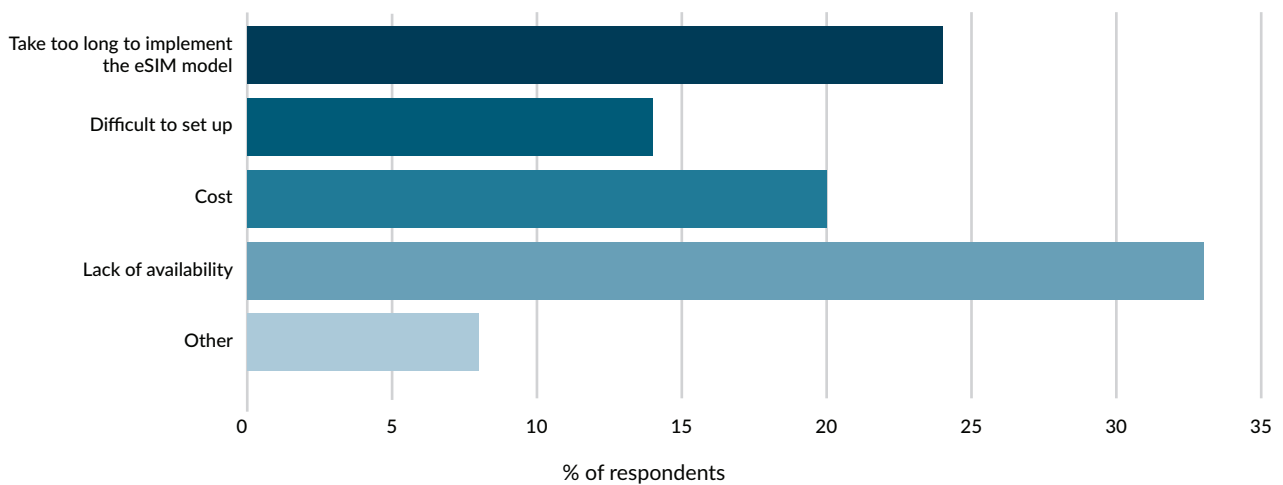


Unlike the tech’s advantages, there is a difference between operator and manufacturer views about its disadvantages. Overall, the lack of availability is seen as its biggest issue (32.8%), followed by the amount of time it takes to implement the eSIM model (24.6%) and cost (20.4%).

However, cost is the biggest issue for surveyed operators (27.8%), whereas device manufacturers are most concerned with the time it takes to implement the model and its lack of availability (both 29.6%). Operators facing a margin squeeze may be choosing to focus their strategy elsewhere, whereas again, manufacturers of all kinds are complaining of supply issues.

The reasons for this perceived lack of availability could be twofold. For device manufacturers, it is likely to be a case of being unable to access eSIM from an operator. For CSPs, it could be the case that they are unable to get it from their SIM providers.

**Figure 5: What are the challenges in using or offering eSIM?**  
(All respondents, multiple answers could be selected)



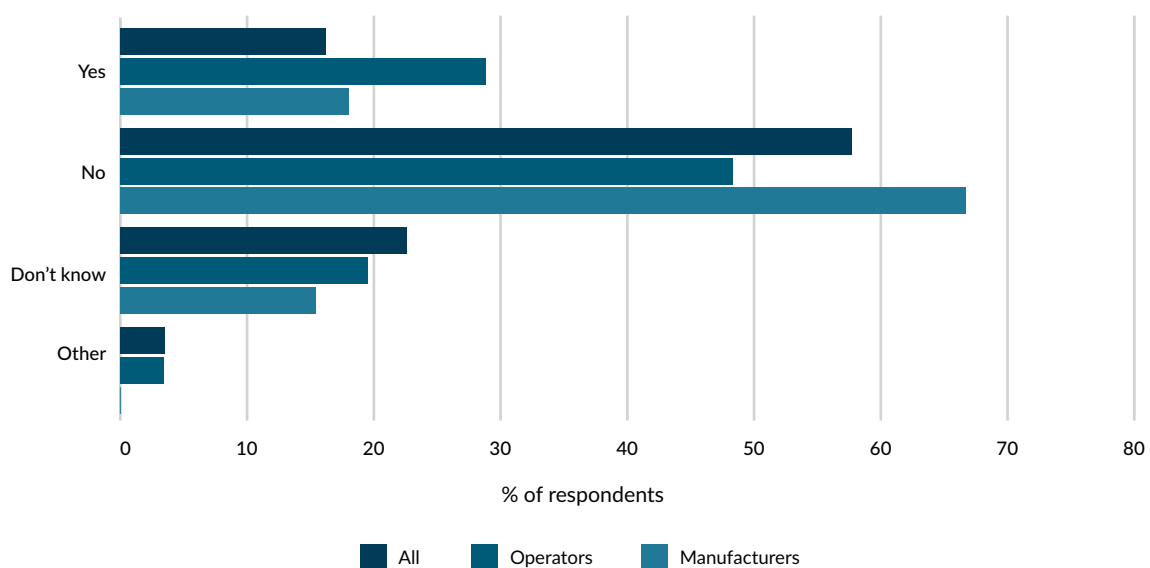
It is mobile network operators who are seen as most to blame for eSIM's lack of availability. More than 70% of respondents somewhat or strongly agreed with the statement "operators are holding back the potential of the eSIM market". Even more striking is that more than 60% of operators surveyed agreed with it. Only 9.2% of all respondents disagreed with the statement.

Given the volume of operators above who said they offered eSIM and said it was important to their business, this finding initially seems confusing. However, it could be because operators are not doing enough to educate their customers or promote the technology, which would be backed by the perceived lack of availability of the technology. Operators may be interested and active in the technology but it is felt

they are not doing enough to actually follow through in engaging with the market.

Respondents agreed with this opinion, with 57.7% of respondents feeling operators weren't doing enough to meet demand, increasing to 66.7% among device manufacturers. But again operators are self-critical; 48.3% feel they could be doing more.

**Figure 6: Are operators doing enough to meet demand for eSIMs?**



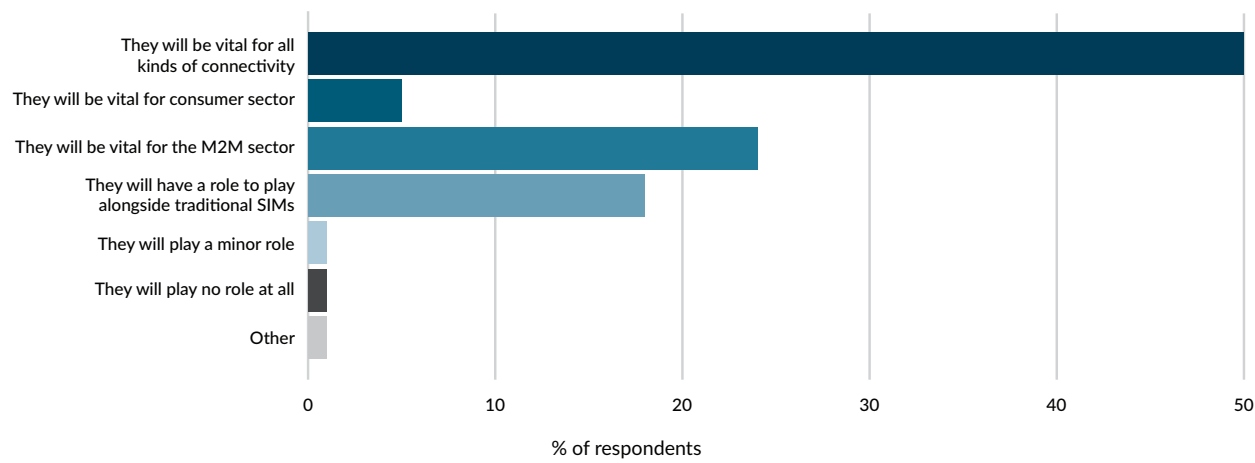


# Part four: The future of eSIM

The road ahead for the eSIM market looks rosy, with just under half of respondents (49.9%) saying the technology will be vital for all kinds of connectivity in the 5G era. There is little difference between the opinion of operators (49.2%) and manufacturers (53.9%) on this matter.

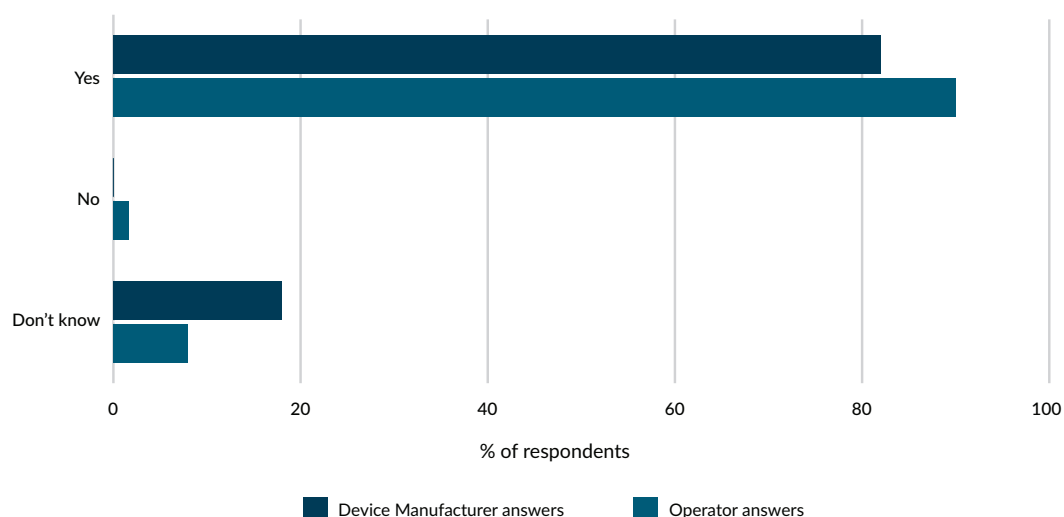
Twenty four percent of respondents said eSIMs would be vital for M2M. While respondents said smartphones accounted for the greatest number of eSIM connections today, it seems that eSIMs will be central to the future success of the Internet of Things.

Figure 7: How important will eSIMs be in the 5G era? (All respondents)



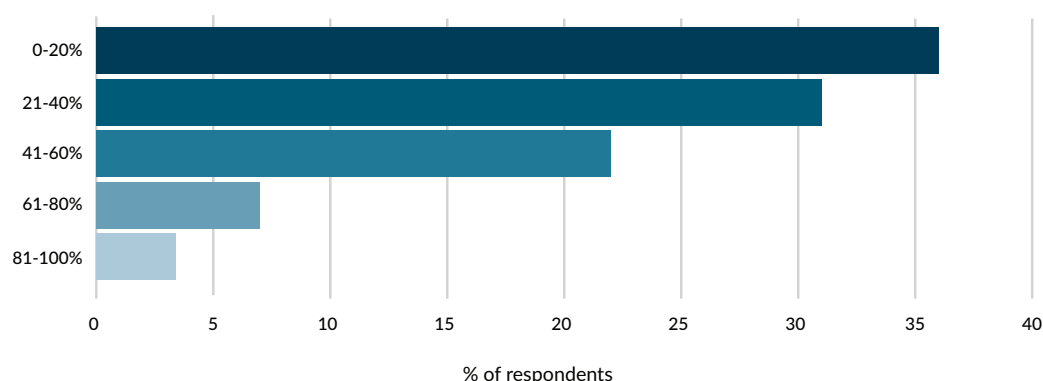
Operator respondents are correspondingly enthusiastic about the technology in the decade ahead, with 89.8% planning to offer it by 2025. Manufacturers are also keen – 82.1% of them said they would also do so by then – but have less of an appetite than CSPs. Interestingly, 18.0% of manufacturers surveyed said they don't know whether they will or not. This creates an opportunity for operators but perhaps also reflects concerns regarding the likes of a lack of availability.

**Figure 8: Are you planning to adopt or offer eSIMs by 2025?**



Operators' appetite for eSIMs will inevitably have a knock-on effect on the technology's share of total cellular connections by 2025. The largest share of surveyed operators (36.4%) said they will account for up to 20% of total connections, but 67.8% said eSIMs will be up to 40% of total connections within five years. This can be linked to how operators and manufacturers alike feel eSIMs will be powering the M2M sector in the decade ahead, with its promise of densely connected networks.

**Figure 9: What proportion of your total cellular connections will use eSIM by 2025? (Operator responses only)**



Given the size of the market, it is no surprise that Asia was cited by 37.7% of respondents as the region that will account for the greatest share of eSIMs. Europe was second (28.3% of respondents), closely followed by North America (27.8%).

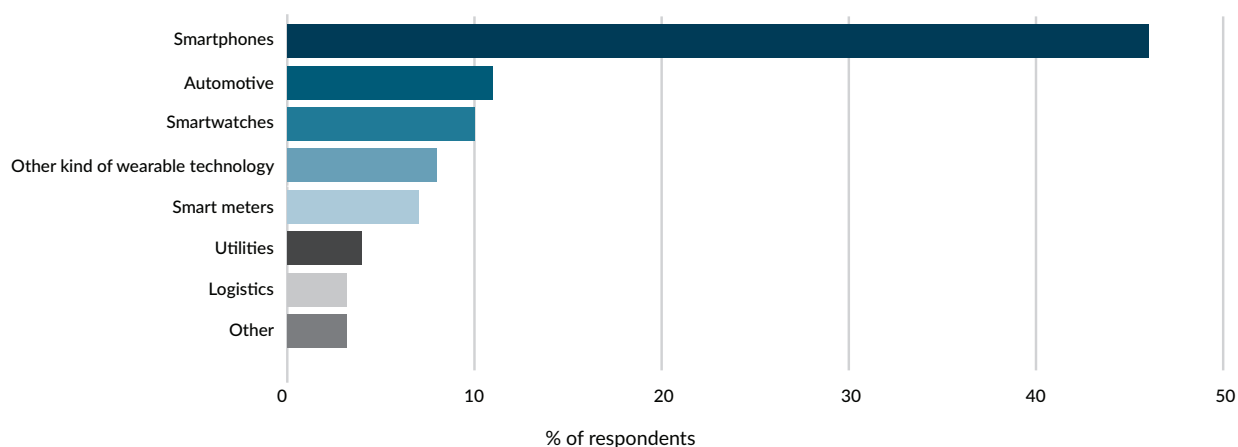
Respondents agreed again that smartphones will account for the greatest number of connections (46.6% of those surveyed).

However, automotive will creep ahead of smartwatches to become the market with the second biggest share of eSIM connections – 11.6% compared to 10.5%. This could be in response to the increasing sophistication of the car market.

There is broad consensus between surveyed operators and manufacturers as to which industries or devices will account

for the greatest share of eSIM connections. However, more operator respondents felt smartphones would be the biggest market than manufacturers – 41.5% compared to 35.9%. By contrast, and perhaps reflecting their ambitions to diversify, device manufacturers were more confident of other kinds of wearables having a greater share – 12.8% compared to 8.5% of operators surveyed.

**Figure 10: Which industries or devices will account for the greatest share of eSIMs?**  
(All respondents, top eight answers were selected)



# Conclusion

Operators and manufacturers alike are in agreement about the benefits of eSIM – both for consumer devices and for the Internet of Things sector. Indeed, recent GSMA Intelligence research found 35% of operators expect all of their smartphone network connections to be on eSIM by 2025.

That said, there is also consensus that operators are not doing enough to promote the technology. This could be because operators wish to hold onto the lucrative market of selling physical SIMs, the high costs involved in deploying eSIMs (as operator respondents claim), or a simple lack of an effective sales and marketing process.

This is a missed opportunity for operators given the clear demand expressed by both consumer and M2M device manufacturers alike. Given how important eSIMs are seen for 5G, operators are not paying enough attention to a captive market by seemingly failing to convey their own appetite for the technology.



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