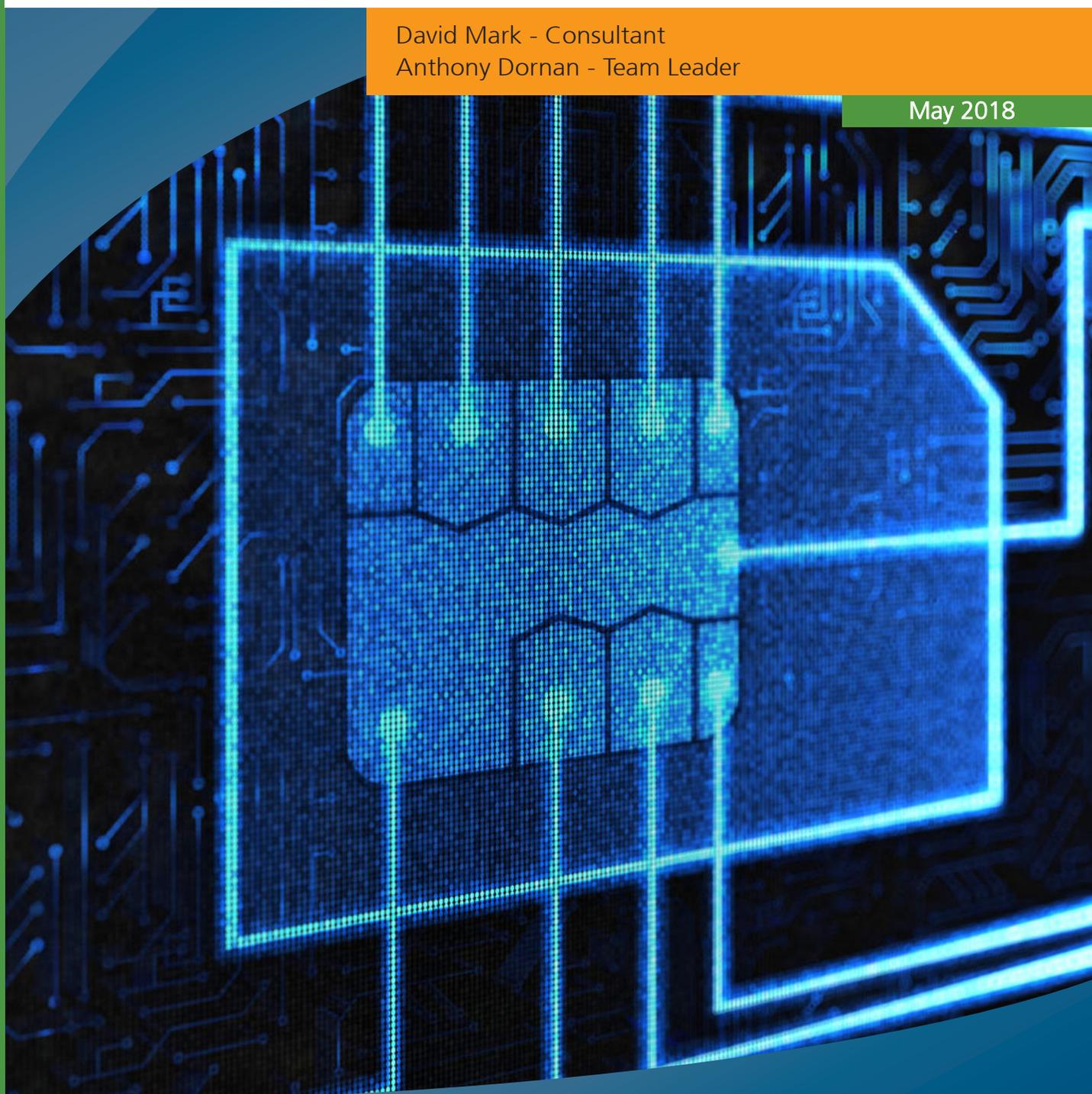


Is consumer eSIM a real threat to telco operators?

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Since its inception in the world of M2M in this decade, eSIM has generated much hype, with many claiming it will disrupt the telecoms industry. Indeed, with the potential ability for consumers to select and dynamically switch carriers directly from their devices, eSIMs could, in theory, completely change the game for mobile operators.

However, the adoption of consumer eSIM services/devices remains low. Most existing eSIM

devices are tablets and wearables. When Google introduced its eSIM compatible Pixel 2 smartphone last October, it struggled to gain traction.

Given the impact of eSIMs to date has failed to match the hype, should we expect any disruption in future?

Recap – what is eSIM?

eSIM, or embedded SIM, is a SIM card that cannot be removed from the device. The eSIM removes the need to physically swap SIM cards to change the profile on a device. Instead, with Remote SIM Provisioning (RSP) technology the subscriber's profile information can be downloaded directly onto the device. This could bring many benefits to consumers, including simplifying network service selection and enabling cellular connectivity for wearables/devices with specific form-factor requirements. This could lead to significant disruption in the industry, if consumers can easily compare and switch between carriers.

Outside the consumer segment, there are many potential benefits to industry, with new IoT use cases such as connected vehicles and smart farming enabled by eSIM connectivity.

Defining the potential scenarios of consumer eSIM evolution

Although eSIM has the technical capability and potential to disrupt the mobile ecosystem, the approach by key players (mobile operators, SIM providers, OS players and OEMs), regarding standards and implementation, will impact the level of disruption on the existing telecom models and processes. Operators will naturally try and defend their position, whereas OEMs or OTTs could make moves that could lead to greater disintermediation.

In this report, we consider three potential scenarios for how eSIM could evolve, assessing their probability and potential impact on the industry.

The first scenario is defined by the industry-wide adoption of the GSMA eSIM standard, which minimizes potential disruption within the mobile ecosystem. While this scenario is the most likely, there are two other more disruptive scenarios, which may become more relevant in future. We define these two models as rapid switching and operator disintermediation.

Scenario 1: GSMA eSIM standard prevails

In 2011, the GSMA began work developing a standard for RSP specifications for M2M, with the

standardization of eSIM technology for consumer solutions following in 2015. The GSMA standard, in addition to prioritizing the security and protection of consumer data, seeks to minimise industry disruption, ensuring compatibility of eSIM specifications with existing telecom systems and processes.

It represents an evolution of the SIM from the traditional model, with today's telecom processes remaining largely unchanged and operators retaining control over the customer relationship.

Scenario 2: Rapid switching

Alternative and more disruptive eSIM scenarios could arise from the wider adoption of devices with proprietary, non-GSMA standard eSIM technologies. One potential scenario is 'Rapid Switching.' This model is similar to the Apple SIM in which an intermediary, be it an OTT or OEM, aggregates all carrier offers and allows customers to select plans from a list to rapidly change carriers. Such a model implies increased direct competition due to greater price transparency and the partial loss of the customer relationship for MNOs.

Scenario 3: Operator disintermediation

Another disruptive model is one where other players (e.g. OEMs) displace the operator's role, taking ownership of the whole customer relationship. In this model, an OEM can provide its own telecom offering to consumers, acting as an MVNO and wholesaling connectivity from MNOs.

Evaluating the potential impact of eSIM

Consumer eSIM solutions can impact three main areas of the telecom sector: The value chain; telco processes; and revenues.

The impact on the telecom value chain can be measured by the level of operator disintermediation - the extent to which other industry players such as OEMs or OTT players assume the roles currently played by telecom operators. The roles at stake include device retailing and distribution, telecom service offering and subscriber registration and management. The impact on processes relates to the level of change required to existing processes such as

subscriber registration, customer management and billing. The impact on operator revenues can vary according to four levers:

- A decline in ARPU as consumers are provided with direct price transparency and increased competition;
- A decline in roaming revenues as consumers can subscribe to local operators when they are abroad;
- A decline in device revenues as operators lose the customer relationship to OEMs;
- And the potential for 'new' revenues from the sale of new devices such as wearables and the associated data ARPU increase from connecting a secondary device

The impact of consumer eSIM varies drastically between each scenario. An overview of the impact is highlighted in Figure 1.

If the GSMA standard prevails, there is a limited impact on the mobile ecosystem from the adoption of eSIM. From a value chain perspective, structural changes

only occur for SIM providers, with the traditional SIM provisioning process becoming obsolete. Despite this, traditional player roles stay unchanged with MNOs retaining the customer relationship and remaining the sole providers of telco services (illustrated in Figure 2).

Similarly, in terms of processes (in Scenario 1), the main expected impact will be on the creation of SIM credentials, which will no longer be tied to the physical SIM. Other processes will remain largely identical to those in the world of the traditional SIM.

Again, if the GSMA standard prevails, limited financial disruption is expected. ARPU and device revenues are expected to remain relatively stable while roaming revenues are only expected to decline moderately as eSIM solutions become more widely adopted.

Assessing the likelihood of eSIM's disruption of the telco industry

Although scenarios 2 and 3 have the power to disrupt the telco industry across three areas, they are unlikely to gain significant traction in the short-term. Indeed,

Figure 1: Consumer eSIM's telco impact assessment per scenario

		Very high impact Considerable impact Partial / potential impact No impact Limited impact	Scenario 1: Evolution of the eSIM	Scenario 2: Rapid switching	Scenario 3: Operator disintermediation
Drivers			<ul style="list-style-type: none"> • GSMA standard prevails • Operator resistance/protection 	<ul style="list-style-type: none"> • Non-GSMA standards prevail • Strength of OEMs / OTTs 	
Value chain disruption					
Disruption of processes	SIM credentials				
	Commercial relationship				
MNO financial impact	ARPU decline				
	Roaming rev. decline				
	Device rev. decline				
	Incremental revs				

market indicators point to the widespread industry adoption of the GSMA eSIM standard. Since the start of the development of the standard for consumer solutions, more than 60 industry players, including some of the largest MNOs, OEMs and SIM vendors have committed to support it.

In fact, most eSIM solutions available today are GSMA compliant and, in some cases, are yet to capitalise on the benefits of profile switching. Samsung's Gear S2, the first GSMA compliant consumer solution (launched in 2016), is still only supported and offered by one carrier in most of its markets, preventing consumers from being able to register the device with competing operators. Even proprietary solutions such as Google Pixel 2's eSIM do not offer disruptive benefits, as it is only compatible with Project Fi in the US and is restricted to residents only.

Furthermore, the two disruptive scenarios are likely to experience significant resistance from both operators and regulators. MNOs (and MVNOs), will resist the rapid switching model to minimize overly aggressive price competition, which could increase the difficulty of recuperating network investment. On the other and, the introduction of proprietary eSIM solutions

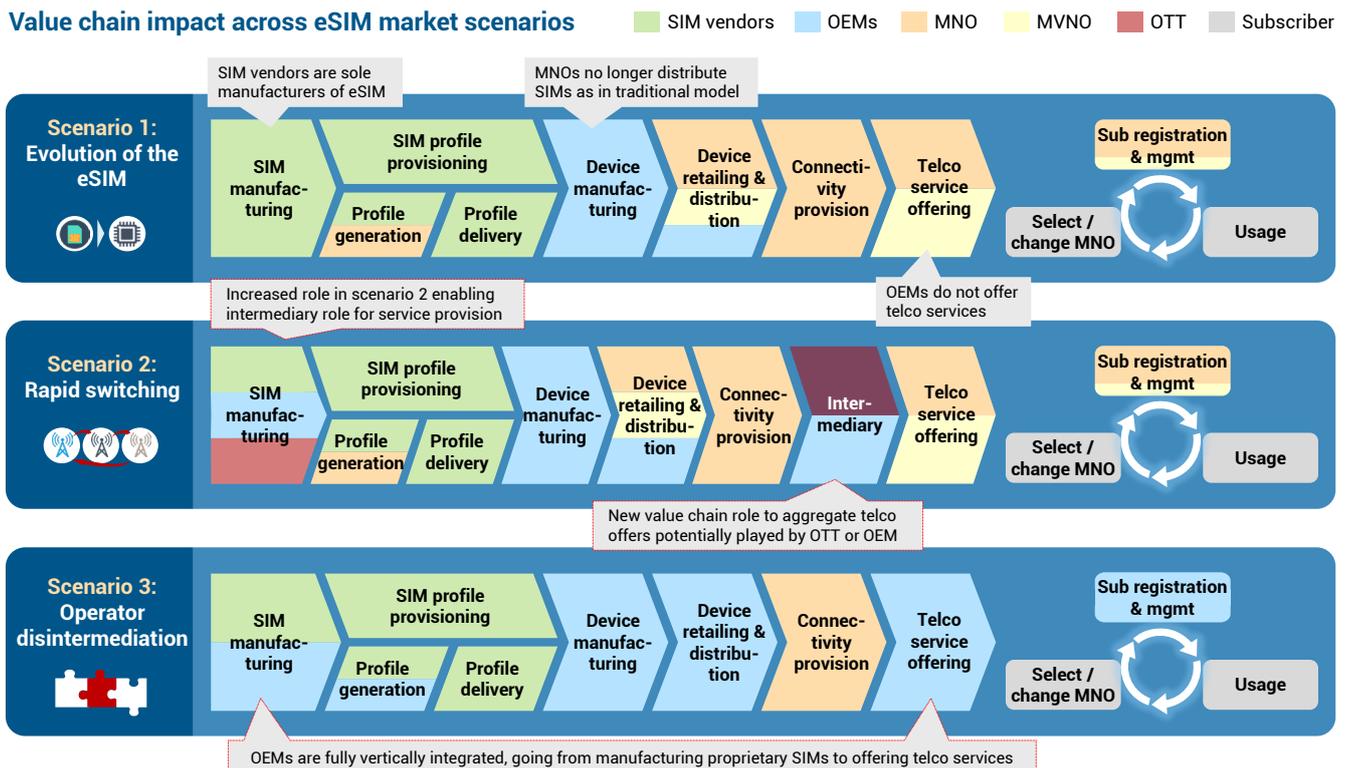
in the operator disintermediation model would require OTTs and OEMs to obtain mobile licenses in many markets, a potentially lengthy process and one monitored by industry regulators due to consumer data security concerns.

Another factor is the expectation of relatively low take-up of consumer eSIM solutions in the short-term. Only 7.2% of consumer devices sold globally are forecast to be eSIM compatible by 2022¹.

Conclusions

The GSMA eSIM standard is likely to prevail in the short to medium term, limiting the potential disruption from eSIM. This will provide stability to the industry, while enabling a better experience for consumers, particularly when roaming. However, operators should be aware of the potential impact of proprietary solutions and should closely monitor the developments of eSIM to anticipate disruptive moves from other players.

Figure 2: Value chain impact across eSIM market scenarios



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