

Smart Connect Consumer

IDEMIA Just-In-Time eSIM Profile
Generation & Provisioning

Connectivity is the foundation of the digital transformation that is changing the world in which we live. The devices we use daily—phones, smartwatches, tablets and more—are all being connected through mobile networks which themselves are evolving to provide better, faster, and more consistent connectivity. One key component to this connectivity evolution is the embedded SIM (eSIM).





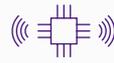
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1) eSIM for Consumer

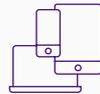
An eSIM, also known as an eUICC, is similar to a physical SIM card but it is soldered into the device during the manufacturing process, and is reprogrammable. The eSIM does not contain mobile operator data and credentials at the manufacturing stage. Instead, through Remote SIM Provisioning (RSP), a virtual eSIM profile is downloaded remotely from the mobile operator system and stored on a secure element, the eUICC. This eliminates the need for customers to visit a store to activate a subscription, allowing them instead to do it from the comfort of their own home, on-the-go, or when traveling abroad.

With the adoption of eSIM in most markets and in the majority of consumer devices now a reality, mobile operators must embrace this technology as part of their digital transformation. eSIM offers the opportunity to deliver a full remote onboarding experience to customers, offering on-the-spot subscription activation for eSIM-enabled devices. Also, eSIM technology dramatically streamlines logistics for mobile operators as it does away with the need to distribute physical SIM cards to end-users, retailers or partners. With that in mind, it is important that mobile operators deploy the right solutions and processes that leverage the most of eSIM technology to simplify their back-end processes and offer a full digital experience to subscribers.



6.7B

eSIM smartphone connections by 2030¹



127

eSIM Consumer devices launched¹



500+

eSIM platforms installed by MNOs and MVNOs²

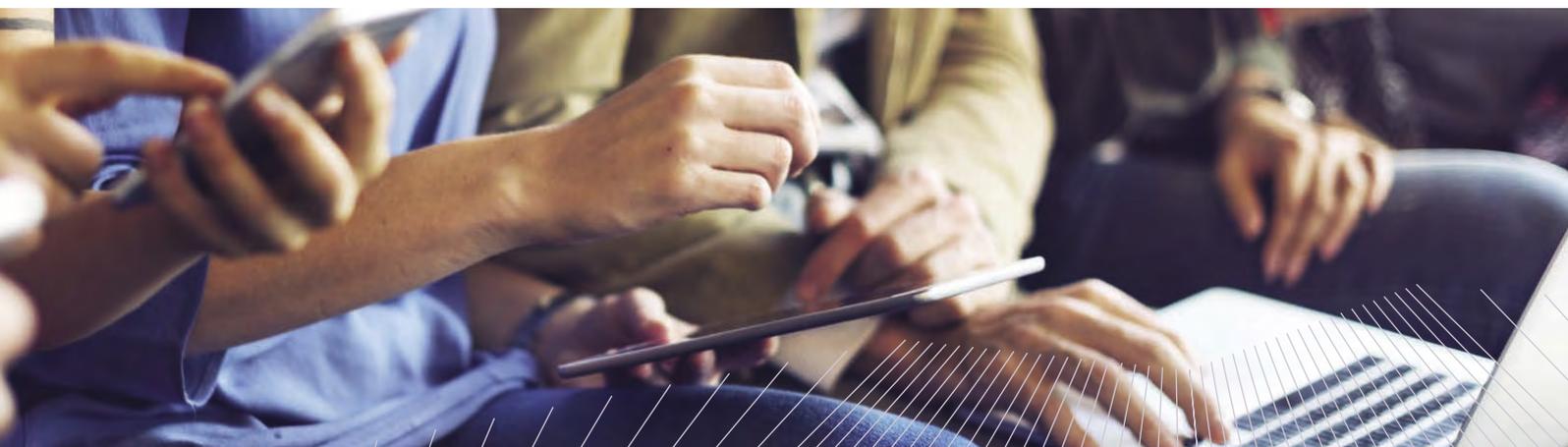


+41%

YoY growth in eSIM transactions at the global level²

¹GSMA Intelligence - July 2022 report

²Trusted Connectivity Alliance (TCA)

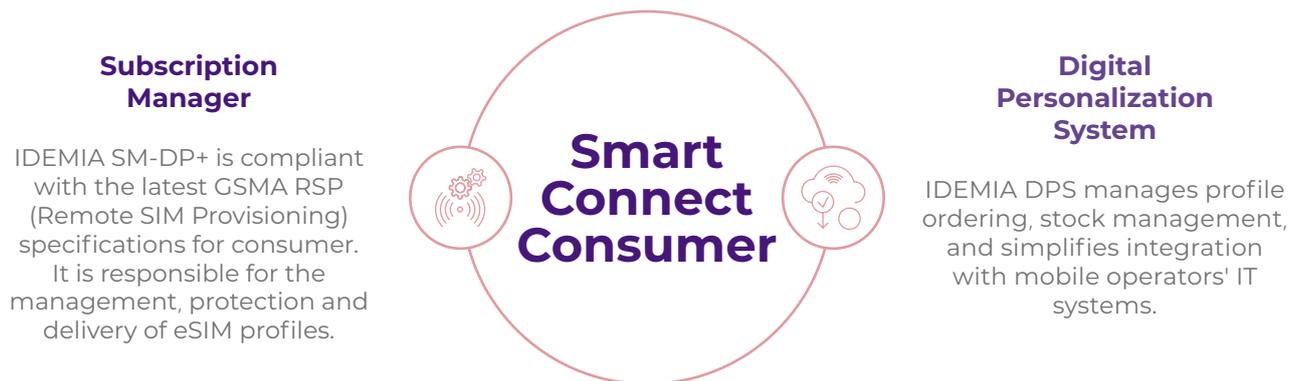


2) Smart Connect Consumer

With the growing number of eSIM-enabled devices, mobile operators must handle increasing complexity in standards, specifications, and requirements for each device and their respective use cases without heavily investing in each one separately. They need to adopt a public cloud-based, flexible, and modular approach. With IDEMIA RSP platform, called Smart Connect Consumer, IDEMIA provides mobile operators with an end-to-end eSIM lifecycle management solution made up of two major components:

- Subscription Manager – Data Preparation (SM-DP+) as defined by the GSMA
- Digital Personalization Service (DPS)

The Smart Connect Consumer platform supports all eSIM consumer devices, including every possible use case in the market today and for the foreseeable future.



Smart Connect Consumer is deployed in Microsoft Azure Public Cloud

Given the exponential growth of eSIM, IDEMIA has chosen to deploy all of its eSIM platforms in Microsoft Azure Public Cloud, for both consumer and IoT use cases. The GSMA has certified IDEMIA eSIM platforms, which can now operate in the public cloud. IDEMIA's public cloud strategy provides a carrier-grade solution that supports mobile operators' business growth through four main benefits:

			
<p>Very high availability</p> <p>99.99 to 99.999%</p>	<p>Resilience</p> <p>Geo-redundant architecture allows traffic load-balancing</p>	<p>Security</p> <p>Most advanced protection systems preventing DDoS (Distributed Denial of Service) attacks, as an example</p>	<p>Capacity & elasticity</p> <p>Ability to handle significant volumes of eSIM transactions and to dynamically adapt to traffic peaks</p>



3 > Just-In-Time eSIM Profile Generation

The rise of eSIM encourages mobile operators to accelerate their digital transformation in order to capitalize on all of the opportunities this technology brings.

The transformation must take place on two levels:

- On the back-end, with simple and cost-effective processes,
- On the front-end, to provide the best user experience possible, with a fully digital and simple onboarding process.

An eSIM profile must be as versatile as possible to simplify eSIM profile inventory, reduce the number of Stock Keeping Units (SKU) to be managed, as well as to deliver the most adapted profile to each situation regarding the end user device and its capabilities, the geographies, the type of client and services chosen.

How does IDEMIA help accomplish this? The IDEMIA Digital Personalization System (DPS) hosted on Microsoft Azure Public Cloud has game-changing features that enable real-time eSIM profile adaptation, customization, and updates. The ability to dynamically handle eSIM profiles provides mobile operators with highly simplified processes and the ability to deliver the most adequate user experience for each device, context, and use case.

Three key advanced and differentiating features



eSIM Profile Customization



eSIM Profile Dynamic Adaptation



eSIM Profile Reprocessing

eSIM Profile Customization

Market challenge

Today, many operators manage static eSIM profiles the same way they manage physical SIM card profiles—meaning they manage several inventories or SKU of static profiles depending on their needs, increasing complexity, costs, and delays. The combination of IDEMIA Smart Connect Consumer and its eSIM Profile Customization feature enables mobile operators to customize eSIM profiles until the last moment prior to the download, i.e., change any eSIM profile element and/or metadata via a simple API call.

Some use cases

- **Dynamic SIM allocation:**

Updating the eSIM profile with the real IMSI value just before its download

- **Service personalization:**

For affiliates, Mobile Virtual Network Operators (MVNOs), or partners—when a need arises, the mobile operator is immediately able to assign and customize dynamic eSIM profiles for one of its affiliates or its “enterprise” customers

- **Last minute dynamic profile personalization (PIN codes, vanity number...):**

At onboarding (remote or in-store) for an enhanced and on-demand user experience

- **Marketing campaigns:**

With partners, such as enterprises or event organizers: offer VIP customers exclusive network services such as 5G network, Augmented Reality, or VPN access for a short period of time

Key benefits



Simplify eSIM profile SKU management



Reduce costs and improve user experience as eSIM profiles are customized before the download without requiring an OTA update



Improve customer service with on-demand profile personalization



Generate new revenue streams by creating tailored offers in the market with affiliates, MVNOs, or partners



eSIM Profile Dynamic Adaptation

Market challenge

Interoperability issues between eSIM profiles and the eUICC on a device are a pain point for mobile operators. The latest eSIM devices and their respective eUICC may not be compatible with the existing eSIM profiles in the inventory. This forces mobile operators to manage different SKUs per device as well as increase the complexity of end user onboarding, as the correct eSIM profile corresponding to the end user device must be selected.

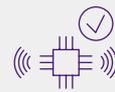
Mobile operators can define profile adaption rules based on the eUICC capabilities, device capabilities, and end user contract with IDEMIA Smart Connect Consumer and its eSIM Profile Dynamic Adaptation feature, and dynamically adapt any eSIM profile element and/or metadata to the situation during the profile download process.

With IDEMIA Smart Connect Consumer and its eSIM Profile Dynamic Adaptation feature, mobile operators can define profile adaption rules depending on the eUICC capabilities, the device capabilities and the end user contract, and dynamically adapt any eSIM profile element and/or metadata to the situation during the profile download process.

Some use cases

- **Dynamic eSIM profile adaptation to 4G, 5G Non-Standalone and 5G Standalone devices**
- **SUCI encryption in the device or in the eUICC**
- **Conversion of the eSIM profile syntax to the device capabilities (referred to as SAIP profile version in the industry)**

Key benefits



Increase the profile download success rate



Simplify the onboarding process for mobile operators by removing the need to know the device capabilities in advance



Ensure a positive subscriber experience



Support a wider range of eSIM devices



Simplify profile inventory logistics



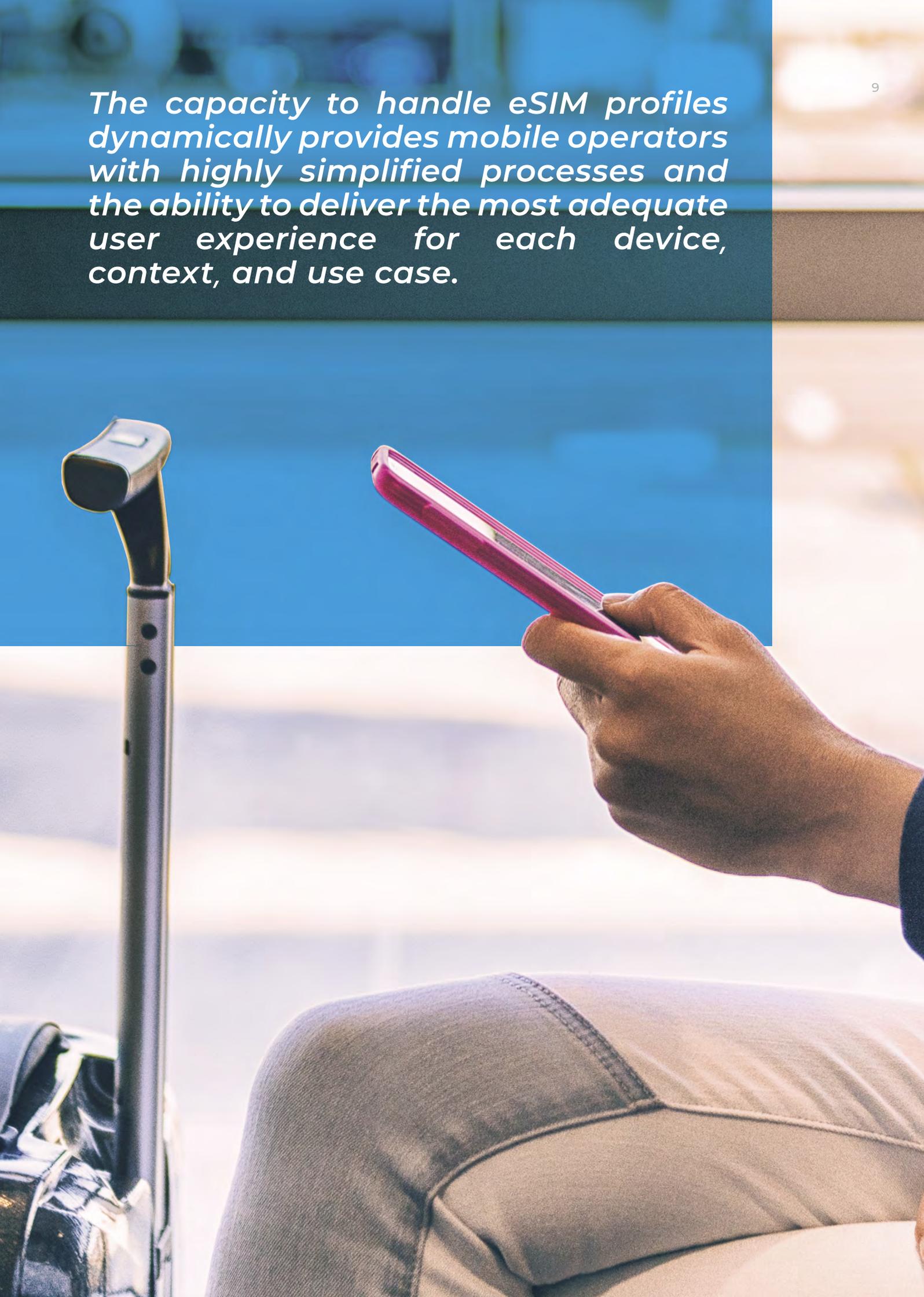
Single BAP to address multiple devices and use cases



Maintain support for industry interoperability standards



The capacity to handle eSIM profiles dynamically provides mobile operators with highly simplified processes and the ability to deliver the most adequate user experience for each device, context, and use case.





eSIM Profile Reprocessing

Market challenge

Today, whenever the electrical eSIM profile definition evolves on a SIM, mobile operators are required to create an updated profile, order new SIM cards embedding this new profile, and discard their old SIM cards. This is both time-consuming and costly. On the contrary, eSIM profiles are constantly updated with new SAIP template versions, new applets, new profile parameters, and more.

With IDEMIA Smart Connect Consumer and its eSIM Profile Reprocessing feature, mobile operators can update eSIM profiles that have already been generated and provisioned on the SM-DP+, without having to discard the outdated ones. They only need to update the eSIM profile definition without the need to exchange new input/output files to reprocess profiles.

Some use cases

- **Adapt to the latest devices, and quickly address compatibility issues:**

SAIP template consistency can be maintained across all eSIM profiles already generated and provisioned on SM-DP+

- **Update already provisioned eSIM profiles with new profile definitions**

- **Update roaming partners:**

partnerships updates need to be reflected on all eSIM profiles to allow end users to make the most of it when traveling

- **Rebranding:**

update Service Provider Name (SPN) to reflect your rebranding or for your partners

Key benefits



Rely on always up-to-date profiles



Improve profile interoperability



Support a wider range of eSIM devices



Deploy new features on existing eSIM profiles



Easily update batch of profiles



Avoid discarding obsolete profiles



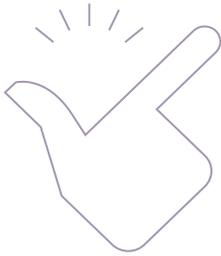
Shorter eSIM profile design time



Keep use of the already distributed vouchers

4 > Just-In-Time eSIM Profile Provisioning

IDEMIA Digital Personalization System (DPS) offers mobile operators a flexible and on-demand eSIM profile provisioning capability. It allows mobile operators to order high volumes of eSIM profiles, smaller amounts in a regular basis, or even to put unitary orders of eSIM profiles on-the-go.



Existing processes and connections already in place for the production of physical SIM cards can be completely reused. Alternatively, IDEMIA has created a dedicated set of APIs to provide mobile operators with Just-In-Time eSIM profile provisioning. This way, DPS automatically processes all incoming requests and eSIM profiles are instantly provisioned to the SM-DP+, ready to be downloaded and activated on end users' devices. Mobile operators can simultaneously place continuous orders for different eSIM profile types and get them provisioned in the SM-DP+ instantly.

IDEMIA is able to process a massive number of incoming requests while ensuring high availability and scalability because the DPS is deployed in a GSMA SAS-SM compliant data center in Microsoft Azure Public Cloud. IDEMIA is confidently and securely handling surges in demand caused by seasonal peaks such as the holiday season, Black Friday, or the release of a new eSIM-capable flagship device.



5 Your SIM & eSIM Partner for Today and Tomorrow

<p>Trusted by 500 mobile operators</p>	<p>160 Live or qualified eSIM platforms by major MNOs</p>	<p>900M SIM cards shipped in 2021</p>
<p>+80% YoY growth in eSIM transactions for the past 3 years</p>	<p>€1B invested in R&D in 5 years</p>	<p>Close to 15,000 employees including 3,000+ engineers</p>



SAS-SM: Security Accreditation Scheme for Subscription Management
SAS-UP: Security Accreditation Scheme for UICC Production



6 Summary & Key Takeaways

Subscribers can benefit from an out-of-the-box and full digital experience with eSIM technology at any time and from any location. To fully realize the potential of eSIM, mobile operators must select the right solution that enables them to deliver the most appropriate eSIM profile to each situation, ultimately maximizing customer satisfaction.



With IDEMIA Smart Connect Consumer and its Just-In-Time eSIM profile generation and provisioning features, mobile operators can fully leverage eSIM technology and digital transformation to provide the best service to subscribers, improve customer acquisition, optimize operational costs, form new partnerships, and drive revenue growth.

Unleash the power of eSIM

idemia.com/esim-management-solution-consumer-devices



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