Case Study

How GSMA Device Map delivers real-time roaming insights for BICS and its operator partners

Find out how device intelligence helps BICS to identify device models, detect 5G connections, distinguish humans from machines and more

Published by

GSMA
Industry Services

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The universe of mobile-connected devices grows more complex every year. What started with a small number of phones has exploded into an ecosystem comprising wearables, watches, tablets, IoT sensors, modems, modules and more.

The diversity of devices presents a challenge for MNOs and their partners. They want to provide friction-free experiences, deepen their analytics and anticipate the future needs of their users.

To do this, they must understand in detail the features of all the devices connecting to their networks.

Accurate and consistent device data is essential here. But without a common reference, understanding device capabilities can be challenging.

GSMA is uniquely able to provide this common reference. Why? Because as an industry association, it works with both manufacturers and ecosystem partners.

It assigns Type Allocation Codes (TAC) to device vendors. These 8-digit codes form part of the 15-digit IMEI (International Mobile Equipment Identity), which uniquely identifies every connected device.

The TAC provides a solid foundation for device capabilities. But it's possible to go even deeper. To do this, GSMA teamed up with technical partner DeviceAtlas to develop GSMA Device Map.

It enhances TAC data with 150+ other attributes, transforming basic device identifiers into rich, real-time intelligence.

Regularly updated to reflect the latest devices and network technologies, GSMA Device Map offers detailed insights into all mobile device models (TACs), unlocking understanding of billions of unique devices worldwide. More than 70 organisations (including 30 plus MNOs) currently use it to enrich call data records, improve marketing and make better operational decisions.

This introduction outlines the theory behind GSMA Device Map. But what about the practice? How does the database help its customers? How easy is it to use? What are its tangible benefits, metrics and KPIs?

BICS, a part of Proximus Global company, is well-placed to answer these questions. BICS is a longstanding subscriber to GSMA Device Map. In this customer story, we asked BICS how it uses the database to support its MNO and enterprise customers.

Case study: how BICS uses GSMA Device Map to understand its traffic and support its MNO partners

For more than two decades, BICS (a part of Proximus Global) has been 'powering the world's communication.' It began by offering solutions to support voice, messaging and data for mobile operators. Over time, it expanded into IoT, roaming, cloud communications, fraud prevention and analytics – for both MNOs and enterprises.

During this period, BICS has seen the device ecosystem grow in volume and complexity. To deliver effective services for its partners, it needs to know the capabilities of these end points and understand how they connect to the network in real time.

This is why BICS is a subscriber to GSMA Device Map. In this exclusive interview, Deividas Krogertas, Product Manager at BICS and Danielle Kana, BI & Reporting Team Leader at BICS, explain why the company signed up, outline how it uses the database, and describe its key benefits.

Why is it important to BICS to offer device insights?

"It's essential because different devices have different capabilities and usage patterns. The way they impact network performance also varies. When we have device insights — and that could be 5G smartphones, IoT sensors or legacy devices – we can help operators to optimise network resources, detect anomalies and tailor their service offerings.

We also want to give our MNO customers more understanding of the behaviour of their subscribers. For example: are they using a 5G device? Is it VoLTE capable? Is the subscriber human? Is it a machine? This gives MNOs the ability to do effective user segmentation, better quality of experience monitoring and more informed decision-making for roaming strategies."

What key challenges and data gaps did you face in understanding devices before using GSMA Device Map?

"We manage the relationships between MNOs in different countries. It's a huge and complex network. In fact, we are handling up to 40 billion transactions a day.

Obviously, operators want near real-time monitoring of network performance, along with visibility into the profiles of users consuming their resources. Distinguishing whether those subscribers are humans or machines can provide valuable insights.

Mapping new devices to new IMEI numbers wasn't possible before. GSMA Device Map provides us with an up to date database: there's no maintenance required from us to link new devices with IMEIs."

When and why did you begin using GSMA Device Map?

"We started in 2017 at the request of an important customer. It wanted us to deliver a report on a subset of important roamers. Specifically, it wanted information on device name and manufacturer. Today, the database gives us three important functionalities.

Customer Experience

Knowing the device's capabilities (for example, a 5G-enabled device that's using 3G) helps us to evaluate if customers are experiencing a degraded service and then take steps to improve it.

Network efficiency

We can use the data to establish whether a device is using its full capability on the visited network and, if not, why not? With this insight we can help to optimise the way the network is configured.

Business insights for roaming

If you know which devices are capable of using advanced technologies, you can evaluate tech adoption across different regions. You can use this information to assess the business potential of a roaming partner's network."

How do your partners access your device mapping data now? What is their user experience like?

"They log into our Subscriber Monitoring and Advanced Reporting Tool (SMART Webvision) and from there they can monitor their traffic. SMART Webvision is accessible via the MyBICS customer portal on www.bics.com. We embed GSMA Device Map into two modules inside the platform: M2M detection and QoE (quality of experience)."

How do you apply machine learning algorithms to the traffic information?

"We apply the algorithms to the subscriber's Sigtran, Diameter and GTP roaming data. Based on the data usage patterns, we can classify the traffic and identify if a roamer is machine or human.

In the quality of service module, our user can see which M2M modules or handset models are active and, if there's a degradation, they can see which ones are affected."

BICS services carry around 50 percent of the world's data roaming traffic for more than 500 mobile operators in 200 countries. So how does GSMA Device Map help in terms of roaming – especially in light of the migration to travel eSIMs and the growing base of roaming IoT devices?

"Overall, many of our customers don't have clear insight into the types of devices that are roaming. Travel eSIMs make this even more challenging. With GSMA Device Map we can identify device types and capabilities, including eSIM and IoT devices.

This enables us to track the usage per device model, track the level of technology adoption (for example, 5G, LTE-M), and optimise roaming partnerships. GSMA Device Map also supports targeted analytics, regulatory compliance, and monetisation strategies in the face of rising travel eSIM and IoT usage."

How does your platform help MNOs improve marketing, boost ARPU and reduce churn?

"Inside the SMART Webvision tool, our MNO customers can ensure quality of service for their inbound and outbound roaming. But the tool offers a lot more than monitoring. Commercial teams can use it to surface business intelligence insights based on the most challenging roaming scenarios (silent roaming monetisation, permanent roaming and IoT devices detection, roamer distribution across the networks and their usage patterns etc).

By leveraging advanced analytics and machine learning, SMART Webvision helps MNOs segment roamers, understand usage behaviours and launch more targeted marketing campaigns."

GSMA Device Map Overview

GSMA Device Map lets end customers understand the capabilities of the devices connecting to their networks. It does this by indexing 10 main device attributes.

1. **Physical characteristics**
   Colour options, storage options, dimensions and weight.
2. **Standardised marketing name**
   Device brand names and their different iterations.
3. **Chipset and CPU**
   Hardware capabilities such as CPU core, clock speed and RAM.
4. **Screen and connectivity**
   Screen size, resolution and network protocols.
5. **Device tier**
   Entry level, low, mid, high or premium.
6. **Hardware type**
   GSMA Device Map indexes products as diverse as set-top boxes, games consoles, bike locks and weighing scales.
7. **Network protocols**
   Parameters such as LTE category, RCS, VoLTE, VoWiFi, 4G, 5G and Carrier Aggregation (CA) band performance.
8. **Default web browser**
   Name, version, rendering engine, etc.
9. **Media playback capabilities**
   Properties related to streaming, audio and video codecs.
10. **IoT properties**
    Properties of non-phone devices.

Having access to the above attributes gives end customers the ability to deepen their analytics. This is a two stage process. The first step **identifies** the device by make, model and marketing name. The second stage **characterises** the device by listing its properties and features.

Of course, the ultimate aim of device intelligence is business upside. End customers are currently using GSMA Device Map to unlock a range of benefits. They include:

Better IoT deployments

IoT devices behave differently from smartphones. They typically consume less data yet signal more frequently to the network. End customers can use GSMA Device Map to compare traffic types and allocate network resources more efficiently.

Efficient 5G roll out

Which customers are using 5G devices? Where are they? With access to device activity on the network, end customers can plan their roll outs effectively.

Timely sunsetting

Where and when is it OK to phase out 2G? GSMA Device Map can indicate which 2G connections are currently live.

Better consumer habits

Device data will unlock Call Detail Records (CDR) that offer insights into call time, duration, participants etc.

Effective promotions and targeting

End customers can shape offers around the capabilities of a subscriber's device in order to upsell, reduce churn etc.

Improved procurement

End customers can measure correlation between device characteristics and revenue, and use this to optimise their purchasing and pricing.

Better customer care

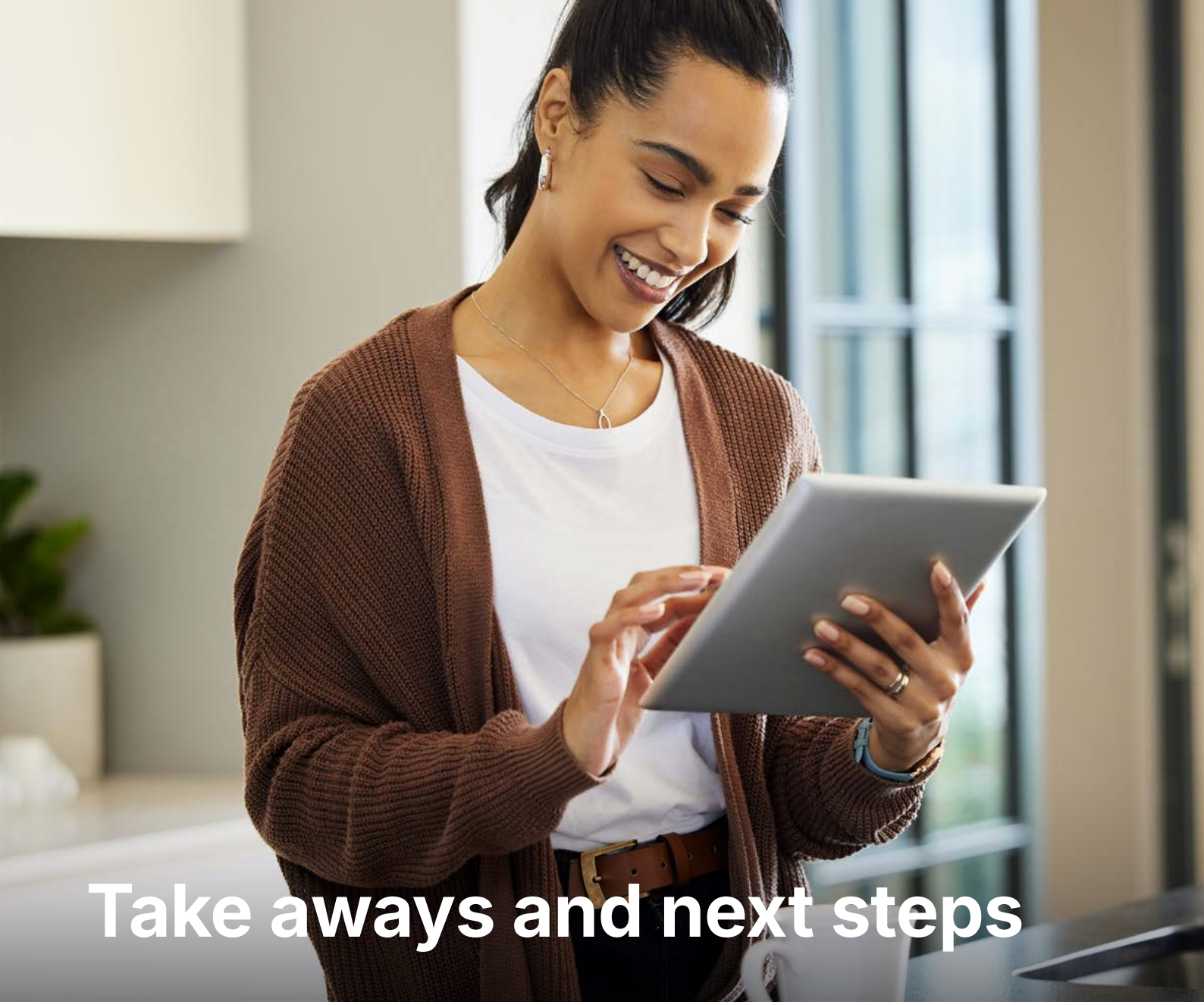
Agents with good knowledge of device capabilities can diagnose problems and reduce time to resolution for calls.

Targeted device insurance

Extended data on devices makes it easier to define a premium even for devices not previously encountered.

Improved reverse logistics

The goal here is better inventory management. End customers can determine the right bid/offer levels for all devices.



Take aways and next steps

The volume and diversity of devices connecting to mobile networks grows every year. This represents a challenge for end customers and partners such as BICS. Together, they need to provide great user experiences for content-hungry consumers, and consistent connectivity to enterprises deploying huge fleets of connected machines.

In this customer story, we heard how BICS uses GSMA Device Map to better serve its 40 billion daily voice, messaging and data transactions – especially in the area of roaming.

We discovered how access to this data helps BICS' end customers to segment roamers, understand usage behaviors and launch more targeted marketing campaigns.

Want to know how GSMA Device Map can unlock business benefits for your organisation? Click here for more information.

GSMA
Industry Services

GSMA Industry Services is a department within the GSMA, providing data, resources and tools that improve and support global connectivity by underpinning important interoperable backend functions and addressing the problems GSMA Working Groups have identified.

As the global source of TAC data, we offer TAC allocation for all connected industries, along with eUICC identification numbers for the growing eSIM market.

Our device attribute and device status data provide essential insights for businesses and organisations across the mobile ecosystem.

Find out more at:
gsma.com/solutions-and-impact/industry-services/

GSMA

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.

Find out more at: gsma.com