eSIM Transfer Interoperability

This submission relates to **Point 2.10 on the BEREC 2025 Draft Work Programme**: "BEREC contribution to the implementation of the Digital Markets Act (DMA)."

Background:

An electronic subscriber identity module (eSim) is a digital innovation in device connectivity where software is installed directly on the connected device chip, instead of requiring the user to insert a physical card into their connected device. This technological evolution offers users enhanced experiences like:

- flexibility in managing their service plans (add a second plan without requiring a physical SIM card or SIM tray);
- facilitating switching between carrier networks in just a few clicks;
- transferring of one plan between devices without physically swapping a SIM card.

Like physical Sim cards, eSims contain data that enables devices to identify and authenticate users to their network providers. Therefore, they are vital for users to switch their network plans from device to device.

However, at the moment, consumers using eSims are being locked into their devices if they wish to switch between devices with different operating systems (OS).

In comparison to eSims, physical sims have no restrictions on interoperability between OS, devices, or Mobile Network Operators (MNOs) and therefore offer consumers easier switching opportunities.

Operating System Lock-In

To enable device switching, the OS plays a crucial role. Specifically, it interacts with the eSim software to download the user's credentials on the old device to access their subscription on the new device through secure exchange of eSim information. As a result, eSims require OS functionality to support this device-switching function.

Using the GSMA specifications for eSim switching is crucial in this context, as this will ensure consumers have the same convenient process to switch eSims that they do when switching physical SIMs – especially across Operating Systems.

Entitlement Server Lock-In

In addition to the OS lock-in, there's another barrier to seamless eSim switching. This time, on the operator side with Entitlement Servers.

eSim "Entitlement Servers" are a key component to make eSim switching work, as:

- they sit within the mobile network operator's network infrastructure and serve as an interface between the network and the end user's device;
- they allow carriers to manage services on user devices;
- they also enable the onboarding process to facilitate the transfer of eSIMs between devices.

In general, entitlement servers follow industry standards (GSMA) to ensure compatibility with multiple manufacturers' devices. In addition, in order to enable cross-platform eSim transfer, an entitlement server must support the OS specifications of both the source (old) and target (new) devices. However, when entitlement server specifications differ from GSMA's or do not support multiple OS specifications, consumers face difficulties when switching devices, especially across operating systems.

Next Steps

While eSim-only devices are not yet widely circulating in the European market, they are already widespread in the US – where the same problems as those highlighted above emerged and have been dealt with.

Therefore, BEREC would be well-advised to keep this eSim interoperability issue in mind when speaking to other institutional stakeholders about the future development and enforcement of the DMA. This will avoid consumers being unfairly locked in to their devices when eSim-only devices become more widespread in the European market.