MAINTAINING ACCESS TO 112 DURING THE 2G AND 3G SWITCH-OFF

Case Study Document – The Icelandic Experience

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Maintaining access to 112 during the 2G and 3G switch-off – the Icelandic experience

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Executive summary

Iceland has completed the switch-off of its legacy mobile networks. 2G was decommissioned nationwide before the end of 2024 and the last 3G network was switched off on 1 June 2026. More than 80% of calls to 112 in Iceland come from mobile phones, so the risk was material from the outset.

The decision was taken by the three Icelandic mobile network operators in November 2022 on commercial and technical grounds. The Electronic Communications Office of Iceland (ECOI) did not mandate it. It coordinated the stakeholders, monitored the risk to emergency services and oversaw public communication. Neyðarlínan, which operates 112, was part of that structure and set the condition that the transition must not disrupt calls to 112.

Two elements distinguish the Icelandic approach: stepwise implementation with formal GO / NO-GO decisions between phases, and a public test number, 1280, which let any user check whether their own device could still place an emergency call and gave Neyðarlínan data on device behavior without generating load on 112.

This document was generated with the assistance of AI, based on the presentation given by Neyðarlínan at an EENA webinar on the 2G and 3G switch-off and the technical note on the 1280 test service provided by Neyðarlínan. The content has been reviewed by EENA and Neyðarlínan before publication.

Purpose of the document

- Document how Iceland switched off 2G and 3G while maintaining access to 112
- Explain the 1280 emergency call test service and what it revealed about devices
- Set out the lessons for PSAPs, operators and regulators facing the same transition

1. List of acronyms

eCall	Pan-European in-vehicle emergency call system
ECOI	Electronic Communications Office of Iceland
EENA	European Emergency Number Association
MNO	Mobile Network Operator
PIDF-LO	Presence Information Data Format – Location Object
PSAP	Public Safety Answering Point
RAN	Radio Access Network
SMS	Short Message Service
VoLTE	Voice over LTE
VoWiFi	Voice over WiFi

2. Iceland, its emergency service and its mobile market

2.1 The country and the emergency service

Iceland covers 103,000 km² and has a population of around 400,000 and about 2,2 million visitors per year. Approximately 75% of the territory is uninhabited highland and 10% lies under glacier. About half the population lives in the capital area.

Neyðarlínan operates 112. It was established in 1995 as a public limited company to launch the single emergency number in Iceland and has been fully state-owned since 2021. Its headquarters are in Reykjavik. It handles around 300,000 cases a year, covering police, ambulance, fire and rescue teams, as well as childcare and domestic violence cases.

More than 80% of calls to 112 are made from mobile phones. Any change to the mobile network is therefore a direct operational risk for the emergency service.

2.2 The mobile market

Three mobile network operators serve the country and there are two mobile radio access networks. Around 600,000 mobile subscriptions are active.

3. The decision to switch off 2G and 3G

3.1 An industry-led decision

In November 2022 the Icelandic mobile network operators jointly announced their intention to phase out 2G and 3G by the end of 2025. The intention had circulated informally since 2021.

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The decision was industry-driven and based on commercial and technological considerations. The stated reasons were the cost of operating several parallel network generations in a small market in a very rural country, alignment with international trends and particularly with practice across Europe, and the transition to 4G and 5G, which provide higher capacity and reliability, improved spectrum efficiency and better support for modern services.

The final timetable differed from the announcement. 2G was decommissioned nationwide before the end of 2024. The last 3G network was switched off on 1 June 2026, later than the end-2025 target originally announced. 4G and limited 5G services are now available.

3.2 The role of the regulator

ECOI did not take the decision, but played an active role in three areas: facilitating coordination between stakeholders, monitoring risks and in particular access to emergency services, and ensuring transparency and consumer awareness.

3.3 The position of 112

Neyðarlínan set out from the beginning that the closure of 2G and 3G must not disrupt calls to 112. Early indications were that disruption would occur.

4. Implementation and governance

4.1 A phased, risk-managed approach

The phase-out was carried out gradually, region by region. Operators reduced the legacy network footprint early through the progressive shutdown of sites.

Customer outreach was targeted rather than generic. It included letters, SMS notifications and direct calls to affected users.

4.2 Coordination and communication structures

Two structures were set up:

- A multi-stakeholder coordination group bringing together ECOI, the mobile network operators and 112
- A dedicated communications group, coordinated and overseen by ECOI, with the participation of the operators and 112, to ensure consistent public communication and effective risk mitigation

4.3 GO / NO-GO decision points

A key governance principle was stepwise implementation with formal reassessment between phases. Each phase ended with an explicit GO or NO-GO decision before the next one started, which gave the stakeholders a defined point at which to reassess before proceeding.

5. Protecting access to 112

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5.1 The "red device" problem

Approximately 97–98% of devices in Iceland support 4G and VoLTE. The devices, referred to as "red devices" include:

- Devices that do not support VoLTE
- Devices that are misconfigured
- Devices that support VoLTE for standard calls but may fail emergency calls because of device or software configuration, or because of operator provisioning

The third category is the difficult one. These devices work normally for everyday calls, so the user has no reason to suspect a problem, and they are not captured by statistics based on VoLTE support alone.

Additionally, following the 2G/3G shutdown, eCall services may stop working in vehicles equipped with legacy eCall systems. In some vehicles, the eCall equipment can be upgraded to support newer networks, but in many cases an upgrade is not possible.

5.2 Technical and operational mitigation measures

The main measures applied during the transition were:

- Cell barring on 3G, restricting normal traffic while continuing to allow emergency calls
- Temporary inter-operator fallback, with the 3G networks of other operators providing redundancy
- Continuous monitoring and reassessment after each phase

These measures proved effective in reducing risk during the transition. Cell barring in particular allowed operators to remove legacy traffic while leaving the emergency call path in place.

5.3 Monitoring and results

Monitoring focused on the capacity to place an emergency call and quality indicators throughout each phase: emergency call setup success, routing and handling anomalies, and incident and complaint signals. On the basis of the available operational data, no systemic issues affecting emergency call accessibility were identified during the rollout.

The capital area phase was completed in line with the plan. No major new unforeseen risks were identified, although concerns remain regarding access to 112. These include reports of reduced coverage in some areas, as well as foreign devices used by visitors and devices purchased from outside Europe that may not be able to call 112. . The number of red devices declined, but more slowly than expected.

6. The 1280 emergency call test service

6.1 Purpose

A test number simulating an emergency number was introduced for two reasons: to allow users to verify their own emergency call capability, and to generate data on device compatibility without placing load on 112.

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6.2 Design on the network side

When a device attaches to the mobile network, the network can send it an Emergency Numbers List and optionally indicate a specific Emergency Service Category for each number on that list. The number 112 is sent to devices in this way without any category being specified; 112 should also be programmed on most or all devices used in Iceland as a local emergency number.

When a recognised emergency number is dialled, the phone identifies the call as an emergency call. Where available, it also indicates the type of emergency service required. The network then uses this information to route the call to the appropriate emergency service.

Before this exercise, the only Emergency Service Categories implemented in Iceland were those for eCall, both manually and automatically initiated, which are routed and handled differently from calls to 112. During the exercise, the category "Mountain Rescue" and the number 1280 were reserved temporarily for the test service. All Icelandic operators defined them in their networks and sent them to devices on every radio access technology – 2G/3G, 4G/5G and VoWiFi – to their own subscribers and to inbound roamers.

Operators then applied distinct handling of the "Mountain Rescue" category depending on the radio access network the call originated from:

- From 4G, 5G or VoWiFi: routed to PSAP A, answered with a voice message indicating a successful test
- From 2G or 3G: routed to PSAP B, answered with a voice message indicating an unsuccessful test

6.3 Design on the PSAP side

Each carrier was assigned two numbers, one receiving calls routed via 4G, 5G or VoWiFi and one receiving calls over 2G or 3G. When a test number was called, a recording was played back indicating which path the call had taken. The automated answering service was set up so that the emergency call service could be tested as far end-to-end as possible without causing load on PSAP staff.

The following data points were recorded for each call:

- Whether a PIDF-LO location was delivered with the call
- Whether the calling number was present in the From or P-Asserted-Identity header
- Whether cell location information was included in the P-Access-Network-Info header
- Whether the call carried audio
- Whether the caller stayed on the line until the recording completed, or hung up before it finished

The data collected was used to monitor and analyse the calls and to produce call statistics. On reaching the 112 exchange, calls are routed to an analyser and an automated answering machine, which returns an OK or Not-OK result based on the analysis of the call – for example a 3G call, no caller identity or no location. Users receiving a Not-OK result are told to contact their service provider.

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6.4 Use of the service

Use of 1280 was concentrated in short bursts rather than spread evenly. Daily volumes rose through March 2026 and peaked in April at close to 2,500 successful tests in a single day. They then fell back to tens of tests per day by late May, shortly before the 3G switch-off on 1 June. Unsuccessful tests followed the same pattern at a lower level.

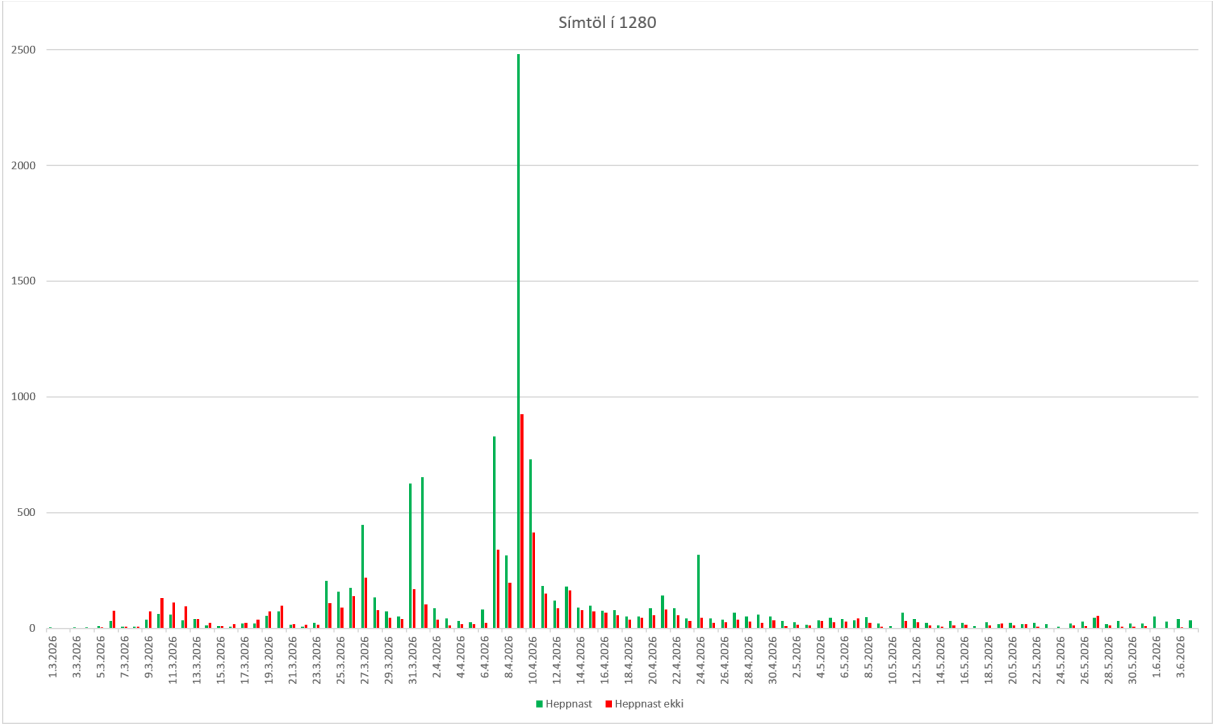

Figure 1: Daily calls to 1280, 1 March – 3 June 2026. Green ("Heppnast") indicates a successful test, red ("Heppnast ekki") an unsuccessful test. Source: Neyðarlínan.

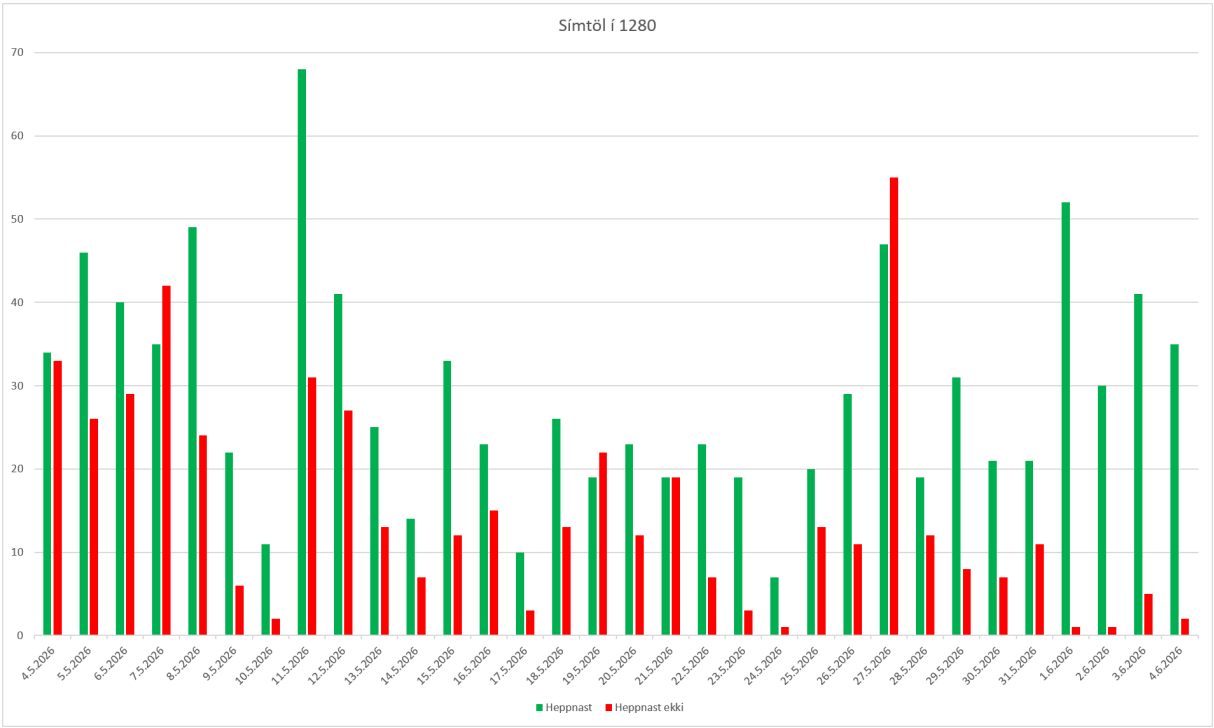

Figure 2: Daily calls to 1280, 4 May – 4 June 2026, shown at a smaller scale. Source: Neyðarlínan.

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The pattern matters for planning. It suggests that the test service is used mainly when it is actively promoted, which means the promotion campaign and the shutdown milestones need to be sequenced together.

6.5 Limitations and recommendation

The analysis behind the OK / Not-OK result is not perfect and can wrongly return Not-OK. Users are therefore directed to their service provider rather than given a definitive verdict.

Neyðarlínan recommends a unified test setup across all mobile operators. A single test number simplifies public information, simplifies implementation, and handles interoperability correctly: a device may attach to operator X but place its emergency call through operator Y, for instance when it moves out of operator X's coverage.

7. Alternative emergency number

With some devices being able to place a normal call but unable to contact 112, a regular 7-digit number was set up in order to allow access to emergency services by dialing this number. This alternative number was not widely advertised in order not to create confusion but was displayed on Neyðarlínan's website and on some information kits provided to incoming visitors. The number was used a few times during the summer 2026.

8. Observations and remaining challenges

7.1 User behaviour

A consistent observation across all operators is that users react only when the service is disrupted. Response to SMS campaigns was limited, even though at least four messages were sent per subscriber, and response to media coverage was limited as well. Action increased after service degradation or shutdown.

This has direct consequences for communication strategy and for the timing of interventions. Notification before a shutdown produces little movement; the shutdown itself is what produces it.

7.2 Communication channels used

Public communication combined indirect and direct channels: appearances in the news and public talks, repeated news announcements, information published directly on the operators' web pages, and specific announcements aimed at travellers arriving in Iceland.

It should be noted that when the announcement of the test number in the TV news led to an immediate peak of calls to that number.

7.3 Remaining challenges

- Residual red devices will likely not reach zero any time soon
- Verifying VoLTE emergency call support across device models is complex

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- Roaming devices carried by tourists are increasingly relevant
- Legacy eCall systems in vehicles remain unresolved

More than 1% of all domestic phones cannot call 112. Some of these are used only for data and may be control devices or tablets. A further group of affected devices belongs to visitors. Iceland has no plans to force these devices off the network.

9. Lessons learned in Iceland

The following lessons are those reported by the Icelandic stakeholders on the basis of experience to date.

- Early and continuous stakeholder coordination is critical.
- Early, risk-based assessments by operators, continuously iterated and revisited between phases, are essential to identify issues early and prevent unintended impacts on access to 112.
- Post-phase verification of network coverage and service quality is essential to confirm that 4G and 5G coverage meets or exceeds legacy 2G and 3G levels. Complaints of worse coverage after the closure have been received and a comprehensive coverage re-measurement is planned.
- Red devices are not only devices lacking VoLTE capability, but also devices affected by configuration, software or operator provisioning. Mitigation therefore needs both outreach and technical follow-up. Phones sold in 2026 have been found unable to call 112.
- Close cooperation with 112 should include shared operational visibility and clear escalation paths, enabling rapid investigation and response if anomalies occur.
- Establishing a real-world test number like 1280 is highly valuable.
- Communication campaigns must be targeted, not only broad. User inertia is significant and must be factored into planning.
- Clear GO / NO-GO governance between phases is critical to maintaining risk control throughout the phase-out.

The overall conclusion drawn in Iceland is that a legacy network phase-out can be carried out safely and effectively, that a stepwise and data-driven approach is essential, and that access to emergency services can be maintained provided targeted mitigation measures are in place and close coordination between stakeholders is ensured.

10. What the Icelandic experience means for other countries

Legacy network switch-off is under way across Europe. The Icelandic case is small in absolute numbers but complete: both 2G and 3G are gone, and the process was reported in detail. Four points are worth carrying over.

9.1 A public test service should be part of every switch-off plan

The 1280 service gave users a way to check their own device and gave the PSAP direct data on device behaviour in real conditions. It reused a spare emergency number, relied on an

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Emergency Service Category that the operators defined for the purpose, and generated no load on 112. Countries planning a switch-off should consider a test number of this type, defined identically across all national operators, and should plan the promotion campaign around the shutdown milestones.

9.2 VoLTE penetration figures do not measure emergency call readiness

Iceland identified a category of devices that support VoLTE for ordinary calls but may fail on emergency calls because of device or software configuration, or because of operator provisioning. Devices in this category do not show up in capability statistics and give the user no warning. Any national assessment based on VoLTE support alone will understate the problem.

9.3 Communication does not move users; disruption does

At least four SMS per subscriber and repeated media coverage produced limited response. Action followed degradation. Planning should assume that a share of users will only act after they lose service, and should ensure that the emergency call path remains available while they do – which is what cell barring with emergency calls allowed achieved in Iceland.

9.4 Roaming users and eCall need attention beyond the national level

Inbound roamers depend on the configuration of the visited network, and vehicles with legacy eCall systems are outside the reach of consumer outreach campaigns. Neither problem can be solved by a single national authority. Both merit coordinated attention as more countries complete their switch-off.

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