

Discussion paper response form

Response submitted by Digis Squared

Discussion paper: Mobile connectivity you can count on. Completed form for return to mobileconnectivity@ofcom.org.uk.

Discussion paper title	Mobile connectivity you can count on
Full name	
Contact phone number	
Representing	Organisation
Organisation name	Digis Squared
Email address	

Confidentiality

We are content for this response to be published in full and attributed to **Digis Squared**.

Anything else you want to keep confidential (beyond contact number and email)?	Nothing
How much of your response do you want to keep confidential?	None
For confidential responses, can Ofcom publish a reference to the contents?	Yes

Your response

Digis Squared is an independent, vendor- and operator-agnostic network measurement and optimization specialist.

Ahead of this response we carried out our own testing on a live UK intercity route - London to Bristol, all four mobile operators, four real-world usage scenarios, 2,902 scripted activities sampled per second in both directions.

The headline is simple: the route largely passed Ofcom's three Good Performance thresholds, yet passengers would still have met failed video calls, failed streams and dropped voice — with a single corridor-wide configuration defect degrading every operator at once. We offer the findings below as a good-faith contribution to Ofcom's evidence base, alongside our views on the discussion paper's wider questions.

Please see our full data and findings report attached to our email.

Section 2: The quality of mobile connectivity we want to see

Views on the Map Your Mobile good performance metric and how it should evolve; and the usefulness of the 90% benchmark (a) across geographies and based on crowdsourced data, and (b) whether it is realistic and sufficiently ambitious.

The three-threshold metric is a sound network floor, but on its own it does not capture what passengers experience. It should evolve to report application-level (service-class) quality alongside the floor, and at per-route, per-direction granularity rather than only wide-area averages.

Our independent testing on the London–Bristol corridor (July 2026; all four mobile operators; four usage scenarios; 2,902 scripted activities and 99,194 one-hertz radio and application samples) illustrates the gap. On the three thresholds (≥ 5 Mbit/s download, ≥ 1.5 Mbit/s upload, ≤ 50 ms latency) the corridor would rate as broadly functional, yet: video streaming failed for all

four operators; when a data session and a Teams call ran concurrently (which is normal passenger behaviour), success rates fell by between 17 and 47 percentage points; and one operator's Teams sessions were recorded as "successful" while containing 36 video freezes totaling 359 seconds. Consistent with Ofcom's own national finding, latency rather than throughput was the dominant reason tests failed the threshold. A metric that reports only the network floor cannot see any of this.

On the 90% benchmark: we support it as the right ambition, but the national evidence Ofcom cites shows on-train performance is a long way from it — Good Performance was met on 42% of tests for EE, 21% for Three, 20% for O2 and 17% for Vodafone. On its application across geographies from crowdsourced data (a): crowdsourced data is sparse on rail routes and thin in low-population areas, and a single national figure conceals extreme route-level variance — Ofcom's own data ranges from 4% to 82% pass rates by line. The benchmark is far more meaningful applied per segment, and where crowdsourced density is low it should be complemented by active, application-aware measurement.

On whether 90% is sufficiently ambitious (b): as a floor-availability target it is reasonable. But because it measures only the network floor, reaching 90% on the three thresholds would not guarantee that 90% of passengers get a working video call or an unbroken stream. Ambition should therefore extend to service-class outcomes, not the floor alone.

Confidential: No

Section 3: Market-led improvements in mobile network quality.

What information do customers need to choose the best network, and where are the gaps; and how well does Map Your Mobile meet customer and stakeholder needs, with what improvements.

Customers need quality information at the granularity of the journeys and places they actually use — per route, per direction, and ideally per application — not national or wide-area averages. The main gap is that current information is aggregated to a level that hides local failure.

Our corridor data shows why averages mislead: there was no single "best" operator. Three led on data speed and voice completion, EE on data reliability, Vodafone on signal strength and handover but converted that signal poorly into working service, and O2 (VMO2) had structural coverage voids. A passenger choosing an operator specifically for the London–Bristol route would be poorly served by a national league table.

Map Your Mobile would be more useful with per-route and per-direction views, service-class breakdowns, and — where feasible — a pre-journey quality forecast by operator and application, presented free and publicly auditable. Crucially, the evidence behind it needs to be continuous rather than annual: a study published on a yearly cadence cannot drive either operator investment or consumer choice at the pace conditions change on the ground.

Confidential: No

Section 4: Connectivity in busy areas

Biggest barriers to better performance in town and city centres and why; Ofcom's main priorities; and what information local and planning authorities would find useful.

In town and city centres the binding constraint is capacity and consistency under load, not outdoor coverage. Two structural barriers dominate, and neither is a technology gap.

First, densification friction: planning-refusal rates and timescales vary widely between local authorities, alongside site-access costs and street-furniture availability. Second, a split investment case: no single operator captures the full value of an urban site, so investment is under-provided relative to its social value. The GMCA "Beyond Coverage" study cited in the paper supports this — outdoor coverage in Greater Manchester is broadly good, but peak-time degradation of up to 50 percentage points was observed indoors, and the same load pattern applies outdoors at rush hour and around events.

Suggested priorities for Ofcom: help standardise planning expectations and publish outcomes, so practice converges on the authorities that already do this well; encourage councils to publish

asset registers and charging frameworks to speed small-cell deployment; and strengthen the Digital Connectivity Portal with granular local performance data.

Local and planning authorities would most benefit from granular, per-locality performance data — ideally at street level — so densification decisions rest on evidence rather than assertion. Continuous local measurement is what would supply that insight.

Confidential: No

Section 5: Connectivity in indoor, shared public places

Biggest barriers to better indoor performance and why; Ofcom's main priorities; and what information would be useful.

The barriers indoors are principally commercial and coordination-related rather than technical. Buildings designed or upgraded with connectivity in mind perform materially better than those relying on the outdoor network — a pattern confirmed by both the GMCA study and the Co-op Live case cited in the paper.

Three barriers stand out: a split incentive (the case for any single operator to build dedicated indoor infrastructure at every venue is weak, whereas a neutral-host model is strong but needs demand aggregation); a building-side capability gap (owners often cannot specify indoor connectivity at design stage, and retrofit costs far more than in-design provision); and a reporting gap (there is no standard indoor quality-reporting framework, so landlords, operators and consumers lack a common language).

Suggested priorities: work with DCMS to publish an indoor connectivity design standard for new build and major refurbishment, with independent measurement as the assurance mechanism; and actively encourage neutral-host adoption for busy indoor venues and station platforms, supported by a standard performance-reporting framework so venue operators can compare providers on a like-for-like basis.

On what would be useful: a common indoor quality-reporting standard is the missing piece. Continuous in-building, per-operator measurement is practical today (Digis Squared has run it in a single high-density, multi-operator venue in another country with a separate probe locked to each operator, benchmarking coverage, throughput and service experience around the clock) and the same approach transfers directly to stations, hospitals, shopping centres and large offices.

Confidential: No

Section 6: Connectivity on trains

Biggest technical and commercial barriers to better on-train performance, and which are most significant and why; whether you agree with the proposal to work with government; and what information would be useful.

On the evidence from our corridor testing, the dominant on-train problem is signal quality and network configuration rather than raw coverage. The single most significant technical barrier we found was a corridor-wide identity-planning defect (a PCI / Mod-3 clash) present in 70–100% of drop reports across all four operators, eroding SINR (signal-to-interference-plus-noise ratio) by roughly 5–8 dB in exactly the segments where failures clustered.

Tellingly, the geometry checks (overshoot, cross-sector, side-lobe, back-lobe) were clean: the cells are physically well placed, but their identity assignment produces persistent co-channel interference. This matters most because it is a shared multiplier behind coverage, voice and Teams failures for every operator, and because it is a configuration fix rather than new capital — the highest-leverage single intervention available on the route. It reframes the problem away from "more spectrum" and towards signal quality, configuration, handover and provisioning, consistent with Ofcom's national finding that latency dominates threshold failures.

Other technical barriers we observed: latency spikes driven by that signal-quality degradation; a collapse under concurrency (every operator lost 17–47 percentage points when data and a Teams call ran together, and streaming failed for all four); deep coverage voids on some operators (O2 dropping below -122 dBm with forced fallback; EE with 43% weak-coverage time); core and provisioning failures (EE at 0% voice completion on otherwise healthy radio; Vodafone at 1.1%, with a 39.7% random-access failure rate); and handover-in-context effects — discrete

handover success was high (98–99%), but 5G-leg churn and additions on weak anchors degraded service around handover. Some application failures were not radio-related at all: streaming failed at service establishment even on clean radio, pointing to configuration rather than the network.

The principal commercial barriers are the split investment case for trackside and on-train infrastructure; the cost and disruption of rolling-stock and trackside works; and on-board Wi-Fi that delivers little benefit at meaningful cost — Ofcom's national finding of roughly 1% Good Performance is consistent with our observation that on-board Wi-Fi throughput sat below the 5 Mbit/s threshold throughout the drive. Underlying all of these is the absence of continuous, independent evidence: without it, Mobile operators, train operating companies and government cannot know where investment delivers the most passenger experience per pound.

Do we agree with the proposal to work with government? Yes! The evidence points to a problem no single party can fix alone — track and rolling-stock access, cell configuration and funding sit with different bodies — so coordinated action across Ofcom, DfT, Great British Railways, the train operating companies and the mobile operators is the right approach. We would add that the enabler which makes such coordination accountable is continuous, independent, application-aware measurement at corridor level. The migration from GSM-R to the 5G-based Future Railway Mobile Communication System (FRMCS), which brings signaling and passenger connectivity into closer proximity, is a natural point at which to align that measurement.

On what information would be useful for Ofcom to provide or gather: continuous per-line, per-direction, per-operator and per-service-class performance data, published so it can inform both investment and consumer choice; and independent verification data for the Vodafone–Three merger commitments and for direct-to-device satellite performance claims on rail routes, which intersect exactly the hard-to-serve geographies where those commitments matter most. Our own testing methodology is one contribution we would be glad to make to that evidence base.

We would stress the limits of our own evidence, in the interest of not overstating it: this is one intercity corridor measured on two consecutive summer weekdays. It is deep but narrow, and generalizes only to comparable intercity routes — not to cross-country, commuter, or Scotland, Wales and Northern Ireland lines. Ofcom's 24-line national study remains the authoritative baseline; our contribution is depth of diagnosis on one live route.

Confidential: No

Section 7: Connectivity in rural areas

Biggest barriers to better rural performance and why; Ofcom's main priorities and target outcomes; possible solutions; and what information would be useful.

Rural connectivity carries two distinct problems that are often blurred, and separating them is the first step, because they need different levers.

The first is genuine not-spots: places with no economic case for terrestrial coverage. The Shared Rural Network programme addresses these, and the remaining gaps are progressively harder and increasingly suited to satellite direct-to-device services (VMO2–Starlink went live in February 2026; Vodafone–AST trials begin in summer 2026). The second is populated rural — villages, small towns and rural business parks where terrestrial coverage exists but performance sits materially below urban norms. Ofcom's Mobile Matters 2025 data illustrates the gap: 5G's share of connections is 29.5% urban against 18.8% rural.

On why: rural economics are the root barrier. Unused spectrum in rural areas is generally unused because deployment there is uneconomic, so spectrum sharing on its own does not change the underlying case — a point on which we find much of the industry skeptical.

Suggested priorities, outcomes and solutions: full delivery — and independent verification — of the Vodafone–Three network commitment in populated rural areas; targeted use of direct-to-device satellite in genuine not-spots; neutral-host arrangements where populated rural

demand can be aggregated; and smarter use of existing assets (masts, backhaul and spectrum). The outcome to aim for is measurable, verified improvement in populated rural performance, distinct from not-spot closure.

On what would be useful: independent, per-location verification of merger-commitment delivery and of direct-to-device satellite performance, measured on the same yardstick as terrestrial. Rail corridors cut through rural geography and are a practical place for the continuous, independent measurement that would make rural performance visible.

Confidential: No

How you came across this discussion paper

☐ Email from Ofcom

☒ **Saw it on social media (LinkedIn)**

☐ Found it on Ofcom's website

☐ Found it on another website

☐ Heard about it on TV or radio

☐ Read about it in a newspaper or magazine

☐ Heard about it at an event

☐ Somebody told me or shared it with me

☒ **We are a member to TechUK**

Please return completed form to mobileconnectivity@ofcom.org.uk