



# Interconnection, Infrastructure Sharing and Mobile National Roaming Instructions

Report for Zain Jordan on responses to public  
consultation document

---

17 December 2024

# Contents

1. Introduction.....	3
2. Interconnection instructions.....	3
3. Infrastructure sharing instructions .....	6
4. National roaming instructions .....	11

# 1. Introduction

Zain Jordan has engaged Aetha to review stakeholder responses to the TRC's Consultation Document on Interconnection, Infrastructure Sharing, and Mobile National Roaming Instructions. This document provides our feedback on each of the three Instructions, building upon the arguments we presented during the initial consultation phase.

## 2. Interconnection instructions

We generally agree with the arguments made by other stakeholders with regard to the interconnection instructions. In particular:

- **Need for a new market review:** We agree with Orange's recommendation that the TRC conduct a new market review. The existing dominance assessments may no longer reflect the current telecommunications landscape.
- **Obligations on non-dominant players:** There is widespread agreement on the need to clearly distinguish between obligations for all licensees and those specifically for Designated Licensees.
  - The regulatory framework is based on the idea that Designated Licensees in a market may be subject to instructions, while other operators are not. It is important that the instructions maintain this approach. This distinction ensures that regulatory interventions are proportional to market power, preventing unnecessary burdens on non-dominant players that could stifle competition or innovation.
  - It is essential that such instructions are only adopted following a comprehensive market review. An up-to-date market review will ensure that regulatory decisions reflect the current market structure and competitive landscape, safeguarding proportionality and promoting sustainable competition.
- **Technology neutrality:** More clarity is required in the definition of tech neutrality to ensure it is not misinterpreted. Specifically, the draft should be amended to make it clear that this doesn't give a Designated Licensee grounds to provide a wholesale service different to the one requested (for example, to fulfil VULA orders as Bitstream or offer fixed wireless access instead of wireline).
- **Exclusion of private peering:** We support Umniah's position that private peering arrangements should not fall within the scope of interconnection instructions. These agreements are best left as flexible, commercial arrangements that do not necessitate regulatory oversight.

However, we disagree with Orange's suggestion to **include 4G/5G Fixed Wireless Access (FWA) in the fixed broadband market definition**. We believe such an inclusion overlooks critical differences in network architecture, capacity, and use cases, potentially conflating distinct service categories and risking misaligned regulatory outcomes. Furthermore, it would be inappropriate to do so without a market review and the international evidence does not support this approach. Several regulators, including in the UK and Spain, have decided not to include 4G/5G FWA in the fixed broadband market.

In the following subsections, we provide more details about our reasoning.

## 2.1 Need for a new market review

We agree with Orange's position that the TRC should conduct a new market review to address potentially outdated dominance assessments. Orange highlights that the current assessments, based on data from 2018, might fail to capture the significant market dynamics that have emerged since then.

An up-to-date market review is essential to provide a reliable foundation for regulatory decisions. Without such a review, there is a significant risk that regulatory interventions could misalign with market realities, potentially hindering competition and consumer welfare. Therefore, it is recommended that the TRC prioritise this review to ensure that its interventions are grounded in current data.

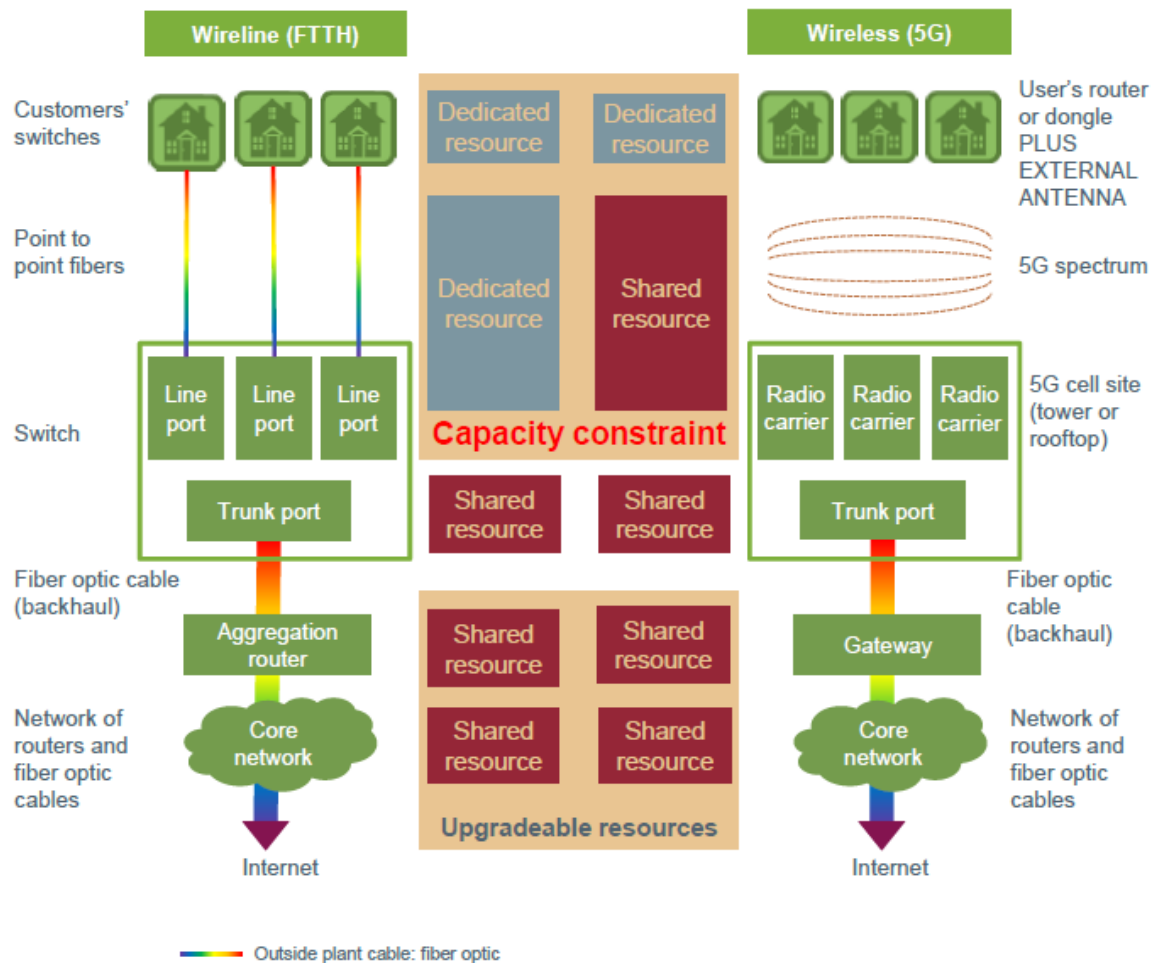
## 2.2 4G/5G FWA inclusion in fixed broadband market definition

In its consultation response, Orange also suggests that 4G and 5G Fixed Wireless Access (FWA) services should be included in the definition of both the retail and wholesale (WLA and WBA) fixed broadband markets. However, we disagree – such a classification could fail to acknowledge key differences in the usage patterns and market positioning of FWA and fixed broadband offerings.

There are significant differences between FTTH and 4G/5G FWA network architectures, as show in Figure 1 below (for FTTH and 5G), which mean the two are not direct substitutes.

Importantly, whilst both networks contain shared resources, the 4G/5G network shared resource (the Radio Access Network (RAN)) is limited by the quantity of radio spectrum available, which also has to be shared with mobile services. Although 5G makes use of more spectrum than 4G networks, and is also more spectrally efficient, any radio link will fall far short of the optical spectrum available on a fibre system. Therefore, whilst some sites may be able to handle the current FWA traffic requirements, the quality of service (incl. the broadband speed) will likely reduce as usage increases. In contrast, FTTH networks are designed to accommodate significant traffic growth without requiring immediate upgrades.

**Figure 1: FTTH and 5G architecture for fixed broadband service [Source: Aetha Consulting]**



For the reasons outlined above, 4G/5G FWA cannot be considered a substitute for fixed broadband due to significant differences in technical capabilities and user experiences. Fixed broadband, and in particular fibre networks, offers unmatched capacity, reliability, and scalability, providing consistent high-speed internet for demanding applications such as streaming, cloud computing, and online gaming. In contrast, FWA is inherently limited by its reliance on shared spectrum, making it more prone to congestion and variability, especially in high-traffic areas.

The use cases for FWA and fixed broadband also differ. FWA primarily addresses connectivity gaps in underserved regions, offering a flexible and cost-effective solution where fixed broadband deployment is impractical. However, it cannot match the stability or performance required by users who depend on guaranteed speeds and uptime, particularly businesses or households with heavy data demands. Including FWA in the fixed broadband market risks conflating two distinct service categories, leading to misaligned regulatory approaches that may undermine both investment in fixed networks and the targeted role of FWA in bridging the infrastructure gap.

Ultimately, the substitutability of FWA and fixed broadband is unproven, and it would be inappropriate to include them in the same market at this point, especially without a detailed market review. Other regulators, including those who have performed reviews, have come to a similar view. For example:

- In Spain, the regulator concluded that “fixed broadband lines provided over mobile networks do form part of the relevant market” and “the consumption patterns of end users show that these two

*services are complementary since the connectivity needs of residential customers are not fully covered by only one type of broadband service (either fixed or mobile)*".<sup>1</sup>

- In the UK, Ofcom highlighted that *"fixed network operators tend to be of the view that 5G FWA is unlikely to be a service that could be supplied to sufficiently large numbers of customers to generally compete with fixed services"* and *"mobile network operators tend to support this view in the longer term"*. For these reasons, Ofcom did not include wireless services in the fixed broadband market.<sup>2</sup>

It is clear that the international evidence does not support Orange's view.

## 2.3 Obligations on non-dominant players

Orange, Umniah, and Batelco have all noted ambiguity in the draft instructions regarding their applicability to different operator categories. Umniah also highlights the lack of clarity in defining market boundaries, which could lead to regulatory confusion or overreach<sup>3</sup>. We agree with these views.

The distinction between universal and Designated Licensee specific obligations must be explicitly defined, along with a clear articulation of market boundaries. Furthermore, we reiterate our view that the provisions of Section 2 ("General rules applicable to all Licensees") should either be removed or transferred to Section 3 ("Rules applicable to Designated Licensees"), as these are potentially intrusive/burdensome obligations on non-dominant players.

## 2.4 Technology Neutrality

There is consensus among stakeholders, including Orange and Umniah, that the draft instructions require a clearer definition of technology neutrality. For the avoidance of doubt, the draft should be amended to make it clear that "technology neutrality" does not (for example) give a Designated Licensee grounds to provide a wholesale service different to the one specified (for example, to fulfil VULA orders as Bitstream, or to offer fixed wireless access instead of wireline).

## 2.5 Exclusion of Private Peering

We agree with Umniah's argument that private peering arrangements should not be included in the scope of the interconnection instructions. Private peering typically operates as a commercial agreement between operators, and regulating these arrangements could introduce unnecessary complexity without addressing any significant competitive concerns.

# 3. Infrastructure sharing instructions

We disagree with some of Umniah's key arguments regarding the infrastructure sharing instructions. We cover these topics in detail:

- **Introduction of active equipment:** We oppose Umniah's proposal to mandate active equipment sharing, such as MORAN and MOCN. We also reject Umniah's use of the term 'active infrastructure', as the infrastructure defined under these Instructions refers to all the physical

---

<sup>1</sup> CNMC, 'Definición y análisis de los mercados WLA y WCA fijos', 6th October 2021.

<sup>2</sup> Ofcom, 'Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26. Volume 2: Market Analysis', March 2021.

<sup>3</sup> Umniah Comments Interconnection - Infrastructure sharing - National Roaming, page 14

components that support a network, such as underground ducts or mobile towers, rather than the networks themselves. The active components are part of the network, and the sharing of those components is network sharing, not infrastructure sharing. Mandating active network sharing lacks any international precedent, and introducing such a measure would remove any incentive for operators to invest in coverage and advanced technologies and maintain network quality and differentiation.

- **Exclusive agreements with property owners:** We disagree with Umniah's proposal to classify operators in exclusive agreements as dominant licensees. Such agreements are governed by competitive tendering processes that ensure fair market practices. Mandating sharing in these cases risks creating inefficiencies, reducing incentives for future investment, and disrupting the current market balance.

We also summarise our position on the following topic, noting it is also covered in our original report:

- **Cost-based pricing:** We maintain our recommendation that cost-based pricing should be limited to designated operators controlling essential facilities. For non-dominant operators, market-driven pricing ensures fair access and effective competition.

Finally, we briefly summarise our agreement with Orange's argument on the **risk of disincentivising investment**. Mandating sharing under regulated terms could deter operators from investing in new technologies and network expansion. Commercial agreements should remain the primary mechanism for infrastructure sharing, with regulatory intervention reserved for market failures.

### 3.1 Introduction of active equipment

Umniah's response includes a proposal to include the sharing of active equipment in the regulatory framework. Umniah states that this should include, but not be limited to, elements such as mobile switching centres, backhaul connectivity, and radio access nodes. Umniah also proposes that the extent of sharing of the active radio equipment is defined as either Multi-Operator Radio Access Network (MORAN), where only the RAN equipment is being shared by the operators, or Multi-Operator Core Network (MOCN), in which both the spectrum and the RAN equipment is shared.

Umniah's proposal to mandate active equipment sharing, including models such as MORAN and MOCN, represents a significant and unjustifiable regulatory overreach. Mandatory active equipment sharing is absent from all established regulatory frameworks globally. This is for good reasons, as we detail below. Additionally, an intervention of this type requires clear evidence of market failure and competitive harm, none of which is presented by Umniah. Instead, this proposal would arbitrarily appropriate the investments of one operator for the benefit of another, undermining confidence in the regulatory framework and disincentivising future investments.

#### Fundamental differences between passive infrastructure and active equipment

Active equipment and passive infrastructure sharing differ significantly in their technical characteristics and operational requirements. Understanding these distinctions is critical in evaluating if mandating active equipment sharing is appropriate in Jordan.

Passive infrastructure sharing typically involves non-electronic components of the network, such as towers, ducts, or shelters. This infrastructure can often be shared by multiple operators without compromising the performance of the individual networks. For example, a single tower can house equipment from several operators without affecting their signal quality or operational capacity.

However, this is not the case for active equipment. These resources are inherently finite, so their usage by one operator directly limits their availability to another. For example, active RAN equipment has a

fixed capacity to handle connections and data traffic. This is determined by several factors, such as the spectrum bandwidth allocation, the configuration of the equipment, or the transmission power used.

Mobile operators typically pay close attention to the network dimensioning needs, providing enough capacity to achieve the required quality of service. Sharing the finite RAN capacity with other operators can lead to a reduction in the quality of service for all users, particularly in high-traffic areas. If a base station is configured to handle 1 Gbps of traffic simultaneously, sharing this capacity would mean reduced bandwidth and potentially degraded service for all users during peak times.

Additionally, active sharing requires a much higher level of coordination between the operators compared to passive sharing. Coordination becomes critical to ensure fair usage and avoid disruption. For example, operators would need to manage spectrum allocation and capacity prioritisation. Mobile operators might have different service priorities – for example, one operator may prioritise latency-sensitive services like gaming, while another may prioritise high-speed data for streaming, leading to conflicts that are difficult to resolve in a shared environment. Operating the shared network, therefore, becomes a highly intricate process that can lead to disputes and operational inefficiencies.

### Economic implications of active sharing

Mandating active network sharing would fundamentally disrupt the ability of operators to compete, innovate, and invest in their networks. Such a requirement undermines the economic principles that have driven robust growth and high-quality services in Jordan's telecommunications market.

Investments in active equipment require significant capital expenditure (CAPEX), justified by long-term results. If active resources are mandated to be shared, owning operators must allocate a portion of their network capacity – designed to serve their customers – to competitors, directly reducing their return on investment. Therefore, active network sharing would strip operators of the ability to differentiate their services by investing in unique coverage, advanced technologies (5G, AI-driven network optimisation), or tailored capacity expansion, as they will no longer reap the benefits of their efforts. The result would be:

- An inability for operators to plan or invest in capacity for their own customers' needs, diminishing service quality and innovation.
- A chilling effect on future investments, as operators would be unable to justify significant CAPEX commitments when the benefits of their investments would be arbitrarily redistributed to competitors.
- Over time, a reduced incentive to invest independently could lead to greater dependence on shared infrastructure. Consumers would, therefore, have fewer reasons to choose one operator over another, weakening competitive dynamics.

Operators in Jordan have already made substantial investments under a regulatory framework grounded in sound economic principles and established through rigorous market reviews. These reviews identify areas of competitive failure and guide interventions accordingly. Arbitrarily mandating active sharing without evidence of market failure would devalue these investments, signalling an unpredictable regulatory environment.

Forcing operators to share network capacity and the benefits of their investments with competitors without adequate justification would not only deter investment in the telecom sector but also harm Jordan's overall investment climate. Such a move would act as a strong deterrent to private investors across industries who rely on regulatory consistency and predictability.



These aspects are well understood in international markets, and in no market has there been any move to mandate active network sharing where one investor's network is made available to others. We explore international precedents in the next section.

### International precedent

To the best of our knowledge, there are no regulators mandating active equipment sharing on mobile operators. While some regulatory-driven initiatives for sharing mobile networks can be identified, these are implemented under exceptional circumstances and are in no way equivalent to mandating network sharing:

- **Single Wholesale Networks (SWN):** SWNs are deployed in underserved markets and heavily subsidised by governments or supported by state ownership to achieve universal coverage. They are not comparable to mandatory active sharing in competitive markets like Jordan.
- **Time-limited national roaming:** Used in rare cases to address specific market failures such as merger remedies, these agreements are targeted and temporary. We explore this topic, as well as why this scenario is not applicable to Jordan, a market with near-universal coverage and a healthy competitive market, in our report for the initial phase of the consultation.

While active sharing is allowed in many countries, it is always left to commercial agreements, allowing operators to negotiate mutually beneficial terms. This reflects the understanding that operators are best placed to evaluate the technical and economic feasibility of network sharing in specific market conditions. The approach has multiple benefits compared to mandated sharing:

- **Flexibility:** Operators can tailor agreements to suit their specific needs and operational strategies, ensuring a more efficient and sustainable sharing arrangement.
- **Reduced Conflict:** Voluntary agreements minimise disputes, as terms are agreed rather than imposed.
- **Sustained Investment:** Operators retain control over their infrastructure and are motivated to invest in network expansion and upgrades.

### Jordanian market specifics

Effective regulatory interventions must be based on clear evidence of market failure or inefficiencies that require correction. In the case of Jordan's telecommunications market, no studies or assessments have been done to show that mandating active network sharing would address a market deficiency or lead to measurable consumer benefit.

Jordan's telecommunications market is already characterised by robust competition and a history of independent investment by mobile operators. All major operators in Jordan have built substantial networks, resulting in near-universal coverage and competitive service offerings at affordable prices. This has been achieved without reliance on mandated active sharing.

Therefore, we do not see the need for the introduction of active sharing in Jordan. On the contrary, its introduction could destabilise what is a competitive market, reducing incentives for operators to invest in advanced technologies and creating challenges in maintaining network quality and differentiation.

## 3.2 Exclusive agreements property owners

Umniah's response includes a proposal for the definition of a 'critical property' as a facility (private or public) where Telecommunications Network Facilities are provided exclusively or predominantly by one

or more licensed operators, and it is economically, technically, or procedurally impractical for competing operators to deploy similar facilities. Umniah also suggests that the infrastructure providers in these 'critical properties' should be designated as dominant licensees within the defined geographic boundary of the property and should be subject to the infrastructure sharing instructions.

Umniah's justification is that exclusive agreements between licensed operators and property owners create barriers to entry and exclude competitors from these geographic markets. However, Umniah's proposal fails to account for the market dynamics and commercial processes that govern the infrastructure agreements between mobile operators and property owners.

### Existing market process for mobile infrastructure provision

Telecommunications Infrastructure providers for public and private properties are typically chosen through public tendering processes that are open to all licensed telecommunications operators. This competitive mechanism ensures a level playing field, giving every operator an equal opportunity to secure the project.

The winning bidder(s) of the public tender will then enter into a commercial agreement with the property owner, which can include upfront payments to secure the right to deploy infrastructure on the property, as well as annual or periodic royalties paid to the property owner. The selected operator(s) will be responsible for deploying and maintaining the infrastructure, including Distributed Antenna Systems (DAS), fibre optics, and any other supporting systems. This requires significant capital expenditure, justified by the ability to generate returns through commercial agreements with other operators.

In exchange for their financial commitment, the infrastructure provider(s) are granted the right to monetise their investments by charging other operators who wish to use the infrastructure. This process operates efficiently and is driven by market forces rather than regulatory mandates. Operators must balance their initial investments, ongoing operational costs, and potential revenues from shared usage. Property owners are also incentivised to select providers offering the best combination of technical quality and financial terms, ultimately benefiting end-users with reliable, high-capacity infrastructure.

### Flexibility through retendering

Infrastructure projects are typically retendered periodically, allowing property owners to renegotiate terms or select a new provider if the current agreement no longer meets their needs. Therefore, no single operator can have a permanent monopoly over infrastructure provision. Operators dissatisfied with existing arrangements or those seeking new opportunities can participate in subsequent tenders to win the role of infrastructure provider.

Infrastructure providers are also incentivised to maintain high service quality to avoid losing their contracts during the retendering process. If an infrastructure provider fails to meet service-level agreements (SLAs) or delivers sub-par quality, property owners have the option to select a different provider during the next tender, ensuring accountability for service quality.

### Mandated sharing undermines the existing business model

As discussed in the previous paragraphs, operators who win the bids to provide telecom infrastructure in public and private properties take on substantial financial commitments, both to the property owner (initial payments plus ongoing royalties) as well as for equipment deployment. Infrastructure providers, therefore, take a significant risk when investing in infrastructure, which is justified by the potential for a return on investment through network access fees. Mandating the sharing of the mobile infrastructure on these premises will remove the ability of the winning bidder to make a return in proportion to the risk and investment of bidding for and winning the right to install the network.

Therefore, mandated sharing of infrastructure within public and private properties undermines the existing business model, significantly reducing the attractiveness of bidding for future projects. The infrastructure providers may deprioritise investing in these deployments if they cannot fully capitalise on these investments. Over time, fewer operators may be willing to bid for infrastructure projects, leading to a less competitive market. This could ultimately result in lower-quality infrastructure.

Additionally, mandated sharing can create logistical challenges, including additional layers of coordination and potential disputes, delaying the deployment of infrastructure. Property owners might face prolonged negotiations between operators over cost-sharing or network specifications, slowing the rollout of connectivity solutions for end users.

## Conclusion

The current system ensures that infrastructure providers are selected based on their ability to deliver high-quality, cost-effective solutions, creating a balance between operator incentives and property owner needs. Disrupting this balance with mandated sharing would introduce inefficiencies, potentially harming end-users by slowing innovation and infrastructure upgrades.

Mandating the sharing of infrastructure at public and private properties creates significant financial and operational imbalances. These imbalances unfairly burden the original infrastructure provider, disrupt competitive market dynamics, and reduce the incentives for future investment and innovation.

### 3.3 Cost-based pricing

Umniah proposes that charges for infrastructure sharing should comply with cost-based pricing principles<sup>4</sup>. Our initial report highlighted that cost-based pricing is generally reserved for cases where a Designated Licensee controls essential facilities and there is a risk of anti-competitive behaviour. For other operators, market-driven pricing mechanisms are sufficient to ensure fair access and effective competition. We maintain our recommendation that the TRC explicitly limit the application of cost-based pricing obligations to dominant operators.

### 3.4 Risk of disincentivising investment

We agree with Orange's observation that the proposed Instructions could inadvertently disincentivise efficient investment in telecommunications networks. When operators are mandated to share infrastructure, particularly at regulated terms, their return on investment diminishes. This reduces incentives to invest in innovative technologies or expand network capacity independently.

To address these concerns, we recommend that the TRC prioritise commercial agreements for infrastructure sharing and limit regulatory intervention to scenarios where clear evidence of market failure exists.

## 4. National roaming instructions

In this section, we reiterate why mandated national roaming would be inappropriate in Jordan, highlighting our agreement with Orange's position. Not excluding our arguments against national roaming altogether, we also explain why Umniah's proposal of adopting a cost-based pricing model for national roaming is flawed and should not be implemented. Finally, we discuss how the drawbacks

---

<sup>4</sup> Umniah Comments Interconnection - Infrastructure sharing - National Roaming, page 30

detailed in this as well as our original report can be mitigated by limiting the national roaming obligation to legacy technologies.

## 4.1 National roaming obligation

In our initial report, we concluded that mandating national roaming in Jordan's highly competitive and mature market could lead to unintended consequences, including reduced investment, lower service quality, and diminished competition.

The TRC has not demonstrated a need for mandatory national roaming in Jordan's mature mobile market, where operators already achieve over 99% population coverage and no significant competition issues were found in the 2020 market review. Mandating national roaming risks reducing incentives for network investment and innovation, as operators may rely on shared networks instead of expanding their own. This would slow the rollout of technologies like 5G and harm Jordan's connectivity progress.

Moreover, imposing national roaming would distort fair competition by allowing some operators to benefit from the investments of others without equivalent commitments. This inequity penalises companies like Zain, which have made significant financial efforts to achieve universal coverage, and instead encourages reliance on existing networks. Such a scenario could erode the drive for competition through network differentiation and innovation, key elements of a vibrant mobile market.

Internationally, national roaming mandates are rare and typically reserved for situations of genuine market failure — such as aiding new entrants who have already invested in spectrum and infrastructure in establishing their network or addressing challenges in regional spectrum licensing regimes. Even in such cases, these measures are designed as temporary interventions, often bound by clear sunset clauses, to ensure they do not disincentivise long-term investment. Jordan's mobile market, however, does not exhibit the structural deficiencies that have justified national roaming in other contexts, rendering this measure unnecessary.

The TRC should instead support the use of commercial agreements to govern national roaming, allowing operators to negotiate terms that reflect market conditions and ensure equitable compensation for network access.

Therefore, we agree with Orange's position that the TRC should remove the general obligation for national roaming and should clarify that national roaming may be agreed upon by the mobile operators on a commercial basis.

## 4.2 Charges for national roaming

Umniah has proposed adopting a cost-based pricing model for mobile national roaming<sup>5</sup>, arguing that this approach would ensure fairness and transparency. Such a regulatory approach overlooks key complexities and risks that could disrupt Jordan's telecommunications market. In this section, we explain why a cost-based charging mechanism is inappropriate for Jordan's competitive market.

Cost-based pricing requires detailed calculations that are administratively burdensome and prone to disputes over methodology. Moreover, it risks disincentivising host operators from expanding and upgrading their mobile networks as the returns on such investments become less predictable. In our initial consultation response, we highlighted how negotiated agreements are more effective at ensuring equitable access while preserving incentives for operators to invest in their networks. Similarly, cost-

---

<sup>5</sup> Umniah Comments Interconnection - Infrastructure sharing - National Roaming, page 31

based roaming could disincentivise the roaming operators from expanding their own networks, as they may rely on roaming agreements rather than investing in independent infrastructure.

Commercially negotiated pricing for national roaming also represents international best practice. In our initial response, we benchmarked national roaming practices in 36 countries. Of these, 25 did not mandate national roaming – supporting the arguments made in the preceding section. Of those that did, the vast majority adopted a commercial pricing methodology, including Belgium, Canada, Croatia, Germany, Greece, Italy, Norway, Portugal, Saudi Arabia and the UK.

Norway is a notable example, having explicitly transitioned from a "retail-minus" model to commercially negotiated agreements in which operators to negotiate rates directly, thus encouraging more investment in network infrastructure. This balances regulatory oversight with the flexibility of market-driven pricing, ensuring sustainable competition while incentivising network expansion.

Overall, a market-driven approach to national roaming pricing, supported by a dispute resolution framework, provides a more effective way to balance competition with the need for continued investment in telecommunications infrastructure. However, regulated national roaming should only be considered where market dynamics fail to deliver reasonable outcomes, which is not the case in Jordan.

### 4.3 Limiting national roaming to legacy technologies

As discussed in our initial report, as well as Section 4.1 of this report, mandating national roaming across all technologies poses significant risks to investment incentives and the competitive landscape of the mobile market. Operators may become disincentivized to expand or enhance their networks if these investments are immediately subject to mandatory sharing. As a result, critical investments required for ongoing 4G coverage and network quality improvements, as well as investments in next-generation technologies like 5G, which are in the early stages of development, could be significantly undermined. This would not only delay the rollout of advanced services but also hinder innovation and the long-term competitiveness of the market.

Limiting national roaming to legacy technologies can provide a balanced framework for addressing both consumer and industry needs. Legacy networks remain sufficient to deliver essential services, such as voice and basic data, particularly in remote or underserved areas. At the same time, exempting advanced technologies like 4G/5G from national roaming ensures that operators retain strong incentives to invest in expanding these networks, leading to better quality of service and competitive pricing for end-users.

Therefore, by focusing national roaming obligations on legacy technologies such as 2G and 3G, regulators can ensure that the benefits of national roaming—such as connectivity in underserved areas—are realized without compromising the broader industry goal of promoting innovation and network investment. However, we reiterate that any mandatory national roaming should only be introduced if the TRC demonstrates a clear need for such a measure, which, as noted in Section 4.1, has not been established.



**Aetha Consulting Limited**  
24 Hills Road  
Cambridge  
CB2 1JP  
United Kingdom  
+44 1223 755575  
[enquiries@aethaconsulting.com](mailto:enquiries@aethaconsulting.com)  
[www.aethaconsulting.com](http://www.aethaconsulting.com)

---

**Copyright © 2024.** The information contained herein is property of Aetha Consulting Limited and is provided on the condition that it will not be reproduced, copied, lent or disclosed, directly or indirectly, nor used for any other purpose other than that for which it was specifically furnished.