

VIRTUAL NETWORK OPERATORS' ASSOCIATION OF INDIA**WHITE PAPER****REVITALISING MOBILE VIRTUAL
NETWORK OPERATORS IN INDIA**

*A Case for Mandatory, Time-Bound and Non-Discriminatory Wholesale
Mobile Network Access under the Telecommunications Act, 2023*



Review of the UL(VNO) Licensing Framework, 2016



Experience of Mobile VNO Implementation in India



**International Regulatory Precedents and Recommendations
for the New Authorisation Regime**

**SUBMITTED TO**

- The Chairman, Telecom Regulatory Authority of India (TRAI)
- The Secretary (Telecommunications), Department of Telecommunications (DoT)
- Ministry of Communications, Government of India, New Delhi

**SUBMITTED BY**

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Executive Summary

India introduced the Unified Licence for Virtual Network Operators [UL(VNO)] framework in 2016 after an extensive consultation undertaken by TRAI. The reform recognised that telecommunications competition need not be confined to entities owning radio access networks and spectrum. A VNO can buy wholesale network capacity from a Network Service Operator (NSO), develop differentiated products and address customer groups that may not be adequately served by large vertically integrated Mobile Network Operators (MNOs).

The policy was expected to support service-based competition, innovation, more productive use of telecom infrastructure, specialised offerings, consumer choice, rural penetration and new investment. Almost a decade later, however, India has not developed a meaningful independent Mobile VNO/MVNO ecosystem comparable with mature international markets.

VNOAI submits that the central structural weakness is straightforward: the Government licensed Mobile VNOs and imposed substantial statutory obligations upon them, but did not simultaneously create an enforceable obligation upon an eligible NSO/MNO to provide network access within a defined timeframe and on fair, reasonable and non-discriminatory terms.

The practical consequence was that a VNO could pay entry fees, furnish bank guarantees, maintain licences, invest in systems and manpower, and continue to incur licence-related liabilities while remaining unable to commercially exercise the wireless authorisation because the indispensable upstream input - radio/mobile network access - was not available on an enforceable basis.

The experience of early all-India/multi-service-area VNO investors that pursued mobile VNO implementation with BSNL illustrates the problem. BSNL itself faced technological transition, legacy-network constraints, commercial and operational readiness issues and delayed nationwide 4G capability during the relevant implementation period. The intended commercial rollout of the VNOs did not materialise within a reasonable timeframe, and network/interconnection arrangements were ultimately discontinued.

This White Paper does not seek to assign institutional blame. It asks a narrower policy question: whether the 2016 framework contained sufficient safeguards to ensure that a Government-issued Mobile VNO licence was practically capable of being exercised. The experience suggests that it did not.

The issue is more important in 2026 because India has undergone major mobile-market consolidation. Service-based competition through MVNOs can provide additional consumer choice without requiring another entity to acquire nationwide spectrum or duplicate radio infrastructure. MVNOs can also target rural, low-income, voice-centric, senior-citizen, migrant, enterprise, IoT and other niche segments with specialised propositions.

International experience demonstrates that regulators have used different mechanisms depending upon market conditions. Peru provides a direct statutory-access model with regulatory intervention where negotiations fail. Canada has mandated wholesale MVNO access in response to market power while preserving commercial negotiation of rates. Mexico has used wholesale/open-access infrastructure as a competition and coverage instrument. European competition authorities have imposed MVNO/network-access remedies where necessary. Saudi Arabia maintains an MVNO-hosting framework and continues wholesale-market oversight. Australia and New Zealand demonstrate that lighter-touch commercial models can work where operators actually host competing MVNOs.

VNOAI therefore recommends a calibrated Indian model rather than detailed ex ante retail or wholesale price control:

**MANDATORY ACCESS + COMMERCIAL NEGOTIATION + NON-DISCRIMINATION +
TIME-BOUND ONBOARDING + REGULATORY BACKSTOP.**

The proposed framework would require designated MNOs to entertain bona-fide access requests from authorised Mobile VNOs, publish or follow a TRAI-approved Reference Access Offer, negotiate commercially within a fixed period, provide technology parity on reasonable terms, and submit unresolved matters to a fast-track TRAI mechanism. VNOAI also seeks examination of financial relief for demonstrable periods in which an authorised VNO was prevented from launching solely because qualifying network access remained unavailable.

1. Purpose and Scope of the White Paper

1.1 Purpose

The purpose of this White Paper is to request TRAI and DoT to undertake an evidence-based review of the Indian Mobile VNO framework after approximately ten years of implementation. The review should distinguish between the success of VNO licensing for wireline/enterprise-type use cases and the absence of a meaningful independent wireless Mobile VNO ecosystem.

The Paper focuses on the relationship between an authorised Mobile VNO and the infrastructure-owning MNO/NSO. It examines whether a licence dependent upon an upstream mobile network can remain effective when the owner of that network has no generally applicable obligation to provide access within a specified period.

1.2 Scope

The White Paper addresses the original policy rationale; the 2015 TRAI consultation and 2016 DoT framework; experience of early Mobile VNO implementation; economic incentives of vertically integrated MNOs; Indian market concentration; rural and niche-market opportunities; comparative regulatory models; and a proposed Indian wholesale-access architecture.

It also proposes a framework for retrospective policy learning. Where historical VNOs invested in good faith but were commercially stranded by non-availability or discontinuation of network access, DoT/TRAJ should examine the documentary record, financial burden and regulatory lessons without prejudging contractual disputes.

2. Policy Origin: NTP-2012, TRAI Consultation and UL(VNO) 2016

2.1 Service-based competition

National Telecom Policy-2012 placed competition, affordability, efficient resource utilisation and wider penetration at the centre of telecom policy. VNOs were a natural extension of these objectives because they can introduce additional service providers without requiring each entrant to duplicate spectrum and radio infrastructure.

Service-based competition differs from infrastructure competition. In the former, multiple providers compete through branding, pricing, distribution, customer service, applications and specialisation while sharing an underlying network on wholesale terms. In the latter, each operator builds a separate physical access network. India needs both forms of competition.

2.2 TRAI's 2015 recommendations

TRAJ's recommendations of 1 May 2015 followed stakeholder consultation on introducing VNOs. A central issue was the relationship between the VNO and its host NSO. The framework substantially relied on commercial agreements between them.

Stakeholder concerns included whether access should be mandatory and whether NSOs should be required to provide connectivity within prescribed timelines. The adopted approach relied on the assumption that an NSO would generally have an economic incentive to onboard VNOs because wholesale traffic would extend utilisation of its network. TRAI nevertheless contemplated regulatory intervention if experience demonstrated deliberate delay or consumer harm.

2.3 DoT framework of 2016

DoT subsequently issued the UL(VNO) guidelines on 31 May 2016. The framework enabled entities to obtain VNO authorisations without owning the full underlying access infrastructure.

The VNO was nevertheless a regulated telecommunications licensee. It could be required to pay entry fees, furnish bank guarantees, maintain systems, comply with security and subscriber-verification obligations, meet reporting requirements, comply with numbering and QoS requirements and pay licence-related statutory dues.

3. Structural Deficiency in the Mobile VNO Framework

3.1 Statutory obligations without assured access

For wireless/mobile service, the VNO necessarily depends upon spectrum, the radio access network, mobility functions and associated wholesale facilities of an MNO/NSO. Without those inputs, the VNO cannot commercially provide the very service for which it is licensed.

The resulting imbalance is significant: the VNO's regulatory obligations begin by virtue of the licence, while its ability to earn revenue may depend entirely upon a separate commercial agreement with an incumbent that is also a potential downstream competitor.

3.2 The missing regulatory bridge

The framework did not generally require a qualifying MNO to provide mobile network access to an authorised VNO within a defined period. There was no universal Reference Access Offer, no mandatory negotiation window, no defined onboarding SLA and no automatic regulatory determination if negotiations failed.

Consequently, a valid wireless VNO licence could become commercially inert. This is not a minor implementation detail; it goes to the effectiveness of the authorisation itself.

4. Experience of Early Mobile VNO Investors and the BSNL Onboarding Case

4.1 Entry and investment

Following introduction of UL(VNO), private and international investors entered the Indian VNO market and obtained Access Service authorisations covering multiple service areas. They paid the prescribed entry fees, furnished bank guarantees and invested in telecom systems,

integration, professional support, manpower, offices, billing, SIM/eSIM capability and regulatory compliance.

Two Mobile VNO licensees participated in the BSNL VNO process and were empanelled for intended mobile VNO services. The existence of empanelment and subsequent commercial/technical engagement created a reasonable expectation that commercial implementation would follow within a workable timeframe.

4.2 BSNL's technological and operational context

During the relevant implementation period BSNL was itself undergoing a difficult technology transition. It did not possess a commercially competitive, technically ready nationwide 4G platform comparable with the leading private MNOs. Legacy network elements, integration complexity, commercial processes and internal decision-making affected the pace of VNO onboarding.

For precision, the policy issue should not be characterised simply as 'absence of spectrum'. The more defensible point is that the network and organisation were not in a sufficiently ready nationwide position to enable timely and competitive Mobile VNO rollout.

4.3 Consequence for the VNOs

The intended launch of full commercial mobile VNO services did not materialise within a reasonable period. Meanwhile the licensees continued to face licence-related obligations and investment carrying costs.

Network/interconnection arrangements with the concerned VNOs were later discontinued. Whatever the contractual merits of individual disputes, the episode demonstrates the absence of a regulatory safety net capable of ensuring that a compliant Mobile VNO could obtain an alternative host or invoke a time-bound access remedy.

5. Why Network Access is a Regulatory and Competition Issue

5.1 Not an ordinary procurement input

A VNO cannot respond to refusal of RAN access by simply procuring an equivalent input from a normal competitive market. Building its own nationwide RAN would require spectrum, thousands of radio sites, backhaul, core integration, rights of way, major capital and years of deployment - effectively transforming the business model into that of an MNO.

Network access is therefore the indispensable upstream input to the licensed downstream Mobile VNO service. This makes the availability and terms of access a legitimate subject for regulatory review.

5.2 Vertical conflict of interest

The host MNO faces both a wholesale opportunity and a retail competitive risk. Wholesale capacity sold to a VNO generates revenue, but the same VNO may acquire customers from the

MNO, lower market prices, target profitable niches or introduce services that challenge the MNO's retail strategy.

Where anticipated retail cannibalisation exceeds the expected wholesale benefit, an MNO may rationally prefer not to provide commercially attractive access. This economic incentive explains why voluntary access cannot be assumed to work in every concentrated market.

6. Indian Mobile Market Structure and the Need for Service-Based Competition

6.1 Consolidation

India's mobile market is materially more concentrated than during earlier phases of liberalisation. A number of former operators have exited, merged or become commercially insignificant. The market is now dominated by two large private operators, with Vodafone Idea and BSNL accounting for the remaining national share.

Concentration does not automatically imply anti-competitive conduct. It does, however, increase the public-policy value of alternative competitive mechanisms that do not require the creation of another nationwide radio network.

6.2 Why MVNO competition is efficient

MVNO entry can create additional retail and service innovation using network capacity already deployed by existing MNOs. It does not ordinarily require separate nationwide spectrum assignments or large-scale duplication of towers.

This allows competition to move to the layers where many modern telecom innovations occur: digital onboarding, applications, billing, enterprise integration, specialised customer care, distribution and differentiated tariffs.

6.3 Rural and affordability context

India continues to exhibit a substantial rural-urban tele-density gap. Aggregate subscriber penetration therefore does not establish that every population segment receives services optimised for its requirements and affordability.

Large mass-market operators understandably optimise propositions for very broad segments. Smaller MVNOs can economically focus on defined communities and develop offerings around actual usage patterns rather than forcing each customer into identical bundles.

7. Public-Interest Role of Mobile VNOs

7.1 Niche segments

Potential MVNO segments include rural communities, low-income and voice-centric users, feature-phone subscribers, migrants, senior citizens, students, women-centric safety

propositions, community groups, enterprises, IoT/M2M deployments, fintech, logistics, agriculture and public-service applications.

The policy objective should not be to prescribe a specific low-price tariff. It should be to create conditions in which competing providers are free to discover and serve unmet demand.

7.2 Efficient utilisation of spectrum

Spectrum remains a scarce national resource even when usage rights are assigned to private or public operators. Public policy therefore has a continuing interest in efficient utilisation, coverage, innovation and affordability.

Wholesale MVNO access does not reassign spectrum away from the MNO. The host continues to control and operate the radio network. The mechanism allows additional service providers to monetise capacity and serve differentiated segments using the same physical resource.

7.3 Benefits to host MNOs

A properly designed MVNO ecosystem can also benefit MNOs through incremental wholesale revenue, improved utilisation of spare capacity, lower acquisition cost for certain traffic, enterprise and IoT volumes and reach into niches the MNO may not directly target.

Mandatory access should therefore be structured as compensated wholesale access, not confiscatory access. Investment incentives and reasonable returns must remain protected.

8. International Regulatory Precedents Across Continents

8.1 Canada - mandated wholesale MVNO access

Canada provides a strong contemporary example of calibrated regulatory intervention. The Canadian Radio-television and Telecommunications Commission (CRTC) reviewed the competitive state of mobile wireless markets and concluded that additional wholesale intervention was required. It established a facilities-based wholesale MVNO access regime for eligible regional carriers and designated national carriers, while leaving wholesale rates initially to commercial negotiation.

The Canadian approach is relevant because it recognises that RAN access is indispensable to an MVNO business model. Its architecture also demonstrates a balanced remedy: mandatory availability of the input, commercially negotiated rates, ex ante terms and conditions, eligibility safeguards, a defined regulatory period and arbitration where negotiations fail.

8.2 Peru - statutory access and regulatory intervention

Peru offers perhaps the closest statutory comparator for the reform proposed in this White Paper. Its MVNO legislation obliges mobile network operators to provide access/interconnection to requesting MVNOs subject to wholesale compensation and non-discriminatory conditions.

The implementing framework provides for regulatory intervention where negotiations do not result in agreement within the stipulated period. For India, the key lesson is that commercial

negotiation can remain the first step while the law prevents indefinite refusal by creating a clear regulatory backstop.

8.3 Mexico - competition reform and wholesale/open-access infrastructure

Mexico undertook major structural telecom reforms in response to market concentration. Regulatory measures concerning the preponderant economic agent have included obligations relevant to MVNOs and access to telecom infrastructure.

Mexico's Red Compartida wholesale shared network is also significant. It illustrates the public-policy idea that valuable spectrum and radio infrastructure can be organised as a wholesale platform serving multiple downstream providers, increasing coverage and service-level competition without requiring each retailer to construct a separate national RAN.

8.4 Europe and Finland - targeted access remedies

Europe does not impose a uniform mandatory MVNO access rule across every Member State. Many European MVNO arrangements have emerged through commercial negotiation, demonstrating that lighter-touch regulation can succeed where wholesale markets function.

However, European competition and regulatory practice also shows that access remedies can be imposed where network cooperation, consolidation or market power threatens downstream competition. Finland provides an example where competition remedies included obligatory MVNO access to relevant network facilities.

8.5 Saudi Arabia - MVNO hosting and wholesale market oversight

Saudi Arabia maintains specific regulatory provisions governing MVNO hosting and competition. Its regulatory objectives include clarity, fair and effective competition and development of advanced telecommunications services.

Recent wholesale-market decisions also demonstrate that regulators continue to analyse dominance in mobile wholesale and MVNO-hosting markets. This is relevant to India because it confirms that wholesale mobile access can be treated as a distinct competition market rather than as an entirely private contractual matter.

8.6 Australia - commercial model with competition scrutiny

Australia relies substantially upon commercially negotiated MVNO arrangements, and its market demonstrates that voluntary hosting can work where MNOs find wholesale partnerships commercially attractive.

At the same time, Australian competition analysis recognises that an MVNO's ability to compete depends materially on the wholesale terms it receives and that an MNO may have limited incentive to offer terms enabling a virtual operator to materially erode the host's own retail position. The lesson for India is to judge voluntary access by market outcomes, not by theory alone.

8.7 New Zealand - functioning commercial hosting

New Zealand provides another example of a market where MNO-MVNO hosting has developed without a general access mandate comparable to Peru or Canada.

This is important because VNOAI does not propose mandatory access as a universal ideology. Where voluntary arrangements result in multiple viable MVNOs, lighter regulation can be appropriate. India's question is empirical: after nearly a decade, has the voluntary framework generated a functioning independent Mobile VNO market?

8.8 Africa - infrastructure sharing, inclusion and specialised services

Across African markets, regulators and regional institutions have increasingly considered virtual operators and infrastructure sharing as tools for competition, innovation, digital inclusion and more efficient use of existing networks.

The experience is relevant to India because both regions include large rural populations, major variations in affordability, difficult geographies and substantial underserved or under-served demand. MVNOs can allow specialised providers to address such segments without duplicating national radio infrastructure.

8.9 Asia-Pacific policy guidance

International and regional guidance in Asia-Pacific has recognised that appropriate MVNO and open-access policies can encourage innovative service bundles for different population groups and facilitate downstream competition.

For India, the central lesson is that access policy should be viewed as part of digital-inclusion and market-design policy, not merely as a bilateral commercial matter between two telecom firms.

8.10 Comparative International Matrix

Jurisdiction/Region	Regulatory model	Core mechanism	Lesson for India
Canada	Mandated wholesale MVNO access	Access obligation + commercial rates + arbitration	Mandatory access can coexist with market-based pricing
Peru	Statutory MVNO access	Non-discrimination + fixed negotiation period + regulator intervention	Strong model for time-bound access
Mexico	Structural/open wholesale intervention	Preponderant-operator remedies and wholesale shared network	Spectrum/network can support downstream competition

Europe/Finland	Mixed commercial and targeted remedies	Competition/access remedies when justified	Use evidence-based intervention
Saudi Arabia	MVNO hosting regulation	Wholesale market oversight and dominance analysis	Treat hosting as a distinct wholesale market
Australia	Primarily commercial	Competition monitoring of wholesale dependence	Voluntary model works only where access is genuinely available
New Zealand	Commercial hosting	MNO-MVNO agreements	Light-touch possible with functioning wholesale market
Africa/Asia-Pacific	Infrastructure sharing and inclusion	Policy support for virtual operators and open access	Useful for rural/niche and inclusion objectives

9. Lessons for India from Global Regulatory Models

First, there is no single universal MVNO model. The correct regulatory intensity depends upon the structure and actual performance of the relevant wholesale market.

Second, commercial negotiation should remain the preferred first mechanism. Mandatory access need not mean administratively fixed wholesale prices.

Third, where the essential network input is controlled by firms that also compete in the downstream retail market, a time-bound regulatory backstop may be necessary to prevent constructive refusal or indefinite delay.

Fourth, non-discrimination must include technology and operational parity, not merely a formal right to interconnect. Access limited to obsolete technology can be economically equivalent to denial.

Fifth, the host MNO must receive fair compensation. An access obligation should protect network integrity, security requirements and legitimate investment incentives.

Sixth, regulators should monitor outcomes. The number of licences issued is not an adequate measure of policy success; commercial launch, subscriber growth, onboarding timelines, disputes and wholesale terms are more meaningful indicators.

10. Proposed Indian Mobile VNO Wholesale Access Framework

VNOAI proposes that the new authorisation framework adopt the following core principle:

“Every authorised Mobile Virtual Network Operator shall be entitled to seek wholesale access to the public mobile network of an eligible Network Service Operator in the relevant service area. A designated Network Service Operator shall provide such access on fair, reasonable, transparent and non-discriminatory terms within the prescribed period. The parties shall remain free to commercially negotiate consideration, subject to regulatory intervention where agreement is not concluded within the prescribed period.”

10.1 Scope of access obligation

TRAI should consult on whether the obligation should apply to all nationwide MNOs, only MNOs having Significant Market Power, operators above defined subscriber/revenue/coverage thresholds, or another proportionate category. The objective is to ensure at least one realistic and competitively viable host-network option in each relevant service area.

10.2 Eligible VNOs

Access should be available to authorised VNOs satisfying defined technical, security, financial and operational readiness conditions. Eligibility safeguards can prevent speculative requests while preserving genuine entry.

10.3 Commercial freedom

The access mandate should not automatically dictate a single tariff. Parties should negotiate wholesale rates and capacity models, subject to fair dealing, non-discrimination and a TRAI dispute mechanism.

11. Reference Access Offer, Time-Bound Onboarding and Technology Parity

11.1 Mobile VNO Reference Access Offer (MVNO-RAO)

Each designated host MNO should publish or comply with a TRAI-approved MVNO-RAO covering technical, commercial and operational conditions. The RAO should reduce transaction costs, prevent repeated negotiations over basic terms and allow new VNOs to assess feasibility before committing substantial capital.

- Technical: RAN access, interfaces, interconnection, IMS, VoLTE, 4G/5G, SMS, USSD, data, APN, eSIM, MNP, numbering, emergency services, lawful interception, QoS and testing.
- Commercial: charging architecture, deposits, capacity commitments, usage charges, volume slabs, billing, reconciliation, credit terms, disputes and change management.
- Operational: onboarding stages, fault management, escalation, service levels, planned outages, provisioning, reporting, technology upgrades and business continuity.

11.2 Indicative onboarding timetable

Activity	Indicative maximum period
Acknowledge access request	7 working days
Initial technical information	15 days
Initial commercial proposal	30 days
Commercial negotiation	60 days
Reference to TRAI if unresolved	After 60 days
Technical implementation after agreement	60-90 days
Testing and launch readiness	As per binding implementation plan

11.3 Technology parity

Where a host MNO commercially deploys a material mobile capability for its own retail customers, corresponding wholesale capability should be made available to eligible VNOs within a reasonable technical period and on fair commercial terms. This should include successive technology generations and functionality such as VoLTE, IMS, eSIM, 5G NSA/SA and future network capabilities.

Technology parity is critical because a nominal access right limited to legacy services can become commercially ineffective as consumers migrate to newer technologies.

12. Wholesale Pricing, Margin-Squeeze and Investment Safeguards

12.1 Pricing hierarchy

VNOAI recommends a four-level approach: commercial negotiation first; a Reference Access Offer establishing structure and safeguards; TRAI mediation or regulatory dispute resolution if negotiations fail; and price determination or arbitration only where genuinely necessary.

Potential pricing structures may include capacity-based models, usage-based models, committed-volume arrangements, retail-minus approaches, cost-plus methodologies or hybrid structures. TRAI should avoid imposing one model on all commercial relationships.

12.2 Margin-squeeze safeguard

A formal access right can be neutralised if the wholesale charge leaves no reasonable economic space for an efficient VNO to compete against the host's own retail price. TRAI should therefore retain jurisdiction to examine potential margin squeeze, discrimination or constructive refusal.

12.3 Protection of MNO investment

Mandatory access should recognise spectrum acquisition costs, network capital expenditure, operating costs, security obligations, capacity constraints, technology upgrades and a reasonable return. The object is compensated wholesale access, not transfer of infrastructure value.

Well-designed hosting can strengthen MNO economics by monetising capacity and creating wholesale revenue from customer segments that the MNO might not efficiently target itself.

13. Relief for VNOs Prevented from Launching for Want of Network Access

VNOAI requests consideration of a specific principle for the legacy and future regime: where an authorised VNO has made bona-fide efforts to obtain access, has fulfilled reasonable readiness conditions and is prevented from commencing commercial service solely because qualifying host-network access remains unavailable, minimum recurring financial obligations should be capable of suspension or waiver for the demonstrable period of such access failure.

This principle would not exempt actual revenue from AGR-based obligations. It would address the inequity of imposing minimum statutory financial burdens on an entity that cannot earn revenue because an essential network input contemplated by the regulatory architecture is unavailable.

13.1 Review of historic cases

DoT/TRAI should constitute an appropriate committee or fact-finding mechanism to examine historical Mobile VNO cases. The exercise should review licences, service areas, entry fees, guarantees, empanelment, agreements, network-readiness correspondence, implementation milestones, launch attempts, interconnection/disconnection, licence-fee liabilities, representations and investment losses.

The purpose should be policy learning and appropriate relief where legally justified, not retrospective attribution of blame without examination of the full documentary record.

14. Alignment with the Telecommunications Act, 2023 and New Authorisation Regime

The transition from the legacy licensing framework to the Telecommunications Act, 2023 provides an opportunity to correct the structural weakness rather than reproduce it in new terminology.

The new regime should expressly address wholesale mobile access, time-bound negotiation, non-discrimination, technology parity, security allocation, dispute resolution, regulatory monitoring and treatment of minimum financial obligations where network access is demonstrably unavailable.

A modern authorisation regime should ensure that Government-created service categories are practically exercisable. Regulatory certainty is especially important for international and domestic investors evaluating telecom opportunities in India.

15. Recommendations to TRAI and DoT

15.1 Recommendations to TRAI

- Initiate a suo motu consultation on wholesale mobile network access for authorised VNOs/MVNOs.
- Review the outcomes of the 2015 recommendations and 2016 framework using ten years of market evidence.
- Conduct a wholesale mobile market-power assessment and identify appropriate host MNOs for access obligations.
- Examine RAN access as an essential input for Mobile VNO operation.
- Develop a Mobile VNO Reference Access Offer and standard technical/operational architecture.
- Prescribe a defined commercial-negotiation period, preferably around 60 days.
- Create fast-track mediation/arbitration or regulatory determination where negotiations fail.
- Mandate fair, reasonable, transparent and non-discriminatory treatment.
- Introduce technology-parity and anti-margin-squeeze safeguards.
- Establish annual monitoring of VNO access requests, agreements, launch timelines, disputes and market outcomes.
- Study specialised VNO models for rural, low-income, enterprise, IoT and other niche segments.

15.2 Recommendations to DoT

- Review the practical effectiveness of UL(VNO) wireless/mobile implementation since 2016.
- Examine historical cases in which VNO licensees could not commercially launch or sustain service because of network-access constraints.
- Incorporate an enforceable wholesale-access principle into the new authorisation regime.
- Align recurring VNO financial obligations with demonstrable availability of the essential host-network input.
- Provide appropriate migration and technology-neutral treatment to existing VNOs.
- Coordinate with TRAI on a binding access, onboarding and dispute-resolution framework.
- Use the new regime to strengthen investor confidence that an authorisation issued by Government is practically capable of commercial exercise.

16. Suggested Consultation Questions

- Q1.** Whether the existing framework of voluntary commercial negotiation between an NSO and Mobile VNO has achieved the objectives underlying introduction of UL(VNO) Access Service authorisation?
- Q2.** Whether wholesale RAN access should be regarded as an essential input for an authorised Mobile VNO?
- Q3.** Whether designated MNOs should be required to provide wholesale access to authorised Mobile VNOs?
- Q4.** What criteria should be used for designation: SMP, subscriber share, revenue share, spectrum holdings, network coverage, nationwide operation or another measure?
- Q5.** Whether designated MNOs should publish a Reference Access Offer?
- Q6.** Whether approximately 60 days should be prescribed for commercial negotiations before regulatory intervention becomes available?
- Q7.** What fast-track mechanism should apply where the parties fail to conclude an agreement?
- Q8.** Whether wholesale rates should remain commercially negotiated subject to TRAI arbitration or determination where necessary?
- Q9.** What safeguards should apply against discrimination, constructive refusal and margin squeeze?
- Q10.** Should equivalent 4G, 5G and subsequent technology capability be made available to hosted VNOs within reasonable technical timelines?
- Q11.** How should technical, security, lawful-interception, subscriber-verification, QoS and customer obligations be allocated between MNO and VNO?
- Q12.** Whether minimum licence fee/equivalent minimum recurring obligations should be suspended for verified periods in which an authorised VNO is prevented from launching because qualifying NSO access remains unavailable?
- Q13.** What migration arrangements should apply to existing UL(VNO) licensees under the Telecommunications Act, 2023?
- Q14.** What measures can promote VNO offerings for rural, low-income, voice-centric, enterprise, IoT and other niche segments?
- Q15.** What annual monitoring should TRAI undertake to assess whether the VNO access framework is functioning effectively?

17. Conclusion

The introduction of UL(VNO) in 2016 was a progressive policy decision. The principal problem was not the concept of virtual operators; it was the absence of a sufficiently effective bridge

between Government authorisation and access to the upstream mobile network required to exercise that authorisation.

Ten years of experience now allows India to correct the weakness. This should not be characterised as retrospective criticism of the original TRAI recommendations. Regulation must evolve when market evidence differs from the assumptions on which an earlier framework was based.

India's mobile market has consolidated materially. At the same time, demand is becoming more diverse: rural connectivity, affordable voice, 5G applications, enterprise mobility, IoT, CPaaS, UCaaS, fintech, specialised communities and public-service connectivity. A robust MVNO model can address these needs without duplicating nationwide radio infrastructure.

MANDATORY ACCESS • COMMERCIAL NEGOTIATION • NON-DISCRIMINATION • TIME-BOUND ONBOARDING • REGULATORY BACKSTOP

Such a framework can protect MNO investment, promote efficient use of spectrum, increase consumer choice and restore confidence that an authorisation issued by the Government of India represents a commercially exercisable right rather than merely a licence dependent upon the unrestricted willingness of a vertically integrated competitor to provide the essential network input.

VNOAI therefore respectfully requests TRAI and DoT to undertake a joint review and introduce a fair, reasonable, transparent, non-discriminatory and time-bound wholesale mobile network access framework for authorised Mobile VNOs in India.

Annexure Schedule

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