CIS Submission to TRAI Consultation on "Inputs for Formulation of National Telecom Policy - 2018"

Preliminary

We welcome the TRAI consultation on the National Telecom Policy 2018.

We believe these should be among the objectives of the next NTP.

- To enable inclusion through the provision of telecommunications infrastructure and services that are accessible to all, especially for the most marginalized.
- To maximize the utility of telecom networks by increasing their capacity and throughput.
- To maximize the socio-economic utility of of spectrum and rationalize the regulatory regime.
- To re-energize the telecom sector, and to bring about a shift to a revenue-sharing model of revenue-generation for the exchequer.

NTP-12 does not include any policy mandate for providing accessibility for person with disabilities. The Policy should mandate implementation of systems that would enable better accessibility for persons with disabilities. This could have included formulation of a Code of good practice for manufactures and service providers, conduct surveys and gather statistics on use of telecommunication services by persons with disabilities, etc.

Resource- and infrastructure-sharing

Resource- and infrastructure-sharing among telecommunications companies and applications is crucial to ensure both efficiency of usage of a limited resource (whether it is cabling in underground ducts, or spectrum, or telecom towers), as well as to lower telecommunications costs (especially capital expenditure cost) and lowering barriers to entry, reducing

environmental costs, and to maximize the benefits for consumers.[1] Efforts must be taken to enable greater sharing of resources and infrastructure, without there being a negative impact on competition.[2] As a telecom scholar points out, "[O]perators will sometimes share the cost of digging or deploying passive infrastructure, but will lay their own fiber lines, which allows them to engage in full, facility-based competition. In these cases, there is no risk of coordination, as networks based on multiple fiber lines ensure that access seekers can obtain full control over them. Under such conditions, co-investment agreements are more likely to lead to timelier and more intense competition on the downstream market."[3] For this, the separation between infrastructure and service must be maintained, with focus of competition at the service end with infrastructure being largely common. This is managed differently in different countries.[4] Keeping all this in mind, we suggest that Strategies E(b) and F(c) be re-worded to say, "By promoting both passive and active sharing of telecom infrastructure and resources among telecom service providers, while ensuring that doesn't lead to a decrease in competition, and where appropriate making certain forms of infrastructure sharing mandatory."

Among the resources that require sharing is spectrum. In 2015, DoT guidelines allowed liberalised spectrum to be shared among operators

Modernizing spectrum management

We are happy to note that the strategy of "ensuring adequate availability of contiguous, broader and globally harmonised spectrum" is listed under Strategy D(u). There are many opportunities for harmonisation of spectrum usage in India vis-a-vis global usage. For instance, currently in India, only 50 MHz of spectrum has been earmarked for unlicenced use outdoors in the 5 GHz band (5.825 GHz to 5.875 GHz). There is no rationale for this distinction between indoor and outdoor use, and this limits the usage of Wi-Fi outdoors. The US has delicensed 580 MHz in the 5GHz band which allows for the IEEE 802.11ac standard to be used on it, whereas India has only delicensed 300 MHz, whereas 1280 MHz is what is dictated by needs.[5] At a minimum 580 MHz (3x160 MHz) ought to be made available for unlicensed used.

1 GSMA, "Mobile Infrastructure Sharing," 2008, https://www.gsma.com/publicpolicy/wp-content/uploads/2012/09/Mobile-Infrastructure-sharing.pdf.

2 José Carlos Laguna de Paz, "How Cooperation Between Telecom Firms Can Improve Efficiency," The Regulatory Review, June 25, 2015, https://www.theregreview.org/2015/06/25/laguna-telecoms-cooperation/.

3 *Ibid*.

4 Jan Markendahl, Amirhossein Ghanbari, and Bengt G. Mölleryd, "Network Cooperation between Mobile Operators : Why and How Competitors Cooperate?," in *DIVA*, 2013, http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-134358.

5 Parag Kar, "Response to TRAI's Consultation Paper on Proliferation of Broadband through Public Wi-Fi Networks" (Qualcomm, August 10, 2016),

Additionally, delicensing the 60 GHz band would bring us in line with global regimes,[6] where at least 19 countries have delicensed the 60 Ghz band for both access as well as backhaul purposes.[7] The 60GHz band is ideal for delicensing since it there is virtually no interference since due to oxygen absorption and narrow antenna beam width the transmission distances are short. We also need to liberalize the 70 and 80 GHz bands to enabling lower cost access for these frequencies to extend fibre connectivity where necessary by using other means, includin through aerial systems.

While under Strategy D(v), TRAI proposes the "earmarking [of] unlicensed frequency bands periodically for operation of low power devices for public use", it should instead be "earmarking *unused, underused, and unlicensed* frequency bands periodically for public use, with licence-exemption and light-licensing where possible, with safeguards to prevent interference". Even bands that have been allocated under the NFAP and licensed may lie unused or underused as well. According to a study by IIT-Hyderabad, unused TV spectrum in India amounts to between 85%-95% of the total TV spectrum. A large swath of 115 MHz — from 470 to 585 MHz — lies unused, and is available for alternative uses. Waiting for an ecosystem to develop around the 470- 698 MHz band,[8] is harming the government's vision of Digital India and an urgent course correction is needed. As we have argued in the past, "[w]hereas Digital India needs low-cost wireless broadband, especially for long-distance links in rural India, because of the high cost and difficulty of building and maintaining fibre or wired networks in difficult terrain, and/or in sparsely populated areas. Therefore, access to TVWS needs to be bundled with BharatNet, and other shared backbone networks like ERNET. Policies should permit different network design scenarios including transmission power and purpose. Point-to-point links are needed over long distances in place of fibre or microwave, and broad coverage is needed for contiguous areas like industrial developments, campuses, commercial complexes, or rural communities ... TVWS does need tight radio filters (unlike Wi-Fi) to minimise interference, the underlying consideration that drives spectrum management. There's also need for varying power specifications depending on the network design and purpose as described above, and policies for unlicensed sharing using geolocation databases, as defined by the US FCC."[9]

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http://www.trai.gov.in/sites/default/files/20160901102254291662 1Qualcomm_india_pvt_ltd.pdf.

6 See ITU-R Report "ITU-R M.2227 (11/2011)" and ITU-R Recommendation "ITU-R M.2003-1 (01/2015)" on "Multiple Gigabit Wireless Systems in frequencies around 60 GHz".

7 Broadband India Forum, "V Band - 60 GHz: The Key to Affordable Broadband in India" (Broadband India Forum, 2016), http://www.broadbandindiaforum.com/img/White%20Paper%20on%20V-BAND%20Revised%20Final.pdf.

8 Varun Aggarwal, "DoT Says No to Releasing TV White Space Spectrum, Clarifies It Is for Experiments," The Hindu Business Line, June 16, 2016, http://www.thehindubusinessline.com/info-tech/dot-says-no-to-releasing-tv-white-space-spectrum-clarifies-it-is-for-experiments/article8737575.ece.

9 Shyam Ponappa, "The Buzz around TV White Space," *Business Standard*, November 4, 2015, http://www.business-standard.com/article/opinion/shyam-ponappa-the-buzz-around-tv-white-space-115110401618_1.html.

Further, following the lead of the FCC in the USA, and Ofcom in the UK, we in India should exempt low-power usage across all spectrum bands. The approach followed by Ofcom (which allows for powers between -90 dBm/MHz to -41 dBm/MHz (and on a sloping gradient from 10.6 GHz onwards), may be recommended. To reflect this, a strategy statement to "explore greater exemptions from licensing requirements where possible, including for low-power spectrum usage", would be helpful.

The NTP should also lead the way in encouraging the government and the regulator to look to new ways of managing licence-exempt use of spectrum, as has been done, for example, in the UK.[10] This allows for a movement away from power-oriented regulations to regulation on the basis of interference. For instance, shared spectrum databases may allow for coordinated usage of higher power but without interference. Further, this allows for bands to be categorized not by usage, but by transmit powers and duty cycles.

Accessibility

One of the lacunae in the NTP-12 is its lack of any policy mandate for providing accessibility for person with disabilities.[11] NTP-18 should not make the same mistake. The NTP should mandate implementation of systems that would enable better accessibility for persons with disabilities. This should include formulation of a code of good practice for manufactures and service providers, conducting surveys and gathering statistics on use of telecommunication services by persons with disabilities, etc.

Revenue maximization

We believe that Strategy D(r) ("reviewing the objectives of spectrum management to maximise socio-economic gains") should explicitly mention that revenue maximization should not itself be a goal, since that may harm the socio-economic gains to be had from optimal usage of spectrum. We believe that it should be made explict that "ensuring revenue maximization for the exchequer will not be the main aim of spectrum management policy". Auctions, which find mention in TRAI's recommendations, ne — to favour a model of revenue sharing[12] — and at the least they need to be structured in such a manner as to avoid the "winner's curse".[13]

10 "Better Managing Licence-Exempt Usage," Ofcom, October 7, 2016, https://www.ofcom.org.uk/research-and-data/technology/radio-spectrum/exempt.

11 Snehashish Ghosh, "National Telecom Policy 2012 — Issues and Concerns," The Centre for Internet and Society, June 30, 2012, https://cis-india.org/telecom/national-telecom-policy-2012.

12 David E. M. Sappington and Dennis L. Weisman, "Revenue Sharing in Incentive Regulation Plans," *Information Economics and Policy* 8, no. 3 (September 1, 1996): 229–48, https://doi.org/10.1016/0167-6245(96)00010-8.

13 Shyam Ponappa, "Richard Thaler's Views on Auctions," *Business Standard*, November 1, 2017, http://www.business-standard.com/article/opinion/richard-thaler-s-views-on-auctions-117110101558_1.html.

Revenue-sharing, which was followed after NTP-99, allows for a more sustainable form of revenue generation for the government, while having transparent allocation systems or auctions designed in a manner not oriented towards maximizing the generation of auction proceeds for the government.[14] Just as increasing the USO fund by itself cannot be a goal — ensuring universal service is the goal — similarly, the generation of tax revenue by itself cannot be a goal.

Patents pools, local manufacturing, and cost of devices

Under "Strategies to become net positive in international trade of telecommunication systems and services", the consultation paper proposes financial incentives for development of SEPs, as well as "incentivising local manufacturing of network equipment and devices" as strategies. One concrete strategy to incentivise local manufacturing of telecommunications equipment and devices is to create government-controlled patent pools,[15] which can be used to ensure that patent-holders are paid a royalty on SEPs while also lowering the transaction costs and legal uncertainty for local device manufacturers, and ultimately lowering the price of devices for customers.[16] Private patent pools do not sufficiently take care of the legal risks created to manufacturers. If government intervention is not done, then Indian manufacturers will end up embroiled in legal battles as we have seen with Micromax, and others. CIS has provided a very detailed submission on TRAI's Consultation Paper on Promoting Local Telecom Equipment Manufacturing.[17]

Internet interconnection and data centres

While under "Strategies to establish India as a global hub for data communication systems and services", the problem of Internet interconnection is brought up, but the strategies don't mention what needs to be done. One of the problems facing India currently is a low level of peering interconnection agreements and a high cost of transit interconnection agreements. This results in a higher cost of Internet for everyone. This needn't be so. The NTP could establish that there should be no licensing required for running an interconnection point. Currently, there is a lack of clarity on the matter, with contrary suggestions having been provided by Trai in the past. Further, the NTP and that existing interconnection exchanges like NIXI should not discriminate between licensed telecom operators and unlicensed cotent

14 Shyam Ponappa, "Breakthroughs Needed for Digital India," *Business Standard*, April 6, 2016, http://www.business-standard.com/article/opinion/shyam-ponappa-breakthroughs-needed-for-digital-india-116040601241_1.html.

15 Sunil Abraham, "Letter for Establishment of Patent Pool for Low-Cost Access Devices through Compulsory Licenses," The Centre for Internet and Society, accessed January 19, 2018, https://cis-india.org/a2k/blogs/letter-for-establishment-of-patent-pool-for-low-cost-access-devices.

16 Nehaa Chaudhari, "Pervasive Technologies: Patent Pools," The Centre for Internet and Society, accessed January 19, 2018, https://cis-india.org/a2k/blogs/patent-pools.

17 Anubha Sinha, "Comments on TRAI's Consultation Paper on Promoting Local Telecom Equipment Manufacturing" (Centre for Internet and Society, November 13, 2017), http://www.trai.gov.in/sites/default/files/CentreInternetSocietyIndia_CP_PLTEM.pdf.

providers, since it is crucial that the latter also be present at interconnection exchanges, and interconnection exchanges will not flourish unless the hurdles put in place, which favour incumbents, are reduced.
It is worrying that TRAI has suggested establishing a "licensing and regulatory framework for cloud service providers" (Strategy H(a)). While cloud service providers are subject to the regulations provided in the IT Act, and other legislations in India, they currently are not subject to any licensing requirements. No rationale has been provided by TRAI for this suggestion, and it would kill innovation in the sector, and would inhibit the emergence of India as a global hub for data communications systems and services. Similarly, while an overarching data protection and security legislation needs to be in place, the suggestion of a "licensing and regulatory framework for IoT/ M2M service providers" (Strategy G(a)) is worrying, and there is no suitable rationale for having licensing in this space, which will only serve to curb innovation without any corresponding or suitable benefit accruing to the public.

Given that telecommunications isn't an end in itself, but is a means to an end, one of the missions of the NTP could be:

- To enable inclusion through the provision of telecommunications infrastructure and services that is accessible for all, especially for the most marginalized, including those who are disabled, those who live in remote areas, those who are illiterate, scheduled castes and scheduled tribes, women, and transgender communities.

Once again, we are grateful to TRAI for having provided this opportunity to comment.