The role of fair access to communications channels in the digital economy

In a digital economy, fair access to communication channels plays an important role in fostering inclusion in the economy by preventing owners and operators of communications infrastructure and networks from unfairly discriminating in their provision of wholesale and retail services.

The brief, written in close collaboration with Macmillan Keck, seeks to identify specific attributes of fair access to communications channels that can help policymakers and regulators build a digital economy that includes — and serves — everyone.

BRIEF

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Summary

Fair access to communications channels refers to whether, and under what circumstances, telecommunications companies can discriminate with respect to the provision of infrastructure, services, and network traffic to their customers. Interconnection of different forms of electronic communications generates substantial social and economic benefits. An enabling policy and regulatory framework that ensures fair access to communications channels can help to address market failures and ensure the full realization of these benefits. Prominent examples of fair access to communications channels include interconnection of and access to electronic communications networks, access to mobile channels by digital financial service (DFS) providers, and non-discriminatory treatment of Internet traffic by Internet Service Providers.

Considerations while reading this brief

1. Which challenges related to fair access to communication channels and the digital economy are most prominent in your market, both a) in general and b) for underserved groups such as women and low-income people?

2. Do fair access to communication channels regulations in your country address:
   - **Digitization:** The application of fair access to communication channels regulation to the digital economy?
   - **Inclusivity:** The specific fair access to communication channels challenges faced by women, low-income people, and/or other underserved groups?

3. Which entities are responsible for regulation of fair access? Are responsibilities clear, and are mechanisms in place to avoid regulatory arbitrage? If not, how could this be improved?

Why fair access to communications channels?

The world's electronic data, including electronic communications, is transmitted over a vast global network of interconnected and interoperable infrastructure and facilities. Broadband policies ensure that there is sufficient network infrastructure to support this transmission. Fair access to communications channels aims to prevent owners and operators of communications infrastructure and networks from unfairly discriminating in their provision of wholesale and retail services.

How has fair access been applied to communications channels?

Fair access to communications channels is relevant across many layers of electronic communications infrastructure and networks. This briefing paper focuses on three examples: network interconnection and access to facilities, mobile communications channels used for DFS, and provision of over-the-top (OTT) services.

Network interconnection and access to facilities

Network effects and interconnection

Individual users that belong to a single communications network, such as the network of a particular mobile network operator ("***MNO***") or a social media app, are all connected and therefore able to communicate with one another through that network. Networks benefit from ***network effects***, meaning that a network's value generally increases as more users join it because, in the case of a communication network, increased size enables more users to communicate with one another.[1] Network effects are an important benefit of a globally connected world and one reason behind the positive social and economic dividends resulting from the growth of the Internet.

Users may want to communicate with users of other networks, such as those subscribed to a different MNO. ***Interconnection*** involves the physical linking of cables and equipment and the logical linking of information and signalling systems and related software to allow users of one network to communicate with users of a different network, and to access services provided by another.[2] In telecommunications, policymakers and regulators want to facilitate interconnection among networks in order to allow competing networks to enter the market and, when interconnected with other existing networks, effectively increase the size of the combined network so that anybody can communicate with anybody.

In the absence of interconnection, where one network is substantially larger than others, particularly if it entered the market earlier, its owner might reason that it has a competitive advantage over the smaller, newer networks because its customers can communicate with the larger number of other customers on its network.[3] Under such circumstances, the larger network might refuse to interconnect or do so only on terms that favour itself. Even if all networks would benefit from interconnection due to network effects,[4] this perspective can impede effective interconnection in practice.

For this reason, almost all telecommunications regulatory frameworks impose an obligation on network operators to interconnect with other providers. In some countries, this applies ***symmetrically***

(to all licensees). In others, such an obligation applies ***asymmetrically*** (only to those deemed to have ***significant market power*** or ***SMP***, sometimes referred to as dominant).[5]

SMP is often conceptualised in terms of the operator's ability to change prices, quality, quantity, or terms and conditions without being constrained by competition or by the customer. Depending upon the jurisdiction, the regulatory obligations for interconnection of voice services may apply if the operator has SMP overall in the whole telecommunications market or in the specific market for termination of calls to customers on its network. As a practical matter, and with virtually no exceptions, telecommunications networks in every country are now interconnected.[6]

Access to facilities and wholesale services

Some electronic communications facilities owned by a network operator may, for economic, legal, or technical reasons, be impossible as a practical matter for a competitor to duplicate or otherwise obtain. For instance, the ***local loop*** (sometimes also called the ***last mile***), meaning the fixed connection from the network's local exchange or distribution frame to the customer's premises, is often too costly for a competing operator to duplicate profitably. Zoning and environmental laws may prohibit building of more than one tower for mobile antennae in an area. As a technical matter, there may be insufficient space to bury more than one duct for telecommunications lines running along a road, or a tower may not be able to hold more than a limited weight of antennae.

Where a competitor depends on access to such facilities to provide its services, competition law and economics may regard them as ***essential facilities***.[7] The failure of the owner of an essential facility to make it available to competitors may be viewed as an abuse of dominant position in violation of competition law.

Similarly, a dominant supplier of wholesale services may be able to unfairly raise the price of such services, or even deny access to them altogether. For instance, an incumbent telecommunications operator might control the vast majority of fibre optic cables usable for telecommunications services in the country. It might be viewed as therefore having SMP in the wholesale market for dark fibre (i.e., where the competitor leases the fibre but supplies its own electronics) and for leased line capacity services (using the electronics and other network facilities of the owner).

Competition law punishes violations that have occurred in the past (referred to as ***ex post***). In contrast, telecommunications regulation is proactive in prescribing in detail in advance (***ex ante***) when telecommunications operators must permit their competitors to have ***access***[8] to their telecommunications facilities[9] and wholesale services. In telecommunications regulation, such obligations will often apply to an entity which the regulator has identified as having SMP in a relevant market for the provision of certain types of facility (e.g., dark fibre) or wholesale service (e.g., leased lines capacity).[10] The purpose of such regulation is typically to encourage competition in the downstream retail communications services markets that use such facilities or wholesale services and without which such competition would emerge more slowly or not at all.

Regulation of access to facilities and wholesale services is closely related to regulation of interconnection. Indeed, interconnection is in many jurisdictions treated as a form of access because it involves one operator permitting a second to access and use the network of the first to communicate with its customers.[11] In the case of voice services, such access is often conceptualised as a wholesale service of terminating calls from the second operator's customers to the customers of the first, and vice versa.

Regulation of interconnection and access

Regulation of interconnection and access to facilities and wholesale services typically involves obligations to negotiate an agreement and a means of resolving a failure to reach agreement. Agreements typically must be on terms that are non-discriminatory, have prices bearing some relation to the cost of providing the access, and do not require bundling of additional facilities or services that the operator seeking access does not need or want.[12]

An operator requiring access to another network (for interconnection or facilities or other wholesale services) will ultimately have to pass any charges for such access through to its customers. If the supplier charges the competitor prices that exceed the supplier's own costs, then the supplier may have a competitive advantage in the downstream retail service markets because it will have lower costs than competitors. As a result, regulation has become stricter as markets have developed and regulatory lessons have been learned, ensuring that the supplier may charge only the costs it incrementally incurred to furnish the access.[13]

Calculating costs involves expensive expertise, time-consuming processes, and multiple possible methodologies. Smaller and lower-income jurisdictions seeking to ensure access to low-cost services often rely on benchmarking, using prices from other jurisdictions as references, adjusted to account for differences in GDP per capita and other factors.

An SMP operator may also be obligated by regulation to publish a standard offer to competing providers setting out the terms and conditions of interconnection (a ***reference interconnection offer, or RIO***).[14] Where the regulator has deemed it necessary to foster competition, operators may also be required to provide a standard offer for access to facilities and other wholesale services (a ***reference access offer, or RAO***). Such reference offers, including pricing, typically will have to be pre-approved by the telecommunications regulator. This assists competitors in a situation of asymmetric bargaining power.

In some countries, the regulatory regime will not impose substantial interconnection and access obligations on network operators that do not have SMP, leaving them to enter into voluntary commercially negotiated agreements.[15] More developed markets have, until recently, tended to view all operators as having SMP in the more narrowly defined market for termination of calls to their own customers, thereby subjecting all operators to regulation.[16]

Where a reference offer does not exist and operators must negotiate interconnection and access with one another, whether in accordance with regulatory obligations or not, there is a risk that they will not reach agreement. This risk is higher if an

SMP operator wishes to avoid or delay interconnecting, or to interconnect on terms that may leave the other operator at a disadvantage in the downstream retail market. For these reasons, regulatory frameworks typically provide procedural protections and dispute resolution mechanisms enabling the regulator to resolve failures to reach agreement.[17]

A global legal framework has emerged to facilitate interconnection.[18] The World Trade Organization General Agreement on Trade in Services (GATS) provides international requirements associated with trade in telecommunications services, including interconnection.[19] The ITU also has developed standards for equipment, network operation and communications routing to facilitate the technicalities of interconnection.[20]

Mobile communications channels used for DFS

Fair access to certain communications channels is particularly important for inclusion both with respect to telecommunications services as well as services for which they are used, such as DFS. In many lower-income countries, particularly those in which mobile internet access is not yet widespread, DFS are provided over the ***USSD***[21] and ***SMS***[22] channels controlled by MNOs. Such operators sometimes offer their own DFS (or services offered by their related parties) to their subscribers through these channels. However, competing providers, such as banks and other financial service providers, also require access to these channels to deliver services to their own customers.

The traditional interconnection and access requirements mandated by telecommunications regulatory frameworks described above typically do not apply to these channels or to relationships between MNOs and other types of entities. As a result, MNOs that control access to those channels, particularly those with SMP, may have an incentive and an opportunity to deny, limit, or overprice access to or degrade quality of service offered to competitors. To avoid these problems, some non-operator digital financial service providers have gone as far as obtaining their own telecommunications licenses to gain access to these channels.[23] Payment aggregators (businesses that serve as intermediaries connecting payers, payees, and multiple payment providers) have also stepped in to facilitate cross-network payment flows,[24] yet they also face similar challenges due to their lack of bargaining power over access and pricing.

Over the last decade, telecommunications regulators, competition regulators, and courts have acted to limit the ability of MNOs to leverage their control over these channels to restrict competition in DFS. For example, the telecommunications regulator in Colombia has mandated access to USSD.[25] The Competition Authority of Kenya required the dominant MNO Safaricom, which offers its own M-Pesa mobile money service, to increase transparency and lower pricing of access to USSD services.[26] And a Ugandan court ruled that MNO MTN's provision of access to USSD channels constituted anti-competitive behaviour under the Communications Act.[27]

Provision of OTT services

Over the last decade, companies providing ***over-the-top (OTT)*** internet services (those where providers do not own networks but provide services over the internet) have increasingly come into conflict with

internet service providers (ISPs)[28] that provide Internet access to customers and may also control the underlying network infrastructure.

In some cases, dominant ISPs have discriminated against OTT services. Some ISPs have ***blocked*** access to such services, such as Voice over Internet Protocol (VoIP) services like WhatsApp and Skype that competed directly with ISPs' traditional voice services.[29]

Concerns have also been raised about ***throttling***, or reducing the rate at which the OTT content is transmitted. Another concern is that dominant ISPs might engage in degradation, or reducing quality of data transmission.[30]

Lastly, there have been concerns that ISPs may establish ***paid prioritization*** or ***fast lanes*** that could 1) require OTT providers to pay a premium price for high-speed access to retail customers; and/or 2) provide an unfair advantage to dominant OTT providers who can afford to pay for fast lanes.

Blocking, throttling, degradation, and paid prioritization may in some regulatory regimes be viewed as violating ***net neutrality***, a principle that requires network operators to treat all content equally and not discriminate in pricing or service quality.

Many OTT providers and other stakeholders have argued that net neutrality rules are necessary to curb anti-competitive behaviour by ISPs and that in the absence of net neutrality principles, the digital economy will lose its dynamism and ultimately will result in less economic growth. For example, if dominant content providers can pay for "fast lanes," this could represent a barrier to entry in a range of horizontal digital markets.[31] Similarly, if an ISP owns its own subscription video entertainment service, it may have an incentive to restrict access to competing OTT video subscription services.[32]

At the same time, it is generally considered appropriate for ISPs to discriminate with respect to certain types of lawful Internet traffic. For example, emergency voice services require high quality transmission that may need to be prioritized. Furthermore, where there is limited available bandwidth, it may be necessary to ensure equitable access by all subscribers, perhaps through tiered pricing or other methods of efficient bandwidth allocation.[33]

Many academics and civil society groups worry that separating internet content into separate digital ecosystems, where global OTT providers or ISPs can control or "curate" the information available to subscribers and content providers, is fundamentally inconsistent with a free society.[34] ISPs argue that product differentiation (for example by providing premium service at higher prices to enterprise users and lower quality budget services to casual consumers) increases the value of broadband infrastructure and creates a market incentive for greater investment. Strict net neutrality rules, the argument goes, reduce consumer choice (by prohibiting budget products) and result in slower broadband development.

Jurisdictions have taken different approaches to net neutrality, with some embracing it, some rejecting it, and others taking a hybrid approach. Chile's net neutrality legislation forbids arbitrarily distinguishing content, applications, or services based on their source.[35] The

European Union has adopted rules mandating net neutrality.[36] In Singapore, while outright blocking is prohibited, niche or differentiated service offerings are permitted so long as minimum transparency and quality of service standards are met.[37] The United States has grappled with this issue, with the Federal Communications Commission first adopting a prohibition on blocking, throttling and degradation of content,[38] which was repealed two years later after network operators argued that it discouraged investment and that existing competition laws were sufficient to address any discriminatory behaviour.[39]

How do institutions support fair access to communications channels?

Telecommunications regulators

Telecommunications regulators are the primary regulatory bodies responsible for ensuring fair access to communications channels. In addition to interconnection and access regulation, which is a core regulatory function for the telecommunications sector, the telecommunications regulator often has primary jurisdiction over net neutrality requirements, especially where net neutrality is required by statute or regulation. For example, in the European Union, Member State telecommunications regulators enforce the EU's open Internet access requirements which mandate net neutrality.[40] Telecommunications regulators also sometimes regulate pricing of mobile telecommunications channels. For example, the Ugandan Communications Commission (UCC) has reviewed pricing of and access to MNO-controlled USSD channels,[41] and India regulates USSD pricing.[42]

Other regulators

In many jurisdictions, competition regulators play a role in regulating access to communications channels, particularly when these relate to Internet access or DFS, as the telecommunications regulator's role is often limited to regulating telecommunications operators. For example, competition regulators have led the way in addressing problems associated with access to USSD and SMS channels for DFS in Kenya and Zambia.[43]

International bodies may also provide enforcement mechanisms for access to international communications channels. In one well-known case involving Mexico and the United States, a WTO panel found that Mexico's domestic laws violated the rights of US suppliers of international cross-border communications services, including voice telephony, circuit-switched data transmission, and facsimile services.[44]

Emerging issues

Zero-rating

Zero-rating by a network operator refers to the practice of providing customers with free or subsidized access to a limited set of Internet services. There may be good reasons for this. For example, telecommunications laws around the world often require operators to provide access to emergency services for free.[45] In addition, some zero-rated services provide a public service. For example, in South Africa, the Siyakha platform provides school pupils and job seekers with certain types of cost-free data.[46] South Africa also issued guidance in June 2020 enabling any provider of free educational or COVID-19 health-related content to be approved for zero-rated access to enable students to continue to

learn remotely in order to limit the spread of COVID-19.[47]

Other zero-rated services that grant access to particular platforms have generated controversy. For example, Facebook's Free Basics provides owners of SIM cards from participating MNOs access to certain websites free from any data charges. In addition to a special version of Facebook, subscribers can access news, weather and other websites.[48] Zero-rating became quite controversial, with proponents arguing that it resulted in greater Internet uptake and expanded access to broadband, and opponents calling it "the antithesis of net neutrality and a distortion of markets."[49] In 2015, a collection of civil society groups in India mounted a successful opposition to Facebook Free Basics by arguing that zero-rating gave big tech too much power to act as a gatekeeper to the Internet, resulting in suppression of innovation and reducing access to information. Zero-rating was banned by India's telecommunications regulator in 2016.[50]

Most jurisdictions recognize that zero-rating can provide economic benefits, but at the same time can encourage dominance and distort the development of new digital ecosystems. Some jurisdictions, most notably India, have banned zero-rating outright, but this is a minority position. Many jurisdictions, including Japan, Korea and the United States do not have specific zero-rating prohibitions, but such practices can still be reviewed for ex post competition restriction by horizontal competition regulators or communications regulators. Australia and New Zealand have long accepted zero-rating practices but found the issue to be a transitory one as subscriber data caps outgrew the incentive to use zero-rated apps designed for minimal data usage. In many developing countries, zero-rating is widely popular. For example, in Colombia, the communications regulator has permitted zero-rating of banking, financial inclusion, corporate email and language training apps that assist employees to be more efficient and effective at work.[51]

Network slicing

Network slicing refers to the creation of virtual separations between different parts of a network, facilitating efficient allocation of bandwidth among competing uses. Different network services require different technical features. For example, it might be optimal to allocate the fastest "slice" of the network to critical applications like virtual surgery, a slower "slice" to low-priority machine-to-machine applications like utility meters, and a medium "slice" to ordinary mobile broadband usage. Next-generation mobile technology, known as ***5G***, permits network operators to assign traffic more efficiently to allow these different services to use available bandwidth in an optimal manner.

However, there have been concerns that network slicing could inadvertently violate existing net neutrality requirements because some applications would receive priority treatment over others. Well-designed regulatory frameworks such as the EU's already provide exceptions for reasonable traffic management, which should sufficiently address concerns associated with network slicing.[52] Going forward, the scope of what constitutes "reasonable" traffic management is likely to become increasingly important in jurisdictions that regulate net neutrality as wireless networks begin supporting increased use cases, such as the Internet of Things (IoT).[53]

Additional resources

Resources for further reading

- Net Neutrality Legislation: A Framework for Consensus (Internet Society 2019)
- Network Neutrality, Broadband Discrimination (Journal of Telecommunications and High Technology Law 2003)
- Promoting Competition in Mobile Payments: The Role of USSD (CGAP Feb 2015).
- European Commission, Report from the Commission to the European Parliament and the Council on the implementation of the open internet access provisions of Regulation (EU) 2015/2120 (European Commission 2019)
- The Effects of Zero Rating (OECD Jul 2019)

Notes

[1] In economic terms, network effects are generally considered to be a positive externality. There is a wide literature on network effects. For a recent survey of network effects in the context of the digital economy, see generally C. Yoo, Network Effects in Action, in Report on the Digital Economy 159-89 (The Global Antitrust Institute 2020). Available at https://gaidigitalreport.com/wp-content/uploads/2020/11/The-Global-Antitrust-Institute-Report-on-the-Digital-Economy_Final.pdf.

[2] In more technical terms, interconnection is the "linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier." World Trade Organization, Reference Paper on Basic Telecommunications, Annex to the Fourth Protocol to the GATS Agreement, the Agreement on Basic Telecommunications Section 2.1 (24 Apr 1996, effective 1 Jan 1998) (the "WTO Reference Paper"). Available at https://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm.

[3] Indeed, in many countries with weak telecommunications regulatory frameworks and a dominant mobile operator, the high cost of interconnection (or the complete absence of interconnection) led to the phenomenon of multiple phone ownership and multiple SIM card ownership. In 2011, some 90 countries had mobile penetration exceeding 100%, in part due to multiple SIM card ownership. One important reason for the large number of SIMs was so that people could take advantage of lower prices for "on-net" calls in jurisdictions with weak interconnection regulatory frameworks. See World Bank, Information and Communications for Development 2012: Maximizing Mobile 115 (2012). Available at https://openknowledge.worldbank.org/handle/10986/11958.

[4] "Because so much of the literature on network economic effects focuses on the potentially anticompetitive consequences of tipping and lock-in, it is often overlooked that the primary effect of network economic effects is to provide powerful incentives to interconnect. The formal economic models that show how network effects can create market failure depend on the assumption that the relevant markets are either dominated by a single firm or are highly concentrated. In the absence of such market structures, the primary impact of network economic effects is to provide powerful incentives for network owners to make their network compatible and interconnect with one another." C. Yoo, Network Effects in Action, in Report on the Digital Economy 174-75 (The Global Antitrust Institute 2020) (emphasis added and citations omitted). Available at https://gaidigitalreport.com/wp-content/uploads/2020/11/The-Global-Antitrust-Institute-Report-on-the-Digital-Economy_Final.pdf.

[5] See, e.g., Malawi Communications Act of 2016 Section 58 (requiring economic regulation of interconnection, access and infrastructure sharing for licensees found to be dominant). Available at https://www.macra.org.mw/?wpdmpro=communications-act-2016.

[6] As of 2022, Somalia's competing networks are still not interconnected for voice calls and text messages.

[7] The essential facilities doctrine was first developed in competition law and economics in the United States and was articulated in the telecommunications concept in MCI Communications Corp. v. American Telephone & Telegraph Co. 708 F.2d 1081 (7th Cir. 1983). It became used in international trade negotiations over access to telecommunications markets. In the context of World Trade Organization commitments relating to telecommunications services, essential facilities are described as "facilities of a public telecommunications transport network or service that (a) are exclusively or predominantly provided by a single or limited number of suppliers; and (b) cannot feasibly be economically or technically substituted in order to provide a service." WTO Reference Paper, supra, at Definitions. 82 countries have specifically committed to apply the regulatory principles set out in the WTO Reference Paper. See WTO website, Trade topics, Services: Sector By Sector, Telecommunications. Available at https://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_e.htm.

[8] The EU Electronic Communications Code 2018 defines "access" to mean "the making available of facilities or services to another undertaking, under defined conditions, either on an exclusive or a non-exclusive basis, for the purpose of providing electronic communications services, including when they are used for the delivery of information society services or broadcast content services; it covers, inter alia: access to network elements and associated facilities, which may involve the connection of equipment, by fixed or non-fixed means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop); access to physical infrastructure including buildings, ducts and masts; access to relevant software systems including operational support systems; access to information systems or databases for pre-ordering, provisioning, ordering, maintaining and repair requests, and billing; access to number translation or systems offering equivalent functionality; access to fixed and mobile networks, in particular for roaming; access to conditional access systems for digital television services and access to virtual network services." Available at https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1547633333762&uri=CELEX:32018L1972.

[9] Access obligations in telecommunications regulation typically reach significantly further than the narrow concept of "essential facilities" under competition law – it may be enough for the regulated provider to have SMP for it to be obligated to provide access to certain telecommunications facilities even if they are not technically an "essential facility."

[10] See, e, g., Nigerian Communications Act of 2003 Sections 96 (interconnection) & 101 (access), available at https://www.ncc.gov.ng/accessible/documents/128-nigerian-communications-act-2003/file; Singapore Telecommunications Act of 1999 (Cap. 323) Section 5(2)(a), available at https://sso.agc.gov.sg/Act/TA1999; South Africa Electronic Communications Act of 2005 at Sections 37 (interconnection) & 43 (leasing), available at https://www.icasa.org.za/legislation-and-regulations/acts.

[11] For example, the EU Electronic Communications Code 2018 defines "interconnection" as meaning "a specific type of access implemented between public network operators" by means of "the physical and logical linking of public electronic communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access services provided by another undertaking" where such services are provided by "the parties involved or other parties who have access to the network." Available at https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1547633333762&uri=CELEX:32018L1972.

[12] The WTO Reference Paper requires interconnection rates to be "cost-oriented." WTO Reference Paper, supra, at 2.2(b).

[13] See C. Blackman and L. Srivastava, eds., Telecommunications Regulation Handbook 134 (World Bank, 2011). Available at https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-TRH.1-2011-PDF-E.pdf.

[14] See, e.g., South Africa Electronic Communications Act of 2005 at Section 67(7)(e)(ii) (authorizing mandatory reference offers for licensees likely to engage in anticompetitive behaviour). Available at https://www.icasa.org.za/legislation-and-regulations/acts.

[15] See, e.g., Art. 18 of the Qatar Telecommunications Law, Law No. 34 of 2006. Available at https://www.cra.gov.qa/en/document/telecommunications-law-no-34-of-2006.

[16] See Art. 59-62 of the European Electronic Communications Code, Directive 2018/1972 of the European Parliament and of the Council (11 Dec. 2018). Available at https://eur-lex.europa.eu/legal-content/EN/TXT/ PDF/?uri=CELEX:32018L1972. Through the European Commission's 2014 recommendations on markets susceptible to ex ante regulation, the EU recommended ex ante regulation of the markets for wholesale call termination on individual public telephone networks provided at a fixed location (Market 1) and wholesale voice call termination on individual mobile networks (Market 2) on the basis that these markets generally met the test for significant market power. See 2014/710/EU: Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation. Available at https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014H07&from=EN. This recommendation stated that national regulating authorities within the EU should presume that interconnection should continue to be subject to ex ante regulation, even if the broader fixed and mobile voice markets were competitive. The Finnish regulator proposed removing ex ante regulatory requirements on call termination but was vetoed by the European Commission. See Commission Staff Explanatory Note accompanying Commission Recommendation on relevant product markets within the electronic communications sector susceptible to ex ante regulation 71 (18 Dec 2020). Available at https://digital-strategy.ec.europa.eu/en/news/commission-updated-recommendation-relevant-markets. In its 2020 recommendation, the EU for the first time removed wholesale call termination services from the list of markets susceptible to ex ante regulation, based on the logic that an EU-wide cap on termination rates eliminated the major competition risks associated with interconnection. Id. at 71-78.

[17] Regulations may prescribe procedural rules to facilitate voluntary agreements, such as transparency, confidentiality, and a duty to negotiate in good faith. The regulator will frequently have a role as mediator and in most jurisdictions can impose reasonable interconnection terms and conditions on recalcitrant operators.

[18] See, e.g., Panel Report, Mexico – Measures Affecting Telecommunications Services, WT/DS204/R (adopted 1 Jun 2004) (enforcing WTO requirements for international interconnection). Available at https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/DS/204R.pdf&Open=True. A one-page summary of the case can be found at https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds204sum_e.pdf.

[19] 108 members of the WTO have made binding international commitments to facilitate global trade in telecommunications services, including foreign investment and cross-border services, 99 members have committed to competition in basic telecommunications and 82 members have signed onto the specific regulatory principles contained in the WTO Reference Paper. WTO, Trade in Telecommunications Services. Available at https://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_e.htm.

[20] For example, ITU-T Recommendation M.1400 provides the technical blueprint for global interconnection of networks. See ITU, M.1400-2015: Designations for interconnections among operators' networks. Available at https://www.itu.int/rec/T-REC-M.1400-201504-I/en. ITU-T 164 contains the publicly connected international telephone numbering plan. See ITU-T E.164: International operation – Numbering plan of the international telephone service (Nov 2010). Available at https://www.itu.int/rec/T-REC-E.164-201011-I. ITU-T E.164 sets out the plan for individual country codes and mobile network operator codes within each country that enable direct dialling of international long distance telephone numbers. Within individual countries, national telecommunications regulatory authorities issue a national numbering plan and regulate the allocation of phone numbers to different network operators.

[21] Unstructured Supplementary Service Data (USSD) is a standard for transmitting information over a GSM network. Unlike SMS, which uses a store-and-forward oriented message transaction, USSD provides a real-time, session-based connection which is significantly faster and cheaper than SMS for two-way transactions. Mobile subscribers can use USSD to make real-time interactive requests to an MNO or third party by sending text between a mobile phone and an application program in the network. The session-based nature of USSD as well as its security features make it suitable for conducting financial transactions.

[22] Short Message Service (SMS) is primarily used for the exchange of text messages between mobile devices or software applications. SMS is a store-and-forward oriented message transaction, which means it does not utilize an open session. SMS is not very useful on its own for the delivery of DFS, because it lacks a seamless interactive user experience and, even more critically, does not deliver the security needed for financial services. However, SMS is often combined with other channels, such as USSD, to facilitate delivery of DFS.

[23] See R. Mazer and P. Rowan, Competition in Mobile Financial Services: Lessons from Kenya and Tanzania, CGAP working paper 25 (Jan 2016). Available at https://www.cgap.org/sites/default/files/Working-Paper-Competition-in-MFS-Kenya-Tanzania-Jan-2016.pdf.

[24] See McKay & Pillai (2016), Aggregators: The Secret Sauce to Digital Financial Expansion.

[25] ITU-T Focus Group Digital Financial Services, Competition Aspects of Digital Financial Services 27-28 (ITU Mar 2017). Available at https://www.itu.int/en/ITU-T/focusgroups/dfs/Documents/201703/ITU_FGDFS_Report-Competition-Aspects-of-DFS.pdf.

[26] Business Daily, "CAK compels Safaricom to cut third party mobile banking service costs," (16 March 2017). Available at https://www.businessdailyafrica.com/bd/corporate/companies/cak-compels-safaricom-to-cut-third-party-mobile-banking-service-costs-2143794.

[27] ITU-T Focus Group Digital Financial Services, Competition Aspects of Digital Financial Services 27-28 (ITU Mar 2017). Available at https://www.itu.int/en/ITU-T/focusgroups/dfs/Documents/201703/ITU_FGDFS_Report-Competition-Aspects-of-DFS.pdf.

[28] ISPs are network operators that provide Internet service. Since MNOs provide both voice and broadband service, many dominant MNOs also will be dominant in mobile broadband markets.

[29] In some countries, governments may prohibit use of VoIP services to protect domestic MNO revenue streams, particularly if they are state-owned. For example, the United Arab Emirates owns majority stakes in its two MNOs and prohibits use of VoIP services.

[30] Complaints of throttling and degradation have varied widely. For example, proposals to throttle zero-rated video services have been investigated in Germany and the UK. See OECD, The Effects of Zero Rating, OECD Digital Economy Papers 5 (Jul 2019) at 13 ("OECD Effects of Zero Rating"). Available at https://www.oecd-ilibrary.org/science-and-technology/the-effects-of-zero-rating_6eefc666-en.

[31] See, e.g., P. Figliola, The Federal Net Neutrality Debate: Access to Broadband Networks 13-14 (Congressional Research Service, updated 24 Feb 2021). Available at https://sgp.fas.org/crs/misc/R40616.pdf; T. Madiega, See also The EU rules on network neutrality: key provisions, remaining concerns 2-3 (European Parliamentary Research Service, Nov 2015). Available at https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/571318/EPRS_BRI(2015)571318_EN.pdf.

[32] Paid prioritization was one of the earliest flashpoints for net neutrality as a result of a widely reported dispute between ISP Comcast and OTT Netflix, whereby Comcast was able to extract revenue to ensure faster loading of Netflix's content for Comcast customers. See E. Wyatt and N. Cohen, Comcast and Netflix Reach Deal on Service, New York Times (23 Feb 2014). Available at https://www.nytimes.com/2014/02/24/business/media/comcast-and-netflix-reach-a-streaming-agreement.html. Since the final arrangement involved direct interconnection between Comcast and Netflix, it arguably would not violate a permissive interpretation of paid prioritization regulations, but the dispute highlights another concern: paid prioritization permits content providers with market power, including global OTTs, to obtain preferential access to customers by paying ISPs to prioritize their traffic.

[33] For example, India's telecommunications regulator released its recommendations containing four broad categories of reasonable traffic management practices: i) network management (e.g. avoiding congestion and ensuring security and efficiency of networks), ii) fair usage policy (e.g. prioritizing voice over data), iii) government orders or emergency situations (e.g. disaster communications), and iv) policies adopted with the consent of consumers (e.g. data caps accepted by customer or special Service Level Agreements for enterprise customers). See TRAI, Recommendations on Traffic Management Practices (TMPs) and MultiStakeholder Body for Net Neutrality 28-29 (22 Sep 2020). Available at https://www.trai.gov.in/sites/default/files/Recommendations_22092020_0.pdf.

[34] See, e.g., A. Schejter and M. Yemini, Justice, and Only Justice, You Shall Pursue: Network Neutrality, the First Amendment and John Rawls's Theory of Justice, 14 Mich. Telecomm. & Tech. L. Rev. 137 (2007). Available at: http://repository.law.umich.edu/mttlr/vol14/iss1/4.

[35] See C. Marsden, Comparative Case Studies in Implementing Net Neutrality: A Critical Analysis 10 (31 Mar 2013). Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2587920.

[36] The EU follows a principles-based approach, mandating that end users have the right to access and distribute information, content, applications, and services of their choice, that agreements between ISPs and subscribers cannot limit that right, and that blocking, throttling and discrimination between content is generally prohibited with limited exceptions. The EU permits reasonable traffic management measures but prohibits those measures that unreasonably discriminate. See Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union. Available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015R2120.

[37] See Info-Communications Development Authority of Singapore, Decision on Net Neutrality 14-15 (16 Jun 2011). Available at https://www.imda.gov.sg/-/media/Imda/Files/Inner/PCDG/Consultations/20101111_Neteutrality/NetNeutralityExplanatoryMemo.pdf.

[38] See In the Matter of Protecting and Promoting the Open Internet, Report and Order, FCC 15-24 (13 Apr 2015). Available at https://www.federalregister.gov/documents/2015/04/13/2015-07841/protecting-and-promoting-the-open-internet.

[39] See In the Matter of Restoring Internet Freedom, Final Rule, FCC 17-166 (2 Feb 2018). Available at https://www.federalregister.gov/documents/2018/02/22/2018-03464/restoring-internet-freedom.

[40] National regulatory authorities within the EU are required to "closely monitor and ensure compliance" with substantive open internet access requirements, publishing annual reports covering issues such as gathering information from ISPs, review of ISP contractual provisions and commercial practices, and monitoring of traffic management and compliance with transparency requirements. See, Body of European Regulators for Electronic Communications, BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules (August 2016) 38-44, available at https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules.

[41] See UCC, Public Consultation Document: Support to the Uganda Communications Commission on USSD and SMS Services. (2017). Available at http://www.ucc.co.ug/files/downloads/USSD_and_SMS_Market_Review_Short_Final_Report_171213.pdf.

[42] ITU-T Focus Group Digital Financial Services, Competition Aspects of Digital Financial Services 29 & 32 (ITU Mar 2017). Available at https://www.itu.int/en/ITU-T/focusgroups/dfs/Documents/201703/ITU_FGDFS_Report-Competition-Aspects-of-DFS.pdf.

[43] Id. at 28 (Zambia); C. Pazarbasioglu, Digital Financial Services 13 (World Bank Apr 2020) (Kenya). Available at https://pubdocs.worldbank.org/en/230281588169110691/Digital-Financial-Services.pdf.

[44] These Mexican laws at issue violated Mexico's GATS commitments on trade in telecommunications services, including but not limited to interconnection regulation commitments made with respect to the WTO Reference Paper on basic telecommunications. See supra n.10.

[45] See, e.g., Malawi Communications Act of 2016 Section 53(2) (requiring free emergency and customer care voice service). Available at https://www.macra.org.mw/?wpdmpro=communications-act-2016.

[46] See OECD, The Effects of Zero Rating, supra. Available at https://www.oecd-ilibrary.org/science-and-technology/the-effects-of-zero-rating_6eefc666-en. Siyakha is offered free by Vodafone.

[47] Commons laws Africa, Directions on Zero-rating of Content and Websites for Education and Health, Government Notice 651 of 2020.Available at: https://commons.laws.africa/%2Fakn/za/act/gn/2020/651/eng@2020-06-05.pdf

[48] See OECD Effects of Zero Rating, supra, at 7.

[49] See World Bank, World Development Report 2016: Digital Dividends 227 (2016) (presenting both sides of the argument). Available at https://documents1.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf.

[50] See Toussaint Nothias, The Rise and Fall... and Rise Again of Facebook's Free Basics: Civil Society and the Challenge of Resistance to Corporate Connectivity Projects, Global Media Technologies & Cultures Lab (21 Apr 2020). Available at https://globalmedia.mit.edu/2020/04/21/the-rise-and-fall-and-rise-again-of-facebooks-free-basics-civil-and-the-challenge-of-resistance-to-corporate-connectivity-projects/.

[51] See generally OECD Effects of Zero Rating, supra, at 15-28 for a detailed comparative review of global approaches to zero rating regulatory practices. Available at https://www.oecd-ilibrary.org/science-and-technology/the-effects-of-zero-rating_6eefc666-en.

[52] European Commission, Report from the Commission to the European Parliament and the Council on the implementation of the open internet access provisions of Regulation (EU) 2015/2120 6-7 (European Commission 2019). Available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019DC0203.

[53] The ITU defines the IoT as a 'global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies.' ITU Recommendation ITU-T Y.2060, Overview of the Internet of things 1 (Jun 2012). Available at https://www.itu.int/rec/T-REC-Y.2060-201206-I.

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