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# Enduring issues of digital exclusion, emerging pressures of internet regulation in Brazil[1]

## *Problemas duradouros da exclusão digital, pressões emergentes da regulação da internet no Brasil*

## *Problemas perdurables de la exclusión digital, presiones emergentes de la regulación de Internet en Brasil*

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## Abstract

Digital exclusion in Brazil is deeply entrenched in structural issues related to economic power and inequality. My assumption is that internet regulation failures to address it are not an unintended consequence of the regulatory system but are as much part of the problem as the solution. My core hypothesis is that regulation based on both universal services goals and internet principles of non-discriminatory services, such as network neutrality, has failed to bridge the digital divide because it could not guarantee the ethics of material equality and distributive justice. My proposition is that the digital divide concept shall be understood within a broader framework not restricted to the lack of infrastructure or connection, thus, enhancing social justice and an equally distributed internet. To achieve this objective, the present article is placed within an integrated framework of science and technology studies (STS).

## Keywords

Internet regulation; digital divide; inequality; universal access; network neutrality

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## Contents



## Resumo

A exclusão digital no Brasil está profundamente enraizada em questões estruturais relacionadas ao poder econômico e à desigualdade A hipótese deste artigo é a de que as falhas na regulamentação da internet para lidar com essa questão não são uma consequência indesejada, mas tanto parte do problema quanto da solução. Nesse sentido, propõe-se que a regulação baseada tanto nas metas de serviços universais quanto nos princípios não discriminatórios da internet, como a neutralidade da rede, não conseguiu superar a exclusão digital porque não poderia garantir a ética da igualdade material e da justiça distributiva. Para tanto, defende-se que o conceito de exclusão digital seja entendido dentro de um arcabouço mais amplo, não restrito à falta de infraestrutura ou conexão, garantindo, assim, a justiça social e uma internet distributiva. Para atingir esse objetivo, o presente artigo está inserido na metodologia de estudos de ciência e tecnologia (CTS).

## Palavras-chave

regulação da internet; exclusão digital; desigualdade; universalização; neutralidade da rede

## Sumário



## Resumen

La exclusión digital en Brasil está profundamente arraigada en cuestiones estructurales relacionadas con el poder económico y la desigualdad. La hipótesis de este artículo es que los fallos de la regulación de internet para abordar esta cuestión no son una consecuencia involuntária del sistema regulatorio, sino parte del problema y de la solución. Frente a esto, se propone que la regulación basada tanto en los objetivos de los servicios universales como en los principios de los servicios no discriminatorios de Internet, como la neutralidad de la red, no ha superado la exclusión digital porque no pudo garantizar la ética de la igualdad material y la justicia distributiva. Por lo tanto, esse argumenta que el concepto

de exclusión digital debe entenderse dentro de un marco más amplio que no se limite a la falta de infraestructura o conexión, garantizando así la justicia social y una internet distribuida. Para lograr este objetivo, el presente artículo presenta reflexiones desde un marco integrado de estudios de ciencia y tecnología (CTS).

## Palabras clave

Regulación de internet; exclusión digital; desigualdad; acceso universal; neutralidad de la red.

## Índice



## 1. Introduction

From schools setting coursework online to office staff working from home, the internet was the answer to many COVID-19 social distancing measures problems. Though what about the billions of people who cannot get online? Among many inequalities reinforced by the COVID-19 pandemic, the digital divide is one of the most critical ones. Technological exclusion is a form of poverty and social discrimination, depriving citizens of essential resources for social and economic development.

Although poverty is often seen as a problem of developing nations and least developed countries, the world experiences an unprecedented increase of inequality, including in those countries considered the richest. In this sense, the Economic Commission for Latin America and the Caribbean (NAÇÕES UNIDAS, 2021) estimates that the total number of poor people rose to 209 million by the end of 2020, which is 22 million more people than in the previous year. Patterns of digital exclusion are not different. According to International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), in 2019, only just over half of households (55%) had an internet connection worldwide. In the developed world, 87% are connected compared with 47% in developing nations, and just 19% in the least developed countries (UNIÃO INTERNACIONAL DE TELECOMUNICAÇÕES; UNESCO, 2019).

Faced with this poignant reality, one cannot refrain from asking what can be done to solve such disparities? My assumption is that internet regulation failures to address digital exclusion are not an unintended consequence of the regulatory system but are as much part of the problem as the solution. My core hypothesis is that regulation based on both universal services goals and internet principles of non-discriminatory services, such as network neutrality, has failed to bridge the digital divide because it could not guarantee the ethics of material equality and distributive justice. My proposition is that the digital divide concept shall be understood within a broader framework not restricted to the lack of infrastructure or connection, thus, enhancing social justice and an equally distributed internet.

To achieve this objective from the methodological point of view, the present article is placed within an integrated framework of the law and society tradition, grounded in the interdisciplinary lens of science and technology studies (STS), which addresses the role of technology in society. In so doing, it places questions of power, as opposed to rights and institutions, at the center of debates about information and communication technologies (ICT). According to Sheila Jasanoff (2004, p. 2), technology and social order are produced contemporaneously, avoiding both technological and social determinism.

Therefore, basic concepts of architectural design and economics in the context of communication networks will be presented to analyze how technology shall be perceived to deep dive into the role of law in decreasing the digital divide. Drawing upon the integration of distinct source materials, the social order is presented using data related to internet access rates and socioeconomic inequality in Brazil, creating a map that aims at providing inputs to build the agenda for internet regulation and inclusion.

Traditional legal sources are also analyzed from a historical perspective shedding light on the development of laws and other normative documents to demonstrate that universal and non-discriminatory internet services rules have so far contributed little to note to end the digital divide. These considerations get some inspirations from the now enduring concept of "path dependence,"[3]

[3] The term "path dependence" was initially coined by economic historian Brian Arthur to refer to the way certain technological choices persisted, because they had become ingrained in everyday practices. The key idea is that in a sequence of events, the latter events are not completely independent from those that occurred in the past. See. WOOLCOCK, Michael; SZRETER, Simon; RAO, Vijayendra. How and why history matters for development policy. In: BAYLY, C. A. et al. (ed.). **History, historians and development policy**: a necessary dialog. Manchester, United

according to which a set of historical events and institutions in a country's past have exerted an influence upon its subsequent history. Although the concept of path dependency is influential to this work, its meaning is not narrow perceived as a deterministic influence upon history or technological change. Here, we comprehend the past as constitutive of the present, not determinative of it.

The remainder of this article proceeds as follows. Part 2 presents a broader concept of the digital divide that considers the three layers of internet architecture, analyzing the issue of digital exclusion beyond the access to infrastructure only. To illustrate the technological exclusion in Brazil inputs are provided to build the agenda for inclusive internet regulation. Part 3 aims at revisiting the history of telecommunications regulation in Brazil and its pendulum movement that fluctuated between centralizing policymaking on the side and deregulation and privatization on the other side. Also, I explore the shift from setting universal services goals towards a multilayered approach that enhanced principles of non-discriminatory services, such as network neutrality. In Part 4, I analyzed how, despite many attempts, Brazil has failed to promote digital inclusion, and, in Part 5, I conclude.

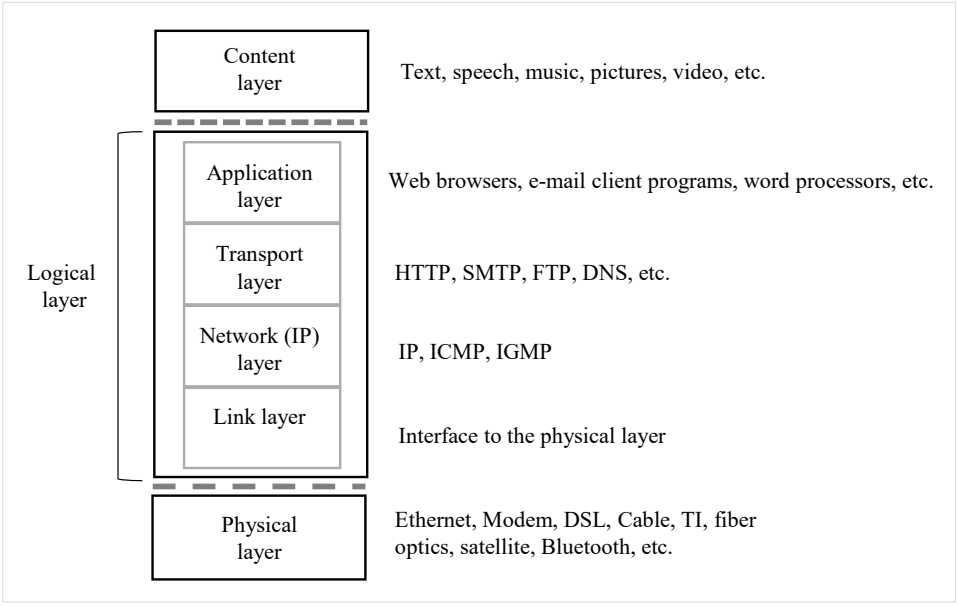
## 2. Mapping the digital exclusion in Brazil: a three-layers problem

This section briefly introduces basic concepts that are necessary for understanding issues associated with architectural design and economics in the context of communication networks. Networking technologies studies are critical to our discussion less because of the minutiae of technological developments matters but because the architectural principles by which they have been crafted have trespassed their boundaries into policy decisions. Here, I adopt the word "architecture" to refer to "the fundamental structure of a complex system [...] it is a description of the system s basic building blocks," as defined by van Schewick (2010). The concepts of layering principles and end-to-end arguments are pivotal in this regard. In this sense, policy proposals that choose to appropriate the architecture metaphor will inevitably escape its bounds and adopt its political and economic assumptions.

Kingdom: Manchester University Press, 2011. p. 3-38. Available at: https://www.manchesteropenhive.com/view/9781526151612/9781526151612.00007.xml. Access: 24 May 2022.

The layered architecture of the internet can be illustrated by several models, including the three-layers model developed by Yochai Benkler (2000, p. 562), which extends, generalizes, and abstracts the notion of layers, enabling the conceptualization of content, logical, and physical layers. At the bottom is a physical layer, in the middle a logical layer, and at the top a content layer. The logical or the code layer is a software layer that includes the TCP/IP protocol layers, application software, and services (BENKLER, 2000, p. 563). This idea is illustrated in Figure 1:

**Figure 1 - Communication System the three-layer model**




Source: SOLUM, Lawrence B.; CHUNG, Minn. **The layers principle**: internet architecture and the law. San Diego, California: University of San Diego School of Law, 2003. p. 848. (Public Law and Legal Theory Research Paper, n. 55). Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=416263. Access: 23 May 2022.

The three-layer analysis builds upon and extends two fundamental insights that have been presented in the work of Lawrence Lessig (1999). The first is called the "code" theory, which means the notion that the architecture of the internet has profound implications for its legal regulation. The second is the end-to-end principle, as described above. Thus, the layers' normative content is a superset of the normative content of the end-to-end principle. According to Benkler (2006), in each one of these layers, I have seen the emergence of significant policy battles, and decisions being made at each layer will impact the others.

Many authors have defended the use of the layer model in legislative and regulatory debates because, if conceptualizing the policy as layers, the policy-maker is enabled to identify markets, clarify issues, create an effective boundary, and target solutions where issues resided without interfering with other industries and opportunities (CANNON, 2003, p. 195; SOLUM; CHUNG, 2003). However, it would be a massive mistake if one regulates the internet based on restricting and narrow views of each lawyer. Under the three-layers framework, each layer, directly and indirectly, affects the others.

### 2.1 Mapping the digital divide in Brazil

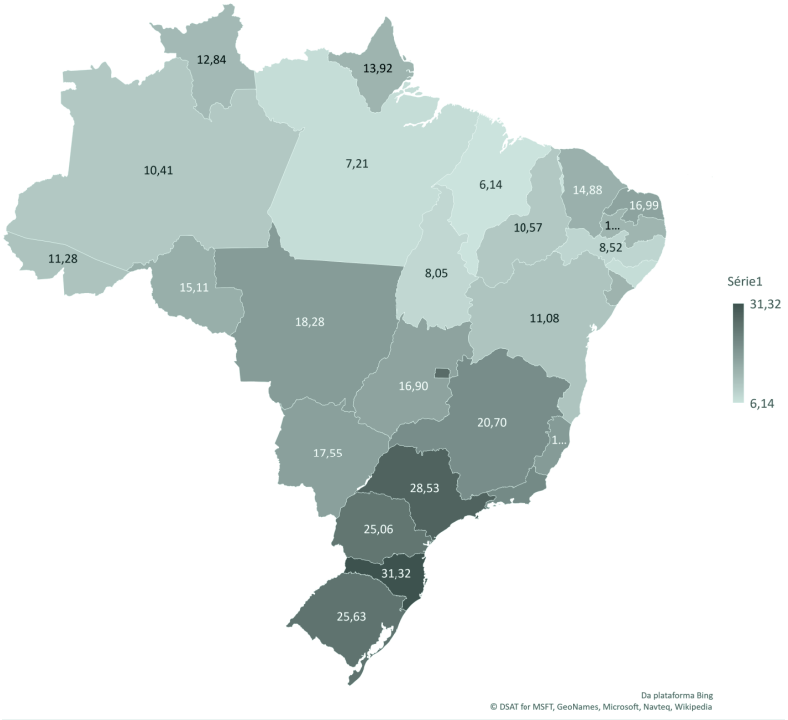
According to the Brazilian Institute of Geography and Statistics (IBGE, for its acronym in Portuguese), in 2003, 149.9 million Brazilians had never accessed a computer. In 2019, the numbers decreased to approximately 40 million people (IBGE, 2019). The ICT Households Survey (COMITÊ GESTOR DA INTERNET NO BRASIL, 2021), produced by the Brazilian Internet Steering Committee (CGI.br), also indicates a continued increase in the proportion of internet users, as well as intensification in the frequency of use by Brazilian internet users. In 2016, for the first time, the proportion of internet users exceeded half the population, reaching 51% – equal to 85.9 million Brazilians. In 2020, influenced by social distancing measures adopted during the COVID-19 pandemic and the migration of in-person activities to the digital environment, internet access reached approximately 152 million Brazilians – which represents 81% of the population over 10 years. Although the numbers are impressive, digital exclusion remains a problem that should be addressed.

In 2020, mobile phones remained the primary devices used to access the internet, reaching 99% of the user population and being predominant among those in the Northeast (72%) and those who self-reported as Black (65%) or Brown (60%). In addition, in urban areas, the proportion of households with internet access was 83%, while it is 70% in rural areas (COMITÊ GESTOR DA INTERNET NO BRASIL, 2021), where developing the necessary infrastructure is costlier. The data indicates the basis of the Brazilian social pyramid is completed excluded from the digital reality, demonstrating socioeconomic gaps are also seen as crucial for the analysis of internet access.

In this regard, internet service disparities are not random; they track the very same demographic fault lines. The enormous difference in the proportion

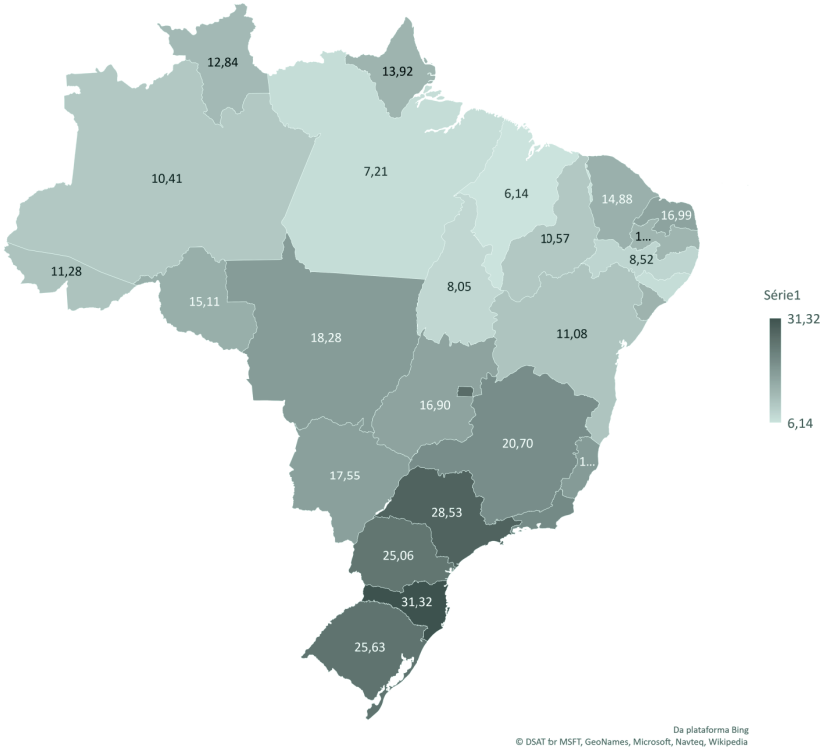
of households with internet access among different geographical regions should also be considered on the agenda for digital inclusion. Map 1 below demonstrates the North is the region with the most noticeable lack of service availability due to difficulties internet services providers (ISP) find to install broadband equipment to connect areas with significant forest and rivers, thus, making internet access more expensive to individuals of the poorest parts of Brazil.

**Map 1 - Broadband density access per 100 households in 2021**




Source: Author's elaboration. Data available at: *BRASIL. Agência Nacional de Telecomunicações*. **Painel de dados da ANATEL**: banda larga fixa. Brasília: ANATEL, 2022. Researched period: dez-2021. Available at: https://informacoes.anatel.gov.br/paineis/acessos/banda-larga-fixa. Access: March 2022.

**Map 2 - Human Development Index per the Brazilian States in 2014 (Data from 1991, 2000, and 2010)**




Source: Author's elaboration. Data available at: *ATLAS do desenvolvimento humano nas regiões metropolitanas brasileiras*. Brasília: PNUD: IPEA: Fundação João Pinheiro, 2014. 120 p. Available at: https://www.academia.edu/21526809/Atlas_do_Desenvolvimento_Humano_nas_Regi%C3%B5es_Metropolitanas_Brasileiras. Access: March 2022.

The evident differences in internet access, a reflection of prolonged socio-economic inequalities between the five Brazilian regions, end up reproducing inequalities found in other social and economic indicators such as the Human Development Index (HDI), participation in regional GDP, the rate of functional illiteracy and the rate of network school enrollment for adolescents. Maps 1 and 2 mirror these discrepancies that highlight the multiple layers of inequality and their combined effects on the appropriation of digital opportunities by different segments of the population.

The inequality that exists regarding the network layer is a socioeconomic divide. The digital disparity also exists across the regions, within a region, and within a country. Without internet access, people are excluded from emerging information societies. Although the digital divide sounds mere like a technological divide, it reflects the existing socioeconomic inequality.

In this sense, the digital divide was initially understood as a dualism of "haves" vs. "have nots" that was related to internet connectivity or the network layer. Subsequent, the notion evolved and expanded to consider divides in other internet layers, such as the content layer – *i.e.* skills and knowledge (RAGNEDDA; MUSCHERT, 2015), or to encompass social inequalities, such as gender, race, and income, that were seen as precursors to or even causes of the digital divide (VAN DIJK, 2020).

Influenced by this view, the ICT Households Survey (COMITÊ GESTOR DA INTERNET NO BRASIL, 2021) affirms "social inequalities are also manifested in the digital environment, with the potential to restrict opportunities and even the conditions to comply with measures to combat the pandemic. Black women accessed the Internet exclusively by mobile phone (67%) at greater proportions than White men (42%)". As Richard Heeks (2021, p. 2) states "whichever the terminology, the foundational concept was exclusion and the underlying narrative was that particular groups or geographies were being prevented from accessing the benefits of digital technologies".

In this sense, the digital divide will continuously perpetuate inequalities, no matter how altruistic and innovative some networked users and providers are (SYLVAIN, 2016). Existing structural patterns of exclusion will determine the ways through which users will access and experience the internet. Broadband service disparities pose a far more dangerous problem that policymakers and scholars have yet to redress.

Inequalities reinforce the diagnosis about the need for specific actions to expand access and reduce regional and social disparities. Accomplishing equally, distributed, and universal internet access is critical, and I must act on several legal fronts considering the complexities of Brazil.

## 3. History of the Brazilian regulatory framework

Telecommunications regulation in Brazil started in 1962 with the enactment of Law No. 4,117, the so-called "Telecommunications Code". The 1962 Code established the National Telecommunications Plan and created a centralizing policy-making body, the National Telecommunications Council, and the state-owned company *Empresa Brasileira de Telecomunicações* (Embratel), which handled all long-distance connections[4]. Alongside this regulatory framework, Law No. 5,070 of 1966 established the Telecommunications Inspection Fund (FISTEL) used to finance the Telebras System.

The Constitution of 1967 continued this process of telecommunications centralization. Until then, according to Art. 5, XII, of the Constitution of 1946, the Federal government had the power to explore, directly or through authorization or concession, interstate, and international communication services only. The 1967 Constitution went further and centralized the Federal government's competence to explore all telecommunications services directly or through authorization or concession.

At the beginning of the 1970s, Latin America was profoundly influenced by the U.N. Economic Commission for Latin America and the Caribbean (ECLAC) and its structuralist theory. ECLAC's foundation was based on the existence of structural differences in underdeveloped economies, arising from the historical process of international economic expansion (SALOMÃO FILHO, 2015, p. 27). It criticized the theory of comparative advantages in international trade, and supported an economic system based on the center-periphery relationship, advocating for Import Substitution Industrialization (ISI) policies in peripheral countries. For ECLAC's advocates, economic underdevelopment is not a phase of capitalism, but a result of structures determined by the process of industrial development (SALOMÃO FILHO, 2012, p. 34).

Profoundly influenced by the push for ISI policies, in 1972, the Brazilian government created the Telebrás System comprising a holding company and more than 20 subsidiaries through Law No. 5,792. Following, the Second National Developmental Plan (1975-1979) proposed the expansion of telephone lines and stimulated multinationals' presence in communications. In 1975, Brazil had over 900 radio stations and 64 television stations (ALENCAR, 2003). The growth of telephones number also indicates the policy's success in that period.

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[4] The state-owned monopoly model was predominant around the world and intensely advertised by the International Telecommunication Union (ITU), since – in the economic vernacular – telecommunications are a natural monopoly as it has high fixed costs and low marginal costs that lead to large scale economies.

In 1988, the promulgation of the Federal Constitution maintained telecommunications services under government control pursuant arguing its strategic importance. Art. 21, XII, of the 1988 Constitution strengthened the centralization of telecommunications services system, introducing, for the first time, the requirement of services provided by companies under state control, as well as the distinction between "broadcasting services" and "public telecommunications services", expressly citing telephone, telegraph, and data transmission as public services.

In this sense, Art. 21, XI, and XII, of the Federal Constitution was interpreted in a sense that there were services that would be numbered and restricted to companies under state control which were considered essential and, therefore, public (item XI), and other private services that would fall within a common scope (item XII). Therefore, there is a constitutional division between public services provided by entities controlled by the state and other public and private services that can be provided by private individuals.

However, in the early 1900s, the sector faced a critical point, including Embratel's decapitalization and a broader crisis of the ISI policies, and the centralized model. Also, Brazil was confronted with financial crises, debt loads, and restructuring programs pressured by the International Monetary Fund (IMF), and other international actors. These transformations reduced Brazil's ability to maintain investment in telecommunications or find new sources for financing the expansion of services in poor neighborhoods or rural areas. At the beginning of the 1990s, the system was worse than it was at the beginning of the 1970s.

### 3.1 Deregulation and privatization in the telecommunications reforms

In the mid-1990s, the commercial internet arrived in Brazil without being able to meet the demand due to the lack of investment, resources, and capacity of the few backbones available. As mentioned, the Brazilian telecommunications system was facing significant economic and institutional crises, and international pressures started to advocate for market competition.

Profoundly influenced by the deregulation movement in the United States and the 1996 Telecommunication Act, privatizations came as a solution to the lack of resources related to infrastructure development in Brazil (COUTINHO, 2005, p. 138). The discourse in favor of telecommunications privatizations was

strongly influenced by the rise of the "Washington Consensus" and its neoliberal ideas. Latin American governments, including Brazil, were urged to implement pro-market reforms to fit into the new mainstream model and to overcome the economic crisis (WILLIAMSON, 1990).

In 1995, the Brazilian Congress passed the Constitutional Amendment No. 8, which made possible the end of a stated-owned monopoly in the exploitation of telecommunications services. It represented a new normative framework for adapting the Brazilian legislation to the demands of the globalized telecommunication system, aiming at changing the role of the state in the economy through regulation. This change in the perspective of the state function was accompanied by the strengthening of normative regulation.

In 1997, Law No. 9,472, also known as the General Telecommunications Act (LGT) was enacted to ensure the privatization plan. It established a new regulatory framework and initiated the process of deregulation of the state telecommunications holding company Telebrás. LGT provided the legal structure for telecommunications services, defined the general principles governing these services, and created the Brazilian National Telecommunications Agency (ANATEL), the regulatory agency responsible for the telecommunications sector regulation, including the granting of licenses and authorizations for the exploitation of services. Following the Notice No. 4 of 1995, Art. 61 of LGT also defined internet services as VAS.

Political pressures and concern with social welfare and economic development sought to embed LGT with social goals that included network expansion obligations, the so-called "universalization of services," and the creation of a competitive environment that could benefit consumers' right to choose a service provider. The chosen model followed the principle of competition-based on telecommunications infrastructures, influenced by the North American model, according to which competition would be provided in the supply-side by parallel network infrastructures, that is, each ISP would have its infrastructure to support the services it offers. The definition of universal services, though, changed over time. In the early 20th Century, universal service meant the unification of the telephone system so users could reach others and be reached. Even considering different concepts, the natural monopoly rationally applies.

Universal service, in this context, was a social policy that aims to guarantying minimum access to disadvantaged groups in rural areas, spreading the

use of telecommunications service to the most substantial number of people as possible, due to the social and economic positive externalities. In this sense, LGT defined universal service as a right for telephone access to any citizen, regardless of location and social, and economic status. Aiming at legitimating the deregulation movement, the Brazilian government committed to investing the accumulated resources earned from the telecommunications' privatization on universal services, as well as education, healthcare, and other social welfare policies.

However, reconciling universal service goals with the market paradigms was one of the central challenges of that time. One of the problems with the privatization of telecommunication services is that private companies do not often have incentives to offer services in isolated areas. Without governmental interference, profit-motivated network operators would likely focus on serving high-traffic households and businesses in dense urban areas, not rural areas or low-traffic households, the so-called cherry-picking effect. That is because, although competition delivers broadband in abundance, it almost certainly distributed it unequally – which means that market liberalization alone cannot guarantee equality (PENG, 2022, p. 11).

Furthermore, LGT established several complementary regulations, which included the General Plan of Grants (PGO or *Pano Geral de Outorgas*), enacted by the Decree No. 2,534 of 1998, and the General Plan of Universalization Goals (PGMU or *Plano Geral de Metas de Universalização*), both prerequisites for the privatization of Telebrás. In 1998, the 28 subsidiaries of the Telebrás System monopoly-holding were restructured into 12 companies through PGO It created 8 regional mobile carriers, 3 fixed-line companies, and 1 long-distance and international operator – Embratel. With its restructuring, 12 companies were auctioned off, and Telebrás ceased to have operating income-generating assets, remaining only with funds from financial investments that were intended to fade away until its final liquidation – which never occurred as the Brazilian National Broadband Program, implemented in 2010, reactivated Telebrás. As a result, 3 incumbent local fixed telephony private concessionaires emerged: Telesp, later renamed Telefonica, covering the State of São Paulo; Tele Centro Sul, later renamed Brasil Telecom, covering the South and Central regions of Brazil; and Tele Norte Leste, later renamed Oi, covering the North and East regions of the country (ALENCAR, 2003).

Complementing PGO's objectives, PGMU was approved by the Decree No. 2,592 of 1998. Incumbent operators assumed obligations related to the

universalization of fixed telephony. It established short-run goals, based on enforcement of minimum quantities to be supplied by the new owners of the privatized regional companies.[5] Most of PGMU's goals were related to individual line subscriptions, the installment of public telephones, and building fixed infrastructure in unattractive areas. PGMU was massively criticized for having technical and economic frailties. First, mirror companies and other services, including mobile telephony and data transmission, were not subject to universalization obligations. Also, its definition of minimum levels did not differentiate rich or poor, profitable or unprofitable areas, dampening efforts to foster competition, and perpetuating social exclusion (COUTINHO, 2005; FARACO; COUTINHO, 2007; FARACO; PEREIRA NETO; COUTINHO, 2014). However, the most sensitive aspect of the universal service policy was its funding.

Law No. 9,998 of 2000 set up the Telecommunications Services Universalization Fund (FUST). Companies operating telecoms services under both the public and private regimes must contribute 1% of their gross operating income. This approach creates potential structural distortions: if there were transactions between non-integrated companies, there was an implicit incentive to merge and become a single firm to avoid taxation. Nevertheless, since this tax would not be applied to transactions between telecommunications companies, it became a value-added tax (VAT) (MATTOS, 2002). Likewise, Law No. 10,052 of 2000 created the Fund for the Technological Development of Telecommunications (FUNTTEL). All telecommunication service providers must contribute to it 0.5% of monthly gross operating income. While FUST would be used to finance social investments, such as telecommunications service providers in the low-profit area, FUNTTEL would be used to boost national technology development. It was a consensus among regulators around the world that increased competition, coupled with domestic universal service funds, would be able to achieve the goal of digital inclusion.

In parallel, Brazil experienced the arrival of the internet, and Rule No. 4 of 1995 was published by the Ministry of Communications, introducing the concept of the internet as a "value-added" service (VAS or *Serviço de valor adicionado*),[6] and establishing a clear distinction between the internet and telecommunications

[5] The Universalization Service Plan established targets for minimum amounts of supply of individual and collective wire terminals by state and toward locations with small populations. Every Brazilian state had its own targets. There were also targets for disabled people, hospitals, and school attendance.

[6] VAS is the terminology adopted in Brazil and means "enhanced services," more recurrent in the U.S. literature. VAS is not merely an extension of a basic service, but it adds value to the basic service.

and services. According to the Rule, the internet is the "generic name that designates the set of networks, the means of transmission and switching, routers, equipment and protocols necessary for communication between computers, as well as the software and data contained in such computers." Brazil followed the categorization adopted by the U.S. Computer Inquiries[7]. Such definition was updated only in 2014, by the Brazilian Civil Rights Framework, which states that the internet is "the system consisting of the set of logical protocols, structured worldwide for public and unrestricted use, to enable data communication between terminals through different networks."

In 2001, ANATEL classified the non-dial-up Internet connection access layer as multimedia communication service (SCM or *Serviço de Comunicação Multimídia*), by Resolution No. 272. The differentiation between SCM and SVA was a historical driver of the development of broadband services in Brazil. It is important to underline that, over recent years, ANATEL has simplified its classification of communications services and its licensing framework (*e.g.* Resolutions No. 719 and 720 of 2020). Regardless four main categories still require authorizations: fixed telephony (*Serviço Telefônico Fixo Comutado* – STFC); mobile telephony (*Serviço Móvel Pessoal* – SMP); Multimedia Communication Services (*Serviços de Comunicação Multimídia* – SCM), such as fixed broadband; and Pay TV (*Serviço de Acesso Condicionado*, SeAC).

Following the universal access efforts, in 2003, a New PMGU became effective under Decree No. 4,769. As the first PMGU, it defined goals related to individual and fixed public telephones and introduced new goals, including the implementation of telecommunications service stations for collective use (PST or *Postos de serviços telefônicos* in Portuguese). PST should have, at least, one public telephone and one public access terminal for dial-up internet connection and be installed in several urban and rural localities determined by the Plan. This new arrangement was intended to induce the switched fixed telephone service infrastructure to support internet connection. In 2008, the Brazilian government altered PGMU II, through Decree No. 6,424 to remove the obligation to install PST and add the obligation of building an internet backhaul – defined as a fixed telephony support network for broadband connection that links access

[7] In Computer Inquires, FCC required telephone companies, among other things, to sell essential transmission services to ISPs on the same terms those companies provide their own enhanced service operations. Telephony's transmission services were price-regulated, and its network was long considered an indispensable bridge between enhanced service providers and users.

networks to the operator backbone. After negotiations with the Brazilian government, concessionaires agreed with the change of universalization goals and signed amendments to the concession contracts.

Additionally, in the early 2000s, Brazil unsuccessfully tried to increase broadband access through pulverized programs. In 1999, the Brazilian government launched the Information Society Program, created by Decree No.3,294. The Program included the expansion of internet access and connectivity, the development of technical training, the incentive to research and development, and the advance of new applications (TAKAHASHI, 2000). In 2002, the government made a further attempt by creating the GESAC Program, established by Administrative Rule No. 256, which intended to offer access to the internet in remote communities of the country, through satellite technologies.

Another failed attempt was the Digital Inclusion Program, created by Law No.11,196 of 2005, which granted fiscal incentives for sales of microcomputers and enabled the "Citizen Connected - Computer for All Program," established by the Decree No. 5,542 of 2005. The latter also intended to facilitate the acquisition of computers by the low-income population. A program called "Broadband in Schools" was created by the Decree No. 6,424 of 2008 and designed by the Ministry of Education and the Ministry of Communications to connect to the internet in all urban public schools by 2010.

Telecenter operators ("*Telecentros*" in Portuguese) were also an alternative policy implemented to increase internet access in Brazil. Telecenters shared the physical infrastructure and provided public access to ICTs, usually in the form of desktop computers (DAVIS *et al*., 2017, p. 130). The Telecentro de Informação e Negócios offered internet access for small enterprises. Again, the Brazilian government's efforts were not enough to increase internet access.

The privatization of the telecommunication sector is another hard lesson for Brazil. Despite several attempts, it has failed to universalize internet access. Since the concept of telecommunications universal services was introduced, it essentially referred to the provision of minimum telecommunications services to people at an affordable price (PENG, 2022, p. 20). Instead of meeting these basic needs, the Brazilian government was a catalyst to the process of economic domination. Due to the high barriers to entry because of high costs for accessing national and international internet backbones, the marketplace witnessed a rapid consolidation into a small number of incumbents with nationwide coverage.

### 3.2 The Brazilian National Broadband Program

Since the mid-2000s, to promote affordable access to physical networks, the Brazilian government began to engage in practices by which policy design and implementation no longer reflected a purely market-based view of policy reform. However, its authority is now exercised not to intervene by absorption, but to act by market participation and nudge. Over the past decade, policy-makers in several countries enacted or at least discussed National Broadband Plans which group policies, actions, and goals for broadband. Their common objective is to increase broadband penetration and adoption and to spread the use of ICT, although they differ on the strategies chosen, particularly on the level of government intervention.

In this sense, the Brazilian government launched, in 2010, the Brazilian National Broadband Program (PNBL, for its acronym in Portuguese), established by Decree No. 7,175. It intended to promote and expand access to broadband internet services, indicating the return of state intervention on the telecommunications sector. Several actions, goals, and priorities have been established for achieving the objective of the PNBL, including the recreation of the once state-owned telecommunication carrier, Telebrás, the use of spectrum auctions for wireless broadband services, and the agreement between the government and fixed telephony concessionaires to offer fixed broadband connection for lower prices in selected municipalities.

This aspect remained most striking after the reactivation of Telebrás, which owns a national network of optical fiber and acts in the market in a complementary way. The rationale is that it would induce an expansion of broadband penetration and a reduction in service rates, as final users in most unattractive or distant localities were served only by small providers. These small providers usually pay high prices to owners of broadband infrastructure, due to small returns to investment, which imply high rates to the final user.

PNBL assumed that a positive correlation existed in the telecommunications sector in many instances between equality and efficiency resulting from the positive network effect. For this reason, a market for telecommunication services driven only by competition may aggregate a suboptimal pool of users from the standpoint of the potential expansion of positive externalities (COUTINHO, 2005; FARACO, 2009). Thus, PNBL walked away from what was determined in the LGT and did not impose universal access goals. For this reason, it is possible

to affirm that the PNBL is not exactly a national broadband plan itself, but only the first action directed to the definition and implementation of a plan.

Actions of PNBL were structured in four dimensions: infrastructure regulations; policies for production and technology; fiscal and financial incentives; and national network development. Regulations were aimed at increasing competition, expanding service supply, incentivizing entrepreneurship and innovation, reducing service rates to the final user, and increasing infrastructure availability. In this sense, ANATEL would be responsible for drafting a New PGMU, with goals for the expansion of backhaul; performing spectrum auctions for wireless broadband, and regulating infrastructure sharing among ISPs. ANATEL partially accomplished its tasks but the PGMU III, enacted by Decree 7.512 of 2011, did not contain goals for the expansion of backhaul. In 2011, the Brazilian government also issued Decree No 7,462 transferring the task of formulating and implementing broadband and digital inclusion policies from the Steering Committee of the Digital Inclusion Program to the Ministry of Communications.

By approving Resolution 558 of 2010, ANATEL decided that radio frequencies in the range of 450 MHz to 470 MHz would be released for the expansion of high-speed internet in rural areas within the PNBL goals. ANATEL predicted the bandwidth would be used preferably for public companies, such as SERPRO, DATAPREV, and, especially, Telebrás. In March 2011, Telebrás forwarded to the Ministry of Communications a formal request to use the 450 MHz band for digital inclusion projects. The objective is to provide internet access in distant areas based on national technology, in partnership with domestic manufacturers of equipment, and the development of microchips for 450 MHz radios. However, contrary to the recommendation of ANATEL, the request was denied by the Ministry of Communications, and allocation of the 450 MHz to incumbent companies was made as a deduction of the cost of new universalization goals.

At first, the PNBL's primary objective was that by 2014, access would be enabled across the country, reaching 40 million households. Afterward, the Ministry of Communications revised this objective to 30 million fixed broadband access points and 60 million mobile broadband access points, including both urban and rural areas, by 2014. Also, the target was to reach one 100% broadband access in government branches and to increase the minimum speed of fixed broadband services. The goal was ambitious. In March 2011, there were only 16 million fixed broadband connections and 28 million mobile broadband

connections. In September 2015, the fixed broadband connections amounted to 25.4 million and the mobile broadband connections to 200.5 million. Given this data, the PNBL has been a failure.

In September 2012, it was created the Special Taxation of the National Broadband Deployment of Telecommunications Networks to build, expand and modernize telecommunications networks. Among the incentives to the telecommunications industry, Law No. 12.715 established a federal tax exemption for the construction of a satellite to be used in the implementation of the PNBL and market communication between machines. In May 2017, Brazil launched the Geostationary Defense and Strategic Communications Satellite (SGDC). Its primary goal is to allow broadband access to remote areas. Therefore, the PNBL is not restricted to a single document that states policies, actions, and goals. It is made of several documents, such as Decree No. 7.512 of 2011d the proposed actions.

### 3.3 The Brazilian Civil Right Framework: towards a multilayered approach to regulation

With communication convergence onto a single platform, the internet was transformed into a general-purpose technology that supports many layers of technology, legal backgrounds, and sectors of the economy. The importance of examining the enduring unequal distributions at the internet architecture's three layers is that it offers a more comprehensive and holistic approach. Also, because of the need for investments in the next generation of internet access networks, a considerable shift occurred when profits migrated to application and service. As a result, ISPs, which traditionally did not have a presence in application and service markets, began to integrate vertically. This movement brought attention to ISP's ability to act as gatekeepers, preventing consumers from using the applications of their choice without disclosing what they were doing. Additionally, investments in internet access are also related to bridging the digital divide, to bring the next billion users to the internet. For instance, the dynamics of material inequality exacerbate the disparities between the haves and the have-nots, who are disconnected and unskilled.

Law No. 12,965 of 2014, known as the "Brazilian Civil Rights Framework" (BCR), emerged in 2009 from the partnership between the Secretariat of Legislative Affairs of the Ministry of Justice and the Center for Technology

and Society of the Getúlio Vargas Foundation. Officially, the BCR was based on CGI.br Principles for the Governance and Use of the Internet[8] and prepared due to the opposition of civil society to Laws No. 12,735 and No. 12,737 of 2012, known as "*Azeredo* and *Carolina Dieckmann* Laws," whose primary objective was to fight against cybercrimes in Brazil.

Draft Bill No. 2,126 of 2011 passed through a pioneer legislative process as it was created and discussed on open platforms targeting the rights of internet users. Its debates focused on allowing internet users to communicate on a digital platform capable of innovation, free access, and collaboration. Its original objective was to regulate issues such as freedom of expression, privacy, and the guarantee of equal access to the network. Among its central themes, there were ISP responsibility, data protection, and network neutrality.

BCR advocates for the promotion of internet access as a core principle. Its Art. 4 established as one of its objectives the promotion of the right of access to the internet. Also, Art. 7 of BCR conditions the full realization of citizenship rights, such as privacy and freedom of expression, to internet access. It is also recorded in Art. 27 of BCR that public initiatives to promote digital culture should seek to reduce inequalities, especially among the different regions of the country, to access and use of information and communication technologies, and to promote the production and circulation of national content.

In this context, however, some values stand out from others as is the case of the primacy of the incentive to innovation for the development of the internet. According to Castells (2010):

> Each mode of development also has a structurally determined performance principle that serves as the basis for the organization of technological processes: industrialism is geared towards economic growth, that is, to maximize production; informationalism aims at technological development, that is, the accumulation of knowledge and higher levels of information processing complexity.

[8] The CGI.br Principles for the Governance and Use of the Internet include freedom, privacy and human rights, democratic and collaborative governance, universality, diversity, innovation, network neutrality, non-liability of the network, functionality, security and stability, standardization and interoperability, and legal and regulatory environments (COMITÊ GESTOR DA INTERNET NO BRASIL, 2009).

The original Draft Bill had three elements: freedom of expression online, protection of privacy and personal data on the web; and network neutrality. Subsequently to five years of debate, on 23 April 2014, Brazil enacted Law No. 12,965, providing a general legal framework for internet use that incorporated a network neutrality rule, limitation of responsibility for the intermediaries, freedom of expression, and guarantees for internet users' privacy. It also established the main stakeholders and their responsibilities in the online environment.

In particular, Art. 9 of BRC makes specific reference to network neutrality principle. Defining network neutrality's meaning is an arduous task.[9] The term itself is derived from the word *neuter*, which in Latin means "neither" and refers to "non-discrimination" or "equality." Yet, the term "neutrality" aspires to imply a state of being in which an entity or artifact does not take sides. There is an expectation that technology remains neutral. Nevertheless, it is never neutral. It is always political and continually expresses and reinforces patterns of domination and hierarchy. In general terms, it is a non-discrimination principle, which provides that internet service providers should treat all internet traffic equally.

BRC established a general rule to ensure that entities responsible for transmission, switching or routing must process, on an isonomic basis, any data packages, regardless of content, origin and destination, service, terminal, or application. In this context, network neutrality arose as a non-discrimination principle aiming at solving the discrimination practices related to prices and services – including but not limited to blocking, throttling, and manipulating content and application – promoting investments in next-generation of internet access, and closing the digital divide.

Under Art. 9 of Law No. 12,965 of 2014, "network neutrality" is defined as the ISPs' duty to grant "equal treatment" to every data packet, regardless of the "content, origin and destination, service, terminal or application." It is not possible to understand this concept without the three-layer model referenced above (see item 2). Paragraph 3 of Article 9 prohibits the blocking of content or applications. However, an "equal treatment" rule conflicts with other sets of goals and principles of the BCR – that is, promoting access to the internet,

[9] Different meanings of network neutrality include: "no different quality grades ('fast lanes') for internet service"; "no price discrimination among internet providers"; "no monopoly price charged to content and applications providers"; "nothing charged to the providers for transmitting their content"; "no discrimination on content providers who compete with the carriers' content"; "no selectivity by the carriers over content they transmit"; and "no blocking of the access of users to some websites."(BOCACHE; MIKHEYEV; PAQUE, 2007).

protecting the constitutional rights of free speech and the free flow of information, and promoting innovation – as well as with the principle of inclusiveness of the internet. Thus, as a matter of logical consistency, if one is to adhere to the following goals and principles, one cannot give any weight to the notions of "equal treatment" and the preservation of network neutrality.

The early network neutrality debate was primarily framed as a dichotomous issue. Arguing in this frame, earliest scholarship work positioned themselves either in favor of network neutrality, based on the end-to-end arguments that inspired its early architecture, provided a nondiscriminatory foundation that allowed application innovation to flourish or opposed to it (LEMLEY; LESSIG, 2001; WU; LESSIG, 2003; YOO, 2004). As the discussion matured and following conceptions of the end-to-end arguments were advanced, scholars' positions became more nuanced, with a stronger emphasis on the contingencies under which network neutrality rules might work and the limits of such policies (FRIEDEN, 2010; VAN SCHEWICK; WEILAND, 2015).

The discussion so far has generated a broad range of claims and counterclaims as to the nature of network neutrality problem and the range of solutions. Opponents often claim that network neutrality would imply a prohibition of price differentiation for network services, a mandate to run a dumb network infrastructure, and the establishment of intrusive regulation. On the other hand, many proponents of network neutrality envision a future of severe discrimination against content providers with a significantly lowered innovation rate. Although the evolution of the network neutrality debate is interesting, it does not fall within the scope of this article.

Exceptions were not explicitly specified by the Law as it stated that discrimination or degradation of the traffic would be regulated by the Executive branch, after consultation with CGI.br and ANATEL. The issue was addressed by Decree No. 8,771 of 2016 that among other specific provisions, addressed data packet discrimination and traffic degradation, providing exceptional hypotheses of discrimination or degradation of network data traffic would only be allowed where there was compliance with "technical requirements deemed essential for the adequate provision of services and applications," namely the handling of web security issues – such as control over bulk messaging – and the handling of exceptional cases of network congestion.

According to the BCR's network neutrality principle, those responsible for data transmission, switching, or routing have the duty to treat isonomically any data packets, without any distinction, being the discrimination or traffic degradation extraordinary measures. Traffic management practices are possible only under two circumstances: (i) when technical requirements must be satisfied for adequate provision of services and applications; or (ii) when emergency services need priority treatment. Also, the BCR established that reasonableness, fair treatment, and transparency must be guaranteed even in those permitted management practices, without causing injury to users or engaging in the anti-competitive practice.

Decree 8,771 of 2016 specifically listed all permitted exceptions to network neutrality principle. The "technical requirements indispensable for the provision of internet services" are set out in Art. 5, as follows: handling of security and safety issues, such as anti-spamming procedures and denial-of-service attacks (DDoS); and handling extraordinary network congestion. ANATEL was entrusted with inspecting and investigating offenses against network neutrality, following the directives to be issued by CGI.br in this regard.

Network management practices based on international technical standards are also permitted, provided that ANATEL regulatory standards and GGI.br guidelines are abided by. Transparency shall govern the adoption of network management practices by way of adequate disclosure. Today, network neutrality in Brazil is a general rule of non-discriminatory treatment with exceptions to preserve security and integrity, mitigate the effects of temporary and exceptional congestion, and prioritize emergency services.

Another hot topic was the offer of free access packets (known as "zero-rating") vis-a-vis network neutrality. The zero-rating practice is made up by offering users data plans that differentiate the conditions of access to specific services on the internet. Through this practice, the mobile carrier allows unrestricted access to mobile data to certain services, such as social networking and messaging applications. The debate had most people at one of two extremes. At one end was the argument that zero-rated content should be banned because it is a violation of network neutrality. At the other end was the argument that zero-rated content is a boon to the poor and unconnected populace in Asia, Africa, and Latin America, the rationale being that having some connectivity, even with minimal content, was better than having no access at all.

Zero-rating can occur in two different ways: the carrier selects a specific application so that the traffic generated by access to those applications is not charged to the user and the content application provider can directly pay the carrier for the traffic generated by its users (also known as "sponsored access" or "Internet 0800"). Besides Facebook Zero, there are also the initiatives of Wikipedia Zero, Google Free Zone, and Internet.org. The latter aims to promote initiatives that can help reduce the cost of internet access, increase the efficiency of data traffic in mobile applications and develop new business models that can help connect people to the internet. The zero-rating raised several questions, highlighting the dichotomy between the perspective that limited access to a few selected contents can reduce internet users' capabilities and the prospect that any free access is beneficial, even if it is limited to one or few applications.

Zero-rating practices, based on the provision of sponsored applications provided by their commercial partners, users' choice is increasingly oriented towards the platform provided by their mobile operators, because it may otherwise be too expensive or extremely slow to rely on other services. As such, many claim that network neutrality is not exclusively related to the technical discrimination of packets (e.g., blocking, throttling, and other forms of packet's discrimination), but also to the economic or price discrimination of applications and services (i.e., sponsored data plans). Although price discrimination was not initially regarded as falling within the scope of network neutrality, it might have a significant impact on the ability of users to access internet service in poor countries. Thus, these practices tend to increase digital exclusion, establishing, for providers, cycles of technological dependence and, for users, a differentiation between the internet for the rich and the "internet of the poor."

In the context of mobile communications increasingly online operators are entering into agreements with telecommunication carriers to sponsor the data consumption of their services thus encouraging the use by consumers. While this does not apply in countries where users have access to unlimited internet access at a flat-rate or massive data caps, in other countries where mobile internet prices are very high, or where mobile internet access is subject to limited data caps, zero-rating practices may be very appealing and lead to a situation where mobile users increasingly find themselves interacting exclusively with vertically integrated online environments, rather than within the internet.

For this reason, zero-rating can be considered an anti-competitive practice as far as it puts competing services at a competitive disadvantage. Moreover, the practice may encourage mobile operators to set artificially up low volume caps, to profit from sponsored data. Finally, it has also been argued that zero-rating reduces the ability for consumers to choose amongst a variety of competing services, which are longer be judged according to their inherent quality, but rather according to their market price.

Decree No. 8,771 considered the subject and prohibited unilateral practices and agreements between ISPs and CAPs which "compromise the public and unrestricted character of internet access," or promote data and applications packets to the detriment of other offers. Also, in October 2017, CADE dismissed an administrative inquiry arising from a denunciation filed by the Federal Public Prosecutor's Office against several mobile network operators for offering zero-rated applications in their data packages. The affected companies were Claro, Tim, Oi, and Vivo. According to the Public Prosecutor Office, zero-rating deals could fall within several anti-competitive acts provided by the Brazilian Antitrust Act (Law No. 12,529/2011), harming free competition through discrimination to applications and differentiated prices.[10]

CADE established, then, that zero-rating does not harm free competition or network neutrality principles for the following reasons: there is no corporate relationship between the mobile operators and applications that do not count towards any data cap in place on the internet access service; the provision of free access to these applications would save the data cap, and promote access to other application; there is no contractual relationship of exclusivity between mobile operators and applications. Also, CADE considered that a total ban on zero-rating might inhibit the development of governmental and educational sites and applications if the data cap is used. The zero-rating debate touches upon issues of network neutrality, market power, privacy, security, and social equity.

A wide variety of data caps and "fair use" policies may be used by operators to implement a specific business model. In general, a data cap will be imposed to support the operator's pricing strategy, so that the price of traffic is based on volume. Data caps are a technical measure that requires monitoring traffic volume and throttling data or charging for extra volume once a pre-defined data cap is reached. Data caps provide a price signal to end-users concerning to

[10] . Technical Note N. 02/2015/MPF in Inquiry No. 08700.004314/2016-71.

the cost of their bandwidth consumption. Uncapped packages are available in some markets, but these are rare. Capped and metered packages are the norm. If the cap is reached before the validity period ends, the user can purchase an additional data quantity (thereby temporarily increasing the cap) or pay for what he or she uses additionally on a per-unit basis. This is the business model that mobile operators have used for years around the world. Either way, the usage is metered in the sense that users pay for what they consume. It is not uncommon to find packages that are capped as low as 100 megabytes, sometimes less, and valid for just a day or a few days.

The use of monthly data caps by ISPs has been an issue of public policy debate ever since their introduction. Proponents of data caps usually claim that their purpose is to manage congestion, to increase fairness, and to recover the cost associated with heavy users. On the other hand, opponents of data caps often express skepticism that data caps effectively manage congestion, doubt that broadband ISPs are using data caps to recover the cost associated with heavy users and claim that broadband ISPs are using data caps to increase profit and to protect incumbent pay-television services (JORDAN, 2017). The advantage of caps generally is that they give price-sensitive users certainty about what they are spending on data since they cannot continue to consume data after the cap is reached unless they consciously top up their mobile credit. Since many data networks follow that 80 % of the bandwidth is used by 20 % of users, metered use makes everyone pay for what he or she consumed, thereby avoiding the majority subsidizing the limited number of high bandwidth consumers. This is important in the Global South, where affordability can still be a challenge and where networks are still being rolled out.

In 2017, Brazil discussed Bill No 7.182 to alter the BRC and ban the practice of capping data for home broadband internet in Brazil. In 2016, Brazilian ISPs began to implement data caps for home broadband connections. The new pricing scheme got initial support from public officials and became policy in April 2016, when ANATEL suspended the implementation of data caps for three months, but then allowed them after that time, given certain conditions. In March 2017, the Senate proposed and passed Bill No. 174 of 2016, and the Consumer Protection Commission in the House of Representatives also approved it on 13 June 2017. In the meantime, ANATEL developed a public consultation to measure the acceptance of the new data capping scheme. The result pointed out that most Brazilians did not approve data caps. The Bill is still pending a plenary vote in the House. One of the arguments proponents of data caps advance is that they

help with network congestion. Some ISPs in Brazil have argued that the data cap scheme will allow them to manage the network better. However, the correlation between heavy monthly usage and users' contributions to congestion remains unclear. Thus, data caps, which are a form of network management, become part of the broader argument and legal battle over network neutrality.

Following the telecommunications regulatory reforms, in 2018, a fourth version of the PGMU was published as Decree No. 9,619. The main change was the inclusion of an obligation to install wireless broadband services in 1,473 locations using 4G technology or higher. In 2019, ANATEL approved the Structural Plan for Telecommunications Networks (PERT or *Plano Estrutural de Redes de Telecomunicações*) whose objective was to increase broadband penetration by promoting coordinated efforts and investments between the private and public sectors. Also in 2019, Law No. 13,879 amended the LGT to allow fixed telephony concessionaires to migrate to the private authorization regime and the reversal of assets associated with the concessions. As a rule, at the end of a concession, assets used to provide public services should be returned to the state (*i.e.* reversible assets)[11] but it does not apply to services provided under authorization.

## 4. Internet regulation chastened: What future for the internet?

The internet regulatory framework, reflected in the LGT, BRC, and other adjacent laws, was mainly built on the need to provide universal and non-discriminatory services. However, despite many attempts, Brazil has failed to narrow the digital divide or promote digital inclusion. As data provided forth in item 2 above demonstrates, digital exclusion exists across the regions, within a region, and within Brazil. After decades, internet enthusiasts have ignored how technology and politics are deeply enriched. The tragedy of internet regulation is that it occupied the popular imagination but has so far contributed little of note.

Because of its structure based on principles, BCR was described as "the Constitution of the Internet" in Brazil. Alongside this notion, there is a human rights-oriented approach was to guarantee an open internet. Enrique Ricardo

[11] It has long been argued that the reversal of assets clause within the public regime deterred private investment. In 2020, ANATEL published a public consultation on the methodology for evaluating reversible assets.

Lewandowski (1984, p. 66), in his seminal work on the protection of human rights, affirms that

> problems related to the institutionalization of human rights are not at the level of their formal expression, since, in this field, great advances have been made since the emergence of the first declarations at the end of the 18th Century. Difficulties are located precisely on the level of its concrete realization and enforceability. [...] while all declared rights constitute legal norms, the scope of these provisions is uneven. Some, due to their mandatory nature, effectively represent rules of positive law, while others are only valid as a program.

Beyond issues of human rights realization and enforceability, Shin-yin Peng (2022, p. 19-20) argues, based on Samuel Moyn's critical theory of humans right, that

> 'sufficiency' and 'equality' are different. The 'basic needs,' 'human rights' oriented solutions to digital inclusion – providing the minimum broadband speed – 'coexist with a crisis of material inequality'. As discussed above, in recent decades, the 'Universal Services' policy has been the most popular legal mechanism for countries in the promotion of digital inclusion. [...] This reconfirms the theory and experience that human rights are rarely an effective tool to address socio-economic inequalities. (MOYN, 2018)

Therefore, ideals of equality embrace a broad spectrum of normative morality, including status and distributional equalities. While the former evokes the ethics of equal status of human beings entitled to political freedoms, the latter recalls to material commitments of social and economic rights. In this sense, there is an ontological difference between equality in technology and the ethics of material equality (MOYN, 2018). Equality in technology can be established through digital inclusion since everyone can access it equally. It can satisfy its economic function or can bring equality in an economic sense. The value of equality is invoked in this case to refer to network players and consumers having the same opportunities.

Furthermore, equality can emphasize individual status and responsibilities. Digital inclusion has been related to the assurance of equal competition among providers and permeated by the ethics of equality, meaning the state

of being equal, that individuals intrinsically have nonnegotiable entitlements. However, this status equality fails to accomplish distributive justice. In this case, digital exclusion cannot be solved by bringing the concept of equality and non-discrimination into the picture.

As Reena Cheruvalath (2018, p. 146) states "[t]here is an ontological difference between the use of the word equality in a 'technical sense' and an 'ethical sense.' Defining 'technological equality' as 'ethical equality' to ensure non-discrimination invites the fallacy of equivocation." The digital inclusion political and economic goals are entrenched with the morality of status equality, which means individuals entitlements, such as freedom of speech and civic and democratic participation envisioned goals.

The language adopted in the mentioned provisions, such as LGT, BRC, and other adjacent laws, refers to status equality. Nevertheless, this approach is not enough to bridge lagging and leading sectors and the inequality their relationship causes. Internet regulation shall be reframed under the ethics of material equality and distributive justice. In this sense, social justice requires that everything is equally distributed.

According to critical legal scholars, the law is not free because structures support the repeated play of the haves against the have-nots. Law is used to protect and promote winners, while indefinitely promising to compensate losers (KENNEDY, 2013, p. 11). This approach places emphasis on the dynamics of inequality, the distribution of growth, and the reproduction of hierarchies. As stated by Calixto Salomão Filho (2015, p. 157), "these structures are historical, economic, and legal constructs – in the past, introduced through the rules of domination of colonial monopoly, reinforced in the present through the possibilities of domination provided by the globalized economy." As well, Carlos Portugal Gouvêa (2021, p. 218) states "increases in economic inequality may create barriers for the integrations of the poorer individuals in the poorest countries into the global economy". Thus, Brazilian regulation aiming at promoting digital inclusion shall be revisited and redesigned to achieve distributive justice and structural transformation.

## 5. Conclusion

Few internet regulation topics have raised so many controversies as policies used to address the digital divide. In Brazil, this debate is deeply entrenched in structural issues related to economic power and inequality. My assumption is that internet regulation failures to address digital exclusion are not an unintended consequence of the regulatory system but are as much part of the problem as the solution. In this context, the following question was raised in this article: Why regulation based on both universal services goals and internet principles of non-discriminatory services, such as network neutrality, have failed to bridge the digital divide? My proposition is that, first, the concept of the digital divide shall be understood within a broader framework not restricted to the lack of infrastructure or connection. Second, the Brazilian regulatory framework has failed up until now because it disregards the ethics of material equality and distributive justice. To address these questions, this study is placed within the interdisciplinary framework of science and technology studies (STS), placing issues of power, as opposed to rights and institutions, at the center of debates about ICTs. Also, History can reframe how we perceive specific problems, permitting us to think anew about what the present denies.

By revisiting the history of the telecommunications regulation in Brazil, I highlighted challenges for the development of the internet was defined by a regulatory pendulum, in which deregulation and power concentration played an important role. First, universal access to telecommunication services, and, then, network neutrality rules have been framed at the expense of the distributional objectives of communications law. It is time for policymakers and scholars in developing countries to put aside the fallacy of morality of status equality – which means digital exclusion cannot be solved by solely bringing the concept of equality and non-discrimination into the picture – and reframe internet regulation under the ethics of material equality and distributive justice. In this sense, social justice requires that everything is equally distributed. Unless disparities are addressed directly, internet regulation could worsen existing inequalities in the short and long term.

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**Appendix 1 - Household with access to the internet in Brazil - Percentage of total households in 2021**

| State | Broadband density access per 100 households |
|---|---|
| Acre | 11,28 |
| Alagoas | 7,25 |
| Amazonas | 10,41 |
| Amapá | 13,92 |
| Bahia | 11,08 |
| Ceará | 14,88 |
| Distrito Federal | 26,95 |
| Espírito Santo | 18,55 |
| Goiás | 16,90 |
| Maranhão | 6,14 |
| Minas Gerais | 20,70 |
| Mato Grosso do Sul | 17,55 |
| Mato Grosso | 18,28 |
| Pará | 7,21 |
| Paraíba | 13,67 |
| Pernambuco | 8,52 |
| Piauí | 10,57 |
| Paraná | 25,06 |
| Rio de Janeiro | 21,36 |
| Rio Grande do Norte | 16,99 |
| Rondônia | 15,11 |
| Roraima | 12,84 |
| Rio Grande do Sul | 25,63 |
| Santa Catarina | 31,32 |

| State | Broadband density access per 100 households |
|---|---|
| Sergipe | 14,06 |
| São Paulo | 28,53 |
| Tocantins | 8,05 |
| **Total** | **41,19** |

Source: Author's elaboration. Data available at: BRASIL. Agência Nacional de Telecomunicações. **Painel de dados da ANATEL**. Brasília: ANATEL, 2022. Researched period: dez-2021. Available at: https://informacoes.anatel.gov.br/paineis/acessos. Access: March 2022.

## Appendix 2 - Human Development Index per Brazilian States in 2014

| Brazil | 0,761 |
|---|---|
| Distrito Federal | 0,839 |
| São Paulo | 0,819 |
| Santa Catarina | 0,813 |
| Paraná | 0,79 |
| Rio Grande do Sul | 0,779 |
| Rio de Janeiro | 0,778 |
| Espírito Santo | 0,771 |
| Minas Gerais | 0,769 |
| Mato Grosso | 0,767 |
| Mato Grosso do Sul | 0,762 |
| Goiás | 0,75 |
| Amapá | 0,747 |
| Roraima | 0,732 |
| Tocantins | 0,732 |
| Acre | 0,719 |
| Rio Grande do Norte | 0,717 |
| Ceará | 0,716 |

| | |
|---|---|
| **Rondônia** | **0,715** |
| **Amazonas** | **0,709** |
| **Pernambuco** | **0,709** |
| **Bahia** | **0,703** |
| **Paraíba** | **0,701** |
| **Sergipe** | **0,681** |
| **Maranhão** | **0,678** |
| **Piauí** | **0,678** |
| **Pará** | **0,675** |
| **Alagoas** | **0,667** |

Source: Author's elaboration. Data available at: ATLAS do desenvolvimento humano nas regiões metropolitanas brasileiras. Brasília: PNUD: IPEA: Fundação João Pinheiro, 2014. 120 p. Available at: https://www.academia.edu/21526809/Atlas_do_Desenvolvimento_Humano_nas_Regi%C3%B5es_Metropolitanas_Brasileiras. Access: March 2022.