Campanha Pedágio na Internet:

Biblioteca de referências sobre a política de compartilhamento de custos
Resumo

Este documento organiza uma coleção de referências sobre a política de compartilhamento de custos (network fees) e sua potencial adaptação para o contexto brasileiro.

Esta coletânea faz parte da campanha “Pedágio na Internet”, que tem por objetivo promover o debate técnico sobre a política de compartilhamento de custos, e foi compilado em parceria da ISOC Brasil e do ITS Rio.

Outras informações

Inscreva-se na lista de emails da ISOC Brasil sobre o tema:
https://listas.tiwa.net.br/listinfo/gt-costsharing

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1. **Posicionamentos ISOC**

- **Nota técnica (“Impact Brief”) da ISOC sobre implantação do modelo “fair share” na Coreia do Sul**
  

  - "This report uses the Internet Impact Assessment Toolkit (IIAT) to assess how these rules may affect further Internet development in South Korea and, more broadly, the health of the global Internet.
  
  - Our analysis finds that the existing rules create unnecessary costs and bottlenecks in South Korea’s digital ecosystem. They also risk increasing market concentration and dominance by a few large service providers. The proposed provisions will only make this worse."

- **What Are the South Korean “Sender Pays” Rules?** "The “sender pays” policy was reinforced in 2020, when the country’s National Assembly amended the TBA to require VSPs, specifically content providers that meet certain thresholds[5], to take measures to make sure that their services remain stable in the country. These include securing enough server capacity, ensuring uninterrupted Internet connection, and notifying ISPs before they change their traffic route."

- **Artigo ISOC. O remetente paga: lições que os formuladores de políticas da Europa devem tirar do caso da Coreia do Sul**
  

  - The story of South Korea’s settlement regime is unfortunately one in which bad policy is patched by even worse policy. In May of this year we released an Internet Impact Brief on the case of South Korea, where we looked at the implications of the existing rules, and the recently proposed amendments currently discussed in the national assembly."
● The case of South Korea provides a valuable lesson to European policy makers. On the one hand it’s a story about how interference in the voluntary negotiation amongst networks can have adverse effects on both network economics and performance.

● We have seen service providers leaving the country to avoid being subject to the regulations, degraded Internet experience due to larger latencies, and increased costs for companies and consumers.

● Contribuição da ISOC para consulta pública da Comunidade Europeia


● Introducing direct payments will drastically change the model of how the Internet works globally, and will lead to an inefficient infrastructure, higher costs, lower quality of service and risks a fragmentation of the Internet.

● Traffic volume is an inadequate metric for a network’s contribution to a common infrastructure, it creates adverse incentives and leads to a more costly and less efficient interconnection infrastructure.

● Enforcement of such proposals may have long-term economic consequences and would conflict with network neutrality.

● Posicionalmento ISOC Global sobre a política de compartilhamento de custos


● The basic idea of the Internet is a network of independent networks that interconnect to form a shared system of connectivity across all participants. This model has proven its value time and time again over the last decades, and most recently during the COVID-19 pandemic. The voluntary inter-networking arrangements allows network operators to optimize their connectivity
with others to meet their customers’ needs. The result has been an efficient and resilient network that is able to evolve to host new applications (like voice calls or gaming), and to deploy innovative services at a global scale. And this happens without prior contracting with everyone in the system.

- **The interconnection rules in South Korea, and similar proposals that are now re-entering the European debate, are in direct conflict with this Internet model of networking.** They amount to an idea of a regulated settlement model where communicating parties are charged for the traffic they exchange. It is proposed by the telecommunication’s operators, because in fact it’s the settlement model they traditionally used for almost a century for their voice traffic business. That model was useful on a completely different era and technologies that pre-date the Internet.

- **Coletânia de posicionamentos contra a política de compartilhamento de custos**
  

  - European telecom operators are trying to present this issue as a balanced and productive debate. The reality is that these telecom operators are alone in their support of traffic flow-based monetary contributions.

  - **In the other corner are a broad list of stakeholders raising the alarm about traffic flow-based contributions.** These include consumer advocates, civil society organizations, academics, regulators, small and medium enterprise sized Internet service providers, provedores de aplicações, CAPs, and European Internet users. CAPs understandably oppose the proposal, and their industry association, the Computer and Communications Industry Association (CCIA), has responded to the proposal. They’ve also fostered a study, published by Analysys Mason, dismantling the telecoms’ arguments.

  - **The Body of European Regulators (BEREC), in its preliminary assessment of the underlying assumptions of**
payments from large CAPs to ISPs, has been very clear: “BEREC believes that the ETNO members’ proposal could present various risks for the internet ecosystem.”

- **The European Consumers Association (BEUC)** published a report stating that “the risks or potential disadvantages of establishing measures such a [Sending-Party-Network-Pays] SPNP system would range from a potential distortion of competition on the telecom market, negatively impacting the diversity of products, prices and performance, to the potential impacts on net neutrality, which could undermine the open and free access to Internet as consumers know it today.”

- **The European Internet Exchange Association (Euro-IX)** has written a letter to the European Commission that says “the proposal will risk to be detrimental to the correct functioning of the Internet connectivity and peering market and distort competition therein. Citizen’s experience in basic business operations, sharing data, accessing cloud services and developing research projects will be negatively impacted.”

- **Mozilla** has also expressed its concerns to the European Commission, explaining how the proposal from the telecom operators “would violate a core tenet of net neutrality, and would have harmful knock-on consequences for European consumers, creators, and innovators.”

- **Several civil society advocates**, like epicenter.works and European Digital Rights (EDRi), have been vocal about the risks. Together with other 32 organizations, they have urged the European Commission “not to sacrifice the free and open internet to the short-sighted and self-interested demands of the telecom industry.” Their letter states, “The proposal will harm freedom of expression, freedom to access knowledge, freedom to conduct business and innovation in the EU. It will hurt Europe’s internet economy and create unprecedented bureaucratic barriers that will slow growth in a recovering economy.”
• The audio-visual sector is also very concerned. The Association of Commercial Television (ACT) and Video on Demand Services in Europe (VOD) also reject the proposal from the telecom operators. Their statements (here and here) highlight the lack of an evidence-based justification to the new obligations and the impact on the audio-visual industry, the European creative sector as a whole, consumers, and pricing.

• The Mobile Virtual Network Operators (MVNO) are not aligned either with the large telecom providers. Their position paper warns this “artificial change to economics of Internet traffic handling,” will bring market distortion and harm to competition and calls the Commission to reject the proposal.

• Academics from all over the world are watching these developments with great concern. A letter signed by 29 Internet experts explains how this proposal will upend decades of European Union policy and harm Europe’s digital agenda, because they represent a fundamental misunderstanding of the structure of the Internet.

• Posicionamento do Governo da Holanda, mencionado pela ISOC.


• The Netherlands is concerned about the plans of the large European telecom operators to charge tolls on the Internet. This poses considerable risks to the Internet ecosystem and is likely to cause considerable harm to European consumers and businesses, and impeding European digitalisation. The large telecom companies omitted crucial information resulting in a misrepresentation of facts.

• Even if large telecom operators would not be able to invest sufficiently, than charging toll is not an effective instrument
● Webinário ISOC
  https://isoc.live/16447/
  ● Participantes: Eli Noam, Paul Garrett Professor, Emeritus / Director, Columbia Institute for Tele-Information; Rudolf van der Berg, Partner, Stratix Consulting (Netherlands); Michael Kende, Senior Advisor, Analysys Mason (Switzerland); Maarit Palovirta, Senior Director for Regulatory Affairs, European Telecommunications Network Operators’ Association, ETNO (Belgium); William J. Drake, Director of International Studies at the Columbia Institute for Tele-Information

2. Contextualização da política

● BEREC. Resposta para a consulta exploratória sobre o futuro do setor de comunicação eletrônica e sua infraestrutura
  https://www.berec.europa.eu/system/files/2023-05/BoR%20%2823%29%20%282131b%20Overview%20%20BEREC%20Response%20to%20Exploratory%20Consultation.pdf
  ● Body of European Regulators for Electronic Communications (BEREC). Contributes to the development and better functioning of the internal market for electronic communications networks and services.

● BEREC. Lista de políticas e documentos para entender a neutralidade de rede e a política de Internet Aberta da União Europeia
  ● Net neutrality refers to a debate about the way that Internet Service Providers (ISPs) manage the data or traffic carried on their networks when data is requested by broadband subscribers (known as end-users under EU law) from providers of content, applications or services (CAPs) such as YouTube or Spotify, as well as when traffic is exchanged between end-users.
• Under the EU rules, ISPs are prohibited from blocking or slowing down of internet traffic, except where necessary. The exceptions are limited to: traffic management to comply with a legal order, to ensure network integrity and security, and to manage exceptional or temporary network congestion, provided that equivalent categories of traffic are treated equally.

• Bruno Jullien e Matthieu Bouvard (Economistas). Texto acadêmico avaliando o impacto no bem-estar dos consumidores
  • The cost share not only boosts the content provider's incentives to moderate trac but also affects the price composition for consumers buying access and content.
  • We show the overall effect on consumer welfare depends on the content provider's ability to monetize users. When that ability is high, introducing a cost-share can lead to lower overall prices and higher consumer welfare.

• Politico.eu. Rerportagem contextualizando a disputa entre Big Techs e Telecoms
  https://www.politico.eu/article/telecom-netflix-tiktok-youtubefair-share-why-telcos-are-going-at-war-with-big-tech/
  • European operators say it's unfair that they spend tens of billions of euros every year on infrastructure to keep up with growing traffic while a handful of large content providers get the audience and some of the revenue. They say this isn't sustainable as traffic surges — and it means they will struggle to make the investments needed for the EU's digital target of connecting 45 million Europeans to gigabit broadband and 5G by 2030.
  • The Commission has made sympathetic sounds, signing a Declaration on Digital Rights and Principles for the Digital Decade that suggests that the entire industry makes "make a fair and proportionate contribution to the costs of public goods, services and infrastructures."
● Augusto Preta (economista). Apontamentos sobre problemas centrais nas discussões pela Comissão Europeia

● The request of a "fair share" or "fair contribution" coming from a few large ISP (internet service providers) look much more like a "regulated network interconnection fee" to be payed by the CAP (big tech and content service provider) which is not consistent in terms of market failure.

● Moreover, limiting the issue to just the economic relationship between 2 players (ISP and CAP) is ineffective and incapable of grasping the broader reality of the phenomenon, which concerns an ecosystem and not separate markets.

● Imposing regulated interconnection charges can produce negative effects on the entire ecosystem: at the infrastructural level, since it reduces the incentives of the CAP to invest in innovation (cloud, CDN, etc.); at the supply side to the end user, since higher interconnection costs would mean higher prices for offers to the consumers or less money to invest in content, which in turn would determine less content available or lower quality content. The loser in all cases would always be the consumer, the truly “stone guest” in this relationship.

● Internet Architecture Board - IAB. Contribuição à consulta da União Europeia
c-communications-sector-and-its-infrastructure.pdf

● Applying regional regulation to the global Internet and especially its payment and revenue structure risk disadvantages for users and local markets. After the introduction of Sending Party Pays in South Korea, it was observed that content and application providers (CAPs)
shifted their exchange of data offshore, thereby hurting the Internet exchange point market in the country.

- The resilience of the Internet is put at risk with this proposal, because it requires heavier traffic management. Routing needs to remain lightweight and agile. Interconnection agreements are largely done via “handshake agreements” and without written contracts.
- There is no evidence that operators’ network costs are already not fully covered and paid for in the Internet value chain (from CAPs at one end, to the end users, at the other).

3. Policy Reports críticos à política

- **Techmonitor. Big Techs devem pagar os custos da rede de telecomunicações? Oposição cresce ao plano de compartilhamento de custos na Europa**

- The EU has been under pressure from network operators to force Big Tech companies to pay some of the costs of upgrading and maintaining networks. The operators argue that as companies such as Netflix and Meta account for much of the traffic on networks and profit from their existence, they should be made to fund a portion of their upkeep.

- **The reality is that telcos have been investing in modernising networks for 5G and have not seen a return on investment. One of the ways they can claim the money back is with new revenue streams.**

- "Whilst network costs are significant, they do not scale with traffic - we have shown that globally, network costs are broadly stable over time, even as traffic has tripled," he says. "Operators are more than able to carry more and more traffic at very low marginal cost."

- **European Parliamentary Research Service. Debate sobre contribuição de custo de rede**
The fair contribution debate is not entirely new. The European Telecommunications Network Operators’ Association (ETNO) proposed to introduce a kind of sending party network pays (SPNP) charging system back in 2012. The idea of this system is that large traffic generators should pay a fee to telcos for ‘delivering’ their data traffic (e.g. video streaming) to the end user’s network.

At present, internet interconnection is largely unregulated and done on the basis of transit and peering agreements. The SPNP approach collides with the dominant bill and keep approach of interconnection, where data transport for internet services over telecoms networks is included in the end user price at retail level and each network agrees to terminate connections from the other network without any charge.

Double payment for data transport services: associations and experts demanding a careful impact assessment or against the fair contribution argue that telcos are already remunerated by their own customers through an internet subscription. In addition, there are concerns that a potential fee on large traffic generators would be passed on to consumers through higher prices for content or more advertising. Telcos argue that large traffic generators are not like individual internet users and should contribute to the costs of the traffic conveyance they benefit from and help achieve the digital decade goals.

Servço de Estudos do Parlamento Europeu. Os limites do debate de compartilhamento de custos

We also show why the commitment to ensuring fair and proportionate contributions to the costs of public goods, services, and infrastructures made by the EU in the European Declaration on Digital Rights and Principles for
the Digital Decade should not be read as providing a basis for introducing network fees.

- We argue that targets for digital transformation should be tackled through taxation and subsequent public support for investment into sustainable infrastructure that fosters interoperability rather than mandatory direct transfers of money between powerful private actors.

- Oxera Consulting. Análise de impacto sobre a taxação de provedores de aplicativos de conteúdo online para financiar operadoras de rede
  [https://open.overheid.nl/documenten/ronl-8a56ac18a98a337315377fe38ac0041eb0dbe906/pdf](https://open.overheid.nl/documenten/ronl-8a56ac18a98a337315377fe38ac0041eb0dbe906/pdf)

  While broadband networks can also be seen vertically from a supply side perspective, we view the broadband internet market for the purpose of this study as a two-sided market between content providers and consumers.

  We show that a levy tends to reduce prices on the broadband side, but increase prices on the content side. The results show that the overall policy judgment about introducing a levy depends upon judgements taken about the desirability of the transfers, rather than any reasonable expectation that there are significant efficiency gains to be unlocked.

4. Posicionamentos críticos à política

- Electronic Frontier Foundation. Não há nada justo na proposta “Fair Share” da Comissão Europeia

  The misguided idea behind the consultation is that large ISPs are suffering mightily because the companies that create and/or deliver information and content online, called content and applications providers (CAPs), are freeriding off the ISPs physical infrastructure networks. The CAPs you may be most familiar with go by another acronym — FAANG (Facebook, Amazon, Apple, Netflix,
and Google) — but also encompasses companies who provide many other services.

- The ISP argument completely mischaracterizes the relationship between CAPs and ISPs. As EFF has written about before, CAPs do not freeload and have invested almost $900bn into the physical infrastructure of the internet themselves. Their investments have saved ISPs billions of dollars annually. Furthermore, the costs ISPs incur for delivering traffic have not been drastically rising despite increases in traffic, because their investments in fiber-based infrastructure have allowed them to deliver gigabit and beyond speeds at a lowering operating cost.

- Article 19. Interesses das telecomunicações não devem sobrepor os direitos humanos
  https://www.article19.org/resources/eu-telecom-interests-must-not-trump-human-rights/

  - ARTICLE 19 argues that the proposal has clear implications for freedom of expression and other human rights in the EU. Internet connectivity is necessary for access to information online. It also directly impacts the exercise of other human rights, such as freedom of association, or the right to health. Adequate internet connectivity is not just an economic goal, but also a social, civil, and political one.

  - Alternative network operators contribute significantly to the provision of last-mile services to people and communities in the EU. However, the current proposal, which demands that CAPs provide remuneration to the largest ISPs, will only increase the power of incumbent operators, further entrenching their dominant or gatekeeping position in the market, and squeezing out local, community-managed, or nonprofit networks.

- EURACTIV. Secretário de estado digital da Itália define iniciativa de pagamento por remetente 'prematura'
The Italian state secretary for the digital transition called for caution regarding a possible EU initiative to make tech companies contribute to telecom infrastructure in an interview with EURACTIV.

“In the opinion of the majority of European countries, the current relationship between OTT [over-the-top] and telecom operators is well-balanced, with benefits for both parties. This is also the position of the Italian government,” Alessio Butti, Italy’s state secretary for the digital transition, told EURACTIV in an exclusive interview.

DIGWATCH. Declaração conjunta de stakeholders contra a proposta de compartilhamento de custos
https://dig.watch/updates/joint-stakeholders-statement-against-the-fair-share-contribution

This statement is signed by NGOs, rightsholders, broadband service providers, cloud associations, and Wikimedia. The signatories consider the harm to consumers would come from the fact that the network contribution would be passed on to them, whilst their choice will be reduced as content companies will have less money to invest and distribute new content.

As noted in their statement: ‘this is an unprecedented alliance of stakeholders all united against one principle: introducing a mandatory network fee, or “fair share” contribution’

Brian Williamson. Um imposto sobre o tráfego da Internet prejudicaria a transformação digital da Europa

This paper argues that there is no sound basis for imposing a fee that would harm rather than promote investment by reducing innovation and use in relation to content and applications; and would harm achievement of the European Commission’s digital transformation vision for 2030.
An internet traffic tax is not justified on grounds of asymmetric bargaining power, would harm rather than promote network investment and would hinder the achievement of digitisation goals for Europe. It is incoherent to tax the very thing you want more of, namely digitisation. The suggestion of an internet traffic tax should therefore be rejected.

5. Impactos

5.1. Impactos sobre Neutralidade de Rede

- Giuseppe Colangelo (Jurista e Economista). Miopia regulatória e a parcela justa dos custos de rede: aprendendo com os erros da neutralidade da rede
  - We argue here that the current debate stems, instead, from earlier invasive and unnecessary regulatory initiatives.
  - Notably, the “fair share” proposal is the poison fruit of net-neutrality regulation, which has prevented telcos from monetizing their networks.
  - In an alternative framework, the telecom sector could have instead been permitted to manage the transmission of content and services according to their value for end users, anticipated bandwidth use, or a host of other quality requirements upon which various CAPs depend.

- Internet Freedom Foundation. Um argumento injusto, ou seja, “compartilhamento justo”: decodificando a demanda das empresas de telecomunicações por regulamentação OTT e desvendando as implicações na neutralidade da rede, custos do usuário e justiça.
  https://internetfreedom.in/public-brief-on-fair-share/
  - We analyse the increasing demands for regulation of OTT services by TSPs and also break down the TSP’s rationale for demanding their "fair share" of the stolen profits from
OTT services. Lastly, we explore policy implications of such paternalistic regulation of OTT services.

- In our analysis, we found that the economic stress on telcos comes from the intense price competition they face due to the extremely low prices of their competitors. There was also no clear data on the extent to which investment was needed in the sector.

- The Center for Internet and Society. Sim, Telefônica, forçar taxar aplicativos de internet viola a neutralidade de rede
  - ISPs want to get paid twice, once by people paying to get online and second by websites and apps these people use. This is just a rehashed version of a 2012 proposal that was thoroughly rejected by the European Commission, European governments, the International Telecommunication Union, and Europe’s group of top telecom regulators known as BEREC.
  - These unnecessary fees would reverse decades of successful internet economics, reduce the quality of popular online services, increase costs for European consumers and businesses, and are unlikely to foster broadband deployment.
  - Despite what Telefonica asserts, no one at the Commission has explained why the proposal doesn’t violate net neutrality. Commissioner Breton likes to repeat that it won’t violate net neutrality, but has never explained how it wouldn’t.

5.2. Impactos nas Relações de Consumo

- BEUC. Justo para consumidores: o futuro da conectividade e a Internet aberta
  - In an ever more interconnected world, consumers spend increasing amounts of time and money online,
connecting with others and leading digital lives. Access to affordable, high quality internet connections and
communication technologies have become a prerequisite
for all consumers to be able to participate in the digital
society. This goal should not be pursued to the detriment
of competition or the openness of the internet.

- BEUC has particular concerns on the issue of a potential
“fair contribution”, following calls from some European
telecommunications network operators for big content
providers to pay a fee to telecom operators to support
the costs of network infrastructure deployment.

- For consumers, potential disadvantages of establishing
measures such as a SPNP system would range from a
distortion of competition on electronic communication
markets, negatively impacting consumer choice, the
diversity of products, prices and performance; and
potentially challenging net neutrality, which could
undermine the open and free access to the internet.

5.3. Impactos em Streamings

- Advanced Television. Netflix: compartilhamento de custos
prejudicaria a comunidade criativa

https://advanced-television.com/2023/03/01/netflix-taxing-us-
hurts-creative-community/

- The concept of ‘fair share’ levies on the big streamers
has been pushed hard by infrastructure companies, who
believe the global streamers should help pay for the
broadband that delivers their ever-expanding MBs to
their customers. Several telco chiefs have told MWC this
week that getting a contribution from the entertainment
sector was an ‘existential’ issue for them.

- Because this tax would have an adverse effect, reducing
investment in content — hurting the creative community,
hurting the attractiveness of higher-priced broadband
packages, and ultimately hurting consumers. ISPs claim
that these taxes would only apply to Netflix. But this will
inevitably change over time as broadcasters shift from
linear to streaming.
● VAUNET. “Enviando a rede à parte que paga” - um modelo que pôe em risco o pluralismo da mídia

- For some months now, well-known telecommunications providers have been making their demand for the introduction of the "sending network party pays" principle (SPNP) heard again.
- According to this model, service providers whose services produce data traffic on a large scale (such as VoD and streaming providers, for example) should make payments to telecommunications infrastructure operators.
- In this way, they should contribute a "fair share" to the financing of the infrastructure. Demands of this kind were already rejected by BEREC in 2012 with good arguments.

6. Pareceres para contribuição à Anatel

- Manesco, Ramires, Perez, Azevedo Marques Sociedade de Advogados
https://drive.google.com/file/d/1NfX0Snjqi6gbNBmZhr2TDlzF63giypLA/view

- Vale mencionar, de passagem, que é exatamente o conteúdo ofertado por provedores de aplicação que torna o serviço de acesso à internet atrativo para os seus potenciais consumidores. Aplicações que demandam tráfego mais intenso de dados podem incentivar, inclusive, a contratação de velocidades maiores de acesso. A ponderação da justiça na repartição dos encargos entre esses atores deve, também, considerar esse fato. Sem aplicações de internet, a rede seria inútil, e os serviços de acesso seriam commercialmente inviáveis.
- Assim, não há fundamento para a imposição de preços diferenciados para permitir o tráfego de pacotes de dados provenientes de determinados provedores de aplicação, ainda que sob a alegação de uso intensivo da
infraestrutura de rede. Tal cobrança representaria violação da regra da neutralidade de rede, que é norma cogente no ordenamento jurídico brasileiro e deve ser obedecida, enquanto perdurar a vigência do Marco Civil da Internet.

- **Flávia Lefèvre**
  
  [https://drive.google.com/file/d/1zokg7mBeN7DH62VrA2J4rX9Ndty5V4p7/view](https://drive.google.com/file/d/1zokg7mBeN7DH62VrA2J4rX9Ndty5V4p7/view)

  - A proposta da ANATEL apresentada para aumentar o acesso significativo com esta tomada de subsídio terá como consequência efeito contrário ao anunciado, como já há exemplos em outros países da Europa, como tem informado a ISOC, inclusive na contribuição que ofertou a esta consulta pública junto com o ITS.

  - Sendo assim, é inadmissível que a ANATEL pretenda expandir o acesso a Internet no Brasil adotando medidas que vão aumentar os custos das operações e criar condições que irão propiciar acordos comerciais, cujos resultados serão o tratamento privilegiado de quem paga mais, instaurando um ambiente propício para que ocorram ainda mais quebras da garantida da neutralidade da rede, em prejuízo inadmissível para os consumidores brasileiros.

  - O MCI estabeleceu ainda que a disciplina do uso da internet no Brasil tem por objetivo a promoção do direito de acesso a Internet a todos, de modo a se promover o acesso à informação, ao conhecimento e à participação na vida cultural e na condução dos assuntos públicos, sendo essencial para o exercício da cidadania e, por isso, introduzindo também o princípio da continuidade na prestação do serviço.

- **Demais contribuições enviadas à Anatel**
  
  [https://docs.google.com/spreadsheets/d/1hFtaqOZAbhMPBaJyK9eUVcHvb_eBMciQo22MSiuNP6U/edit#gid=0](https://docs.google.com/spreadsheets/d/1hFtaqOZAbhMPBaJyK9eUVcHvb_eBMciQo22MSiuNP6U/edit#gid=0)

7. Infraestrutura de rede e banda larga
- **ANATEL. Alternativas para a revisão do modelo de prestação de serviços e telecomunicações**

- **GSMA. O valor da cadeia da Internet**

- **INTERNET SOCIETY. O funcionamento de rede da Internet**

- **OCDE. Infraestruturas para a economia digital do Brasil**
  https://www.oecd-ilibrary.org/sites/a348dc77-pt/index.html?itemid=/content/component/a348dc77-pt

- **OCDE. Políticas para a transformação digital:**
  Recomendações para uma abordagem integral do governo
  https://www.oecd-ilibrary.org/sites/9a112bbe-pt/index.html?itemid=/content/component/9a112bbe-pt

- **Teletime. Das Visões Sobre o Futuro do Regulador das Comunicações**
  https://teletime.com.br/12/12/2022/das-visoes-sobre-o-futuro-do-regulador-das-comunicacoes/

- **OCDE. Promoção de redes de banda larga de alta qualidade nos países do G20**

- **OCDE. Avaliação da OCDE sobre o setor de telecomunicações e radiodifusão no Brasil**
  https://www.oecd-ilibrary.org/docserver/7f2056c6-pt.pdf?expires=1689733385&id=id&accname=guest&checksum=ED606DD8A8BC9965702F064F6A15547