



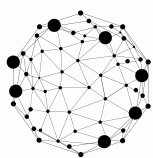
digital monopolies

DIVERSITY AND
CONCENTRATION ON
INTERNET IN BRAZIL



intervozes
coletivo brasil de comunicação social

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São Paulo, May 2018

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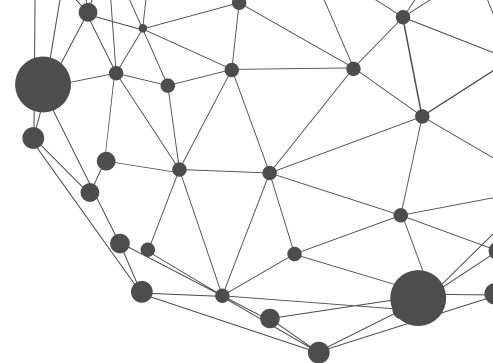
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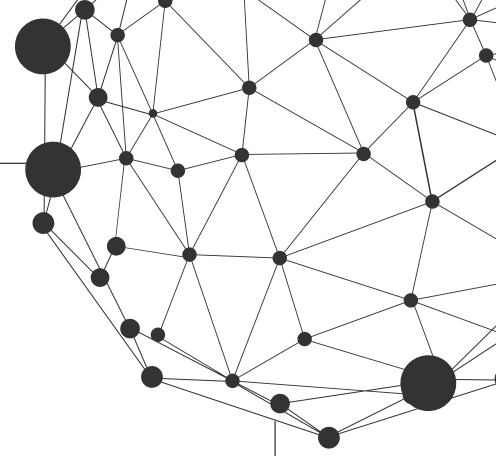
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Introduction

The Internet has been developed with the promise of democratizing access to knowledge and the exercise of freedom of expression. Instead of channels conditioned by the limitation of the radio frequency spectrum and a print media with a limited number of daily copies, the World Network of Computers brought infinite possibilities of making texts, images, audio and video available in different sites and repositories. Wikipedia has become a symbol of collaborative content creation. Search mechanisms created shortcuts and connected users who were eager for information to pages through keywords. Blogs allowed individuals to express themselves in this new ecosystem.

John Perry Barlow, founder of the Electronic Frontier Foundation, a reference in the debate on the web, stated in the Declaration of the Independence of Cyberspace: "Governors of the industrial world, I come from cyberspace, the new home of the mind. In the name of the future, I ask you to leave us in peace [...] We are creating a world where anyone can express his or her beliefs in any place, no matter how original, without the fear of being threatened or silenced." (BARLOW, 1996).

Not only the Web, but the set of Information and Communication Technologies started to be pointed out as an instrument of transformation. The main document of the United Nation's 2030 Agenda for Sustainable Development reaffirms this understanding: "The diffusion of information and communication technologies and global connectivity have great potential to accelerate human progress, to heal digital gaps and to develop knowledge societies"¹.

The United Nations, in a Declaration approved by its Human Rights Council in June 2016, indicated freedom of expression on the Internet as one of the rights to be promoted and protected and it defended that the rights of the offline world should also be ensured in the online world (UNITED NATIONS, 2016). The document also addresses the need to connect people who do not have access to the Web from an approach based on human rights and calls on States to implement public policies for this purpose.

The Web and the Information and Communication Technologies also started to be recognized as central elements for the economic development. The G20, group of the largest economies in the world, placed the so-called "digital economy" as its central theme in 2017 and considered the Internet as a key-factor for overcoming global challenges. "Digitalization and an open, secure, reliable, interoperable and

¹ United Nations. Sustainable Development Knowledge Platform available at <<https://sustainabledevelopment.un.org/post2015/transformingourworld>>

truly global Internet are enablers for inclusive economic growth and provide us the tools to address societal and global challenges, including disparities arising from the widening wealth gap, for a more sustainable future." (G20, 2017, p. 2).

The World Economic Forum places the Internet at the center of a fourth industrial revolution that changes the way we live, produce, consume and communicate². On the other hand, it considers that the Internet brings risks and challenges both for the economy and society in general and for the network itself: "The challenge is to manage this seismic change in a way that promotes the long-term health and stability of the internet"³.

What the World Economic Forum calls "seismic change" affects different social spheres. In culture, the access to online audio and digital videos (whether paid or unauthorized - the so-called "piracy") reconfigured the consumption of music and has strongly changed the audiovisual industry all over the planet. Digital journalism has directly affected traditional media and opened space for new players. Social interactions themselves started to happen by means of platforms in this environment.

But to which extent these seismic changes will fulfill the promises of democratizing access to knowledge, assertion of rights and freedom of expression? This is the concern that governs this work. How much can we talk about increase of diversity and pluralism in the contents shared in the Network?

The emergence of corporations with great market power - as is the case of groups such as Google/Alphabet, Facebook, Microsoft, Apple and Amazon - stimulates among researchers, activists and even governments the debate on how to think about the notion of concentration and the instruments for guaranteeing diversity and competition in these markets. The emergence of hate speech, the political radicalization in the "ideological bubbles", the so-called "fake news" and the influence of digital world players who are active in the elections and in other relevant political processes have provoked not only deep reflections but also the approval of laws (for example, in Germany) and researches in the United States.

Considering these issues, this research aims to identify the degree of concentration and diversity on the Internet with focus on speeches and messages, looking specifically at the applications and content layer. In geographical terms, the analysis is based on Brazil. For this, the work is divided into some sections. In the first one, there will be a quick discussion about the nature of the Internet, its architecture and the model in layers as a structural reference. Then, the applications and content layer will be presented, limiting the universe for research, highlighting some modalities of its players and bringing data on its international situation.

² World Economic Forum. What are the 10 biggest global challenges? Available at: <https://www.weforum.org/agenda/2016/01/what-are-the-10-biggest-global-challenges/>

³ World Economic Forum. What are the 10 biggest global challenges? Available at: <https://www.weforum.org/agenda/2016/01/what-are-the-10-biggest-global-challenges/>.

The next section presents the theoretical and political bases of the concepts of diversity, pluralism and concentration, which serve as a reference to the analysis. After that, the discussion focus on the methods and indicators to measure the degree of these aspects in the specific universe - in this case, the Internet content layer. The following section provides an overview of international legislation related to the theme, important elements for understanding the broader context in which national States operate in this segment.

Finally, this work enters its final phase, structuring the analysis in two stages. The first stage will focus on portraying the markets involved in the applications and content layer, based on measurement indicators of the market structure and their degree of competition. The second and last stage relates the conformation of these markets to the impact on the degree of diversity and pluralism in this universe.



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Executive Summary

This Executive Summary is a summary of the study presented in this document. It shows the main concepts and analyses, without entering into the depth of the discussion carried out in the work as a whole. It presents the research objective and a synthesis of the ideas and reflections developed throughout the chapters that compose the survey. It is intended to create an entrance door for the effort of analysis, but not replacing it – it is important to read it in its whole.

The research aims to identify the degree of concentration and diversity on the Internet with a focus on speeches and messages, looking specifically at the applications and content layer in Brazil. The study objects are the most accessed sites, the most downloaded applications, the largest Facebook pages and the most popular YouTube channels. The analysis will be based on a model composed by different categories, which will seek to map these markets, verify their structure, understand the strategies of their players and identify the degree of concentration, as well as its impacts on contents diversity.

Information and Communication Technologies, especially the Internet, are gaining more and more importance all over the world, becoming the agenda of the main international organizations and governments. They alter different social activities, from economy to culture and politics. From the operation in the financial market by algorithms to the use of personal data for political propaganda (including the so-called "fake news"), ICTs gain increasing visibility and importance in the life of billions of people. Today, about 53% of households are connected (UIT, 2017). For a long time, a promise of freedom and democratization with the rise of the online environment was placed in society and academia. However, the emergence of large conglomerates, the vigilance made by companies and governments, the deepening of harmful practices - such as hate speeches, misinformation and discrimination - and the control of political and electoral debates have switched on the yellow light, placing the Web into question.

The Internet must be seen as a "socio-technical system" composed not only by technologies (networks, protocols, devices, programs), but also by people, rules and institutions. The Network can be viewed in layers. The "physical" one involves all the basic infrastructure by means of which the data traffic occurs. The "logical" one encompasses protocols, algorithms and standards. Above this base, there is the layer of "applications and contents", object of concern of this work. Application is a program that runs on computers and similar devices and has some application for the user. Site is a space that gathers contents available on the Internet through the World Wide Web (WWW) model, accessed through an address. In these environments, text, audio, video and image contents circulate. In this layer, we have three fundamental phenomena: the rise of platforms (seen as those players/spaces that offer access to others on several sides, connecting sellers and buyers, advertisers and users, audiovisual producers and audience, etc.), the changes in online journalism and the transformations in the circulation of cultural goods, such as books, films and music.

This research analysis considers this scenario based on two concepts: concen-

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tration and diversity. By concentration, we consider markets controlled by few players and in which the structure, the entry barriers and the agents' practices are harmful for the competition (understood as the quality of the environment in which there are low entry barriers, inexistence of monopolistic or oligopolistic forms, absence of companies with dominant or significant market power, diversity of choice for users and maximization of the well-being of market participants taken in its broader sense, and not strictly economic).

Diversity is a dimension of the human right to communication, an idea expressed in the 1970's by the United Nations Educational, Scientific and Cultural Organization (UNESCO) which unites freedom of expression, the right to information, access to means and technologies to communicate, to be informed and to be heard, and protection of personal data and information. Diversity can be understood in three dimensions: of means of communication (media types), sources (media property) and content (media products).

The assessment of concentration levels and the degree of diversity involves the choice of categories and indicators. In the first case, regulatory bodies can look at various aspects, such as participation of the main market players (called CRn), market share, prices, profits and productivity. In the second case, indicators developed by international bodies such as UNESCO and by international organizations such as Reporters without Borders include issues such as the number of competitors in the market, legislation that avoid excessive share or cross-media ownership, stimuli to non-commercial media, monitoring by governments and regulatory authorities, an equitable distribution of government advertising and restrictions on the control of organizations by political groups.

The analysis model will be composed of four axes: 1) context and nature of sectors and markets: nature and specific characteristics of traded goods and services; structure and dynamics of production, distribution and consumption chains; players' business models; general strategies of the companies. 2) regulatory environment: laws and norms that discipline the activities; specific rules on the market structure, property and control by players; obligations and rights of the users, including those of more general character that have some impact on the dynamics of the analyzed sectors. 3) market structure: definition of the analyzed markets; number and participation (share) of players in each one of them; entry barriers; anti-competitive practices; competitive strategies of the companies. Degree of diversity and plurality: diversity in the access to content; pluralism of sources and players; variety of offered contents and formats.

The research analyzed the most downloaded applications in the virtual stores Play Store and Apple Store (in December 2017), besides the research Conectaí from Institute Kantar Ibope (carried out in December 2016). The most accessed sites were chosen based on the Alexa ranking, an analysis company of the Amazon platform. Facebook pages and YouTube channels were gathered based on the number of followers.

In the case of content applications (not including games, for example), the most downloaded ones on Play Store were: Facebook, WhatsApp, Instagram, FB Messenger, Snapchat, Spotify, Facebook Lite, Netflix, Palco Mp3 and FB Messenger Lite. The ones from Apple Store were YouTube, WhatsApp, Instagram, FB Messenger, Facebook, Spo-



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tify, Netflix, Snapchat, Gmail and Deezer. The most used content circulation programs according to the Conecta survey were WhatsApp, Facebook, Instagram, FB Messenger, Twitter, Skype and Snapchat. The most accessed content sites were Google Brasil, YouTube, Google International, Facebook, Live (Microsoft), Globo, UOL, Yahoo, Blastingnews and Instagram.

The analyzed markets have specificities. Information is a non exclusive and non rival good, that is, it is not exhausted when a person consumes it and can be used by several people at the same time, with low cost of reproduction. A constant tension, therefore, is the attempt by market players to promote a private appropriation of it by means of artificial scarcity creation strategies, such as author's rights and intellectual property regimes. The value chains include several stages of goods and services production and circulation process: development (with the sub stages of elaboration, edition and organization); availability (with the sub stages of publication and aggregation), circulation and access.

Business models are strongly based on gratuitousness and revenue from advertising. This is the case of platforms such as Facebook, Google, Instagram, Snapchat and Twitter. However, this "gratuitousness" is a way of attracting potential consumers and using their data to sell segmented and personalized advertising services to advertisers. On the sites, the collection of subscription (partial or total) happens mostly in traditional media conglomerates, such as UOL and Globo, and paid streaming audiovisual, such as Netflix, Spotify and Deezer. Usually, these services allow a free limited access and sell premium packages with additional features. The exception is Netflix, in which payment is the only option.

These markets are characterized by changing strategies of the companies. Traditional media groups constantly face the tension between the maintenance of their traditional organizations and business models (such as press, radio and open TV) and their positioning in the online environment. Telecommunications conglomerates also experience this dilemma, but only regarding paid TV. There is an additional problem for these competitors, as they provide the infrastructure for application and content providers on the Web, and have been tempted to limit it by measures such as data franchising and destruction of network neutrality. Applications and contents providers can be classified into three large groups. The first one is formed by those who have been called the "Big Tech", the big technology companies (such as Facebook, Google, Amazon, and Microsoft). The second one includes the large national conglomerates (Folha, Globo, Record). The third one includes minor players, i.e. those already linked to the traditional media (Metrópoles) or "click-hunters" sites (Blasting news, Explicando). Within the latter there are also youtubers, individual players who gained visibility on the platform (Whindersson Nunes, Felipe Neto, Kéfera, etc.).

The market structure of applications is dominated by platforms. They represent 63% of Play Store apps and 75% of Apple Store apps, besides of topping the list of the Conecta research. Among these, the most popular ones are digital social networks (such as Facebook, Instagram and Snapchat). The second category is paid streaming, including both video and audio apps (representing 36% on Play Store and 25% on Apple Store). As for their origin, the American ones represent 80% of the downloaded apps. Brazil shows only Globo.com and Palco Mp3. Exceptions are Sweden (Spotify) and

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France (Deezer). As for market share, Facebook controls 46% of the most popular applications¹. On Play Store, if downloads are considered, the company's share raises up to 85%. On Apple Store, the number of downloads is not available. That is, even with the abundance of available applications, there is evidence of a brutal concentration among the most popular ones and it is a serious issue that in the list of the 30 most downloaded ones related to content circulation (not including, for example, banking apps) only two of them are Brazilian.

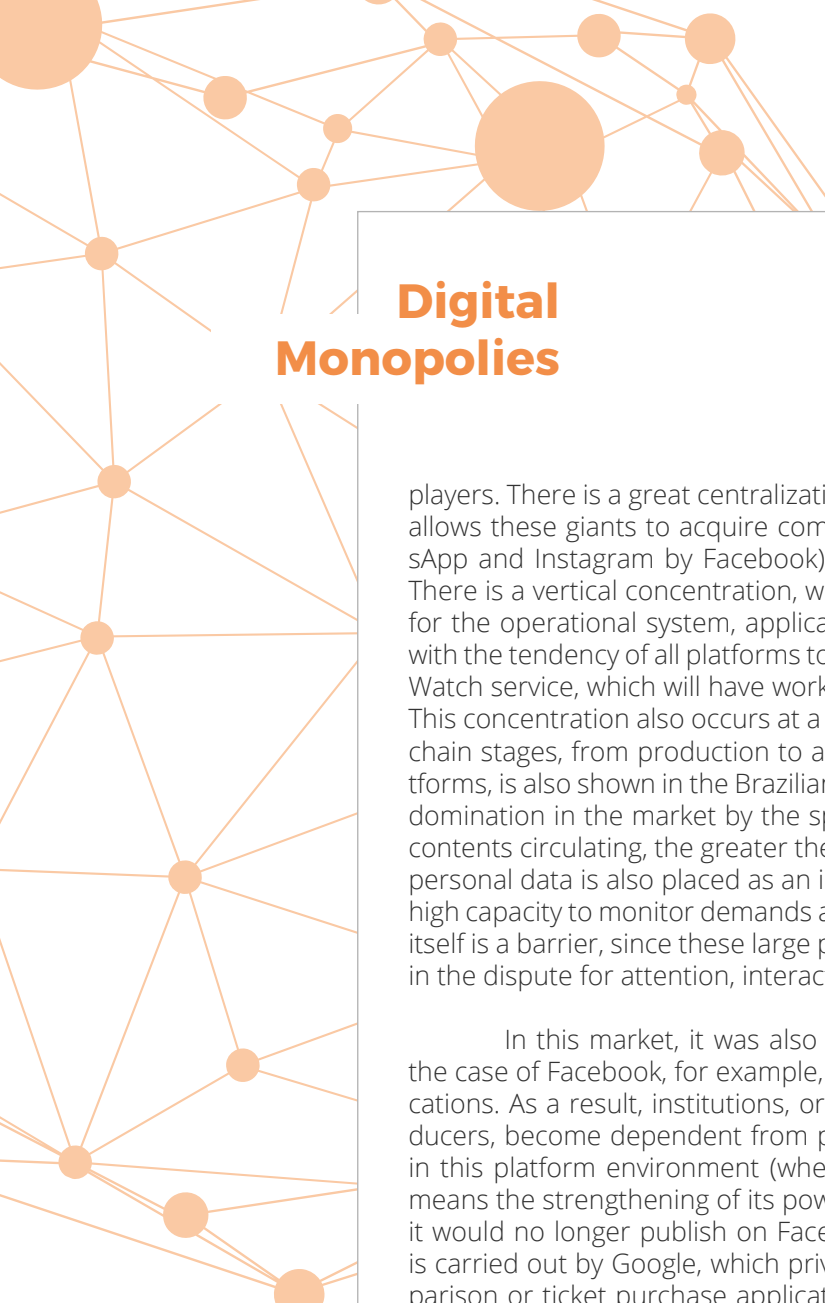
Among the 30 largest ones, we selected sites that produce and disseminate contents, in a total of 23 (not including, for example, banks and institutional pages). Among them, 70% are platforms. However, in this case, content circulation pages get more presence (30%), followed by social networks (17%), e-mail and multi-services (8% each). Non-platform sites make up the remaining 30%, with the traditional pages representing 26% and an aggregator portal (UOL), 4%. Differently from applications, here there are also entrance sites of conglomerates (such as Google.com, Live and MSN, from Microsoft, and Yahoo), in addition to "click-hunters" pages, such as Blastingnews, Explicandoo and O TV Foco. The only non-commercial site on the list is Wikipedia. The representatives of traditional media groups are only Globo.com, from Grupo Globo, which gathers G1, Gshow and Globoesporte, and UOL, from Grupo Folha. Besides these, the only journalistic organization present in the list is Metrôpoles, owned by the Brazilian businessman and former Senator Luiz Estevão. As far as origin is concerned, American companies control more than half of them, but the presence of Brazilian initiatives is greater than among applications. As for the share of business groups, once again the large conglomerates get a head start, with Facebook and Google responsible for 13% of the sites and Microsoft for 8.6%.

The research also analyzed Facebook pages and YouTube channels. Among the first ones, those with focus on contents circulation were also selected, representing 32 out of 50 most followed ones. There is also another profile, with prevalence of artists spaces (40%), followed by diverse sites (21%), TV programs (12.5%) and platforms and channels (9% each). YouTube channels show another approach, with what we call "diverse comments": people or groups talking on amenities, making "sketches" (such as pranks, "trolls" or music parodies), trying to make purely humorous approaches to everyday life or creating scenes. This type of channel represents two of the most popular channels (50%). A small number, 3 (6%), brings some kind of diverse educational content of pure and exclusive entertainment.

There is then a summary table on the content layer in Brazil dominated by a first level of players formed by big platforms (Facebook, Google and Microsoft). A second level is composed by global content leaders (Netflix and Spotify), a third level comprises national leaders of the media industry (Globo and Folha) and a fourth level brings together world representatives of the elite of social and content networks (Snapchat, Deezer, Yahoo, Twitter).

In this scenario, the research identified different barriers to the entrance of new

¹ It is important to notice that the low number of downloads of Google apps, such as Gmail, Google Maps, etc. may be related to the fact that in the main operating system, Android, these programs are already installed by default.



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players. There is a great centralization and convergence at an international level, which allows these giants to acquire competitors (as in the case of the acquisition of WhatsApp and Instagram by Facebook) and have a much greater capacity of investment. There is a vertical concentration, with the same group being responsible, for example, for the operational system, applications store, applications and contents (Google), or with the tendency of all platforms to invest on their own contents, such as the Facebook Watch service, which will have works produced by the company itself, like Netflix does. This concentration also occurs at a national level, with Globo and Folha dominating the chain stages, from production to access. The network effect, characteristic of the platforms, is also shown in the Brazilian case, with the main platforms only expanding their domination in the market by the spiral in which the greater the number of users and contents circulating, the greater the interest in being in it. The collection and control of personal data is also placed as an important entry barrier, since it gives large groups a high capacity to monitor demands and return on activities. Finally, the intermediation in itself is a barrier, since these large platforms are at the same time scenario and players in the dispute for attention, interaction and consumption.

In this market, it was also possible to identify anti-competitive practices. It is the case of Facebook, for example, which demolished the organic reach of page publications. As a result, institutions, organizations and companies, including content producers, become dependent from paid content, facing the dilemma that the "survival" in this platform environment (where more than 80% of Brazilian Internet users are) means the strengthening of its power. Folha de S. Paulo, for example, announced that it would no longer publish on Facebook in protest. Another anti-competitive practice is carried out by Google, which privileges the result of its services (such as price comparison or ticket purchase applications) to the detriment of others. When controlling users search for different information, Google offers the "information counter" and the answer by promoting itself.

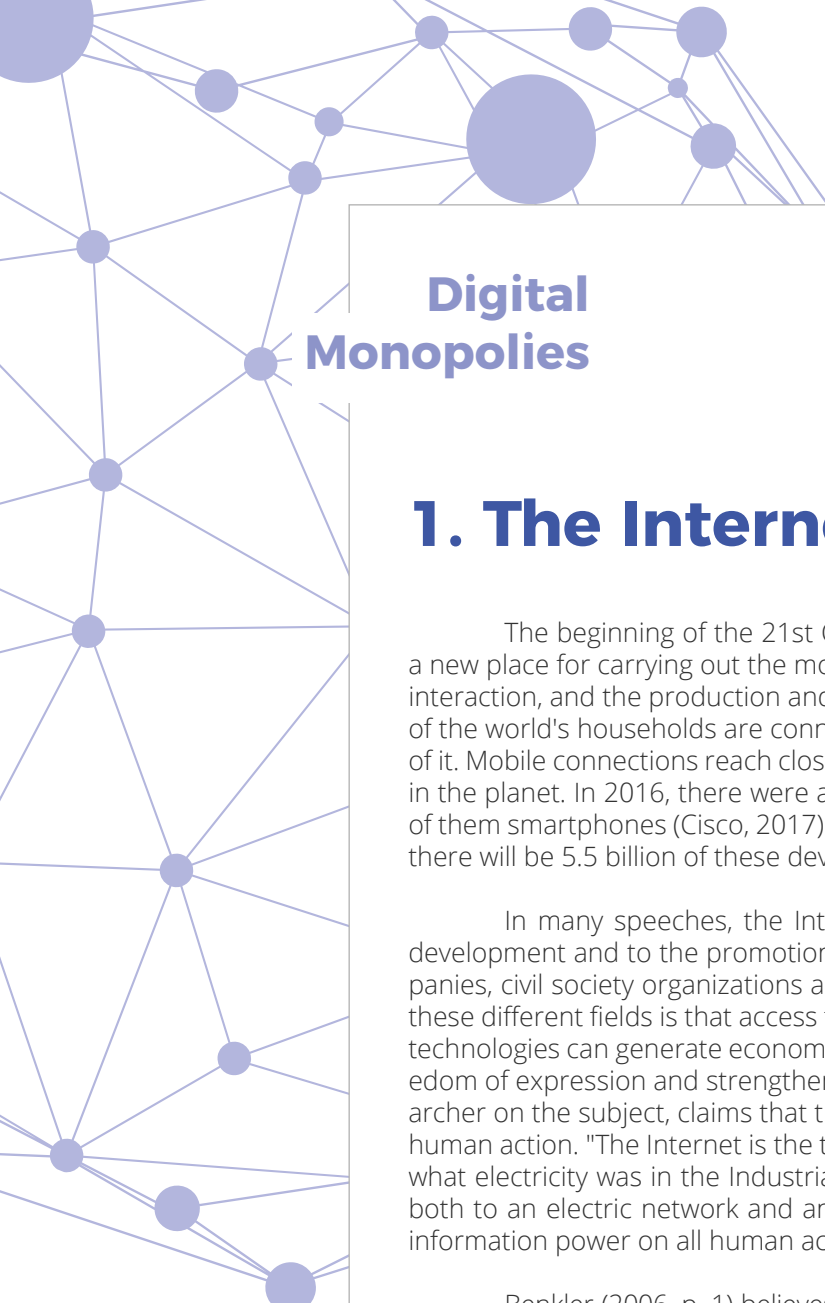
This scenario cause different impacts to diversity. The first one is the access barrier, since 40% of the Brazilians are still disconnected and even among those who are surfing there is a great inequality in the quality of the connection, which varies strongly according to their income. For those who are already on the Web, the use of practices such as free services (internationally known as zero rating) reinforces the market power of big players (with offers, for example, such as WhatsApp and Facebook without consumption of data packages). Another problem is related to the use of personal data, which configures an inappropriate control over users and at the same time a "competitive advantage" that artificializes the dispute in the area of content circulation.

Regarding the number of players, despite the existence of 3.8 million registered domains (according to the Internet Management Committee) and millions of applications available in stores such as Play and Apple, the analysis showed how the list of the most popular ones is dominated by few players, such as Facebook (which has 85% of the downloads and the main social networks) and Google (which commands 97% of the search engine market). In the dispute with these international conglomerates, other (national) conglomerates arise (Globo and Folha), with impacts not only from the point of view of market structure but also on the country's politics, given the tradition of these groups of influencing elections and agendas.

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In terms of variety of contents and formats, there is an almost absolute hegemony of business models based on profit and entertainment. This type of content is the focus of 84% of the most accessed sites. Only Wikipedia emerges as a major producer and disseminator of content, but still encyclopedic in nature and not in the dynamic dispute over events. Only 9 out of the 100 most accessed sites (9%) are journalistic, being half of these related to Globo and Folha groups. From the so-called "progressive" media, only two are among the 500 most accessed sites, Portal Fórum and Brazil 247 (0.4%). In this list, as well as in the applications list, there is not a single public or community vehicle. In YouTube channels with new players, including individuals, entertainment represents 84% of the analyzed spaces. The thematic approach based on "diverse comments", aiming at entertainment, and the very low incidence of educational or journalistic contents raises the question of whether these channels contribute or not to the public debate. If different audiences are considered, only YouTube channels show initiatives dedicated to children (Galinha Pintadinha and Turma da Mônica) among the most popular ones.

In an attempt to build up the general picture, we can say that, if on one hand Internet increased the number of players in its applications and content layer in comparison to other media, such as TV, on the other hand, the hegemony of large platforms and large national media groups threatens the possibility of having an effectively democratized space. The reach of platforms such as Facebook and YouTube has a dimension that no other player of the cultural industry has achieved before, even with the internationalization of several segments (such as cinema and pay TV networks). These platforms regulate the way in which the other players will compete politically, socially and economically in these markets. For this reason, they constitute digital monopolies when they leave a dominant position in specific markets (social networks in the case of Facebook and search mechanisms in the case of Google) to invade other segments, especially the applications and content layer at a global level, in a scenario in which Brazil is not an exception.



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1. The Internet

The beginning of the 21st Century marks the dissemination of the Internet as a new place for carrying out the most diverse human activities, from business to social interaction, and the production and diffusion of the most diverse contents. About 53% of the world's households are connected (UIT, 2017). Fixed access still represents 10% of it. Mobile connections reach close to 60%, which corresponds to 4.3 billion of people in the planet. In 2016, there were about 4.7 billion cell phones in the world, being half of them smartphones (Cisco, 2017). The forecast of Cisco consultancy is that until 2021 there will be 5.5 billion of these devices in the world, being 75% of them smartphones.

In many speeches, the Internet is placed as a central element to economic development and to the promotion of the well-being of society by governments, companies, civil society organizations and academics. The promise endorsed by players in these different fields is that access to these and other information and communication technologies can generate economic gains, broaden available knowledge, promote freedom of expression and strengthen democracy. Castells (2003, p. 8), a notorious researcher on the subject, claims that the Web provides a superior organizational form for human action. "The Internet is the tissue of our lives. If information technology is today what electricity was in the Industrial Age, in our time the Internet could be compared both to an electric network and an electric engine, because of its ability to distribute information power on all human activities." (CASTELLS, 2003, p. 7).

Benkler (2006, p. 1) believes that the production and dissemination of information directly influences the vision about the world and how it should be. "The change brought by the networked information environment is deep. It is structural. It goes to the foundations of how liberal markets and liberal democracies have evolved by almost two centuries." For the author, these transformations create new opportunities for the development and exchange of culture and knowledge, broadening the participation of citizens and non-commercial and non-proprietary forms of social production, with good results. This "new freedom" carries out a promise of individual liberation, a basis for the broadening of democratic participation and engagement in a more critical culture.

However, other researchers warn about the importance of observing the real dynamics of the Internet in order to understand how it can or can not meet its noble and thought-out desires and objectives. McChesney (2013) postulates the need to understand the Net from its concrete manifestation in the capitalist system and how it shapes the most different aspects of social life, including the Net itself. The Internet is, although not exclusively, formed in its majority by economic players in search of profit. This universe goes from the operators who provide access to the Web to the entire ecosystem of services and applications offers, from large platforms to small companies (startups).

Then, the first challenge appears. Despite the speeches about a digital and connected world, more than 40% of the global population does not have connection to the Internet. Another percentage has limited connections, either due to the amount of data available in the packages or due to low connection speeds. Among those who are connected there are great inequalities. While in Europe 84.2% of the households have access, in Africa

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this rate is 18%. Considering gender, the access rate reaches 51% among men against 45% among women. The difference is strongly defined by income. In the United Kingdom, connectivity among the poorest is 62%, while among the richest people it reaches 98%. In Russia, this difference is between 51% and 81%, respectively. In Senegal, between 18% and 42%. And, in Brazil, between 42% and 76% (PEW RESEARCH CENTER, 2016).

Another result of the business dynamics in the Network is the manifestation of inequality in the market structure by means of property concentration. This phenomenon occurs both in access companies (in most countries there is low competition)¹ and in the giants that offer services and applications. Differently from the assertion that Internet would be the realm of competition, what is seen is the reduction of competition within the Web due to the increase of digitalization and data collection and processing. This nature is powered by something that is called "network effect". Bob Metcalfe, the Ethernet protocol creator,² suggested something that later became a law with his name: a network value is proportional to the square number of its existing connection. Bob was referring to computers, but soon this maxim became valid also for people. The great value of Facebook is, therefore, its users base; the same applies to Airbnb, WhatsApp or Mercado Livre.³ This network expansion dynamics gives Internet the power of deepening inequalities in the competition. The network value increases proportionally to the extension of its connections, which strengthens the market leader and makes its position progressively further from competitors. People excluded from the Network have been facing increasingly larger entry barriers. This is evident in the dispute for data storage and control.

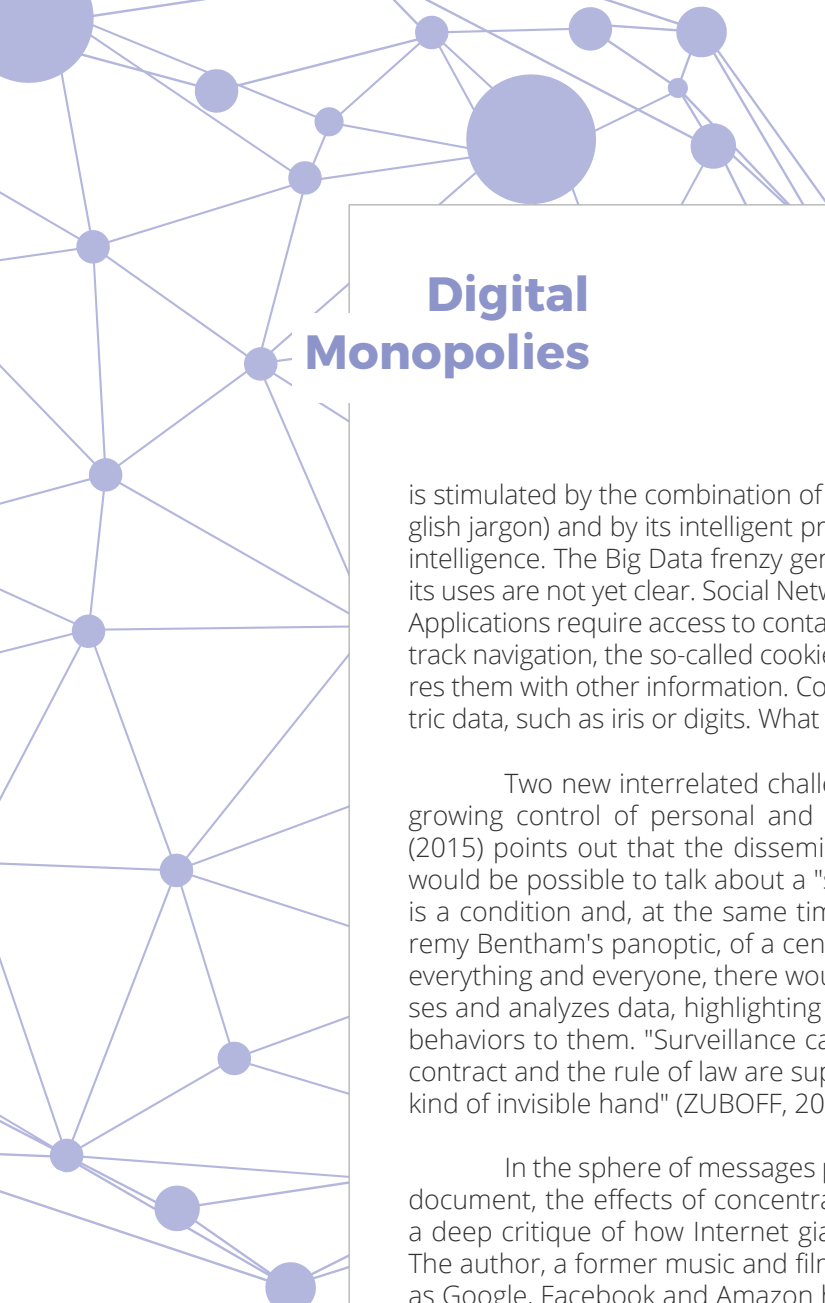
This is the second challenge: the concentration of property and the rise of giants that control several spheres of the Internet. Apple, Google, Amazon, Facebook and Microsoft are on top of the ranking of the most valuable companies in the world, being Coca-Cola an exception in this list (FORBES, 2017). These conglomerates have gained dominant positions in markets and impacted other businesses – be it Amazon in electronic commerce, Google in searches or in audiovisual (through YouTube) or Facebook in the dissemination of contents and advertising revenues. "Markets can be dynamic, but they are still controlled by few companies. In this controlled ecosystem, the traditional indicators of a greater competition - market transparency, greater chance of entry and choice of consumers - can be a mere mirage" (EZRACHI and STUCKE, 2017, p. 31). The concern has also reached international organizations. The Organization for Economic Cooperation and Development (OECD) chose digital economy and innovation among the priorities of its Competition Committee, and opened a debate with member countries on how to face the problem.

The growth of these companies is based on a fundamental input: the information of billions of users. Personal data, called the "new oil" of the economy (THE ECONOMIST, 2017), guarantees the basis of business, be it with personalized advertising from Google and Facebook or with purchase recommendations from Amazon. This scenario

1 In the United States, the access market is dominated by three companies: Comcast, Charter and AT&T. In the UK, by British Telecom, Sky and Virgin Media. In Latin America, Telmex dominates. In Brazil, the market has shrunk to a dispute between Telmex and Telefónica, with Oi going bankrupt and TIM with a decreasing share.

2 Ethernet is a protocol used in data exchange in local access computer networks (LAN).

3 This issue will be addressed in more detail in the discussion about the economy of Internet and its services.



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is stimulated by the combination of large scale data collection (called Big Data in the English jargon) and by its intelligent processing through the use of algorithms and artificial intelligence. The Big Data frenzy generated a run for personal information, even though its uses are not yet clear. Social Networking Sites (SNS) analyze all posts and interactions. Applications require access to contacts, images, microphones. Sites install programs that track navigation, the so-called cookies. Search mechanisms store all queries and compares them with other information. Computers and devices are starting to demand biometric data, such as iris or digits. What is done with these data, in general, is not known.

Two new interrelated challenges appear here: the violation of privacy and the growing control of personal and collective experiences of users. Shoshana Zuboff (2015) points out that the dissemination of Big Data will have such an impact that it would be possible to talk about a "surveillance capitalism", in which massive collection is a condition and, at the same time, its expression. Differently from the figure of Jeremy Bentham's panoptic, of a centralized point from which a central power observes everything and everyone, there would be a decentralized process that collects, processes and analyzes data, highlighting behavior models and promoting the adjustment of behaviors to them. "Surveillance capitalism establishes a new form of power in which contract and the rule of law are supplanted by the rewards and punishments of a new kind of invisible hand" (ZUBOFF, 2015, p. 82).

In the sphere of messages production and circulation, which is the focus of this document, the effects of concentration and control are also felt. Taplin (2017) makes a deep critique of how Internet giants "threaten culture and undermine democracy". The author, a former music and film producer, argues that the rise of companies such as Google, Facebook and Amazon has affected the cultural industry (which is also monopolized, it is worth remembering). However, the effects of the concentration of these giants are relevant. YouTube manages to be at the same time the largest platform for broadcasting videos and streaming music, with 1.5 billions users.⁴ "The concentration of profits in the making of art has made more than just artists and journalists vulnerable: it has made all those who seek to profit from the free exchange of ideas and culture vulnerable to the power of a small group of powerful patrons" (TAPLIN, 2017, p. 11). If Taplin's concern about prejudices to cultural producers is already valid in the United States, imagine the impact on plurality and diversity in smaller countries, with much less powerful phonographic and audiovisual sectors.

Caution is advisable when it comes to the circulation of news on the Web. The emergence of so-called post-truth, the mechanisms of fast and segmented distribution of fake news and political polarization are becoming a vital question for the future of democracy and an agenda not only for those interested in the subject, but for governors and authorities. The creator of the World Wide Web, Tim Berners-Lee, expresses this feeling related to the optimistic promises of the past. "We thought it would be enough to keep the Net neutral and the world would be able to use it to build wonderful systems that would produce democracy and truth in science [but]... I think that people have looked at the last 12 months and said actually there's evidence

⁴ Lucas Matney. YouTube has 1.5 billion logged-in monthly users watching a ton of mobile video. Published on June 22, 2017. Available at: <https://techcrunch.com/2017/06/22/youtube-has-1-5-billion-logged-in-monthly-users-watching-a-ton-of-mobile-video/>

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that the Web has been more of a purveyor of untruth than of truth because of the way the advertising revenue model encourages people to put things which online which will be clicked on" (FINLEY, 2017).

This report does not set out to detail all the issues regarding Internet today. But it places some important questions to present the context in which our central concern is inserted: the challenges to guarantee plurality and diversity in the content layer in Brazil. To place this specific layer, before advancing this debate, it is important to bring some information about how the Network works.

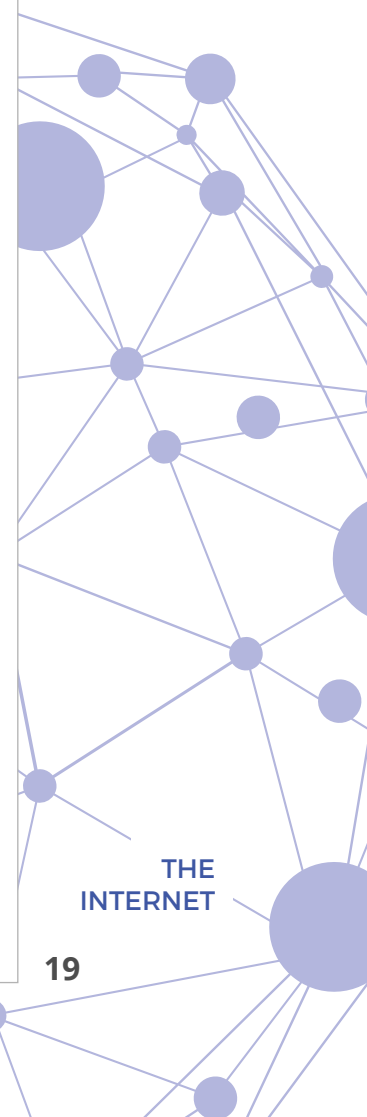
1.1. Starting point: understanding the nature of Internet

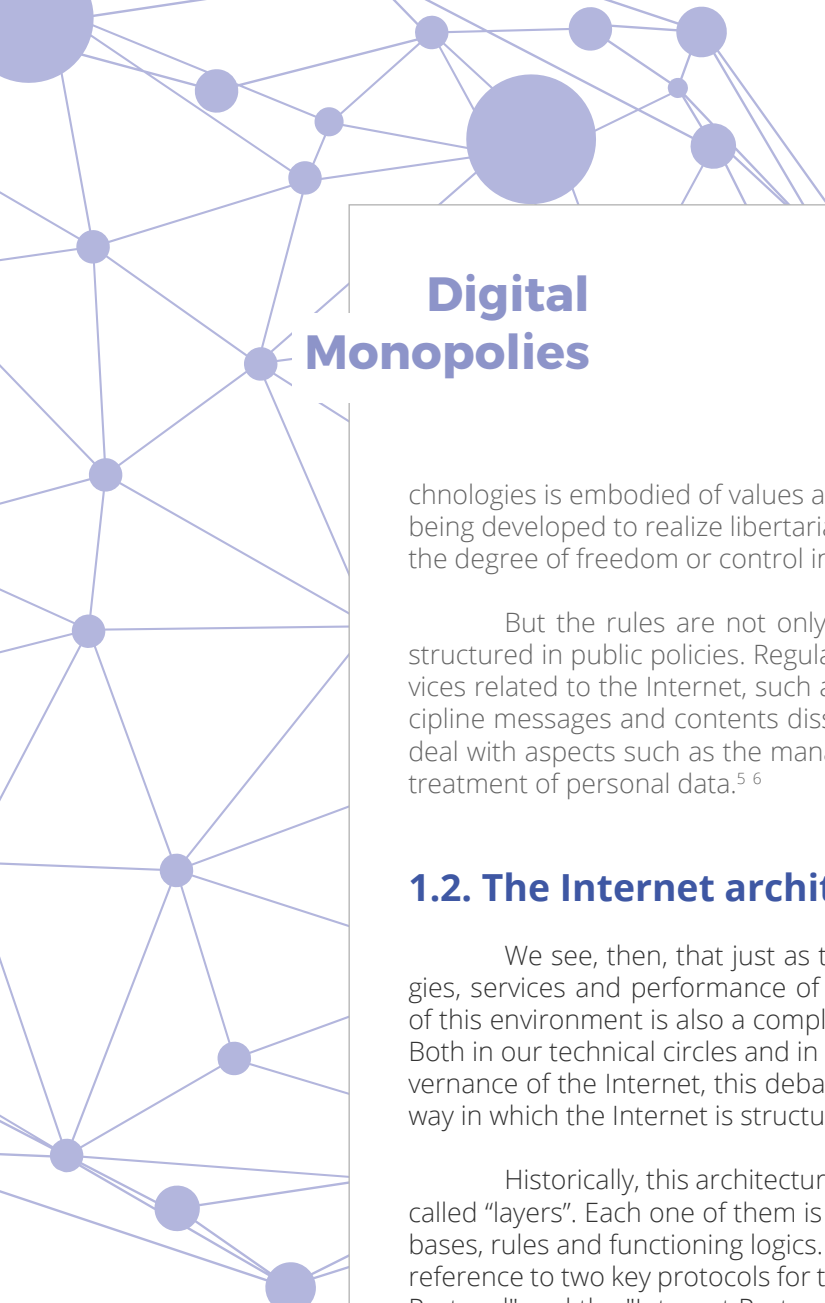
Internet goes beyond computers, cell phones, modems and cables. Dutton (2013) defines the Web as a network of networks, which involves artifacts but also people who participate in it and are affected by it. Lievrouw (2012) classifies the Internet as a constellation of emerging and interlinked platforms, uses, devices and resources and social and cultural relations. Sandvig (2013) adopts the definition of an "ecosystem of technical and social innovations".

Fuchs (2008) defines the Internet as a "techno-social system". The author adopts this definition to the detriment of an understanding based on a technological determinism with focus on the base of infrastructures and devices that constitute the Network. More than that, the Internet also incorporates people and groups that use it for specific purposes, such as the production, diffusion and consumption of services and contents, and act on the Web itself seeking to influence the way it is structured. "The Internet is a global techno-social system that is based on a global, decentralized technological structure consisting of networked computer networks that store objectified human knowledge" (FUCHS, 2008, p. 122).

In other words, the Internet is constituted from a diverse set of relationships. Human beings constantly create and recreate knowledge and the forms of its storage and circulation and, at the same time, they make it within technologies, infrastructures, services and protocols defined by different players (companies, institutions, organizations), which fix the ways of action, possibilities and limits. For example, smartphones can, depending on their capacity and functionalities, take photos or videos with more or less quality. Connections define the amount of data (captured in the form of messages, services, photos and videos, etc.) that can be consumed and disseminated. In social networks such as Facebook, access to news is given from the selection criteria of the Timeline (News Feed) and the diffusion of contents in these spaces occurs according to specific visibility criteria, often not at all transparent. On Twitter, messages must have 280 characters. On YouTube, the user is subject to the removal of posted content if it violates legal obligations. And so on and so forth. As well summarized by a person responsible for the development of Google products: if you control the menu, you control the choices (HARRIS, 2016).

Lessig (2006, p. 121) calls "code" the set of rules that govern the Net and its devices, what would be the "law" of the Internet: "the instructions embedded in the software or hardware that makes cyberspace what it is". The whole of the Network te-





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chnologies is embodied of values and expresses interests in dispute, with the ability of being developed to realize libertarian potentials or to suppress them. It can determine the degree of freedom or control in the system.

But the rules are not only embedded in codes, they are stated in laws and structured in public policies. Regulation can involve the very definition of different services related to the Internet, such as the offer of applications and contents. It can discipline messages and contents disseminated by the Network. The regulation can also deal with aspects such as the management of the infrastructure or the collection and treatment of personal data.^{5 6}

1.2. The Internet architecture

We see, then, that just as the Internet is constituted as a system of technologies, services and performance of individuals, groups and institutions, the regulation of this environment is also a complex and dynamic process, involving various spheres. Both in our technical circles and in our discussion spaces about the regulation and governance of the Internet, this debate has been made mostly taking as a reference the way in which the Internet is structured, or its so-called "architecture".

Historically, this architecture was seen and analyzed from what has come to be called "layers". Each one of them is a part of the system that involves a set of technical bases, rules and functioning logics. The currently agreed upon TCP/IP model name is a reference to two key protocols for the operation of the Web: the "Transmission Control Protocol" and the "Internet Protocol". Based on this model, one of the ways to explain the architecture of the Internet established a division into five layers. Its nomenclature is not consensual, having different perspectives. We will present here one of the interpretations of the layers, based on Wyllys and Doty (2000) and other authors.⁷

► **Physical layer** - It involves the whole infrastructure, which is the basis in which the data traffic occurs. This includes networks with or without wires and structures such as cables (copper, coaxial and optical fiber), routers, antennas, modems, base stations radios (BSR), satellites and others.

► **Network or Data Link layer** - It involves all networks over which the Internet Protocol (IP) will operate: Ethernet, Token-ring, network interfaces such as fiber optic (FDDI), among others.

⁵ EUROPEAN UNION. Regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016.

⁶ ANGARITA, N.. Latin America and Protection of Personal Data: Facts and Figures (1985-2014). University of Los Andes Working Paper. 2014. Available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2412091>. Accessed on July 10, 2017.

⁷ Our intention at this time is not to take sides with one perspective over another or to enter into a detailed discussion about what would be best, including the reasons. Our intention is to illustrate in a descriptive way the architecture of the Internet as a basis for the following discussion about the applications and content layer.

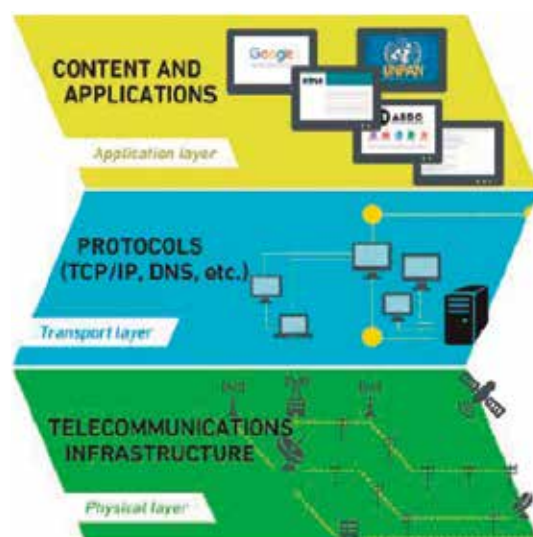
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► **Internet layer** - Despite the Internet being composed by the whole complex system already mentioned, it also gives name to a layer that holds the Internet Protocol, which operates the fragmentation of information in data packs and makes its addressing and routing. It is the one that allows interconnection between different networks so that data packs travel long distances between the devices. But there are other protocols, such as the Internet Message Control Protocol (IMCP), responsible for monitoring if packs were successfully sent and reporting errors.

► **Transport layer** - This layer holds the Transmission Control Protocol (TCP). It is responsible for organizing the relocation of packs and their recovery and decoding according to the original information.

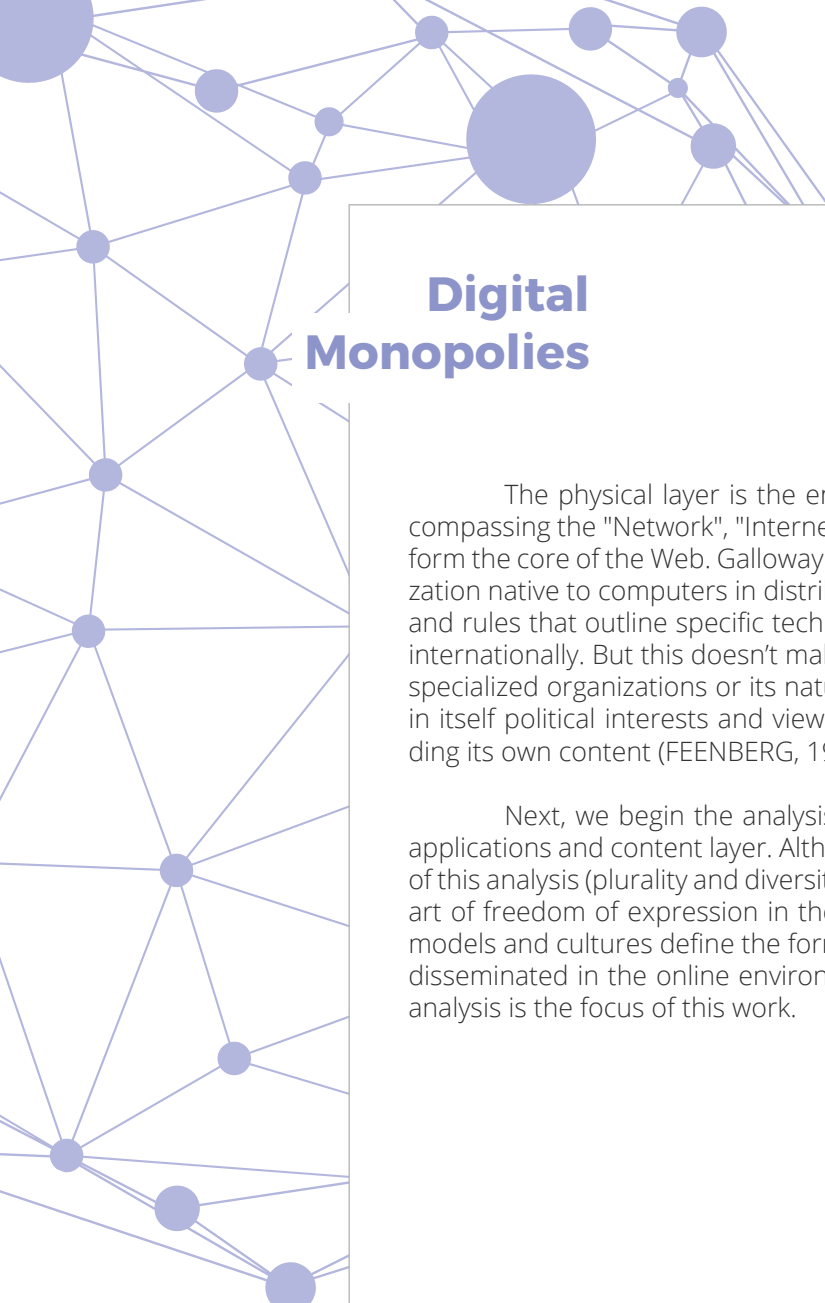
► **Applications layer** - This layer hold the applications, services and protocols that support them. One of the protocols is the Hypertext Transfer Protocol (HTTP), used to access pages on the World Wide Web (WWW) system, the File Transfer Protocol (FTP), which, as the name explains, is used to transfer content organized in files (it can be text, audio or video, and with various extensions). It also contains contents produced and made available to the users.

Benkler (2006) condenses this division into three large layers. The first one is called "physical" and includes the elements previously described. The second one is called "logical" and includes protocols, algorithms, standards and other procedures that "translate human knowledge into something that machines can transmit, store and compute, and something that machines process in communications with meaning for human beings" (p. 392). And above this base is what Benkler defines as a layer of "content", corresponding to the layer of applications in the TCP/IP schema. Each one of these layers plays an important role and is the object of disputes for the regulation of the Internet - which, in the last instance, means the struggle between players to define who can speak/ do what, in what way and under what conditions on the online environment.



Source: Kurbalija, 2016.

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The physical layer is the entrance door for the users. The "Logical" layer, encompassing the "Network", "Internet" and "Transfer" layers, contains the protocols that form the core of the Web. Galloway (2004, p. 3) defines them as "the principle of organization native to computers in distributed networks" and as "a set of recommendations and rules that outline specific technical standards" (p. 6). These protocols are defined internationally. But this doesn't make its functioning be decided only by engineers and specialized organizations or its nature being "exclusively technical". Technology brings in itself political interests and views, from its conception to its implementation, including its own content (FEENBERG, 1999).

Next, we begin the analysis of the layer which is the focus of this report, the applications and content layer. Although the two previous layers also impact the object of this analysis (plurality and diversity on the Web), the understanding of the state of the art of freedom of expression in the Network requires understanding that conditions, models and cultures define the form of organization of services offered and messages disseminated in the online environment in the applications and content layer, whose analysis is the focus of this work.

2. The applications and content layer

As emphasized until now, the Internet is gaining an increasingly important role in society's life, despite the representative number of people who are still disconnected. This growing importance is related to the type of activities that can be carried out in this space. This process goes from the exchange of messages and publications on sites in the so-called Internet 1.0 to interactions, especially in social networks, in the so-called Internet 2.0, to the coordination of daily actions in the so-called Internet of Things.

Through the web it is possible, for example, to set an alarm clock, to check out the weather forecast to decide which clothes to use, to define the best route to drive or time of the bus or subway, to check e-mails, to perform a task in a text editor, to communicate with bosses or colleagues through messengers (such as WhatsApp, Facebook Messenger or even specific applications of companies and organizations), to check the best places to eat on the surroundings rounds or to order food, to have a meeting by videoconference, to receive information from portals or news indications from friends, to arrange the transportation of your children from school to home, to switch on electrical appliances at home, to clear up doubts about a recipe or an unknown domestic procedure, to watch a movie or audiovisual program, to read a book, to chat with relatives and friends and to go to sleep adjusting the light and the volume of the radio or the music. This list is just an example of how the Internet is becoming more and more invasive in our daily dynamics. In many cases, this does not happen voluntarily.

This variety of tasks is only possible because of the existence of programs that allow its performance in the online environment, the so-called **applications**. According to the technical dictionary "Tech Terms", application is "a program that runs on your computer" and that "has a specific application for the user".¹ They are similar to traditional software, which allows the execution of tasks in a computer. The difference is the scope. As the object of this work is the Internet applications and content layer, we will analyze those that depend on some extent on the Internet its total or partial execution in connected devices. Therefore, programs that run offline (such as a text editor, a calculator or a game, used independently of connection) are not considered here. Integral dependence implies the conditioning of the complete operation to a connection to the Internet (like browsers or streaming services). Partial dependency refers to applications whose functions in some way are fed or altered by data transmitted by the Internet, but can also be used offline (as a messenger or map). It is important to highlight that the type of terminal and the existence of connection are not the determining criteria. It is possible to use applications on the cell phone that do not belong to this Internet layer (such as a text editor or a photo gallery) and there are programs on desktops that depend on some form of Internet connection, such as browsers or e-mail managers (Outlook and similar ones).

¹ Definition available at: <https://techterms.com/definition/application>



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The object of this research is also the websites that make content available or offer some type of service. This universe includes blogs, sites, portals and platforms, among others. The hegemonic model historically constituted on the internet is the World Wide Web (WWW), through which sites are accessed from addresses (www.intervozes.org.br, for example). In the basic structure, the content is presented by means of graphical interfaces that bring together different elements, such as text, images, audio and video. These contents are linked to others through hyperlinks. The difference between websites and applications is not always clear, with many examples that gather the offer of content and services. Throughout this document, the intention will be to seek to learn this complexity without rigid classifications, but pointing out categories when they are necessary for analysis. Next we will present some types of players and sources of relevant contents for the analysis to be made in the following sessions.

Next, we will detail our analysis of the applications and content layer, giving special attention to three types of phenomena that we consider to be central in this universe: (1) the rise of platforms, (2) online journalism and (3) cultural goods. The first one involves players who became the largest spaces of interpersonal and public interaction among individuals, groups and institutions. The second one involves a modality of contents and sources of information which have a leading role in the daily reading of reality and in the organization of public debate on relevant subjects to society. The third one covers the production and consumption of core symbolic manifestations of human life and which contribute to the reproduction of identities and views of the world.

2.1. The rise of platforms

Platforms are a type of player with increasing visibility in the applications and content layer and that help understanding the great diversity and plurality in the Network. Google, the name of the largest search site in the world, became more than a name and became a verb that indicates the search for information, explanations or answers. What used to be a place to find sites, such as Yahoo! and Altavista, assumed the condition of absolute reference for any doubt that a person has. Buying is also becoming more and more an online activity. Sites such as Amazon, EBay, Alibaba and others bring together a much larger variety of products than the more robust department stores, such as Walmart, could imagine.²

Other economic segments have been marked by the rise of platforms and their growing participation in markets. This is the case of paid individual transportation. In the United States, until 2020 more than 20 million adults will be regular users of this type of service. The arrival and regulation of Uber and similar services in several localities were accompanied by intense polemics promoted by traditional controllers of this market: taxi drivers. In the hosting segment, the Airbnb platform became the largest intermediary on the planet, with 160 million visitors and 3 million advertisements in more than 65 thousand cities in 191 countries.

² Originally a book sales site, the company started to sell all kinds of goods and services and claims to have hundreds of millions of products in its catalogue (European Commission, 2016, p. 10). In addition, it started to mix online and offline environments, with stores for pick-up and sale of products and even automated groceries. In the beginning of 2017, the conglomerate was in negotiation with Via Varejo, controller of Casas Bahia and Ponto Frio

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Platforms are mediators who connect several agents for the acquisition of a good or service (such as the purchase of a product in Amazon or an application download in Apple Store), for social interaction (such as Facebook or Snapchat) or for the performance of specific activities (looking for a place to spend the night or several days in Couchsurfing). Among researchers, there are different definitions for platforms: Online Platforms (European Commission, 2016), Peer-to-peer Services (Ahmad and Schreyer, 2016), Digital Platforms (Ejik et al., 2015), Technological Platforms (Gawer, 2014) or simply Platforms (Van Gorp and Batura, 2015). In this work, we use "digital platforms".

Digital platforms are mediation spaces/agents, based on a technological base, in which different activities and interactions take place, through which services and contents are negotiated and whose action takes place in a connected environment, even if not necessarily in a www address (as in the case of applications). This role of mediation is not something new and has been performed by players such as credit cards issuers or real estate companies since a long time. But digital platforms have a series of characteristics that differentiate them from these services and from sites or regular applications.

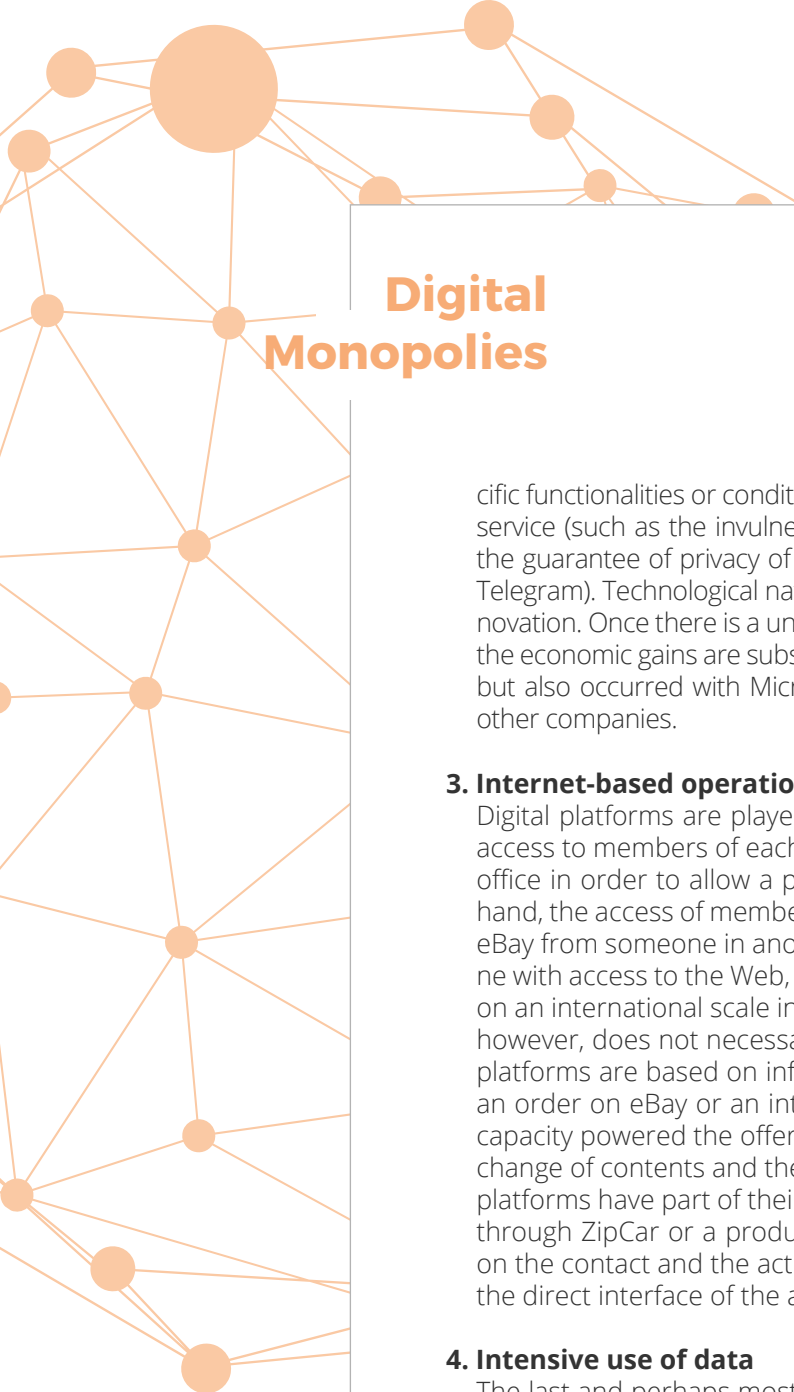
1. Access to other sides

One of the main characteristics of these spaces is their "multisided markets" format, offering their users contact with the other sides as a central service. This is the difference from traditional companies characterized by the acquisition of raw materials and the use of labor to process them in the form of a product to be sold in the market. The main business is the offer of this connection between the various sides, whether voluntary (a buyer looking for a product from a company in Alibaba) or involuntary (a Twitter user exposed to advertising from advertisers). This effort to connect the various sides, generally being one of them users and consumers, makes platforms to usually offer their service free of charge to this public, once they need this user base to which suppliers can offer their products and services. Evans and Schmalensee (2016) divide these groups into "money side" and "subsidy side". The price must fulfill the need to make the first side compensate not only the direct costs of production but also those associated with the inclusion of users on the second side. As already mentioned, the network effect is associated with this characteristic. The greater the number of users on each side, the more options the other side will have for the achievement of its objective (be it the acquisition of a good or service, interaction, diffusion of contents or performance of a specific activity). This attribute creates a logic that empowers the leading players. If a person wants to compare product prices, the platform with the largest number of options will be more attractive.

2. Technological nature

Digital platforms are technological systems, specifically based on Information and Communication Technologies. As such, innovation is a mainspring of their development. Its technical architecture and functionalities are part of its nature and are a key element of competition differentiation in the market. This search for differentiation can be expressed in the product or service provided (as in the case of Google's search mechanism, which turned it into the absolute monopolist company in its market, or the quality of Apple software and hardware, whose example is the iPhone, a mobile device which is a landmark until nowadays). But it can also be expressed in spe-

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cific functionalities or conditions that guarantee a better or qualified performance or service (such as the invulnerability to virus of Linux operating systems distribution, the guarantee of privacy of Mozilla browsers or the "stickers" feature for groups in Telegram). Technological nature makes these companies to constantly search for innovation. Once there is a unique technology transformed into a structured business, the economic gains are substantial. This dynamic could be seen in Google and Apple, but also occurred with Microsoft and its Windows, Facebook and Amazon, among other companies.

3. Internet-based operation

Digital platforms are players operated through the Internet. This allowed easier access to members of each side (AirBnb does not need to go to a city or open an office in order to allow a person to subscribe for its services) and, on the other hand, the access of members of each side to the other (a buyer can find a good in eBay from someone in another city without the need to leave home). For someone with access to the Web, this capacity allowed for more and more players to act on an international scale instead of being restricted to their original market. This, however, does not necessarily mean a greater competition. Since many of these platforms are based on information services and products (a video on YouTube, an order on eBay or an interaction on Tinder), the Internet intercommunication capacity powered the offer and provision of these services and products, the exchange of contents and the interaction between people. Although many of these platforms have part of their activities happening in the offline world (a shared car through ZipCar or a product acquired through Etsy), their main action depends on the contact and the actions and relationships built through the Internet (be it the direct interface of the application, be it the interface through browsers).

4. Intensive use of data

The last and perhaps most important characteristic of digital platforms is the intensive use of data in all its activities. If the platforms main business is the connection between people on different sides, it is necessary to find out the demands of each user and where is the other (from a different side or the same side) that can fulfill them in the best way. For this, these sites collect huge amounts of data and use their analysis systems to identify behaviors, tastes and interests that can be translated into goods and services to be offered (suggestions of books, films and other products from Amazon, for example). In the same way, they use this information base to make information available to the most vulnerable public service providers that can be transformed into potential customers (as in the personalized advertising mechanisms of Google and Facebook).

Digital platforms can focus on different areas and services. It is not the object of this report to make an exhaustive debate about this classification. For analysis purposes, we opted to classify the platforms into:

Digital platforms can focus on different areas and services. It is not the object of this report to make an exhaustive debate about this classification. For analysis purposes, we opted to classify the platforms into:

1. Trade/retail – The main activity is the sale of products from third parties

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(Amazon, eBay);

2. Social networks sites – The main activity is the interaction between people and groups, either by the diffusion of contents in models like "pages" and "timelines" (Facebook, Twitter) or only by means of messages (WhatsApp, Facebook Messenger);

3. Application systems – The main activity is to organize and offer a set of applications for use in personal devices, such as operating systems and application stores (Windows, Linux, Android/Play Store, iOS/App Store);

4. Sharing of goods, services and activities – The main activity is the exchange and sharing of services, goods, time and physical or intellectual work (the whole universe of sharing/collaborative/gig/on demand);

5. Circulation of contents – The main activity is the dissemination of cultural, informative and scientific contents (YouTube, iTunes, Spotify, Soundcloud, Vimeo, Wikipedia, Researchgate, Academia.edu).

Focusing on plurality and diversity on the web, this paper will dedicate more attention to content circulation platforms and social networks. The other modalities will be addressed only if their action impacts in any way the public debate on the Internet arena. The delimitation of the object and the methods of analysis will be discussed in more detail in a later section.

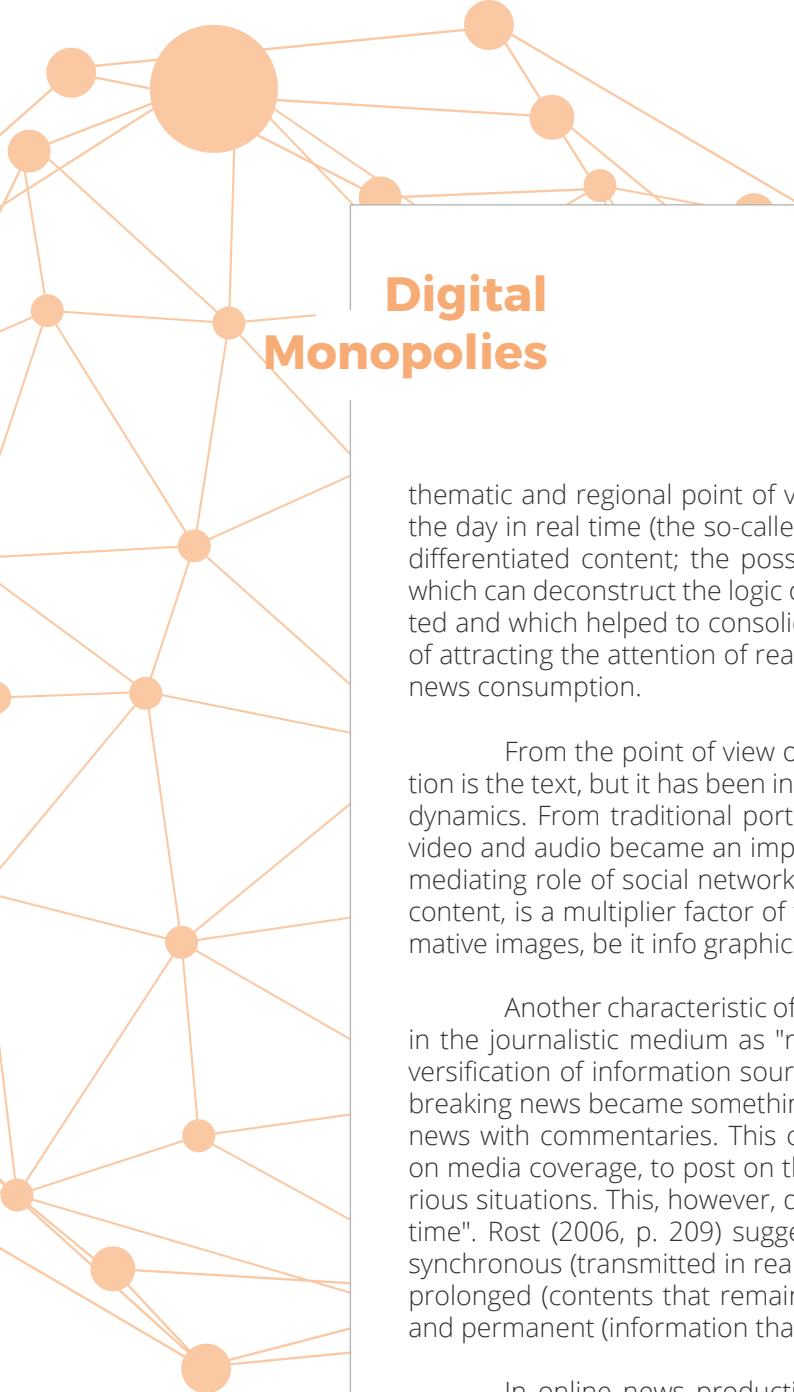
2.2. Online journalism

Other important players of the content layer are the news sites. Since the first wave of popularization of the Internet in the 90's, the Web has served as a new space to search for information. This practice branched out into several sources, from search sites to online encyclopedias such as Wikipedia. But the follow-up of daily news necessarily involved the dissemination of journalistic pages on the Web.

Online journalism is originated from the context of convergent logics offered by Internet and digitalization, from the paradox of traditional players entering this new environment without eliminating their original businesses and the attempt to enter the market by new players, professionals, semi-professionals and non-professionals. On the one hand, the convergent logic favors business groups based on media cross-ownership and that already had radios, TVs and newspapers, enabling the use of material from these different media in the online world. On the other hand, the rise of the Web as a source of information threatens the business model of these groups based on their traditional means.

This situation makes online journalism somewhat unstable and complex. Albornoz (2011) identifies a series of tensions in this scenario, such as: the dilemma between free-of-charge and paid business model, which generates revenue from subscription, but brings the possibility of losing audience and, consequently, advertising income; the dilemma between the generalist profile and the specialized information, both from the

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thematic and regional point of view; the choice between the coverage of the news of the day in real time (the so-called hard news) or in depth coverage with exclusive and differentiated content; the possibilities of user participation and use of interactivity, which can deconstruct the logic of unidirectional flow of information - historically adopted and which helped to consolidate the reference of these vehicles; and the difficulty of attracting the attention of readers in a scenario of growing offers and new forms of news consumption.

From the point of view of the functioning logics, the base of the news production is the text, but it has been incorporating several other languages in the convergent dynamics. From traditional portals to the less structured ones, the dissemination of video and audio became an important guideline of these websites. The recent central mediating role of social networks, which in several cases privileges the reach of video content, is a multiplier factor of that language. The same occurs with the use of informative images, be it info graphics or humorous pieces known as "memes".

Another characteristic of online journalism is the sharpening of the logic known in the journalistic medium as "real time". With the expansion of connectivity, the diversification of information sources and the ability to publish very quickly, the run for breaking news became something even more complex. Professionals can transmit live news with commentaries. This capacity also allowed individuals, formerly dependent on media coverage, to post on their own profiles, sites or even to broadcast live in various situations. This, however, does not mean that this modality only works with "real time". Rost (2006, p. 209) suggests a classification of these various temporalities as synchronous (transmitted in real time), recent (contents updated throughout the day), prolonged (contents that remain in the pages and consolidate stories and coverage) and permanent (information that is always in the sections of the sites).

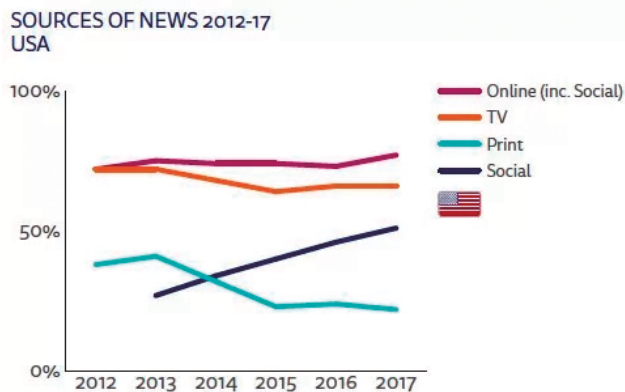
In online news production, the extreme reduction of physical limits (except for the server storage capacity) would suggest the possibility of processing longer and more detailed texts and contents. This happens in some sites with more in-depth material profiles or even articles. However, the overexposure to information on the Internet caused the opposite effect. In professional online journalism sites, texts are short and direct, an option motivated by the understanding that the consumption of contents on the Net is instantaneous and dynamic, making it difficult to keep the attention of the users for a long time.

Constant and personalized access to news has as an amplifying element: the increasing use of smartphones for the consumption of news (Reuters, 2017). At the same time, this process is accompanied by media vehicles investing in new forms of content diffusion by means of proprietary applications. The launching of news applications also places other players, notably platforms (whose increasing role will be discussed below). Examples are Apple News and Snapchat Discover.³ Another type of application that is growing, according to the Digital News Report 2017 (Reuters, 2017), are voice-activated personal assistants, such as Amazon Echo.

³ These initiatives make it difficult to differentiate between "contents" and "applications" in the layer we are analyzing in this report. This difficulty will be addressed later in the discussion of the methods of analysis.

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This overexposure to information opened the way for large intermediaries to play a central role in the provision of news. This is the case, for example, of search mechanisms, triggered when the user searches for specific information. Or the social networks, which concentrate more and more the attention of the users and become the entrance door for other contents in the Web. The emergence of these digital platforms placed a new challenge for online journalism pages, because the concentration of users' time has been discouraging traditional navigation practices, in which the user actively accesses their favorite sites. According to the Reuters Digital News Report 2017, from Reuters Institute, between 2013 and 2016 the social networks gained space as a source of information, similarly to TV.

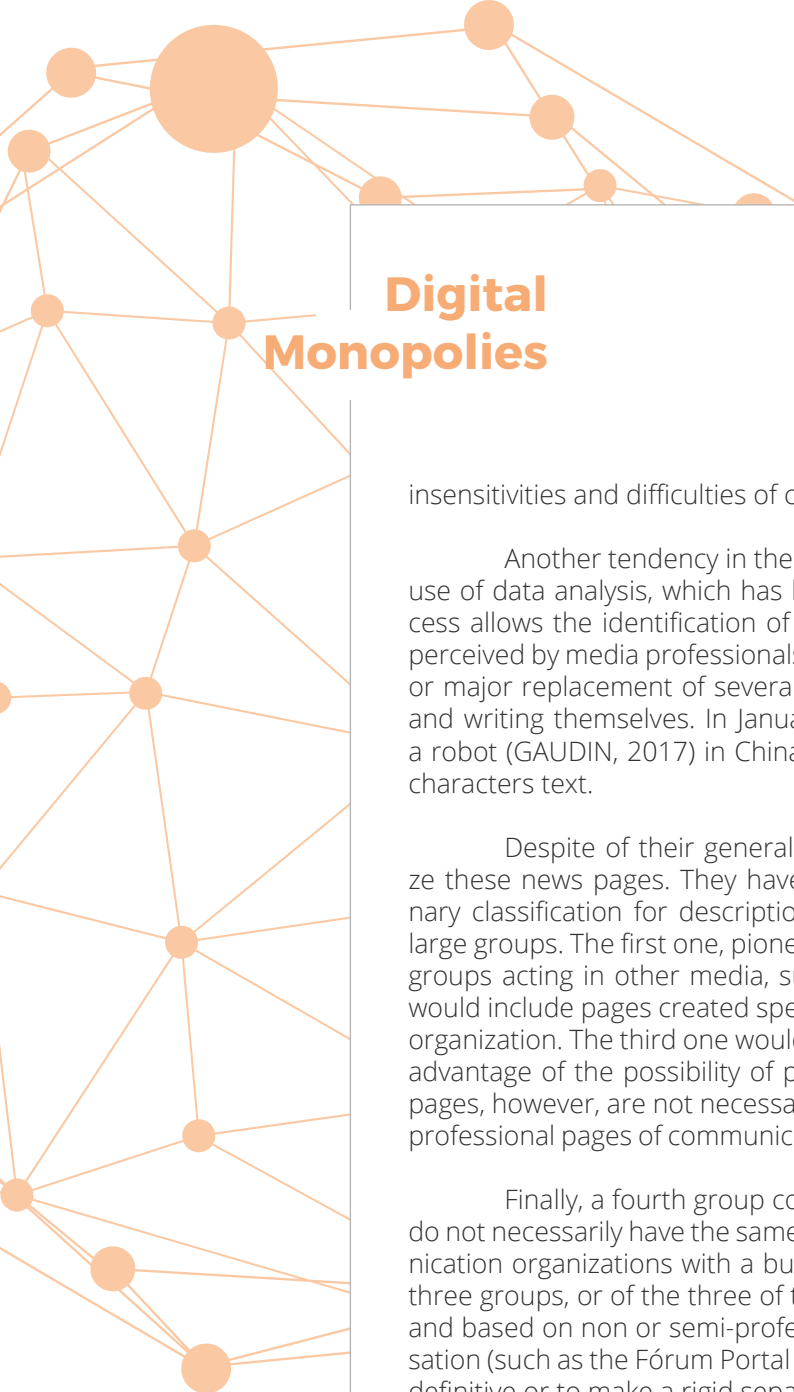


Source: Reuters, 2017

The consumption of news mediated by platforms gained visibility not only in our professional and academic environments but in society as a whole, with the emergence of two phenomena: the information bubbles and the so-called "fake news". Pariser (2011) created the expression "filter bubble" to name the process of acute personalization of the experience of Internet users promoted by sites and platforms, made possible by the massive collection of information, the identification of preferences and the management of the experiences, services and accesses of each user from that point. "The new generation of Internet filters looks at the things you seem to like — the actual things you've done, or the things people like you like — and tries to extrapolate. They are prediction engines, constantly creating and refining the theory of who you are and what you'll do and want next. Together, these engines create a unique universe of information for each one of us — what I've come to call a filter bubble — which fundamentally alters the way we encounter ideas and information" (PARISER, 2011, p. 10).

Although Information and Communication Technologies has been constantly used since the birth of online journalism, in recent years some resources have emerged with the potential for substantial changes in this activity. This is the case, for example, of virtual reality and augmented reality. This technology allows the realization of an "immersive journalism" (DE LA PEÑA ET AL., 2010) in which the reader is placed in a virtual environment and can explore available information, altering the traditional passive mode of daily journalism consumption. According to the authors, a richer experience approximates the participant of the event, building a more effective engagement, especially in a moment in which the increasing volume of offered contents can produce

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insensitivities and difficulties of contextualized appreciation of events and facts.

Another tendency in the use of technology in online journalism is the intensive use of data analysis, which has been called "data journalism". This sophisticated process allows the identification of relationships and inferences that are not easy to be perceived by media professionals. The adoption of algorithms advances towards a total or major replacement of several positions in the editorial room, including verification and writing themselves. In January 2017, the first publication of an article written by a robot (GAUDIN, 2017) in China was announced. It took one minute to create a 300 characters text.

Despite of their general characteristics, it would be inaccurate to homogenize these news pages. They have different profiles, scopes and reaches. In a preliminary classification for description purposes, we could classify these sites into some large groups. The first one, pioneer in this field, would be the portals of communication groups acting in other media, such as newspapers, TVs and radios. The second one would include pages created specifically for the Web, without any direct link to another organization. The third one would include blogs and sites of people or groups that took advantage of the possibility of publication on the internet to spread contents. These pages, however, are not necessarily made in a non-professional way. Blogs can also be professional pages of communication organizations and be linked to those media sites.

Finally, a fourth group could be classified as content aggregator portals. These do not necessarily have the same size or profile. They can be both groups' own communication organizations with a business profile and that gather examples of any of the three groups, or of the three of them (such as the UOL), or they can be non-profitable and based on non or semi-professional forms as well as alternative forms of compensation (such as the Fórum Portal or Mídia Ninja). This classification is not intended to be definitive or to make a rigid separation; it is just a resource to be used later in order to understand the specificities of the news sites in the Network.

2.3. Cultural goods

Cultural goods are also a segment of the applications and content for the expression of plurality and diversity of views and manifestations. In this group of contents, Internet has been having a strong impact for a long time, reorganizing or even structurally changing important industries, such as phonography and photography. A first impact is related to the nature of these goods. Their intangible base creates several difficulties for their accommodation to the capitalist logic of production, distribution and consumption of goods. Because it is a non-rival good (it does not run out with its consumption), it can be exhaustively reproduced at low cost (GARNHAM, 1990). One of the great challenges of capitalism on how to profit from these goods is exactly to find a way to prevent their free reproduction and control their consumption. One of the solutions developed was the establishment of author's rights and the consequent criminalization of their violation, commonly known as "piracy". The phonographic and cinematographic industries had their models based in the sale of units (a film or a disc), so the possibility of reproduction in the digital environment threatens the profit in a more effective way than in the case of radio broadcasting, financed by advertisement.

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With the advance of Internet reproduction and dissemination technologies, this challenge gained an unimagined dimension. Although it was already possible to "pirate" a disc by recording a tape, for example, the combination of these two technical resources allowed extremely easy access to music, videos, texts and photos. This dispute became a war in the last two decades. Programmers develop tools to reproduce and circulate cultural products and the phonographic and cinematographic industry act to restrain this practice in different ways. Law suits against sites, such as the notorious case of the Napster download system, became an usual event. However, the ease of creating new sites and tools (including those even without any central repository, as in the case of the Torrent technology) made the industry promote new repressing tactics. Legislations in several countries have been passed, increasing penalties for downloading "pirate content", including the suspension of connection.

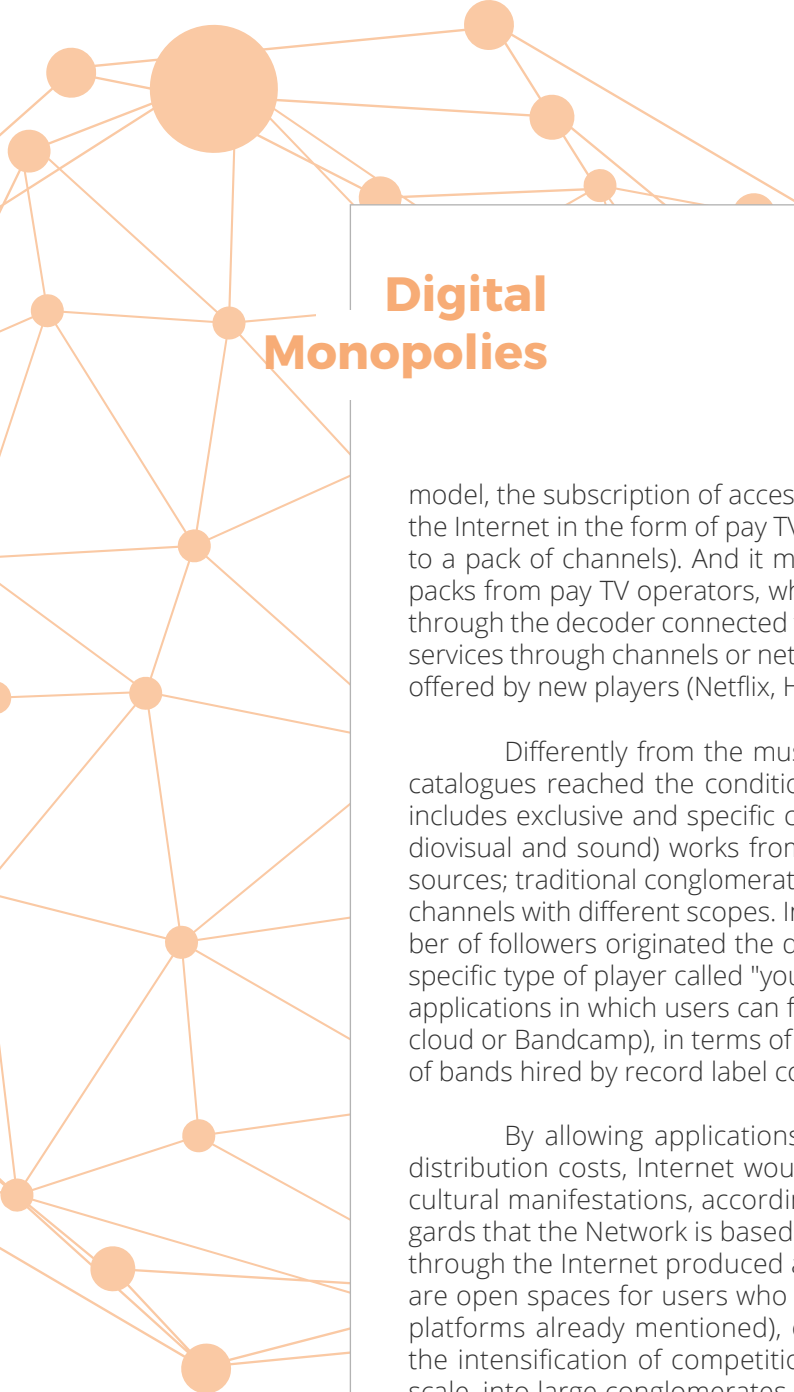
But other strategies were also created. The sale of licenses for use (for books or music, for example) and not of the product itself is a way of trying to prevent multiple consumption or the consumption of that cultural good by several people. When buying an e-book at Amazon, for example, the user does not acquire the right to download a text file and pass it on to whoever he wants, but the access to the book in compatible devices. The customization already mentioned was an important instrument, since it links the consumption to the user's accounts. The license model had already been consolidated in the software market (this is also another intangible product, with the same non-rival characteristic of cultural goods) and was expanded to the audiovisual sector. Through it, digital platforms such as Amazon offer, in its video service, access not only through license but also temporary access, applying the same principle of the old video rental shops.

Another characteristic of the nature of these products is the fact that, because of their symbolic aspect, there is no guarantee that a film or music will fulfill a consumer's need, as would be the case, for example, of the manufacture of a shoe. Bolaño (2000) names this attribute as the "randomness of cultural production". A released film can be a success or a failure. To avoid this, industries act in various ways. The role of film, programs or discs "production" acts with this purpose of releasing works according to what can give a positive result and avoid failure. The homogenization of cultural production is very much related to this condition. The search for the average taste according to the appeal of the moment (parameters that change with time) is an effort in this direction. With high costs of creation and production and low costs of reproduction, the bet on a work is always accompanied by uncertainties.

The emergence of the Internet did not change this dimension of cultural production, but caused important changes. In the phonographic market, the first movement was the commercialization of music individually, with the charge for its download. Apple's iTunes platform was a paradigm in this sense. However, this phenomenon has been declining. Report of a representative entity of the phonographic industry on the state of the art of the sector in 2017 (IFPI, 2017) showed a decrease of 20% in revenue from music downloads. The second movement involved the offer of access to product catalogues at a fixed price, popularly known as streaming. This model inverted the logic established in the commercialization of products units (disc, single, film), changing it to the access to the service. The IFPI report also indicates that, between 2015 and 2016, there was an increase of 60% in the revenue of these applications (IFPI, 2017).

In the audiovisual sector, the transition has taken place directly for the second

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model, the subscription of access to catalogues. This already existed before the rise of the Internet in the form of pay TV services (in which the user subscribes to have access to a pack of channels). And it migrated to the Internet, with a combination of special packs from pay TV operators, which became accessible through the Web and not just through the decoder connected to a TV (such as Net Now); the direct offer of streaming services through channels or networks (such as Globo Play or HBO Go); and catalogues offered by new players (Netflix, Hulu and Amazon Video).

Differently from the music segment, in the video segment the access to free catalogues reached the condition of biggest service through YouTube. The platform includes exclusive and specific contents published by any user; reproductions of (audiovisual and sound) works from an extremely wide range of artists and information sources; traditional conglomerate spaces (such as Vevo, from Sony Music); and several channels with different scopes. In this last group, the rise of channels with a large number of followers originated the definition of those responsible for these contents as a specific type of player called "youtuber". Although in the music segment there are free applications in which users can freely register and publish their music (such as Soundcloud or Bandcamp), in terms of scope this model is minor compared to the catalogue of bands hired by record label companies.

By allowing applications to offer services to the entire world without large distribution costs, Internet would supposedly allow a broadening of the diversity of cultural manifestations, according to Web's apologists. This premise, however, disregards that the Network is based on the capitalist logic. The improvement of the reach through the Internet produced a paradoxical phenomenon. If on the one hand there are open spaces for users who want to publish sound or audiovisual works (such as platforms already mentioned), on the other hand this international dimension and the intensification of competition in this market led to a concentration, on a global scale, into large conglomerates.

With the emergence of the Web and the convergence of media, audiovisual and telecommunications industries, especially with the Internet growth, the process of centralization of cultural industries advanced. At the time of this research, Time Warner was negotiating its merger with AT&T, representing the union of the main U.S. content company with a telephone operations and Internet access giant. On regional and national levels, Mexican Telmex gathers pay TV operators, cell phone companies, Internet access services and applications also in the content layer. Although the Internet is marked by the presence of new players, even these ones have already participated in phenomena of rapid centralization, as is the case of Google/Alphabet, Apple, Amazon, Facebook and Microsoft conglomerates.

Bustamante (2017) argues that this process penalizes especially minority regions and cultures, affecting diversity. In order to create market spaces and deal with the challenges of the symbolic dimension of these goods, companies in the sector radicalize the logic of concentration and centralization of the capitalist economy. The objective of this report is to understand if and how this occurs in the Brazilian context. The analysis will be carried out in the following section.

But before, we will present a brief description of the world market on the appli-

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cations and content layer to identify players, tendencies and distinctive characteristics of the market structure.

2.4. The world market(s) of the applications and content layer

The applications and content layer involves several specific markets. In this section we will try to present a synthetic X-ray of these sectors worldwide as a context for the analysis of the Brazilian situation. This is not an uniform mapping, because it depends on the data and information available on each activity. Another challenge is the understanding of the layer as a whole, once the statistics and comparisons are often made by each specific market, and not considering this whole universe.

These users have experienced a change in the profile of contents and services consumed on the Web. The last few years have been marked by the rise of platforms. According to the Internet database Alexa, from the Amazon conglomerate, the ranking of the most accessed sites in the world is dominated by the giants Google, YouTube, Facebook, Baidu, QQ, Yahoo, Reddit, Twitter and Live.com (Microsoft). Perhaps less known platforms such as Baidu and QQ have large volume of accesses for being serving the market of the most populous country in the world, China (also including communities of migrants living in foreign countries). If we consider the 20 most accessed sites:

- ▶ All of them are "platforms" as defined in the preceding section;
- ▶ Four of them (20%) are from Google/Alphabet (Google.com, YouTube, Google.com.in, Google.com.jp);
- ▶ Twelve of them (60%) are from the U.S. (with one dedicated to the Indian audience and another one targeting the Japanese), seven of them (35%) are Chinese and one (5%) is Russian;
- ▶ Four of them are platforms focused on search mechanisms (Google.com, the Indian and Japanese versions of the site, and Baidu), four are e-commerce platforms (Amazon and the Chinese Taobao, Tmall and JoyBuy), four are social networks (Facebook, Twitter, Instagram and Russia's VK), three are content circulation platforms (YouTube, Reddit and Wikipedia), three are multi-service platforms and portals (China's QQ.com, Sohu and Sina and Live.com from Microsoft)
- ▶ Nineteen (95%) have commercial purpose, with the exception of Wikipedia, maintained by a non-profitable foundation.

In the segment of applications, there has been an explosion of offers in the last years. According to the statistics site Statista (2017), the number of apps on the Apple store jumped from 201 thousand in 2010 to 3.1 million in 2017. On the Android operational system store (Play Store), the number of offers rose from 70 thousand in 2010 to 3.3 million in 2017. After 150 billion downloads in 2016, the estimate is that the number will reach 197 billion and 352 billion in 2012. In a general view, regarding free apps, the less downloaded apps are the social networks (including messengers):

No móvel, o controle é absoluto da Android. Se considerado o acesso à web, as conexões realizadas por meio do SO Android, da Google, representam 71,6%; as operadas

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por meio do SO iOS, da Apple, totalizam 19,6%; e as baseadas em outros sistemas somam 8,8% (WE ARE SOCIAL, 2017).

No segmento de aplicativos, houve uma explosão de oferta nos últimos anos. Segundo o site de estatísticas Statista (2017), o número de apps na loja da Apple saltou de 201 mil em 2010 para 3,1 milhões em 2017⁴. Na loja do sistema operacional Android (Play Store), o número de ofertas subiu de 70 mil em 2010 para 3,3 milhões em 2017⁵. Após 150 bilhões de downloads em 2016, a estimativa é que o número chegue a 197 bilhões e 352 bilhões em 2012⁶. Em uma visão geral, quando considerados os gratuitos, os apps mais baixados são as redes sociais (incluindo mensageiros):

Free applications (non-games) by number of downloads	
Application	Categories
WhatsApp	Social network
Facebook	Social network
Instagram	Social network
Snapchat	Social network
UC Browser	Browser
Uber	Mobility
YouTube	Content
ShareIt	Files
Bitmoji	Social network

Fonte: SensorTower, 2017⁷

Research of ComScore consultancy (2017) carried out in the American market pointed out that half of the time in digital media is spent in mobile applications. From this, half of the time is spent on the most used application by the user and the top 10 consume 95% of the use time. That is to say, despite the diversity of offers, users concentrate their consumption in just a few applications. If considered the economic groups, Facebook is responsible for the first three (WhatsApp, Facebook itself and Instagram), showing an important position in this market.

When the analysis considers economic players, the emergence of the phenomenon called "Big Techs" in the USA becomes visible. Compared to other sectors of the economy, companies with businesses in the content layer (i.e. applications, platforms

4 Number of available apps in the iTunes App Store from 2008 to 2017 (in 1,000s). Estatística disponível em: <https://www.statista.com/statistics/268251/number-of-apps-in-the-itunes-app-store-since-2008/>.

5 Number of available applications in the Google Play Store from December 2009 to September 2017. Estatística disponível em: <https://www.statista.com/statistics/266210/number-of-available-applications-in-the-google-play-store/>.

6 Number of mobile app downloads worldwide in 2016, 2017 and 2021 (in billions). Estatística disponível em: <https://www.statista.com/statistics/271644/worldwide-free-and-paid-mobile-app-store-downloads/>.

7 Top Apps of Q1 2017: Netflix Dominated Worldwide Revenue, Which Grew 63% YoY. SensorTower, 2017. Disponível em: <https://sensortower.com/blog/top-apps-q1-2017>

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or websites) reached outstanding positions in rankings of the largest companies in the world. In the Forbes magazine 500 ranking, four of the five main brands are from this area: Apple, Google/Alphabet, Microsoft and Facebook (FORBES, 2017). Amazon is also in this group, in the sixth position. The capitalization of the seven main platforms is equivalent to the universe of European conglomerates called Euro Stoxx 50 (ROLAND BERGER, 2017, p. 17). Although there are different rankings, this performance is not in any way negligible and shows the economic relevance of these companies. According to the Accenture consultancy report (2016), the market capitalization of the 15 main digital platforms totals US\$ 2.6 trillion, while the so-called "unicorns" (companies that reached a market value above US\$ 2 billions) reaches US\$ 500 billion in a market of US\$ 3 trillion.

Rank	Brand	Brand Value	1-Yr Value Change	Brand Revenue	Compay Advertising	Industry
#1	Apple	\$170 B	10,00%	\$214.2 B	\$1.8 B	Technology
#2	Google	\$101.8 B	23,00%	\$80.5 B	\$3.9 B	Technology
#3	Microsoft	\$87 B	16,00%	\$85.3	\$1.6 B	Technology
#4	Facebook	\$73.5 B	40,00%	\$25.6 B	\$310 M	Technology
#5	Coca-Cola	\$56.4 B	-4,00%	\$23 B	\$4 B	Beverages
#6	Amazon	\$54.1 B	54,00%	\$133 B	\$5 B	Technology
#7	Disney	\$43.9 B	11,00%	\$30.7 B	\$2.9 B	Leisure
#8	Toyota	\$41.1 B	-2,00%	\$168.8 B	\$4.3 B	Automotive
#9	McDonald's	\$40.3 B	3,00%	\$85 B	\$646 M	Restaurants
#10	Samsung	\$38.2 B	6,00%	\$166.7 B	\$3.7 B	Technology
#11	GE	\$37.9 B	3,00%	\$100.3 B	-	Diversified
#12	AT&T	\$36.7 B	12,00%	\$163.8 B	\$3.8 B	Telecom
#13	IBM	\$33.3 B	-20,00%	\$79.9 B	\$1.3 B	Technology
#14	Intel	\$31.4 B	13,00%	\$59.4 B	\$1.8 B	Technology
#15	Cisco	\$30.7 B	8,00%	\$48.6 B	\$186 M	Technology
#16	NIKE	\$29.6 B	8,00%	\$31.7 B	\$3.3 B	Apparel
#17	Mercedes-Benz	\$29.2 B	12,00%	\$108.6 B	-	Automotive
#18	Oracle	\$29.2 B	4,00%	\$37.4 B	\$68 M	Technology
#19	Verizon	\$28.9 B	12,00%	\$126 B	\$2.7 B	Telecom
#20	Louis Vuitton	\$28.8 B	6,00%	\$9.9 B	\$4.7 B	Luxury
#21	BMW	\$28.7 B	0,00%	\$83 B	-	Automotive
#22	Budweiser	\$24.6 B	5,00%	\$11.1 B	-	Alcohol
#23	American Express	\$24.5 B	1,00%	\$33.8 B	\$3.7 B	Financial Services
#24	Walmart	\$24.1 B	-5,00%	\$326.3 B	\$2.9 B	Retail
#25	Marlboro	\$24.1 B	10,00%	\$23.8 B	\$432 M	Tobacco
#26	Honda	\$24 B	-5,00%	\$113.3 B	-	Automotive

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Rank	Brand	Brand Value	1-Yr Value Change	Brand Revenue	Compay Advertising	Industry
#27	SAP	\$23.8 B	10,00%	\$25.9 B	-	Technology
#28	Visa	\$21.4 B	11,00%	\$15.1 B	-	Financial Services
#29	Gillette	\$19.2 B	-5,00%	\$6.8 B	\$7.2 B	Consumer Packaged Goods
#30	Pepsi	\$18.2 B	-6,00	\$9.5	\$2.5 B	Beverages

Fonte: Forbes 500 list

Notorious researcher Mary Meeker's report on Internet trends highlights the accelerated growth of platforms compared to other companies in the sector. Between 2015 and 2016, considering the U.S. market, Facebook had an increase in its revenue from advertising of 62% and Google, of 20%. The average increase in other companies was 9% in the same period (MEEKER, 2017). Facebook passed from a revenue of US\$ 5 billion in 2012 to more than US\$ 27 billion in 2016.⁸ On Google, during this same period, the revenue grew from US\$ 50 billion to US\$ 89 billion.⁹ On Amazon, it increased from US\$ 61 billion to US\$ 107 billion. The company, initially focused on book sales, is already the third largest in the sale of dippers and the first one in the sale of batteries.

Social networks, one of the segments of digital platforms discussed here, have experienced an outstanding growth, reaching 2,789 billion users in 2017, being 2,5 billion active users (WE ARE SOCIAL, 2017), the equivalent to 34% of the world population. The projection is that this growth will reach almost 3 billion by 2020.¹⁰ While Internet grew 10% between 2016 and 2017, social networks grew 21%.

A similar growing movement is occurring in the consumption of cultural goods. Online video market is also growing substantially. A survey by Nielsen Consulting (2016) showed that the subscription of paid on demand video services already reaches 26% of the world population. This rate is highest in North America (35%) and in the Asia-Pacific region (32%). When considering the generational aspect, this service reach is higher among 15-34 year olds (31%) compared to older categories, such as 50-64 year olds (15%).

Limelight consultancy research carried out in 2017 in eight countries (France, Germany, India, Philippines, Singapore, South Korea, United Kingdom and United States) showed that people watch this type of audiovisual product, on average, 5h45 per week. At the age of 18 to 25 years, the consumption jumps to 7h in the same period. Most of the consumption occurs at home, but mobile devices have grown as an access space to these contents. In relation to the type of content, films are the most popular ones, followed by series, journalistic programs and sports.

⁸ Statista. Facebook's annual revenue and net income from 2007 to 2016 (in million U.S. dollars). Available at: <https://www.statista.com/statistics/277229/facebook-annual-revenue-and-net-income/>

⁹ Statista. Google's revenue worldwide from 2002 to 2016 (in billion U.S. dollars). Available at: <https://www.statista.com/statistics/266206/googles-annual-global-revenue/>

¹⁰ Number of social media users worldwide 2010-2020. Statista. Available at: <https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/> Accessed on June 15th, 2017.

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The absolute leader in the number of users is YouTube (1,5 billion). However, this number does not necessarily reflect a diversity within the platform. Tubular Consulting Research (2017) shows that 24% of content creators are responsible for 71% of the views. On Facebook, the percentage is even higher: 26% of the producers get 77% of the views. In both platforms, companies with the highest number of views are BuzzFeed (4.2 billion on Facebook and 703 million on YouTube), LadBible (4.2 million on Facebook and 2.3 million on YouTube), Unilad (4 million on Facebook and 2.7 on YouTube), Jungle Creations (4 million on Facebook and 9 thousand on YouTube) and Time Warner (1.9 million on Facebook and 1.3 million on YouTube) (TUBULAR, 2017). If the number of subscribers is considered, the most popular channels on YouTube are PewDiePie (58 million), YouTube Movies (54.1 million), HolaSoyGerman (32.6 million), JustinBieberVevo (32 million) and T-Series (28.7 million).¹¹

A research by Goldman Sachs Bank (GOLDMAN SACHS RESEARCH, 2016) identified the preferences of streaming services consumers. According to the study, the functionalities with greatest differential are the size of the catalog, the discovery of new music and artists, the feature of availability in different devices and the support to artists. Consumers who claimed to pay for these services report as main reasons for it: the conversion of test periods¹² (49%), the exclusion of advertisements (29%) and mobile access (27%). A survey (TIVO, 2017) showed that the movement of abandonment of pay TV packages is mainly motivated by prices and the option of replacing it for a streaming service on the Internet.

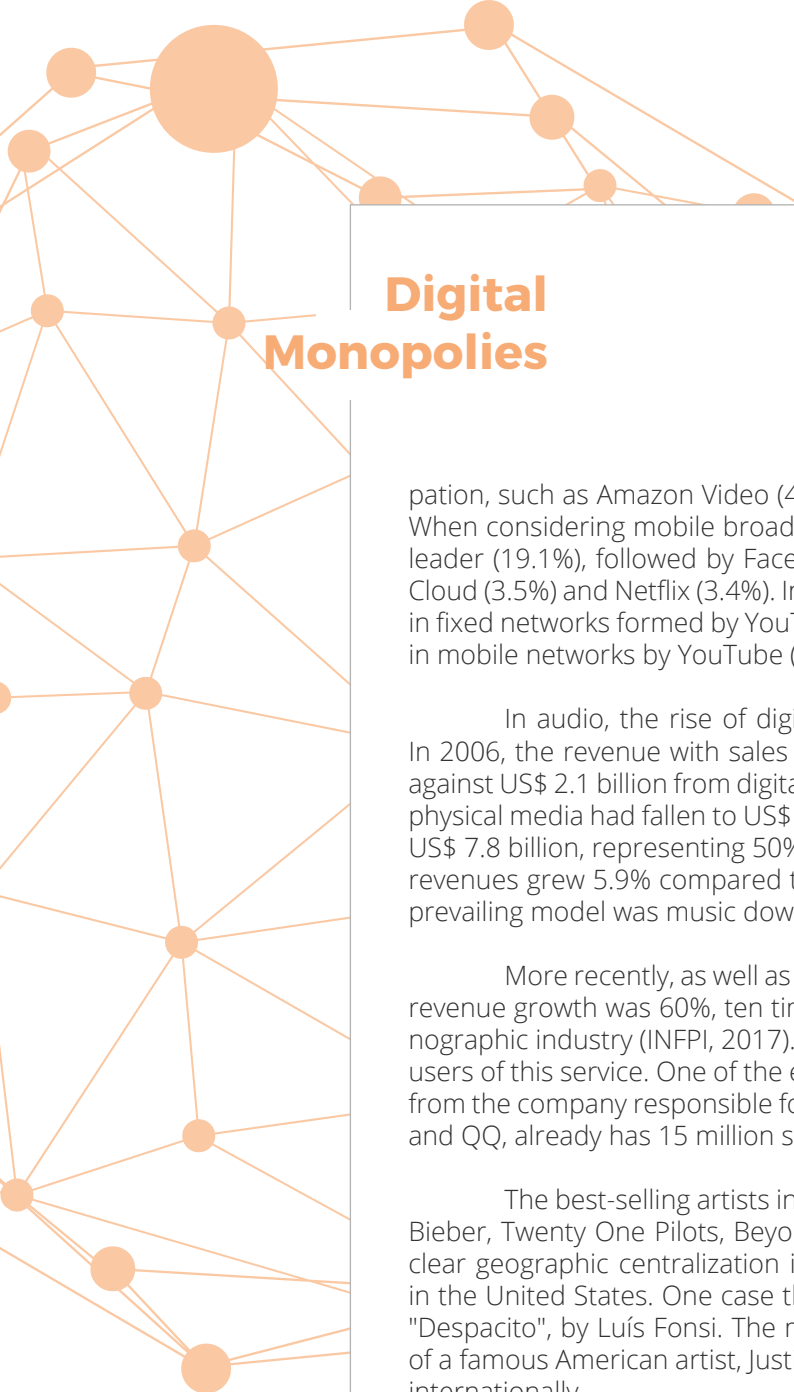
In video streaming, Netflix is the specialized paid service available. Between 2011 and 2016, while the number of minutes of program decreased in the main networks of the United States (such as NBC Universal, Disney, 21st Century Fox and Time Warner), Netflix increased 669% (MEEKER, 2017). The company, created in 1999, began to gain clients in 2006 in an upward movement starting in 2012, reaching almost 100 million subscribers that year (MEEKER, 2017). In the same period, the service revenues jumped from US\$ 600 million to US\$ 3 billion.

In a TIVO survey (2017) made with viewers in the United States and Canada, Netflix was the most popular subscription on demand video service (53.6%), followed by Amazon Video (21.6%), Hulu (15.7%) and HBO Now (5.6%). Among the users' reasons for this choice is the possibility of creating individual profiles (58.9%), price (56%), auto play of the next episode (46.4%) and the search mechanism (44.5%). The research also revealed, in this region, the high reach of this type of service: 94% claimed to be subscribers of one of the companies in the market.

Despite the fact that in number of users Netflix is still far from other platforms, especially from YouTube (1.5 billion), the intensive consumption of its service can be perceived when analyzing data traffic on the Net. Sandvine's report on the Internet in the Americas showed that, in North America, in peak hours, Netflix is the company with the highest participation in downloads and uploads in fixed networks (32.7%), followed by YouTube (17.3%) (SANDVINE, 2016). Other services have significantly lower partici-

¹¹ Information available at: <<https://socialblade.com/youtube/>>

¹² When the service is available free of charge for a test period and the user subscribes it after the test period.



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pation, such as Amazon Video (4%), BitTorrent (2.8%), iTunes (2.67%) and Hulu (2.4%). When considering mobile broadband, marked by allowance packs, YouTube becomes leader (19.1%), followed by Facebook (14%), Instagram (6.3%), Snapchat (5%), Google Cloud (3.5%) and Netflix (3.4%). In Latin America, Netflix is losing space, with the ranking in fixed networks formed by YouTube (25.9%), BitTorrent (10%) and Netflix (7.45%), and in mobile networks by YouTube (23.9%), Facebook (23.5%) and WhatsApp (7.4%).

In audio, the rise of digital means has had an even more devastating effect. In 2006, the revenue with sales of CDs and other physical units was US\$ 16.3 billion, against US\$ 2.1 billion from digital formats (IFPI, 2017). Ten years later, the revenue with physical media had fallen to US\$ 5.4 billion and that one of the digital segment reached US\$ 7.8 billion, representing 50% of the total revenue of the sector. In 2016, this set of revenues grew 5.9% compared to the previous year. In the first moment, in 2000, the prevailing model was music download.

More recently, as well as video, streaming gained space. In 2016, this segment's revenue growth was 60%, ten times higher than the average performance of the phonographic industry (INFPI, 2017). The IFPI report estimates the existence of 112 million users of this service. One of the emerging markets is China. The Tencent Music service, from the company responsible for the largest platforms in the country, such as WeChat and QQ, already has 15 million subscribers.

The best-selling artists in 2016 were Drake, David Bowie, Coldplay, Adele, Justin Bieber, Twenty One Pilots, Beyoncé, Rihanna, Prince and The Weekend. This shows a clear geographic centralization in English-speaking singers and bands, most of them in the United States. One case that illustrates this hierarchy is the 2017 success story "Despacito", by Luís Fonsi. The music needed to have a version with the participation of a famous American artist, Justin Bieber, to be successful in the domestic market and internationally.

Spotify appears as the main platform specialized in audio streaming. Between 2010 and 2016, the company grew from 0 to 60 million subscribers. In the same period, its revenue reached €3 billion (MEEKER, 2017). In 2017, subscribers listened an average of 40 artists per week, compared to 30 in 2014. Apple Music is in second place in the market, with 27 million subscribers (DUNN, 2017). If the audio streaming general consumption (not only paid) is considered, YouTube rises as the main attraction given its base of 1.5 billion of users.

The scenario of international market(s) on the applications and content layer briefly presented in this section intends to show references that will certainly reappear in the analysis of the Brazilian specific case. Internationalization and centralization of markets related to the Internet, especially in this layer, results in the emergence of giants in the activities of production, diffusion and mediation of contents.

One of the challenges of this work is to help understanding exactly how this phenomenon impacts the ecosystem of applications and contents inside a specific national border. But before going into the analysis, it is necessary to discuss categories, references and instruments that will guide it. This will be the attempt of the next session.

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2.5. The Internet context in Brazil

According to the ICT survey, "Domicílios 2016" (Households 2016) (CETIC.Br, 2017), there are 107.9 million users (61%) and 36.7 million households (54%) with Internet access. While in the A class the percentage of connected people is 95%, in D/E classes it is 35%. In the analysis by area, urban areas account for 65% of connected households, while rural area account for 39%. Inequality is also seen among regions: the percentage of connected households is 64% in the Southeast, 54% in the Center-West, 52% in the South, 46% in the North and 40% in the Northeast. The main reason for not having a connection service is the price. Among households, the proportion of people who surf only through mobile devices increased from 20% to 43% between 2014 and 2016.

The CETIC.br survey also identifies activities carried out by users. From the total of people surfing the web, 68% said they had watched videos, programs, movies or series online, 63% said they heard music online and 38% reported that they accompanied some type of audio and video transmission in real time. According to the report "Digital in 2017: Global Overview" (WE ARE SOCIAL, 2017), 90% of Brazilian users interviewed said they surf everyday day, 6% at least once a week and 3% once a month. The average fixed Internet speed in Brazil, according to the study, is 5.5 Mbps, below the world average (6.3 Mbps). On mobile connection, the Brazilian average rate is 4 Mbps, the sixth lowest among 30 countries researched.

Time spent on the Internet per day in the country is five hours on desktops and four hours on mobile devices (WE ARE SOCIAL, 2017). It is the second best performance, only behind Philippines in terms of access through computers and Thailand in terms of access through smartphones. In terms of time spent on social networks, Brazilians are also in the second position in the ranking, with 3h43, only behind Philippines again. The percentage of users accessing social networks reaches 58%. The country is the third largest Facebook user, with 122 million users, only behind India (191 million) and the United States (214 million).

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3. Diversity, plurality and concentration on the Internet

As already explained, this work aims to analyze the concentration and diversity in the applications and content layer in Brazil. These two concepts are, therefore, the political and normative basis of the debate proposed here. This section aims to discuss in a synthetic way what we mean by these two terms and to address, in a more general level, the challenges faced by these two objectives in the Web environment.

The concept of diversity is considered as central for two reasons. The first reason is the fact that it is a fundamental element for the guarantee and promotion of human right to communication, principle which supports the discussion carried out here. Such right arises as an evolution of the debate on freedom of expression and access to information, given the importance of communications in contemporary society. The concept involves guaranteeing that individuals and groups can freely inform and be informed, having the necessary means for this, including the means of mass communication.

This principle also considers freedom of expression and right to information combining them from a collective perspective and understanding their realization in the society as a whole, and not just from an individual point of view. That is, the "right to participation, under conditions of formal and material equality in the public sphere mediated by social and electronic communications".¹

The Universal Declaration of Human Rights states, in its article 19, that "[...] everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media, regardless of frontiers" (General Assembly of the United Nations, 1948, Art. 19). The American Convention on Human Rights, known as the Pact of San José, Costa Rica, states that "everyone has the right to freedom of thought and expression. This right includes the freedom to seek, receive and impart information and ideas of any kind, without regard to frontiers, either orally or in writing, in print or in the form of art, or by any means of his/her choice" (Organization of American States, 1969, Art. 13).

After these two international diplomas, human right to communication became a subject of debate and construction within the United Nations Educational, Scientific and Cultural Organization (UNESCO) (GOMES, 2007). The summit of the debate was the publication of the report "Many Voices, One World", which lists the elements of this new right. [...] "the elements that make up this fundamental human right are the following: a) a right to assemble, a right to discuss, a right to participate and related association rights; b) a right to inquire, a right to be informed, a right to inform, and related information rights; and c) a right to culture, a right to choose, a right to privacy, and related human development rights. The achievement of a right to communicate would require

¹ Definition on the institutional site of Intervozes - Coletivo Brasil de Comunicação Social. Available at: http://www.intervozes.org.br/direitoacomunicacao/?page_id=28545

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that communication resources be available for the satisfaction of human communication needs." (UNESCO, 1983, p. 288).

The second reason for the adoption of diversity and plurality as the basis for this work is its direct link to the quality of democratic system and social justice. Many of the notions of democracy involve the free participation of citizens in the definitions related to the direction of the collectivity. This participation presumes the capacity of individuals to be able to manifest themselves and influence those decisions, in arrangements that vary from the most restricted representativeness, such as in elections, to direct participatory practices, such as plebiscites and referendums. Therefore, a system in which few people can express themselves concretely violates these guarantees and directly affects the quality of the democratic process. As Toby Mendel and Eve Salomon highlight in a UNESCO document (MENDEL, SALOMON, 2011), "it is the diversity of points of view that allows people to fully exercise citizenship, participating in the public decision-making process through the choice between divergent positions and proposals".

In a joint statement, the Special Rapporteurs of the United Nations on Freedom of Opinion and Expression, of the Organization of American States on Freedom of Expression and of the African Commission on Human and Peoples' Rights (ACHPR) on Freedom of Expression and Access to Information, in addition to the OSCE Representative on Freedom of Communication Media, recognized the importance of diversity for "democracy, social cohesion and broad participation in the decision-making process" and aimed at the complex nature of diversity, systematizing the notion in three dimensions: "the diversity of means of communication (types of means) and of sources (property of means), as well as the diversity of content (products of means)" (UN, OAS, OSCE and ACHPR, 2007).

In 2005, UNESCO adopted the Convention on the Protection and Promotion of the Diversity of Cultural Expressions (UNESCO, 2005). According to the document, diversity¹ "creates a rich and varied world which increases the range of choices and nurtures human capacities and values, and therefore is a mainspring for sustainable development for communities, peoples and nations" (Ibidem, p. 2).

The Office of Communications (Ofcom), the UK's regulatory body, also considers diversity and pluralism as guiding concept for its action. Pluralism is defined by them as "ensuring that there is diversity in the available and consumed points of view in the communication means and preventing a media owner or voice from having too much influence on public opinion and the political agenda" (OFCOM, 2015, p. 4).

In the field of communication theory, the concept was also developed. Van Cuilenberg (2007) argues that once it is impossible to establish absolute truth, above any doubts, "opinions and ideas should always be open to the return and confrontation of opposing opinions and ideas" (p. 25). The author points out a close relationship between diversity and competition: the existence of different players offering goods and

¹ In the document, Unesco defines: "Cultural diversity refers to the manifold ways in which the cultures of groups and societies find expression. These expressions are passed on within and among groups and societies. Cultural diversity is made manifest not only through the varied ways in which the cultural heritage of humanity is expressed, augmented and transmitted through the variety of cultural expressions, but also through diverse modes of artistic creation, production, dissemination, distribution and enjoyment, whatever the means and technologies used." (p. 4).

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services would be a basis for the guarantee of diversity in each economic sector. He defines diversity as "the heterogeneity of subjects (persons) and/or objects (material or immaterial) in terms of one or more characteristics" (p. 26).

When the analysis focus on communications, the concept manifests itself in three dimensions: 1) social: related to the diversity of individuals, groups and institutions existing in the society; 2) media: involves the heterogeneity of contents offered by means of communication in the society; and 3) informative: linked to the different opinions, visions and approaches on facts and topics. Van Cuilenberg lists four levels of diversity analysis: 1) individual content: a program, audiovisual work or text; 2) set of contents: a TV channel, press media, site; 3) type of media: the set of players of a given mode of communication (TV, radio, press, Internet); and 4) media system: the set of means of communication of a media system in a geographical area to be defined. As for the type of diversity, the author differentiates between reflexive (proportionally reflects the segments of the society) and open (guarantees equal spaces to the different points of view).

On the economic level, this discussion is carried out by approaches that call for competition in the markets. According to the Organization for Economic Cooperation and Development, an international organization that gathers the world's leading economies, competition "improves the economic performance of a country, opens businesses to new opportunities for its citizens and reduces costs with goods and services in the economy as a whole" (OECD, 2016, p. 3). The United Nations, in its "Set of principles on competition" (UN, 1980/2000), points out the need to a) create, strengthen and protect competition; b) control the concentration of capital and economic power; and c) encourage innovation in order to strengthen the well-being of society and the interest of users.

The United Nations Conference on Trade and Development (UNCTAD), on its institutional page, emphasizes that competition "stimulates innovation, productivity and competitiveness, contributing to an effective business environment. This generates economic growth and employment. It creates possibilities for small and medium sized enterprises, removes barriers that protect entrenched elites and reduces opportunities for corruption. Competition also delivers benefits for consumers through lower prices, improved services and more choices".² These visions of international organizations are strongly based in dominant approaches of economic thinking, considered "orthodox" or "neoclassical". Describing them briefly (because there is no space here to go deeper into the different views), they see competition as an intrinsic characteristic of the market and the concentration phenomena as anomalies to be corrected. More liberal visions, including those within competition regulatory authorities, started to admit that it is possible to "optimize the allocation of resources" with few players in monopolistic or oligopolistic markets.

In the traditions called "heterodox" and critical (with quite diverse approaches), there are perspectives that privilege the analysis of the historical and specific dynamics of the capitalist system instead of a market model marked by perfect competition. And, having observed these movements, they concluded that competition is

² UNCTAD webpage on competition law and policies. More information at: <http://unctad.org/en/Pages/DITC/CompetitionLaw/Competition-Law-and-Policy.aspx>

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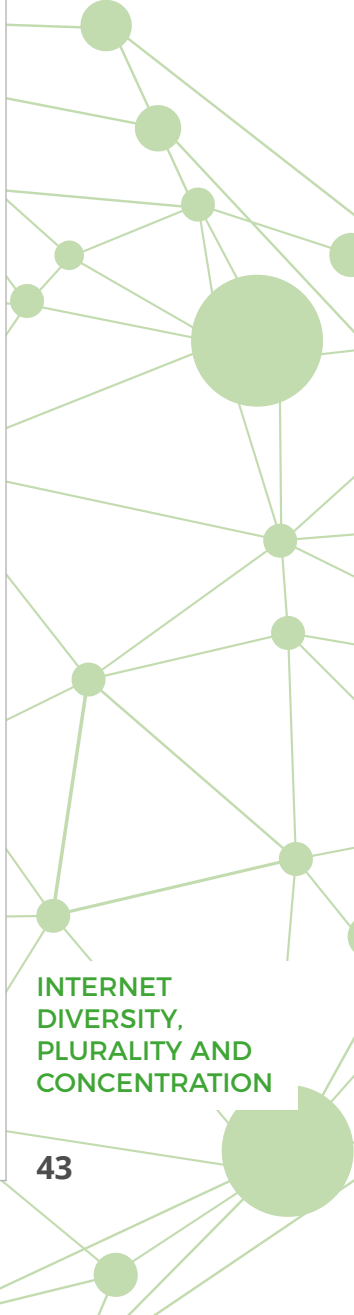
not a characteristic of the capitalist economy, but, instead, concentration and centralization are. Marx (1996), in his famous work "The Capital", points out the tendency to concentration and centralization of capital from the dynamics of accumulation of the system, with the destruction and incorporation of small enterprises into large conglomerates. Following this vision, later authors locate this phenomenon throughout the twentieth century, such as Baran e Sweezy (1974), Burawoy (1982) and Braverman (1974). "Monopoly capitalism incorporates the growth of monopoly organizations in each capitalist country, the internationalization of capital, the international division of labor, imperialism, the world market and the world movement of capital and the structure of state power" (MARX, 1996, p. 175).

The 20th Century was marked by the consolidation of large corporations with international operations. After the crisis of the regime called "fordism" in the 1970s, marked by the consumption of durable goods and by the Welfare State, the reaction of the system implied a deepening of the international competition with waves of mergers in the sectors and the articulation of industries with financial capital, in something that Bellamy Foster and McChesney (2012) called "Financial Monopoly Capital". With the support of neoliberalism, the existing movement of centralization reached a higher degree, with the incorporation of new parts of the world to the capitalist system (as ex-colonies and ex-nations of the Soviet block) and with the weakening of States and national economies through the deregulation of production, circulation and consumption of goods and services (HARVEY, 2003; CHESNAIS, 1996).

Considering both orthodox and heterodox references, this work will consider **competition as the quality of the environment where there are low entry barriers, inexistence of monopolistic or oligopolistic forms, absence of enterprises with dominant or significant market power, diversity of choice for users and maximization of the well-being of market participants in its broader sense, not strictly economic.** This quality will always consider the organization structural logic of the system and the specific characteristics of the segment to be understood – in this case, the Internet applications and content layer.

Going back to the historical digression, the communication industries and the Information and Communication Technologies (ICTs), bases of the Internet, played a central role for the development of the capitalist system in its neoliberal form with financial dominance: telecom networks made possible the fragmentation of production plants and the interlinking of financial circuits, the devices increased control over the work carried out and the maximization of profits on it, and media performed central roles in the expansion of the circulation of goods through advertising and the ideological legitimization of these transformations through journalistic and entertaining contents. At the same time, the ICTs themselves specifically suffered the impacts of these structural transformations that occurred in the system in the last decades.

The One World, Many Voices Report (UNESCO, 1983) points out the tendency to concentration in the communication sector due to the capitalist dynamics. It classifies these forms of concentration in three great modalities. "Industrialization tends to stimulate a concentration in the communication sector through the formation of oligopolies and monopolies in the gathering, storing and disseminating of information. This concentration operates in three directions: (a) the horizontal and vertical integration of enterprises connected with information and entertainment; (b) the involvement of enterprises



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operating in different branches with the media expansion (hotel and restaurant chains, airline companies, automobile manufacturers, mining companies, etc. are now involved in the press, film production or even the theatre); (c) the merging and intermeshing of various information industries into large-scale multimedia conglomerates" (p. 168).

Badgikian (2004) describes the process of concentration and centralization in the area of communications in a series of mergers that formed the "big five": Time Warner, Disney, Viacom, News Corporation and Bertelsmann. "The large media conglomerates do not want greater political and social diversity because that would dilute their audiences and, consequently, reduce the fees charged by the advertisement that generate their high profit rates" (p. 260). In the 1980s, these mergers were still taking place inside their sector with the intersection between traditional communication services (radio broadcasting, press media, advertising) and telecommunications (telephony, paid audiovisual and data) in what started to be called "media convergence". From the methodological point of view, the complexity of the convergence phenomenon made Garnham (1996) point out that the discussion on it should consider, at least, five aspects: 1. convergence of networks and distribution channels; 2. convergence of media formats; 3. convergence of consumption modes of communication means; 4. convergence of payment forms; and 5. convergence of domestic and commercial markets.

These movements of concentration collide with the promises of freedom, diversity and benefits related to ICTs, especially the Internet. The dissemination of the network was always accompanied by expectations that it could be a key instrument for democratizing access to knowledge and the exercise of freedom of expression, as expressed in the statement of the WWW creator, Tim Berners-Lee, previously cited in this work. The Internet widened possibilities both in the area of access, making available an unimaginable range of information, whose greatest example is Wikipedia, a collaborative encyclopedia that became one of the most accessible sites in the world, as well as in the quality of consumption and of information and cultural goods. Governments began to provide services to citizens through the Web. Search mechanisms allow us to find a wide diversity of information on the most different topics.

Collectives used the Network to power joint citizen initiatives and mobilizations that resulted in great transformations, such as the use of technologies as an important support to street mobilizations in the so-called "Arab Spring" (CASTELLS, 2017). Social networks allowed the interaction of people in the most diverse ways, the construction of communities of interest or for causes. The virtual public sphere was thought of as a substitute for ballot boxes and public squares, where citizens could debate and deliberate directly, in a radicalized digital democracy. People and groups gave visibility to issues and fought injustices with messages that "became viral".

But... the Internet is not a city isolated from the world. Plus, people that act and interact on the internet are not disconnected from the forms of organization of life in the offline environment. As already stated at the beginning of this work, technologies are not neutral, as well as socio-technical systems such as the case of the Network (as well discussed by Feenberg, Winner, Fuchs, Mosco and Bolaño). Although there are disagreements as to the beginning of the Web (some agree with the argument of an innovation thought by researchers linked to counterculture, such as Taplin, 2017; others focus on the role of the North American government and the control of the development by the researches of the Arpanet project, such as Bolaño et al. (2007)), it would be difficult to deny that the

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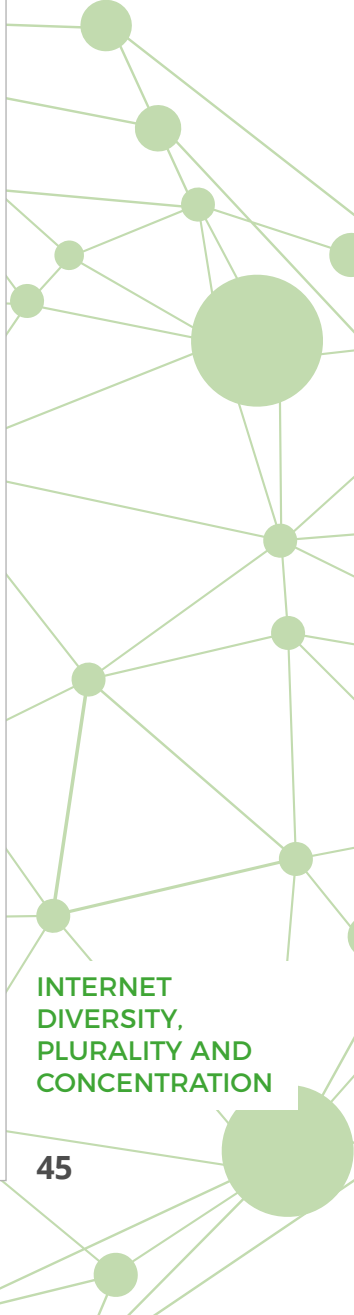
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dissemination of the Internet is accompanied by the submission of its operating logics to the structuring axis of the capitalist system: the commercialization of a larger number of elements and ambits of life; the constant acceleration of capital flows through its expanded reproduction in time and space; and the appropriation of human labor by few groups, in a phenomenon of concentration of wealth.

The functioning logics of the Web, therefore, are pressured and determined by social relations as a whole. But their specific aspects (already previously discussed) incite other tensions. This results in the contradiction of public-private information appropriation and also in the relationship between concentration, on the one hand, and diversity and pluralism, on the other. Bolaño et al. (2012) summarize the apparent paradox as something that cannot be seen as an exclusive relationship of simply concentration and control or complete freedom. The Network ends up "constituting an immense layer of non hegemonic players, with capacity of access, responsible for an appearance of freedom and possibilities of action, which contradict the essential reality of concentration and control. But there is a background of reality in this appearance, linked to the contradiction inherent to capitalism, which opens liberating possibilities, but, at the same time, restrains them" (p. 55).

The so-called convergence and the disputes within the scope of each layer previously presented are good examples of that. Supposedly, there is space on the Internet for various access providers, but in reality this market is increasingly concentrated by mergers and acquisitions as well as shareholding control. Although at this moment Web users can produce and publish their contents with some ease (through profiles in social networks, platforms or blogs), what is seen is a large concentration in the content markets. When it comes to audiovisual or even audio platforms, there is a great dominance of YouTube; in social networks, Facebook; in paid streaming of audio, Spotify; in paid video streaming, Netflix - just to recall market phenomena discussed in the previous section.

Analyzing the degree of diversity and pluralism and its opposition to the concentration levels implies, therefore, a slight effort in taking into account this structural understanding, without disregarding the specific aspects of the content layer and the symbolic dimension of the goods and services circulating in it. To advance towards the discussion proposed in this work, only one important element is missing: which categories, indicators and references can contribute to identify these degrees and levels. Discussing these instruments will be the effort of the next session.



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4. Regulation of applications and contents: a global perspective

The Internet, in its beginnings, was cultivated as a solution to guarantee the expression of the multiplicity of voices in the world. Experiences such as that of the Mexican Zapatistas, who confronted the State in the early 1990's and had their voices multiplied by the incipient network of networks,¹ created a mystique around this technology as a tool to support oppressed and minority groups. Thus, the Internet was considered, by design and by default, the means that would guarantee the exercise of freedom of expression to everyone and, therefore, should be free from the attempt of regulation by States. To this liberal speech is added that of freedom for entrepreneurship – the Internet would be the chance for anyone with a good idea to become a millionaire, if the States and their regulations would not stand in the way.

Beyond narratives and ideologies, the absence of regulations on the Internet content layer can also be explained by the difficulty of constructing controls, rules and defining which authority would oversee them. In the 1990's, regulators attempted, by approximation, to frame the Internet content layer in existing regulatory models for the press, broadcasting, advertising and mail,² since the Internet was, over time, absorbing all these functions and others.

These factors, however, were not an impediment for laws to regulate the Internet content layer to be written and, with less frequency, created. According to a survey by Peng Hwa Ang, from Nanyang Technological University, South Korea was the first country to have a specific law for the Internet content layer.³

"In 1995, South Korea adopted the Electronic Communication Business Law, which established the Information and Communication Ethics Committee. The Committee has broad powers to censor – its scope of coverage includes material in bulletin board services (BBS), chat rooms and other public domain services that might affect public morals, may cause loss of national sovereignty, and information that may harm young people's character, emotions and sense of value. According to the law, the Minister of Communication may order a provider of information to exclude and restrict material. In one count, one of the three providers of online content services and the

1 The upheaval of the Zapatista community, in 1994, generated an international support community largely organized by Internet activities, which provided an important example of the possibilities of using the Internet as a tool for popular social movements and global organization of oppressed groups, as discussed in *The Cyberspace, War of Ink and Internet in Chiapas, Mexico*. Available at https://www.jstor.org/stable/216010?seq=1#page_scan_tab_contents

2 How Countries Are Regulating Internet Content. Available at <https://www.isoc.org/inet97/proceedings/B1/B1_3.HTM>

3 <https://www.internetsociety.org/>

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Internet had more than 220,000 messages excluded in the first few months of 1996".⁴

However, what actually restrained the impulse of the States to regulate the Internet content layer was, in good part, the approval of the Communications Decency Act (DCA) , in 1996, in the United States, published after an attempt to censor online pornography. A sentence from Section 230⁵ of the DCA started to protect websites and later platforms: "No provider or user of an interactive computing service should be treated as the publisher or speaker of any information provided by another information content provider."

This law, which started to be cited as "the most important tool already existing for the freedom of expression on the Internet" or "the most important law on the Internet", established a standard. The users and the online services used are not mixed, in order to create legal security so that the posted content is not constantly analyzed and, at any chance of legal risk, removed from the Net. It is widely disseminated the belief that this protection allowed platforms to grow without being bothered at all times by people dissatisfied with the content published by users.⁶

In 2010, the Organization for Economic Cooperation and Development (OECD), in The Economic and Social Role of Internet Intermediaries publication, praised the economic and social benefits brought about by intermediaries: "Internet intermediaries also stimulate employment and entrepreneurship, reducing the barriers to launch and operate small businesses and creating opportunities for economic transactions in the 'long tail' model,⁷ which were not previously possible, by which businesses can sell a large quantity of unique items, each in relatively small quantities. Internet intermediaries allow creativity and collaboration to flourish between individuals and companies and promote innovation."⁸

But, nowadays, when great online platforms consolidated themselves as mediators of economy, politics and life - not of online life separated from offline life, but of life that does not distinguish analogical and digital, in which one is a continuity from the other -, this model of non-responsibility of intermediaries has been classified as very broad, even authoritarian.⁹

Airbnb attempted to frame itself as non-responsible for the rental offers with illegal characteristics according the laws of the city of San Francisco, alleging that it is

4 Idem 2

5 <https://www.law.cornell.edu/uscode/text/47/230>

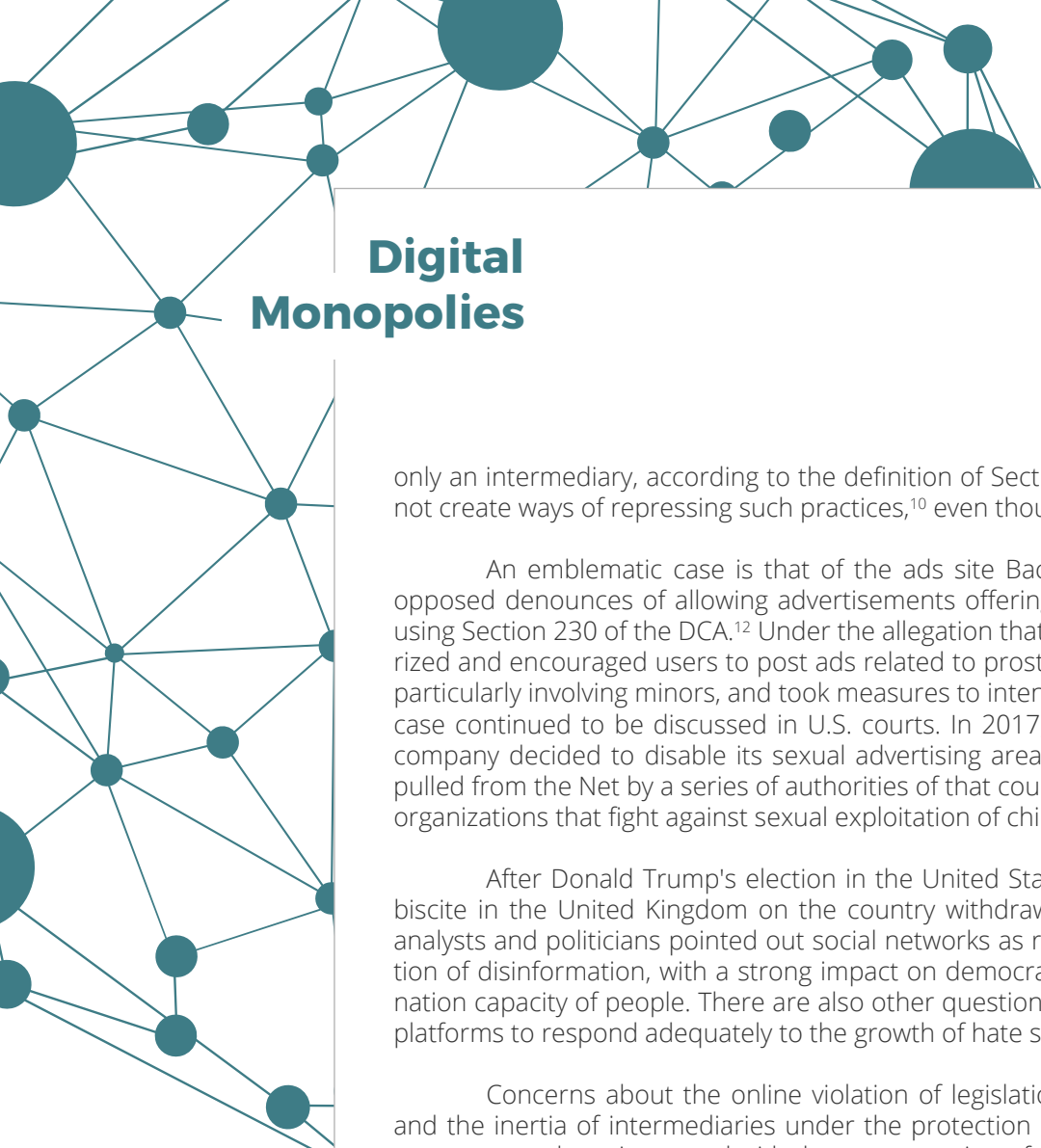
6 <https://www.wired.com/2017/01/the-most-important-law-in-tech-has-a-problem/>

7 "Long Tail" is a theory created by North American journalist Chris Anderson. The term became known through Anderson in October, 2004, when he wrote an article in the Wired mentioning this concept that, two years later, would become the object of his book, The Long Tail: from Mass market to niche market. In the book, the author starts from the idea that our economy is increasingly focusing on a relatively small number of "hits" (products of great success, the most popular ones) for the focus on a large number of niches (multi-segmented products, the least popular ones).

8 <https://www.oecd.org/internet/ieconomy/44949023.pdf>

9 Mary Anne Franks, legislative and technology policy Director of the Cyber Cyber Rights Initiative, declared to Wired magazine that Section 230 is a worrying absolutism. Available at <<https://www.wired.com/2017/01/the-most-important-law-in-tech-has-a-problem/>>

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only an intermediary, according to the definition of Section 230. But the company did not create ways of repressing such practices,¹⁰ even though it was technically possible.

An emblematic case is that of the ads site Backpage.com,¹¹ which, in 2016, opposed denounces of allowing advertisements offering victims of sexual trafficking, using Section 230 of the DCA.¹² Under the allegation that Backpage consciously authorized and encouraged users to post ads related to prostitution and human trafficking, particularly involving minors, and took measures to intentionally hide the activities, the case continued to be discussed in U.S. courts. In 2017, under intense pressure, the company decided to disable its sexual advertising area.¹³ In April 2018, the site was pulled from the Net by a series of authorities of that country,¹⁴ an action celebrated by organizations that fight against sexual exploitation of children.¹⁵

After Donald Trump's election in the United States and the result of the plebiscite in the United Kingdom on the country withdrawal from the European block, analysts and politicians pointed out social networks as responsible for the dissemination of disinformation, with a strong impact on democracies and on the self-determination capacity of people. There are also other questions about the capacity of online platforms to respond adequately to the growth of hate speech on the Web.

Concerns about the online violation of legislation, rights, abuses and crimes and the inertia of intermediaries under the protection of non-responsibility for third party content have increased with the concentration of content and users on few platforms. As these applications grow and become highly lucrative, the pressure to take responsibility for the ever-increasing impact they cause or may cause also increases.

We can say that, after a cycle of approval of legislation that protects intermediaries from taking responsibility on the content published by third parties – opting for subjective responsibility, and punishing these players only in cases of violation of a judicial order –, as is the case of the Brazilian Internet Civil Framework (Law 12.485/2014), new questions appeared in the public arena.

On the other hand, there are many doubts about the responsibility of private platforms on overseeing the legality of contents and taking measures against practiced illicit acts, a task related to the States and Justice systems. The same applies to the possible impact on freedom of expression and access to information on networks.

As pointed out, the increase of pressure over platforms due to the evidence of

¹⁰ Idem 7

¹¹ Backpage was an ads site launched in 2004. It offered classified ads for a wide variety of products and services, including ads for cars, jobs and real estate. In 2011, Backpage was the second largest listing service of classified ads on the Internet in the United States after Craigslist.

¹² <https://www.mercurynews.com/2016/12/09/backpage-wins-court-fight-over-pimping-charges-in-case-with-implications-for-tech/>

¹³ https://www.washingtonpost.com/news/morning-mix/wp/2017/01/10/backpage-com-shuts-down-adult-services-ads-after-relentless-pressure-from-authorities/?utm_term=.15e6820dc855

¹⁴ <http://backpage.com/>

¹⁵ <https://www.reuters.com/article/us-usa-backpage-justice/sex-ads-website-backpage-shut-down-by-u-s-authorities-idUSKCN1HD2QP>

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possible negative impacts of its operations is something recent. This scenario, however, has already been pressuring companies for more agile responses in terms of self-regulation and also affecting the consensus of non-responsibility of platforms for contents published by third parties, opening space for the creation of laws. We could call this process as the beginning of the 'post-section 230' phase of the Internet, with the imposition of behavior rules for the companies, for withdrawal of content, for example, but without necessarily forcing its dismemberment or reduction of power. As it is extremely recent, it is difficult to predict how intense and long this phase and what the impacts will be for the regulation of platforms and companies with significant market power, which will be subjected of new laws. In general, legislators have been careful enough to create regulations only for large platforms or applications in order to protect the effort of innovation and entrepreneurship on the Web.

An example is the revision of the European Audiovisual Media Services Directive (AVMSD), of 10 March 2010, by which video platforms that use third-party services become responsible for the content they make available and encourage through algorithms. We will address this regulation on a specific topic.

4.1. Regulation of illegal content and the so-called “fake news”

A series of content regulations focusing on the circulation of illegal content and "fake news" is also being developed in several countries. The European Commission, in March 2018, issued a set of recommendations for EU companies and nations that apply to all forms of illegal content on the Internet, such as terrorist manifestations, incitement to hate and violence, child sexual abuse, counterfeit products that infringe author's rights, in line with its predefinition of accompanying self-regulatory measures in this arena and assessing the creation of legislative measures to complement the existing regulatory structure.

In the case of content considered "terrorist", the EC established that all companies must remove them within one hour of notification, create proactive mechanisms of identification and withdrawal, as well as to develop strategies for rapid response to these requests and report these actions. Member States must ensure that they have the capacity and resources to detect, identify and refer terrorist content.

As for other contents, the EC determines that companies should maintain easy and transparent rules for notifying illegal contents, including quick procedures for notoriously illegal contents. To avoid the involuntary removal of non-illegal content, content producers should be informed about these decisions and have the opportunity to respond. Notification systems must be clear and companies must ensure that content removal decisions are accurate and informed, especially when automated tools are used. Companies must also implement effective and appropriate protection, including supervision and human verification, in full respect of fundamental rights, freedom of expression and data protection rules.



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The German law

In June 2017, the German Parliament (Bundestag) approved the Network Enforcement Act¹ (NetzDG, in a German acronym), a regulation for online platforms that distribute content and have more than 2 million users in the country. The regulation entered into force in January 2018 and establishes how these companies must respond to contents that undoubtedly violate the German Criminal Code,² excluding them in 24 hours. In complex cases, the blockage or exclusion of the content may occur in up to a week. If they do not comply with the law, platforms can be fined up to 50 million Euros.

According to the NetzDG, providers are obliged to establish a transparent procedure to deal with complaints about illegal content and are subject to registration and documentation obligations. Complainants and users must be informed immediately about the decisions taken regarding content posted by them. The excluded content should be stored, to keep the evidence, for at least ten weeks. In addition, companies subjected to this law must keep an agent in the territory, responsible for dealing with illegal content. This professional must respond both to the authorities and to civil processes. Every two years, a report on received complaints and their treatment must be handed to the German authorities.

Furthermore, the experiences, best practices and technological solutions, including tools that allow automatic detection, should be shared, especially to particularly benefit the smaller platforms with limited resources and knowledge.

The law was harshly criticized. The international organization for the defense of freedom of expression, Article 19, wrote: "ARTICLE 19 is deeply concerned about a law that will severely harm the freedom of expression in Germany, and that is establishing a dangerous example for other countries that, more strictly, criminalize critics, dissidents, including journalists and human rights defenders"³

The Special Rapporteur of the United Nations for the Protection of the Freedom of Expression, David Kaye, also harshly criticized the bill, in a note sent to the German government in 2017. For Kaye, the proposal would go far beyond its objectives and it would impose great responsibility to platform operators. In addition, the rules would be incompatible with international declarations of human rights, such as the International Covenant on Civil and Political Rights.

According to Kaye, by this norm, online platforms would be forced to exclude information based on "vague and ambiguous" criteria. He pointed out that many information can only be understood from the context, so it would be highly complex for the platforms to evaluate all cases. The threats of criminalization, high fines and short terms would also pressure platforms to remove potentially legitimate content, leading to inadequate interference in the freedom of expression and privacy, an attribution that should be limited to independent tribunals or institutions.

1 https://cdn.netzpolitik.org/wp-upload/2017/03/1703014_NetzwerkDurchsetzungsG.pdf

2 <https://www.technologylawdispatch.com/2017/03/social-mobile-analytics-cloud-smac/german-federal-minister-of-justice-introduces-new-bill-to-eradicate-criminal-content-on-social-networks/>

3 <https://www.article19.org/wp-content/uploads/2017/09/170901-Legal-Analysis-German-NetzDG-Act.pdf>

In April 2018, several countries such as United Kingdom, France, and Malaysia¹⁶ discussed bills, as well as Germany, aimed at regulating online platforms focused on content distribution in an attempt to fight hate speeches and misinformation. According to the NGO Reporters Without Borders, Russia and South Africa, among other countries, are designing ways of restraining disinformation, with impact on the freedom of online expression, but also in other professional communication means.¹⁷

16 <http://www.wired.co.uk/article/malaysia-fake-news-law-uk-india-free-speech>

17 <https://rsf.org/pt/noticia/fake-news-pretexto-para-censura-pelos-predadores-da-liberdade-de-impressao>

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The perception of platforms as responsible for content that infringes the law or is harmful to society is not exclusive to Europe and its Member States. Initiatives, including legislative ones, related to the withdrawal of content considered "fake news" have arisen in the Brazilian Congress, including proposals for the criminalization of those who share such posts.¹⁸ In Honduras, there are debates about the approval of a law of cybersecurity for the circulation of online contents.¹⁹

In the United States, in October 2017, Democratic Senator Amy Klobuchar - in partnership with Democrat Mark Warner and Republican John McCain - presented a bill to regulate online political advertising, the Honest Ads Act,²⁰ as an answer to allegations that the Russian government would have purchased advertisement on online platforms in the 2016 presidential campaign of that country.

Online political advertisement is a point of tension for democratic countries, once platforms become an important, if not the most important,²¹ point of mediation between candidates and voters and that, unlike traditional mass communication means, offers the opportunity of microsegmentation of the speech. As campaign communications migrate to the platform environment, social and political pressure increases for the updating of legislation about elections communication in order to frame platforms.

In the case of the United States, political announcements on television, in the press and on the radio are all obliged to disclosure who paid for the advertisement, according to the Federal Election Campaign Act,²² but this is not valid for online campaigns. The bill proposed by Klobuchar would alter the 1971 law to include the obligation of "reasonable efforts" to ensure that advertisements are not bought "directly or indirectly" by foreign countries. Legislation would require companies to disclose how advertisements were segmented, as well as how much they cost. But the focus is not just the elections: the law affects ads that involve political issues, in general. In addition to ads made by or on behalf of a candidate, legislation requires digital advertising companies to register and report any ads related to "a national legislative question of public importance". It also demands the Federal Election Commission to oversee the whole process to find out how to establish responsibility for "political propaganda distributed online for free" - or, in the digital industry jargon, organic propaganda.

In October 2016, France enforced the French Digital Republic Law,²³ in a process initiated in December 2015. The regulation alters laws that govern various aspects of the country's digital economy and introduces specific obligations for providers of online platforms that surpass a limited number of users. These companies are defined

18 Disclosure of 'fake news' may be punished with up to three years in prison <<https://www12.senado.leg.br/noticias/materias/2018/01/31/divulgacao-de-fake-news-pode-passar-a-ser-punida-com-ate-tres-anos-de-reclusao>>

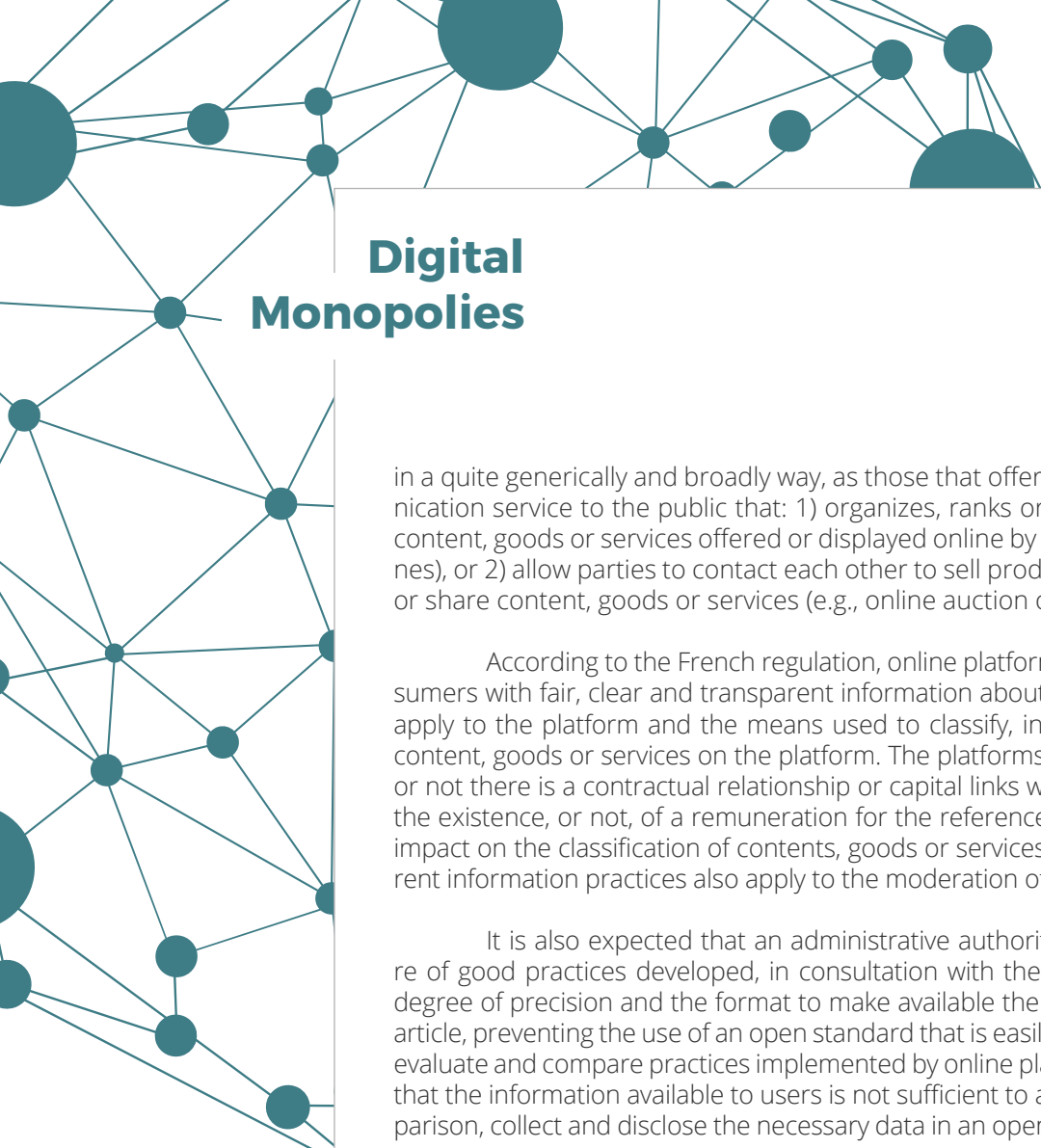
19 <http://www.laprensa.hn/honduras/1151500-410/medios_de_comunicacion-honduras-ley_de_ciberseguridad>

20 <https://www.congress.gov/bill/115th-congress/senate-bill/1989>

21 <http://www.valor.com.br/empresas/4870574/no-brasil-80-acreditam-no-que-leem-nas-redes-sociais-diz-pesquisa>

22 https://en.wikipedia.org/wiki/Federal_Election_Campaign_Act

23 <https://www.republique-numerique.fr/pages/digital-republic-bill-rationale>



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in a quite generically and broadly way, as those that offer customers an online communication service to the public that: 1) organizes, ranks or indicates, through algorithm, content, goods or services offered or displayed online by third parties (e.g., search engines), or 2) allow parties to contact each other to sell products, offer a service, exchange or share content, goods or services (e.g., online auction or shopping sites).

According to the French regulation, online platform providers must provide consumers with fair, clear and transparent information about the general terms of use that apply to the platform and the means used to classify, indicate, downgrade or exclude content, goods or services on the platform. The platforms must clearly indicate whether or not there is a contractual relationship or capital links with the referenced people and the existence, or not, of a remuneration for the referenced people and, if necessary, its impact on the classification of contents, goods or services listed. Clear, fair and transparent information practices also apply to the moderation of online comments.

It is also expected that an administrative authority will encourage the disclosure of good practices developed, in consultation with the interested parties; define the degree of precision and the format to make available the information mentioned in this article, preventing the use of an open standard that is easily reusable; define indicators to evaluate and compare practices implemented by online platforms and, when considering that the information available to users is not sufficient to allow proper analysis and comparison, collect and disclose the necessary data in an open and easily reusable standard.

France guaranteed the right to data portability in the French Digital Republic Law, valid only from May 2018, adding to the Consumer Code the right to retrieve and transfer data, in addition to personal data - something relevant to the users' freedom of choice. The provision requires that all providers of online communication services to the public allow free-of-charge recovery of data that were stored online, including data files, all data stored and accessible from the creation of the user account and other types of data associated to it that can be reused and exploited by another "data controller". The service provider must provide the data in a readable format. If this is not possible, the data controller must inform the user about this limitation and provide alternative ways for the user to retrieve her/his data. The French legislation is more strict than the provision of portability in the new European data protection regulation, the General Data Protection Regulation (GDPR), regarding portability of information, by extending the right to other than personal data.

But the global processes of creation of platforms regulation go beyond the control of harmful content. In May 2016, the European Commission collected data about the practices of platforms focused on business (platform-to-business) on the online environment. It found indications that the increase of dependence on online platforms created new weaknesses for companies in the digital economy. The evidence, according to evaluation of the EC, reveal commercial practices with the potential to create high-impact damages, especially for small businesses.

Thus, in May 2017, during the review of the Digital Single Market Strategy, the Commission announced that it would take actions to resolve unfair contractual clauses and trade practices identified in the relationships between platforms and businesses, including the use of methods of dispute resolution, fair practice and transparency cri-

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teria. At that time, the EC highlighted that such actions, after impact assessment and structured dialogues with Member States and interested parties, could take the form of legislative measures.²⁴

In the initial impact analysis consultation, called Fairness in platform-to-business relations, the EC received 65 contributions. The expectation is that the Commission will present its conclusion on the proposal for specific regulation of platforms in the EU still in 2018. Once there is no specific definition of digital platforms, all companies that make intermediation between different market groups could be subject to the regulation in process.

It is worth noticing, however, that good part of the claim for greater regulation of the Internet content layer is focused on the need for greater transparency of platforms and greater control of illegal or harmful online content. However, little is said about the need to promote greater diversity and plurality of content by design, with the aim of guaranteeing rights. An exception is the case of the European regulation of Video on Demand (VoD) applications that select each one of the contents available to the subscribers. There is already regulation to preserve the culture of the Member States and local creative economy. One of the EC proposal objectives aims precisely at ensuring that the transformations resulting from this new way of consuming audiovisuals are accompanied by socio-economic and cultural benefits to society.

4.2. Regulation of audiovisual services by IP

The European Union has a regulation for VoD since the publication of the Directory of Audiovisual Social Communication Services,²⁵ in 2010, whose objectives are to safeguard the pluralism of social communication media, preserve cultural diversity, create conditions in all countries for emerging audiovisual communication media, protect children and consumers, fight racial and religious hatred and ensure independence of national regulatory authorities.

The Directive establishes rules applicable to all the Member States, but it protects the right of each country to adapt the suggested legislation to its local reality (the subsidiarity principle), including the possibility, not infrequently, of not applying the Directive. In the case of VoD, for example, Member States should adopt, in their legislation, measures to promote European works in the services catalogues. For this purpose, the directive suggests three forms of induction: content quotas, financing obligations and prominence of works in the catalogue.

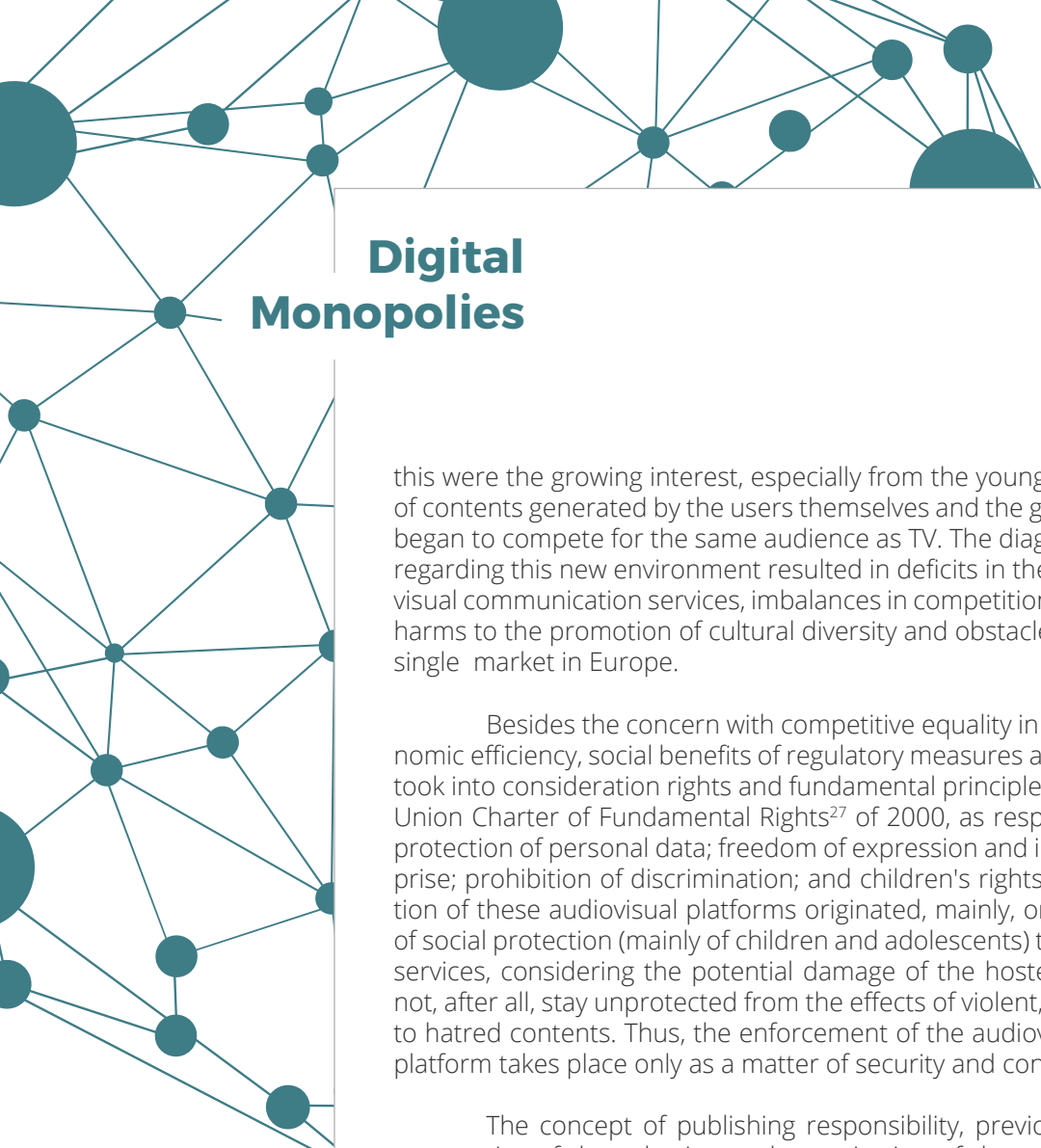
From the revision of the Directive,²⁶ in 2016, the legislation scope was broadened and began to reach video platforms with content not selected by the company itself, but made available by third parties (YouTube, for example). The arguments for

²⁴ Online platforms face EU regulation on transparency and business contracts <<https://www.euractiv.com/section/digital/news/online-platforms-face-eu-regulation-on-transparency-and-business-contracts/>>

²⁵ <http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BR1%282016%29583859>

²⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1464618463840&uri=COM:2016:287:FIN>

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this were the growing interest, especially from the young audience, in the visualization of contents generated by the users themselves and the growth of these services, which began to compete for the same audience as TV. The diagnosis is that the Directive gap regarding this new environment resulted in deficits in the protection of users of audiovisual communication services, imbalances in competition between this market players, harms to the promotion of cultural diversity and obstacles to the formation of a digital single market in Europe.

Besides the concern with competitive equality in the treatment of players, economic efficiency, social benefits of regulatory measures and legal security, the proposal took into consideration rights and fundamental principles recognized by the European Union Charter of Fundamental Rights²⁷ of 2000, as respect for private and family life; protection of personal data; freedom of expression and information; freedom of enterprise; prohibition of discrimination; and children's rights. But the need for the regulation of these audiovisual platforms originated, mainly, on inquiries regarding the level of social protection (mainly of children and adolescents) that should be offered by such services, considering the potential damage of the hosted materials. The users could not, after all, stay unprotected from the effects of violent, pornographic and incitement to hatred contents. Thus, the enforcement of the audiovisual directive for this type of platform takes place only as a matter of security and control of harmful content.

The concept of publishing responsibility, previously seen primarily from the perspective of the selection and organization of the contents offered, opened itself to the activity of availability and organization of these contents, even if automatically. It is considered that these players, although they do not select the contents offered, they act on their organization in various ways, including algorithms and automatic selections. Action in the field of this activity would be enough to oblige players, within the universe of the organization, to guarantee safe navigation conditions for the users.

The video sharing platforms were thus included in the scope of AVMSD only when it comes to avoid hate speech and the dissemination of harmful content to minors: "the platforms that organize and label a large quantity of videos will protect minors from harmful content and protect all citizens from incitement to hate, based on new specific EU terms, in the reviewed AVMSD. In full compliance with the Electronic Commerce Directive, the rules will be based on existing industry efforts and will be implemented through co-regulation".²⁸

According to AVMSD, the platforms are not subject to any obligation of quotas, prominence or financial contribution. Finally, it is important to point out that the norm, in principle, does not include social media in the regulation, unless they provide a service that falls within the definition of video sharing platform.

4.3. Regulation of OTT (Over the Top) services

The Internet development model, in which intelligence is concentrated in the

²⁷ http://www.europarl.europa.eu/charter/pdf/text_pt.pdf

²⁸ <https://ec.europa.eu/digital-single-market/en/revision-audiovisual-media-services-directive-avmsd>

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edges, allows anyone connected in the network to develop a service, test and offer it without asking for authorization to the other participants of the network. This is the principle of the network opening, as it has come to be known, an open and decentralized model that has allowed the development of countless applications in the content layer.

Some of them, however, many of the most successful ones, offer competition services to others that were developed and launched at a time when information and communication networks worked in a centralized and closed way, so that only owners of the infrastructure - in that case, the telecommunication operator -, had the control over services provided through controlled physical means.

As these services provided before the development of IP solutions were mostly the only ones available to guarantee communication and were controlled, in general, by a single monopolistic company, over time they became regulated. On the other hand, the applications developed from the Internet did not go through this process, as they are inserted in a decentralized way in the ecosystem and added to a pre-existing layer of applications of information and communication considered basic and essential for the exercise of rights.²⁹

The maturation of the market of applications on the internet content layer and the increase of IP services users competing with telecommunication services opened space for questions about the regulation of IP applications. As an example, while companies that provide voice services in the telecommunication model have a series of obligations regarding the payment of fees and taxes, and for users (as the guarantee of emergency calls), Voice over IP (VoIP) services were born without these obligations, because they did not charge the application users in both edges (and continued liked this in most places worldwide).

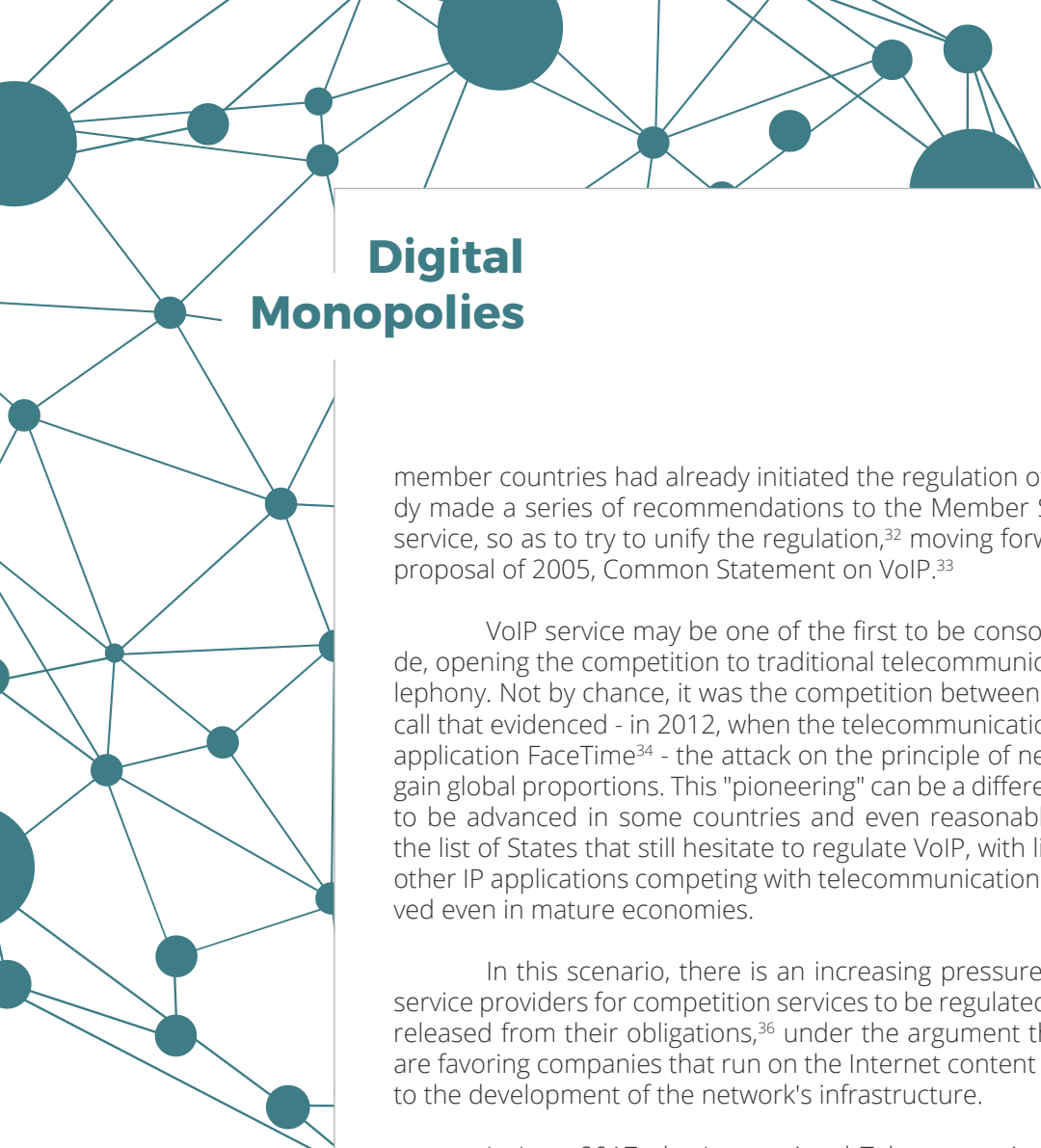
Initiatives to regulate them, now, appear all around the world. In 2013, the European Telecommunications Network Operators Association (ETNO) published a second study in which network operators were prevented from obtaining "the fair returns necessary to finance investments, mainly because of the excessive and inconsistent regulation of competitive markets" and presented an agenda of changes to guarantee future investments in telecommunication networks.³⁰ In 2005, the Federal Communications Commission (FCC), the communications regulatory body in the United States, imposed an obligation to make emergency calls (for 911) available to VoIP service providers that allow users to make and receive calls through the common telephone network. The FCC also requires that VoIP service providers obey the Communications Assistance for Law Enforcement Act (CALEA) and contribute to the Service Universalization Fund, which supports communication services in high-cost areas and for telephone service users selected by income criteria, among other regulations.³¹ The 2008 European Union survey on the regulation of voice over IP services showed that several

²⁹ As part of a network of decentralized networks, the Internet acquired global connectivity without passing through the development of a regulatory regime. <http://www.oecd.org/sti/ieconomy/oecd-principles-for-internet-policy-making.pdf>

³⁰ Telcos vs the Web giants: Is the playing field a fair one, and does it matter? Available at <<https://www.zdnet.com/article/telcos-vs-the-web-giants-is-the-playing-field-a-fair-one-and-does-it-matter/>>

³¹ Federal Communication Commission. Accessed on April 22nd, 2018. Available at <<https://www.fcc.gov/general/voice-over-internet-protocol-voip>>

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member countries had already initiated the regulation of services. In addition, the study made a series of recommendations to the Member States on the provision of the service, so as to try to unify the regulation,³² moving forward with respect to the initial proposal of 2005, Common Statement on VoIP.³³

VoIP service may be one of the first to be consolidated among users worldwide, opening the competition to traditional telecommunication service - in this case, telephony. Not by chance, it was the competition between VoIP and the traditional voice call that evidenced - in 2012, when the telecommunication company AT&T blocked the application FaceTime³⁴ - the attack on the principle of network neutrality, which would gain global proportions. This "pioneering" can be a differential for the regulation of VoIP to be advanced in some countries and even reasonably settled in others. However, the list of States that still hesitate to regulate VoIP, with little or no initiative to regulate other IP applications competing with telecommunication services, is far from being solved even in mature economies.

In this scenario, there is an increasing pressure from the telecommunication service providers for competition services to be regulated³⁵ or, on the other hand, to be released from their obligations,³⁶ under the argument that asymmetries in regulation are favoring companies that run on the Internet content layer, which do not contribute to the development of the network's infrastructure.

In June 2017, the International Telecommunication Union (ITU)³⁷ decided to open a public consultation on the regulation of what has been called Over-The-Top (OTT) applications - a vague definition, as all applications on the Internet are under a telecommunication infrastructure. The consultation,³⁸ approved by the ITU Council Working Group on International Internet-related Public Policy Issues, would run until September 2017. It requested comments from all interested parties on the opportunities and regulatory implications associated with OTT, the contribution of these services in the area of security and privacy, and also on possible models of cooperation at local

32 The Regulation of Voice over IP (VoIP) in Europe. Available at <<https://publications.europa.eu/en/publication-detail/-/publication/0ace30b5-561b-40c4-9ebe-3bde405640c/language-en>>

33 ERG Common Statement. Available at <http://www.ictregulationtoolkit.org/action/document/download?document_id=1499>

34 Here's Why AT&T Thinks It's Fine To Block FaceTime Over 3G. Available at <<http://www.businessinsider.com/att-blocking-facetime-over-3g-2012-8>>

35 Providers claim for OTTS regulation. Available at <<http://www.telesintese.com.br/mwc15-operadoras-cobram-regulacao-dos-otts/>>

36 America Móvil President defends telecom's deregulation similar to OTTs. Available at <<http://www.telesintese.com.br/presidente-da-america-movil-defende-desregulacao-de-telecom-igual-aos-otts/>>. Accessed on April 20, 2018.

37 On May 17, 1865, after two months and a half of negotiation between 20 countries, the first International Telegraph Convention was signed in Paris and the International Telegraph Union was created to facilitate the negotiation for the international interconnection and its rules. Years later, the organization became known as International Telecommunications Union and today it is comprised by 192 Member Countries and more than 700 members of the industry and associates (public and private sector, including universities and research centers). ITU is part of the United Nations System, being dedicated to issues related to Information and Communication Technologies (ICTs), and has coordinated the global shared use of the radio frequency spectrum and promoted international cooperation in the area of orbiting satellites.

38 CWG-Internet: Online Open Consultation (June-September 2017). Available at <<https://www.itu.int/en/council/cwg-internet/Pages/consultation-june2017.aspx>>. Accessed on April 10, 2018.

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and international levels.

ITU's entry into the debate on the regulation of Internet applications has been much questioned, since its scope of action has always been telecommunications, with the participation of companies of this industry and governments - civil society organizations and Internet companies do not participate in the agency's work. Considering that there is a prevalence in the understanding that the debates about the Internet should be held in spaces of multi-sectorial participation, ITU would not be able to do so, especially since it does not use a regulatory approach for the guarantee of human rights.

The term Over-The-Top, widely used by telecommunication companies, is considered too broad by organizations and digital companies, once all Internet applications run on top of a physical infrastructure. To create a regulation for the whole ecosystem of Internet applications would be to insist in the mistake, because the services offered are multiple and range from e-commerce to voice over IP services, as advocated by, for example, Access Now, an organization for digital rights.³⁹ Also, in the attempt to equal the regulation of telecommunication services and competing OTTs, there is the risk of establishing that Internet companies should have authorization, license or registration for the provision of messaging, voice and video catalog services. Such regulation could potentially impact the capacity for innovation and development that characterizes the Web, as defended by Access Now in its contribution to ITU:⁴⁰ "This type of regulation is inadequate for Internet applications or services and would have negative consequences for Internet users, potentially impacting the freedom of expression and the capacity for innovation. Specifically, to require that individuals or companies obtain a license in order to provide an Internet application or service would interfere with the right of free expression in accordance with the current interpretation of Article 19 of the International Covenant on Civil and Political Rights (ICCPR)"

According to Observacom - Latin American Observatory on Regulation, Media and Convergence -,⁴¹ there is, however, points of legitimate concern regarding the regulatory asymmetry between OTTs and telecommunication services, as in the case of payment of taxes and contributions to Universalization Funds. They consider that a generic orientation to the States with the aim at reverting this asymmetry - considering differences in the treatment of startups and non-profit organizations - could be beneficial, both from the point of view of Internet Service Providers (ISPs) as well as organizations oriented to the guarantee of rights.

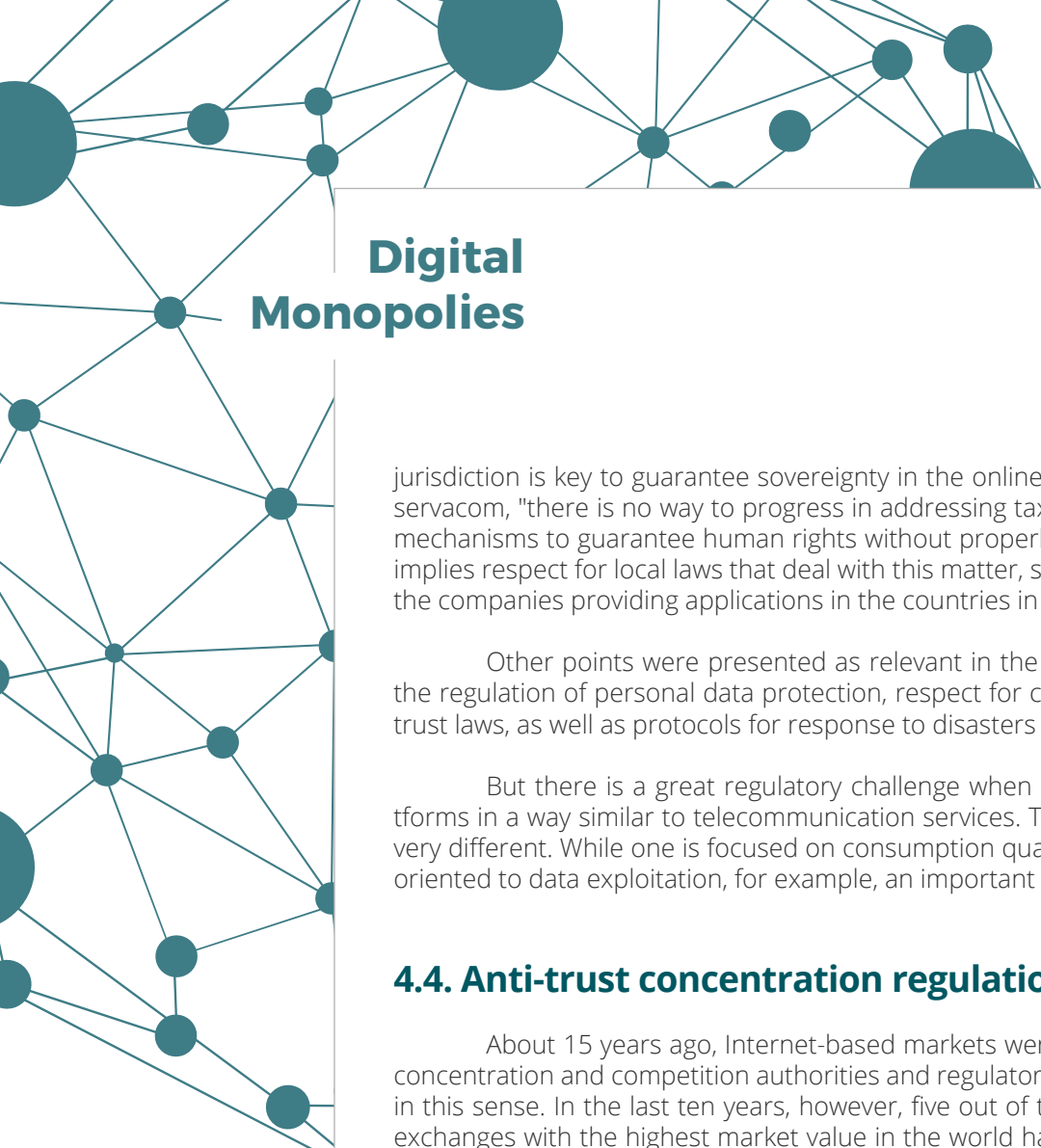
By this logic, OTT service providers, as any other profit-oriented business, must pay taxes, especially if they offer services that represent competition for existing services in a country. For this, Observacom defends that the principle of taxes collection in the places of consumption and implementation of the services should prevail over the principle of payment of taxes in the local in which the service is provided. With this concern, considering the global character of the Network, the respect to national

³⁹ Access Now position paper: Protecting digital rights in the "OTT" debate. Available at <<https://www.accessnow.org/access-now-position-paper-protecting-digital-rights-ott-debate>>

⁴⁰ Access Now. Available at <https://www.accessnow.org/cms/assets/uploads/2017/08/Access_Now_OTT-position%E2%80%93paper.pdf>. Accessed on April 10, 2018.

⁴¹ <http://prai.tv/estudios/informe-regulacion-ott/>

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jurisdiction is key to guarantee sovereignty in the online ecosystem. According to Observacom, "there is no way to progress in addressing taxation or to establish effective mechanisms to guarantee human rights without properly resolving this question. This implies respect for local laws that deal with this matter, starting with the registration of the companies providing applications in the countries in which they offer services".

Other points were presented as relevant in the public consultation, including the regulation of personal data protection, respect for consumer protection and anti-trust laws, as well as protocols for response to disasters and emergencies.

But there is a great regulatory challenge when it comes to regulate OTT platforms in a way similar to telecommunication services. These business models can be very different. While one is focused on consumption quantity metrics, the other one is oriented to data exploitation, for example, an important complicator for tax collection.

4.4. Anti-trust concentration regulation

About 15 years ago, Internet-based markets were not among the concerns of concentration and competition authorities and regulatory bodies, neither of legislators in this sense. In the last ten years, however, five out of ten companies listed on stock exchanges with the highest market value in the world have become part of the digital technology sector, like Google, Facebook, Apple and Amazon joining Microsoft. The scenario, therefore, changed a lot.

The topic, however, is still inceptive, as well as the actions and policies to address this type of concentration, including the previously mentioned specificities of the sector, and the lack of understanding of the impact of digital technologies, which poses great challenges to regulators and antitrust bodies. However, in various parts of the world, ex-post regulation processes,⁴² have begun to take shape, with antitrust actions and more rigorous control of mergers and acquisitions. In this trend towards concentration in the digital market, there are several examples of companies with significant market shares and with the possibility of characterizing dominant market power. However, there is a lack of evidence of prejudice to consumers, users and citizens, reason for the contestation about the negative impact of this market condition.

Several competition authorities, also from the European Commission, attribute great importance in their analysis to the criterion of market share. Normally, a company with a market share of less than 40% is not considered dominant. On the other hand, companies with market shares above 60% are presumed to be dominant, in the absence of exceptional circumstances that indicate the contrary.⁴³

Avoid dominance in a market, however, does not infringe competition law in most legislation (including the European Union, Brazil and the United States). It is neces-

⁴² Ex-post regulation is the one which makes an analysis of the need for intervention at a time subsequent to the occurrence of commercial practices, with a focus on specific cases and empirical evidence.

⁴³ Competition Law Issues in the Online World. <https://www.bratschi.ch/fileadmin/daten/dokumente/publikation/2013/04_April/SSRN-id2341978.pdf>.

sary to characterize combined practices or strategies that have the objective or effect of restricting competition and these will be considered illegitimate only when they do not generate economic benefits.⁴⁴In this context, the most difficult question is the distinction between abusive behavior and aggressive and pro-competitive trade strategies.

In spite of the difficulties in validating the need to apply restrictions to concentration and, more importantly, to impose condemnation of anti-competitive practices on the Internet, there are significant movements that, as a matter of fact, indicate a greater determination of authorities to advance in this sense. The European Commission Directorate General for Competition, for example, informs on its website that it closely monitors the industries of information, consumer electronics and the Internet "to ensure that market players comply with the EU competition right", in accordance with the block's new economic strategy, "Europe 2020", proposed in 2010. It is worth noting the fact that the general direction of the competition of the block has an area dedicated to the analysis of cases in this sector of the economy.

The issue is gaining importance among the regulatory authorities of competition and concentration beyond Europe and the cases of investigation involving online platforms and applications are

⁴⁴ As an economic benefit, we can mention the reduction of costs to consumers or the improvement in the quality of the service, as well as the geographical expansion of the offer.

The ITU recommendation

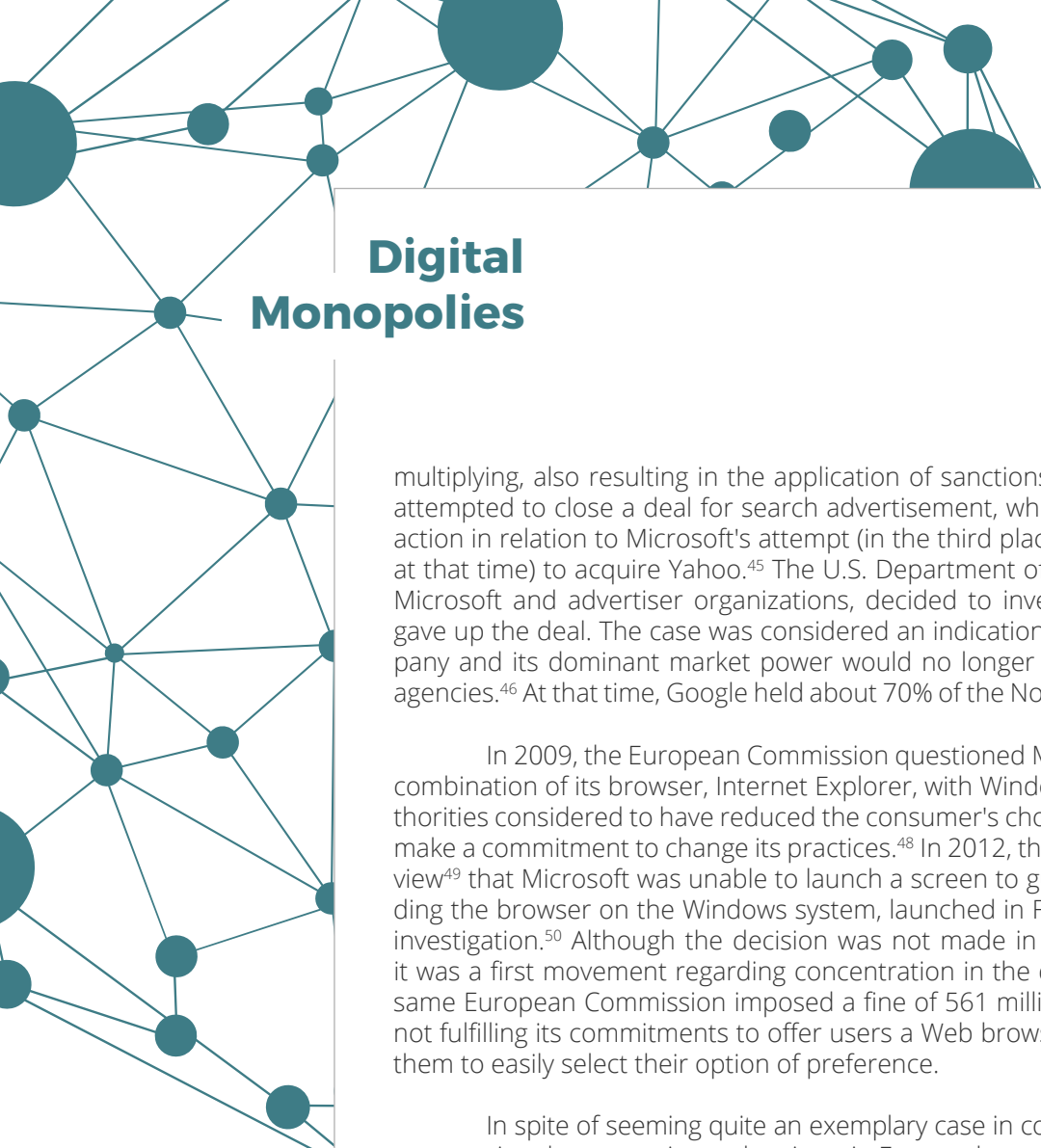
Finally, on April 2018, at the ITU SG3 meeting, a working group that deals with political and economic issues of the entity's standardization bureau (ITU-T), a recommendation (D.262) for OTT applications was approved. First, the agency defines what an OTT would be: "an application accessed and delivered over the public Internet network and that is a technical/functional substitute for traditional international telecommunication services".

In view of the revenue decrease faced by operators with the competition of OTTs and the need for flexibility of business models between these two universes, the demand of telecommunication companies for a regulation of the sector is evident in the document, especially in the texts below:

- Member States are encouraged to consider and develop favorable regulatory policies and/or structure to encourage fair competition between network operators and OTT providers. Member States are also encouraged to examine, if necessary, the reduction of the regulatory burden on traditional networks and telecommunication services.¹
- In the new ecosystem of communications, connectivity and services, although they are no longer mutually linked, they remain critically interdependent. Since network operators and OTT providers are part of the same ecosystem, Member States should consider the interdependencies between them, including how consumer demand for OTT services can lead to an increase in demand for data from telecommunication service providers, as well as a decrease in demand for traditional telecommunication services.
- Member States should encourage mutual cooperation, to the possible extent, between OTTs and network operators, aiming at fostering innovative, sustainable and viable business models, and their positive role in promoting socio-economic benefits.

In view of the ITU's position, it is probable that public policies are oriented to respond to the demand of telecommunication companies, which might have an impact on the regulation of the content layer, at least in making business models more flexible by involving the infrastructure owners. In this sense, the focus is on zero-rating and allowance limitation practices.

¹ Group approves recommendations related to OTT services. Available at <<http://teletime.com.br/13/04/2018/grupo-da-uit-aprova-recomendacoes-relacionadas-a-servicos-ott/>>



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multiplying, also resulting in the application of sanctions. In 2008, Google and Yahoo attempted to close a deal for search advertisement, which was considered a defense action in relation to Microsoft's attempt (in the third place in the online search market at that time) to acquire Yahoo.⁴⁵ The U.S. Department of Justice, under pressure from Microsoft and advertiser organizations, decided to investigate the case and Google gave up the deal. The case was considered an indication that this Silicon Valley's company and its dominant market power would no longer go unnoticed by government agencies.⁴⁶ At that time, Google held about 70% of the North American search market.⁴⁷

In 2009, the European Commission questioned Microsoft about the unjustified combination of its browser, Internet Explorer, with Windows software, a move that authorities considered to have reduced the consumer's choice. The company then had to make a commitment to change its practices.⁴⁸ In 2012, the EC presented its preliminary view⁴⁹ that Microsoft was unable to launch a screen to guarantee users' choice regarding the browser on the Windows system, launched in February 2011, and started an investigation.⁵⁰ Although the decision was not made in relation to the content layer, it was a first movement regarding concentration in the digital universe.⁵¹ In 2013, the same European Commission imposed a fine of 561 million Euros on the company for not fulfilling its commitments to offer users a Web browser of choice that would allow them to easily select their option of preference.

In spite of seeming quite an exemplary case in comparison to the antitrust movements in other countries and regions, in Europe the events raised the question about the ability of the EC to enforce its rules, once, before the fine, Microsoft disrespected the decision of its executive body for several months.⁵² In 2010, the European Commission decided to open an antitrust investigation on Google's search result practices. "The (European) Commission will investigate whether Google has abused a dominant market position in online search, by allegedly lowering the ranking of unpaid search results of competing services", the EU executive said in a statement at the time.⁵³

A year later, the Federal Trade Commission (FTC) announced an investigation of Google's commercial practices that could be harmful to competition. At the beginning of 2013, the investigation was closed after the company committed to make adjustments, considered minimal by the market. "Over a solution reached with the FTC, Google will meet its previous commitments to allow competitors to access - in fair, reasonable and non-discriminatory terms - patents on critical and standardized technologies needed to create popular devices, such as smartphones, laptops, tablets and

⁴⁵ <http://www.businessinsider.com/2008/4/doj-investigating-yahoo-s-ad-pact-with-google>

⁴⁶ <http://www.peakpositions.com/pdfs/googles-abandons-ad-partnership-with-yahoo.pdf>

⁴⁷ <https://searchengineland.com/search-market-share-2008-google-grew-yahoo-microsoft-dropped-stabilized-16310>

⁴⁸ <https://www.theguardian.com/business/2009/dec/16/eu-competition-microsoft-browser-agreement>

⁴⁹ http://europa.eu/rapid/press-release_IP-12-1149_en.htm

⁵⁰ http://europa.eu/rapid/press-release_IP-12-800_en.htm

⁵¹ http://europa.eu/rapid/press-release_IP-12-1149_en.htm

⁵² <http://www.bbc.com/news/technology-21684329>

⁵³ http://europa.eu/rapid/press-release_IP-10-1624_en.htm?locale=en

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game consoles. In a letter of commitment to the Commission, Google agreed to offer online advertisers more flexibility to simultaneously manage advertising campaigns on Google AdWords platform and on competing ad platforms; and to not inappropriately take online content of sites that focus on comparisons in specific categories, such as shopping or travel, for use in their own vertical offers. (FTC, 2013)⁵⁴

Also in 2013, after the FTC decision, EC asked Google to present suggestions that could guarantee competition in the search market,⁵⁵ but the proposed and applied alterations were considered to have null and void results.⁵⁶ The search giant was also investigated by the Korean Fair Trade Commission, a competition regulatory authority in the Asian country, in 2011, after being accused by competitors of abusing competitive market power by shipping their online search engine on the Android system. The accusations were dismissed on the grounds that the attitude did not significantly increase the company's market share in South Korea, which was around 10%.⁵⁷

In Brazil, at the end of 2013, the General Superintendence of the Administrative Council for Economic Defense (Cade) initiated three administrative processes to investigate supposedly anti-competitive practices adopted by Google Inc. and Google Brasil Internet Ltda. in the Brazilian online search market. The investigation began with complaints filed in the antitrust agency by E-Commerce Media Group Informação e Tecnologia Ltda., at that time the owner of Buscapé and Bondfaro sites, and also by Microsoft Corporation, controller of the Bing search site.⁵⁸ Until the beginning of May 2018, there was no Council position on the processes, even though several sources estimate a decision by Cade in the first semester of this year.

The Indian Federal Antimonopoly Service (FAS) decided that Google violated the country's competition laws by forcing the shipment of its applications in the agreements of access to Google Play, during negotiations for use of the Android mobile operating system with mobile device manufacturers, and by preventing the shipment of competing services. The decision was validated by two courts in the Eastern country.

Thus, in 2017, after losing judicial battles, Google reached an agreement with the FSA. According to the terms of the agreement, Google would stop requiring the exclusivity of its applications on devices based on Android in Russia; it would stop restricting the pre-installation of any concurrent search mechanism and applications (including on the initial standard screen); would not encourage the pre-installation of their search tool as the only general search mechanism; would stop enforcing previously signed agreements that contradict the terms of the agreement and guarantee the rights of third parties to include their search mechanisms in the tool's panel,⁵⁹ among other points.

54 <https://www.ftc.gov/news-events/press-releases/2013/01/google-agrees-change-its-business-practices-resolve-ftc>

55 <https://www.theatlantic.com/technology/archive/2013/01/european-version-ftc-accuses-google-abusing-its-dominant-search-results/319641/>

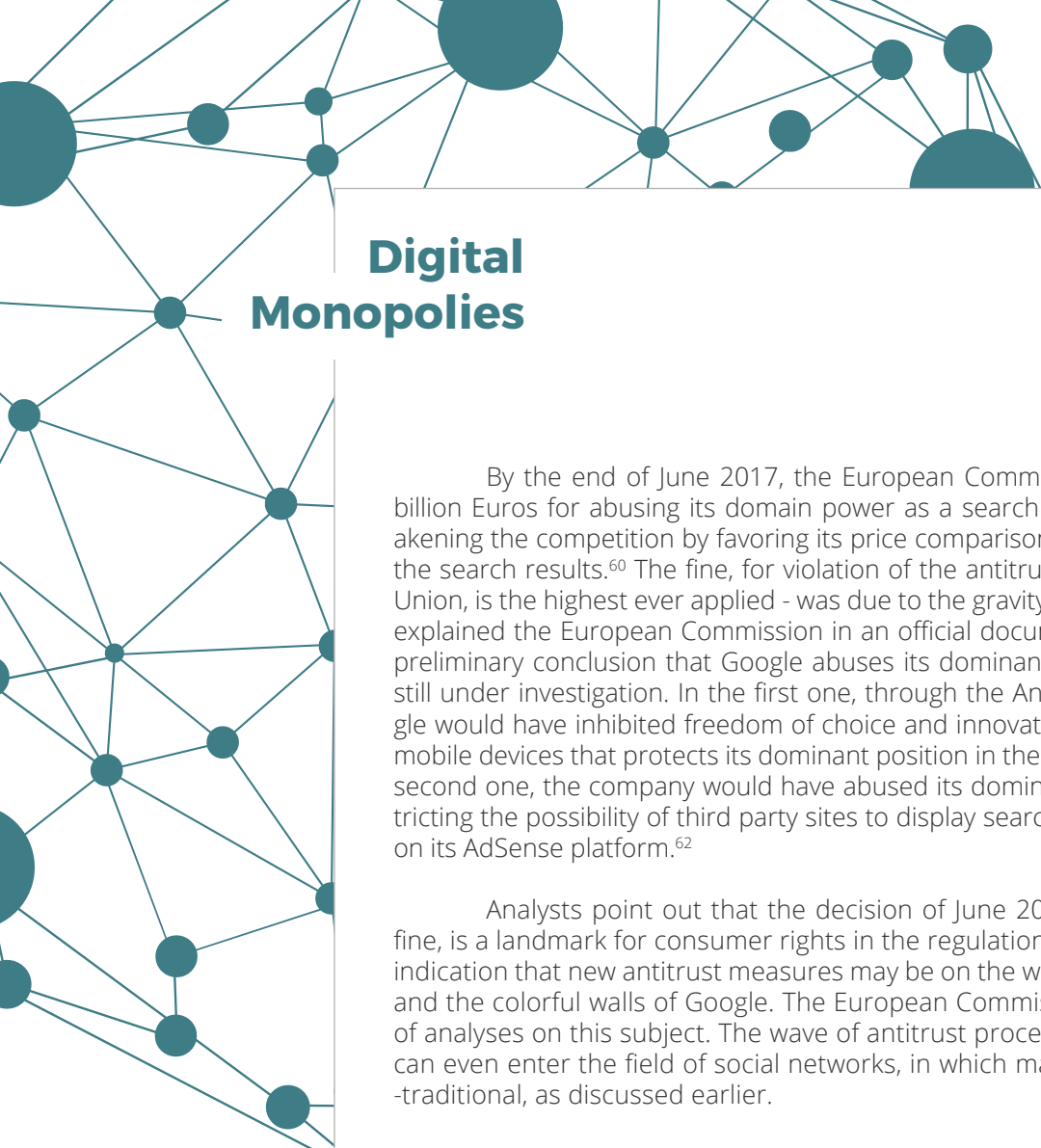
56 <https://www.ft.com/content/4af20576-3757-11e4-8472-00144feabdc0>

57 <https://searchenginewatch.com/sew/news/2283714/korea-s-ftc-acquits-google-of-antitrust-charges>

58 <http://www.cade.gov.br/noticias/cade-investiga-supostas-praticas-anticompetitivas-do-google-no-mercado-brasileiro-de-buscas-online>

59 <http://en.fas.gov.ru/press-center/news/detail.html?id=49774>

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By the end of June 2017, the European Commission fined Google with 2.42 billion Euros for abusing its domain power as a search tool on the Internet and weakening the competition by favoring its price comparison service, Google Shopping, in the search results.⁶⁰ The fine, for violation of the antitrust legislation of the European Union, is the highest ever applied - was due to the gravity and duration of the violation, explained the European Commission in an official document. The EC also indicated a preliminary conclusion that Google abuses its dominant position in two other cases, still under investigation. In the first one, through the Android operating system, Google would have inhibited freedom of choice and innovation by adopting a strategy for mobile devices that protects its dominant position in the online search market.⁶¹ In the second one, the company would have abused its dominant position by artificially restricting the possibility of third party sites to display search ads for Google competitors on its AdSense platform.⁶²

Analysts point out that the decision of June 2017, including the sum of the fine, is a landmark for consumer rights in the regulation of the Internet, and a strong indication that new antitrust measures may be on the way, beyond the search market and the colorful walls of Google. The European Commission itself maintains a series of analyses on this subject. The wave of antitrust processes against online platforms can even enter the field of social networks, in which market characteristics are non-traditional, as discussed earlier.

4.5. New elements for ex-post analysis

In 2016, the German antitrust law was amended by the 9th Amendment of the Competition Control Act to incorporate analysis tools for new digital business models. One of the characteristics of the digital businesses addressed by the alteration is the effect of network and multi-sided model.⁶³ In December 2017, the German competition authority, the Bundeskartellamt, notified Facebook about preliminary allegations of abuse of dominant power in the social network market.

The authority considers that Facebook is abusing its dominant position, conditioning the use of its social network to the possibility of collecting, without limitation, all types of data generated in navigation on third-party sites and mixing those data with the user's account in the social network. These third party sites include, first of all, proprietary Facebook services, such as WhatsApp or Instagram and, secondly, other operators' sites and applications with APIs incorporated into Facebook.⁶⁴ According to the preliminary evaluation of the Bundeskartellamt, Facebook's terms of service are, at least in this aspect, inadequate and violate data protection provisions, to the detriment of its users. The authority also considers that, in view of the company's dominant position, it cannot be assumed that

⁶⁰ http://europa.eu/rapid/press-release_IP-17-1784_en.htm

⁶¹ http://europa.eu/rapid/press-release_IP-16-1492_en.htm

⁶² http://europa.eu/rapid/press-release_IP-16-2532_en.htm

⁶³ <https://www.noerr.com/en/newsroom/News/new-factors-for-antitrust-analysis-in-digital-markets.aspx>

⁶⁴ http://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2017/19_12_2017_Facebook.html;jsessionid=E65C792084278D5A4133F505D3E2F32C.2_cid362?nn=3591568

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users effectively consent to this form of data collection and processing.

Until now, the assessment of the competition defense entity, which maintains a dialogue with the data protection authority, is that consumers should have more control over these processes and Facebook needs to provide them with adequate options to effectively limit data collection. In response, Facebook stated that the entity has a "distorted image" of its operations and denied a dominant market position. "Although Facebook is popular in Germany, we are not dominant," said the company in an e-mail statement registered by the press. "A dominant company operates in a world where customers have no alternatives", while Facebook is just one of many sites that people use, it claimed,⁶⁵ remembering launched products that have failed. But the company affirmed its willingness to adapt to data protection laws, as they have been doing in recent years.

For lawyers, the movements of the German competition defense entity aim at testing the limits of the antitrust law - which may have an impact on many other countries besides Germany and Facebook, since great part of the platforms profit, or wish to profit out of users data. Besides, the case may set a precedent for other countries to consider the need to analyze collection and use of data by competition defense entities and not just by privacy protection authority, which would be an innovation.

The German update on the instruments for PMS and competition analysis occurs at a time of intense questioning about whether traditional instruments and approaches are still appropriate and sufficient to solve problems of competition in the universe of online platforms or whether the antitrust doctrine and pro-competition should evolve. The second option has proved to be the winner in Europe

In the Digital Single Market Strategy for Europe presentation document, in 2015, the European Commission states: "Some online platforms have evolved to become players competing in many sectors of the economy and the way they use their market power raises a number of issues that require further analysis beyond the application of competition law in certain cases".⁶⁶ For some authors,⁶⁷ when considering the two biggest leaders in the online market, Google and Facebook, it is necessary to use new concepts to analyze concentration, especially with respect to market definition and evaluation of abusive behavior of companies with significant market power.

For others, it is necessary to consider the ability to define online reputations as an extremely powerful tool, which can be used as a shield by consumers facing the explosive volume of information, but also as a sword for platforms with significant market power, with powerful effects not only in the digital world, but also in the real world, with reduced competition and/or increased prices.⁶⁸ As a result, it would be necessary that the analysis of competitive impact of the competent bodies goes beyond the market itself, also addressing

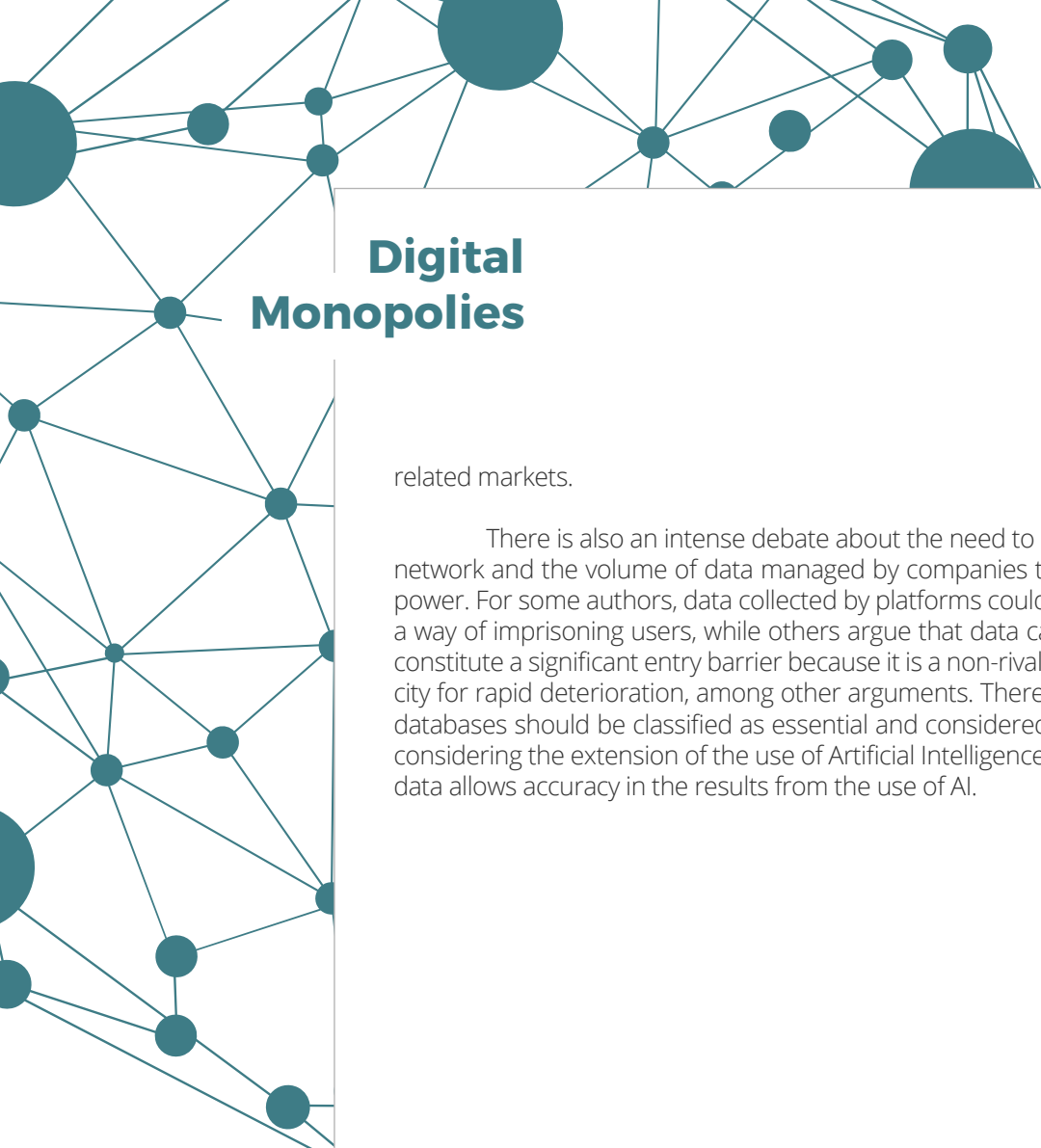
⁶⁵ <https://www.bloomberg.com/news/articles/2017-12-19/facebook-s-data-harvesting-under-fire-from-german-cartel-agency>

⁶⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions <<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447773803386&uri=CELEX:52015DC0192>>.

⁶⁷ Competition Law Issues in the Online World. Competition Law Issues in the Online World at <https://www.bratschi.ch/fileadmin/daten/dokumente/publikation/2013/04_April/SSRN-id2341978.pdf>.

⁶⁸ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2955376

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related markets.

There is also an intense debate about the need to consider the effect of scale and network and the volume of data managed by companies to determine significant market power. For some authors, data collected by platforms could function as an entry barrier or a way of imprisoning users, while others argue that data cannot be privatized and do not constitute a significant entry barrier because it is a non-rival, non-exclusive good with capacity for rapid deterioration, among other arguments. There are also those who argue that databases should be classified as essential and considered public goods, especially when considering the extension of the use of Artificial Intelligence (AI),⁶⁹ as only a large volume of data allows accuracy in the results from the use of AI.

⁶⁹ Does Antitrust Have A Role to Play in Regulating Big Data? <<https://awards.concurrences.com/IMG/pdf/ssrn-id2723693.pdf>>

5. Measuring diversity, pluralism and concentration in the Network content layer

In this section we will discuss indicators, categories and references used to measure degrees of diversity, pluralism and concentration – great part of it coming from a general structure (such as those employed in competition defense systems) or other industries (such as those adopted by broadcasting and traditional media). The objective, therefore, will be to search for those indexes and instruments that can serve as an analysis of the Internet, considering the national context of those players operating in Brazil.

5.1. Competition and concentration indicators

The analysis of the competition and concentration levels is generally made through what we know as market analysis. A market analysis can have different objectives. The International Competition Network defines market analysis as "research projects conducted to gain a deep understanding of how sectors, markets and market practices are working" (2016, p. 3). Mancini and Maiorano (2017) state that these studies can have a variety of more detailed purposes, forms and results.

In the academic level, these studies may have different focuses, seeking to measure competition levels in specific sectors or markets, compare these objects under various aspects or even discuss the investigation process itself and its instruments. In the area of regulatory authorities, a market study can be made for an assessment about mergers and acquisitions or the preparation of an action to implement antitrust measures and in the area of a more generic monitoring or even as a response to a specific consumer demand or a public body.

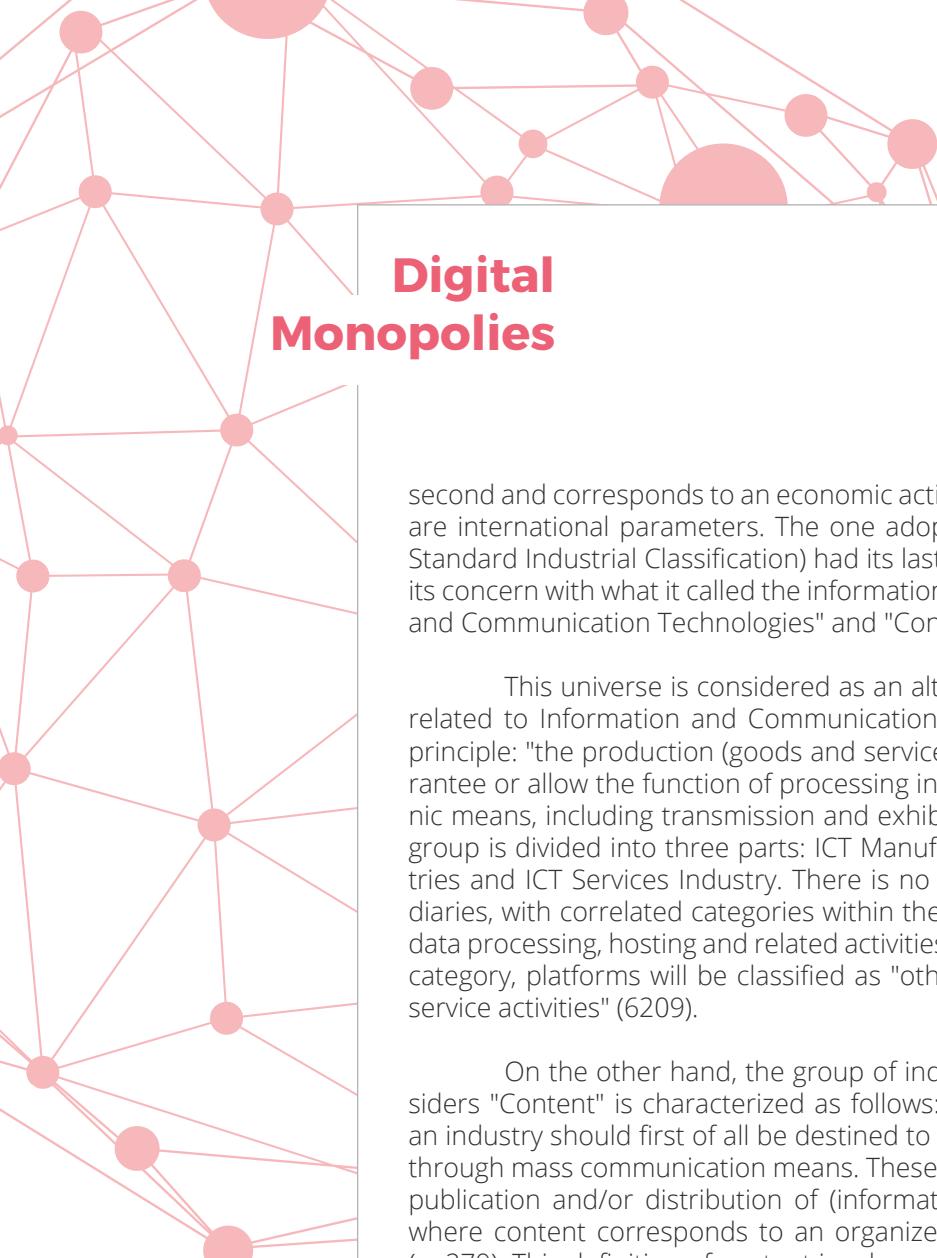
Companies can conduct market studies to evaluate possible complaints of antitrust measures needs or to more clearly perceive their position in a given market where they already operate or intend to enter. Civil society organizations can conduct these researches in order to understand the situation of certain sectors and the general impacts or to specific audiences that a certain structure or market change can bring. It is in this context that this research belongs to.

A market study aims at identifying, among other things (CNMC, 2013, p. 7):

- 1) The way in which players compete;
- 2) The variables under which they compete;
- 3) The degree of competition;
- 4) The restrictions that make competition difficult;
- 5) Its impacts for the market.

As far as the universe of analysis is concerned, competition analyses generally work with the concepts of **sector** and **market**. The first one is an approximation for the

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second and corresponds to an economic activity. To standardize the comparison, there are international parameters. The one adopted by the United Nations (International Standard Industrial Classification) had its last update in 2008. It has already expressed its concern with what it called the information economy, bringing together "Information and Communication Technologies" and "Content" (audiovisual and printed works).

This universe is considered as an alternative aggregation. Goods and services related to Information and Communication Technology are those that fulfill a basic principle: "the production (goods and services) of an industry should first seek to guarantee or allow the function of processing information and communication by electronic means, including transmission and exhibition" (United Nations, 2008, p. 278). This group is divided into three parts: ICT Manufacturing Industries, ICT Commerce Industries and ICT Services Industry. There is no explicit mention of platforms or intermediaries, with correlated categories within the third group, such as: web portals (6312); data processing, hosting and related activities (6311). Given the inexistence of a specific category, platforms will be classified as "other information technology and computer service activities" (6209).

On the other hand, the group of industries that falls into what the index considers "Content" is characterized as follows: "The production (goods and services) of an industry should first of all be destined to inform, educate and/or entertain humans through mass communication means. These industries are engaged in the production, publication and/or distribution of (informative, cultural and entertainment) content, where content corresponds to an organized message addressed to human beings" (p. 279). This definition of content is adequate and dialogues with the notion of a content layer that has been considered until now, disregarding only the limitation of mass communication means and taking the delimitation on the internet as a whole.

Notions of sector and relevant market do not necessarily are the same in the papers on the subject (Oliveira, 2014). A sector is an internationally standardized economic activity. A relevant market can have products from different sectors. Polder et al. (2009, p. 18) consider that it is not always easy to identify the market to be analyzed. It is generally compared to an industry, but it can have different types of products and competition oriented by demand. Companies can be in the same industry and operate in different markets with different degrees of competition.

Mancini and Maiorano (2017, p. 7) alert that market studies do not always refer to a specific market. They might address one or several markets, or practices adopted by one or more markets. They use the term "sector" as a synonym of the market to be studied. Among the definitions of **product market and geographic market**, a notion used is the one adopted by the European Union directive (European Commission, 1997, p. 372/6) that states: "The reference product market comprises all products and services which consumers consider to be interchangeable or replaceable as a result of their characteristics, their price or the use intended for them". And it continues: "The geographic reference market comprises the area in which the companies develop activities related to the supply of products and the provision of reference services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from other neighboring geographical areas, specially because the conditions of competition prevailing in the area are different from those in the other areas".

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Competition indicators are parameters used by academic studies, authorities or other organizations to measure the degree of competition intensity of a market or sector. There is no international consensus definition or literature defining these references. The structure of the market or sector and their level of concentration and competition are a complex phenomena constituted from diverse factors. Competitive indicators are objective in nature, based on values and variables which are inherent to the market/sector or to their participating companies. Indicators aim to assess competition both in a given sector/market over time, and between different sectors/markets in the same period and over time (intra-sector) (Oliveira, 2014, pp. 4-5). The Copenhagen Economics consultancy (2007, p. 4) divides the indicators into the following categories:

Market analysis indicators	
1) Concentration – N-firm concentration ratio – Herfindahl-Hirschman Index (HHI) – Import market share on total sales – Public authorities market share – Changes in the concentration level – HHI changes	5) Prices – Price changes in a sector – Power equality of the buyer – Number of price changes
2) Entry barriers – Ratio between capital and total costs – Reason of marketing costs – Cost disadvantage of small firms – Establishment rates – Customer cancellation rates – Sales increase rates	6) Profits – Assets return – Used capital return – Invested capital return – Return of own capital – Return of sales – Return of residual income
3) Mobility – Research and development rate – Patents rate	7) Productivity – Change in work productivity – Dissemination of productivity at work – Change in the total factor of productivity – Dissemination in the total factor of productivity
4) Innovation – Taxa de pesquisa e desenvolvimento – Taxa de patentes	8) Product quality – Consumer Complaints

This research will use mainly indicators to identify the division of market plots, especially the CRn. Those turned to the identification of anti-competitive practices through prices are more problematic, as they are mostly platforms offering free content. It is therefore necessary to highlight one of the great challenges already mentioned: the analysis of the market structure considering the logic of intermediation of several sides and the free availability of contents. Price centered indicators may be adopted, but only if needed for the purposes of this analysis.

The complexity of delimiting markets, sectors and competition dynamics on the internet content and applications layer, especially in a delimited national border, makes the competitive dimension of the analysis, of an economic matrix, to incorporate more qualitative indicators. Among them is the formation of entry barriers, the strategies of maintaining significant market power and the impacts of the action of competitors and external players in the market structure. These categories will be presented in a more systematized way later, together with the analysis model.

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5.2. Indicators of contents diversity, pluralism and concentration

Para chegarmos ao modelo de análise, é preciso incorporar categorias e indicadores específicos relacionados às referências que orientam o presente trabalho: a diversidade e o pluralismo nos conteúdos e sua contraface, a concentração. Boa parte da elaboração histórica desses elementos de mensuração se deu nas áreas de comunicação e cultura, especialmente a primeira, a partir da necessidade de identificar de que maneiras estes objetivos eram concretizados internacionalmente, em sistemas de mídias específicos (nacionais ou regionais) ou em setores determinados (televisão, rádio, impresso).

Uma referência importante são os "Indicadores de Desenvolvimento da Mídia", elaborados pela Organização das Nações Unidas para a Educação, a Ciência e a Cultura (UNESCO, 2010). Eles têm como um de seus eixos a garantia da diversidade e pluralismo na mídia, mas abrangem outros aspectos, como liberdade de expressão, discurso democrático nos meios, capacitação de profissionais e capacidade de infraestrutura. Entre os indicadores formulados para diversidade e pluralismo estão:

In order to reach an analysis model, it is necessary to incorporate specific categories and indicators related to the references that guide this work: diversity and pluralism in the contents and their counterpart, concentration. Great part of the historical creation of these measurement elements occurred in the areas of communication and culture, especially the first one, from the necessity to identify in which ways these objectives were reached internationally, in specific media systems (national or regional) or in specific sectors (television, radio, press).

An important reference is the "Media Development Indicators", developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2010). One of its axes is the guarantee of diversity and pluralism in the media, but it includes other aspects, such as freedom of expression, democratic speech in the media, training of professionals and infrastructure capacity. Some of the indicators formulated for diversity and pluralism are:

1) Media concentration

- ▶ Effective regulations to prevent unacceptable concentration of property and promote plurality;
- ▶ Specific legislation on cross ownership in the electronic media and between the electronic media and other media sectors, in order to prevent market dominance.
- ▶ The regulations recognize the distinction between small and large players in the media market;
- ▶ Provisions on transparency and disclosure for media companies in relation to property, investment and revenue sources;
- ▶ The grant process for the distribution of specific frequencies to certain media companies promotes diversity of media ownership and programming content;
- ▶ Compliance with international standards;
- ▶ The authorities responsible for the implementation of antimonopoly laws

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have enough power, such as the power to refuse grant requests and to eliminate existing media operations in which plurality is threatened or in which unacceptable levels of property concentration are reached.

- ▶ The government actively monitors and evaluates the consequences of media concentration;
- ▶ Antitrust laws used by regulators to deny grant requests or to force the alienation of existing media operations in order to avoid excessive concentrations of media ownership;
- ▶ Civil society groups and citizens in general participate actively in the promotion and implementation of measures for the promotion of media pluralism;
- ▶ Regulators distribute digital licenses for a wide range of commercial and non-commercial operators.

2) Diversity in Composition between Public, Private and Community Media:

- ▶ When broadcasting regulation includes digital media, public service stations automatically receive concessions for digital transmission;
- ▶ The regulatory system ensures equitable access to the frequency spectrum to a plurality of media, including community stations.
- ▶ Part of the income generated with the sale of the spectrum and the licenses of cable and telecommunications distribution networks is reinvested in community media.

3) Taxation, advertising and regulation of companies:

- ▶ Preferential tax, import tax and tariff regimes to stimulate the development of electronic and printed media;
- ▶ The State does not charge prohibitive taxes or fees from the media bodies;
- ▶ State's tax policy and practice do not discriminate against media nor favor specific private media channels to the detriment of others;
- ▶ The State advertises in a fair, transparent and non-discriminatory manner such as, for example, through a code of conduct.

Another initiative that developed specific indicators for diversity, pluralism and media concentration is the Media Ownership Monitor (MOM), a project from the international organization Reporters without Frontiers. The entity developed a set of methods and indicators to assess the degree of concentration and diversity of media systems and applied them in 12 countries.¹

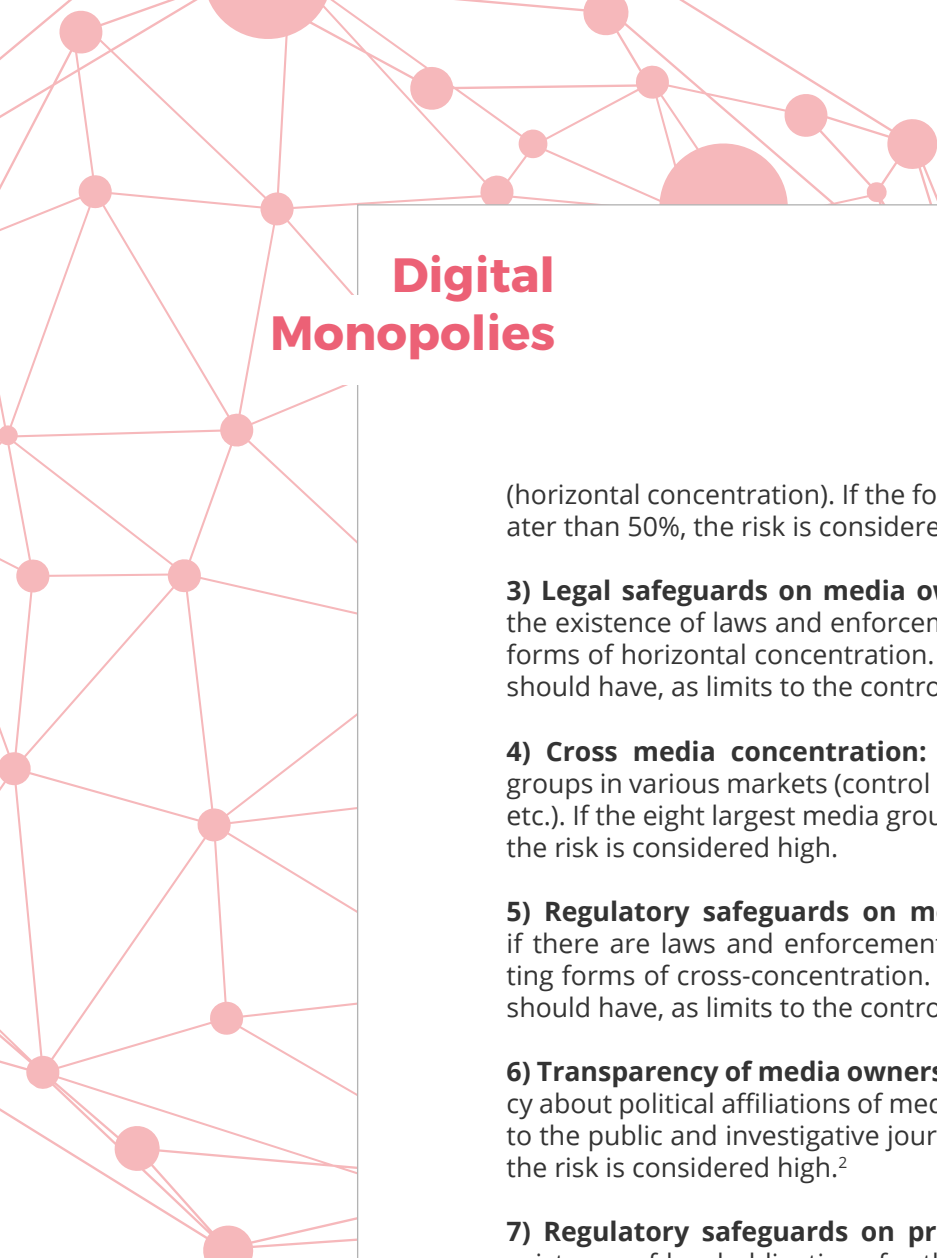
The system created by the organization uses the following indicators:

1) Media audience concentration: It measures the distribution of audience among organizations. If the four largest ones exceeds 50% of the audience, the threat to pluralism is considered high.

2) Concentration of media ownership: It measures horizontal concentration from the control of a certain number of organizations in a same media

¹ General information about the project are available at: <https://www.mom-rsf.org/>

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(horizontal concentration). If the four largest ones have a market share greater than 50%, the risk is considered high.

3) Legal safeguards on media ownership concentration: It researches the existence of laws and enforcement mechanisms to prevent or mitigate forms of horizontal concentration. It lists a set of measures that legislation should have, as limits to the control of several organizations;

4) Cross media concentration: It verifies organizations ownership by groups in various markets (control of TV and radio or newspapers and sites, etc.). If the eight largest media groups have a market share of 70% or more, the risk is considered high.

5) Regulatory safeguards on media cross-concentration: It identifies if there are laws and enforcement mechanisms for preventing or mitigating forms of cross-concentration. It lists a set of measures that legislation should have, as limits to the control of organizations in different media.

6) Transparency of media ownership: It verifies the degree of transparency about political affiliations of media owners. If data is not readily available to the public and investigative journalists, with action to hinder this access, the risk is considered high.²

7) Regulatory safeguards on property transparency: It evaluates the existence of legal obligations for the availability of information about who controls the players. If the real owners are not clearly identified, the threat to pluralism is considered high.

8) Political control over organizations: It identifies whether among the owners there are elected politicians, parties or party groups. The risk is considered high when an average of more than 50% of the audience is controlled by a party or a politician.

9) Political control over media funding: It measures the influence of the State on the media through official advertisement. The risk is high when government advertisements are directed to few means or there are no rules controlling this budget.

10) Political control over news agencies: It investigates the degree of independence of news agencies in relation to control by political groups. When most agencies are linked to political groups by direct control, affiliation or editorial line, the risk is defined as high.

² The indicator separates different types of transparency: 1) Active - players take the initiative to report their ownership and update the data; 2) Passive - data is made available on demand; 3) Publicly available - data can be accessed in public bases, such as of governments; 4) Publicly unavailable - it is not possible to get data in public bases and companies do not provide them; and 5) Active deception - market players act to hide information or make it difficult to obtain information.

5.3 Analysis model

Based on several models, references and indicators we will present a proper guideline to the analysis to be carried out. It covers the structural bases of the market (their characteristics, their dynamics and value chains and the legal norms to which they are subject), the mapping of the market structure and the concentration levels and their impacts on diversity and pluralism. This is intended to consider an approach that, as previously stated, is not limited to quantitative instruments, but address the layer (and its markets) so as to learn its complexity and how its dynamics affect the normative parameters of the research, which in the last instance point out the degree of promotion of the human right to communication on the Internet.

The analysis model is composed of four axes:

1) Context and nature of the sectors and markets:

- ▶ Nature and specific characteristics of traded goods and services;
- ▶ Structure and dynamics of production, distribution and consumption chains;
- ▶ Players' business models;
- ▶ Companies' general strategies.

2) Regulatory environment:

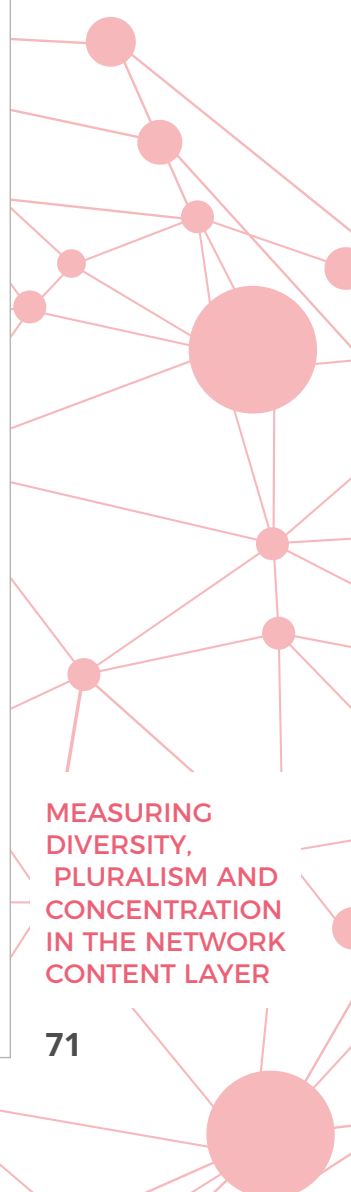
- ▶ Laws and rules that discipline the activities;
- ▶ Specific rules on market structure, ownership and players' control;
- ▶ Users' obligations and rights, including those of more general character that have some impact on the dynamics of the analyzed sectors.

3) Market structure:

- ▶ Definition of the analyzed markets;
- ▶ Players' number and share in each one of them;
- ▶ Entry barriers;
- ▶ Anticompetition practices;
- ▶ Competition strategies of the companies.

4) Degree of diversity and plurality:

- ▶ Diversity on content access;
- ▶ Pluralism of sources and players;
- ▶ Variety of offered contents and formats;



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6. Concentration and diversity in the applications and content layer in Brazil

After having set the conceptual bases and instruments, we will now proceed to the analysis of the applications and content layer in Brazil. This universe is not homogeneous and does not form a clearly determined market. A first definition, as said, refers to the nature of the object: those products, services and spaces in which messages circulate in their most diverse forms (text, image, sound and audiovisual) will be considered. A second delimitation is the geographical limit. Companies with operations in Brazil will be considered, even if they are not originally from the country. By operation we mean the destination of its services or information to the Brazilian audience (as in the case of a website) or the intermediation of the country users actions (as in the case of social networks).

A third aspect of the analysis is the scope of players. As the Internet is a data spring, it would be impossible to obtain information and examine all sites and applications located in the defined location. The focus will then be given to those players and spaces that, in some way, produce or disseminate far-reaching information, with the capacity to influence public debate and with relevance within cultural manifestations. These criteria, due to their complexity, will be addressed from references already established in dealing with specific data about the sector in the country.

For explanatory purposes, players will be divided into two large analysis groups:

1) Applications:

Programs that run on a device (desktop or smartphone) and that have some application for the user. The applications in which there is some type of production and content circulation, such as social networks, video and audio streaming, text repositories (Wikipedia) and news services will be considered here. Electronic games were not included, although it is also a type of content.

1.1. Applications: They offer different functionalities to the user in an individual consumption relationship. As this work focus is concentration and diversity, priority will be given to applications in which cultural goods and information are circulated in relation to the reproduction of cultural manifestations and the debate in the public sphere, with the exception of games. At the same time, programs for electronic commerce, system performance improvement (such as accelerators), file management or editing (of images, sounds or texts) will also be analyzed.

1.2. Platforms: Mediation of spaces/players in which there are different activities and by which services and contents are transacted and where there are interactions. Two of these modalities will be considered: social networks and content circulation. Therefore, services intended for electronic commerce, goods and services sharing and application systems will not be considered.

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2) Sites:

Spaces that gather information, make available certain types of functionalities and/or provide services from access to an address on the World Wide Web (WWW) through protocols such as Hypertext Transfer Protocol (HTTP). The sites, or "pages", provide information in many different languages and through an interface that allows the combination of graphic elements. Linking of different component contents of a site is made by hyperlinks, connections to different pages connected by a click. For the purposes of this analysis, the sites will be classified in:

2.1. Traditional sites: They have the above described basic architecture.
Example:
SBT TV network website www.sbt.com.br

2.2. Aggregator Portals: They host several different sites within their structure and the producers contents do not belong to the company or economic group, which serve as information "hubs". Example: UOL (www.uol.com.br) and Portal Fórum (www.revistaforum.com.br).

2.3. Platforms:
They are the same players described above, but accessed through their World Wide Web address.

6.1. Analyzed applications and sites

The objective of this work is to map the applications and content layer in Brazil, regarding its levels of concentration and degree of diversity and pluralism. However, this task depends on the availability of specific data on the players and their activities. In this sense, the definition of the object will be based on research information. Such scenario reinforces the importance of the option made here of an examination starting from quantitative bases but combined with reflections from a qualitative combination of chosen references and categories. The analysis intends to address the layer considering dispersed statistics but with a global approach.

In the case of applications, for example, there is no unified basis. Each store has its own data, and also for a short period. Play Store from Google and Apple Store from Apple were the selected sources for being responsible for more than 90% of the market. A survey from Conectaí research institute will be added here, as it is a project from a representative research institute (Kantar Ibope) based on interviews with a sample of 2,000 Internet users in Brazil in 2016.

For sites, Alexa database from Amazon was selected. Internationally recognized, it shows the most accessed sites and brings some complementary information about the dynamics of access by users. As in the case of applications, we opted to focus on sites with messages or where these messages flow (i.e. news, contents and cultural goods). Therefore, e-commerce and institutional sites (such as those of banks) will not be a priority. Next, there is a list of the applications and sites analyzed from the specific approaches and categories listed in the analysis model.

Applications

These are three lists of the most popular applications. The first one was taken from Play

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Store. Although the store shows the most downloaded applications of the month, the list was reorganized from the total of downloads. The position at the time of data collection was kept to indicate the applications that, in December 2017, were most popular among Brazilian users. The second list comes from the Apple Store. Although there was no information about the total number of downloads, it was kept in the order displayed at the time of collection. The ranking expresses, therefore, the popularity at the time of access to data (December 2017). The third list is the ranking of research of the Conectaí project, from Kantar Ibope Institute, made through interviews with Internet users.

Play Store

Most downloaded applications - Play Store (December 2017)			
Position	Application	Type	Downloads
5	Facebook	Platform/social network/content	73,4
1	WhatsApp	Platform/social network/messenger	61,9
3	Instagram	Platform/social network/content	57,39
2	FB Messenger	Platform/social network/messenger	50,7
7	Subway Surfers	Application/game	25,4
10	Clash Royale	Application/game	19,8
12	Snapchat	Platform/social network/content	14,5
13	Pou	Application/game	10,1
19	Spotify	Application/content circulation/music streaming	10
25	Go Launcher	Application/System	7,3
6	Facebook lite	Platform/social network/content	6,7
23	Google Play Games	Platform/application systems	6
14	4shared	Application/files management	5,4
9	Wish	Platform/e-commerce	4,7
11	Netflix	Application/content circulation/video streaming	4,7
22	Slither.io	Application/game	4,5
27	Zombie Tsunami	Application/game	4,5
4	Uber	Platform/goods and services sharing/mobility	4
20	Mercado Livre	Platform/e-commerce	2,7
8	Palco MP3	Application/content circulation/music streaming	1,8
30	APUS Booster	Application/system	1
21	OLX	Platform/e-commerce	0,7
16	FB Messenger lite	Platform/social network/messenger	0,67

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Apple Store

Most downloaded applications - Apple Store (December 2017)		
1	AliExpress Shopping	Platform/e-commerce
2	YouTube	Application/content circulation/video streaming
3	WhatsApp	Platform/social network/messenger
4	Instagram	Platform/social network/content
5	FB Messenger	Platform/social network/messenger
6	Facebook	Platform/social network/content
7	Uber	Platform/goods and services sharing/mobility
8	Spotify	Application/content circulation/audio streaming
9	Netflix	Application/content circulation/video streaming
10	Fire UP	Application/game
11	Wish	Platform/e-commerce
12	Photable	Application/graphic design
13	Ifood	Platform/goods and services sharing/food
14	Recolor	Application/graphic design
15	Waze	Application/mobility
16	Stack jump	Application/game
17	Snapchat	Platform/social network/content
18	99 POP	Platform/goods and services sharing/mobility
19	Rules of survival	Application/game
20	Google Maps	Application/mobility
21	OLX	Platform/e-commerce
22	Mercado Livre	Platform/e-commerce
23	Gmail	Platform/social network/messenger
24	Deezer	Application/content circulation/audio streaming
25	Magazine Luiza	Platform/e-commerce
26	Pinterest	Platform/social network/content
27	Facetune 2	Application/graphic design
28	McDonalds	Application/food
29	Snake vs Block	Application/game
30	Tinder	Application/social network/interaction

Conectaí Research

Conectaí Research (June 2017)		
Application	Percentage	Type
WhatsApp	91	Platform/social network/messenger
Facebook	86	Platform/social network/content
Instagram	60	Platform/social network/content

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Conectaí Research (June 2017)		
FB Messenger	59	Platform/social network/messenger
Uber	54	Platform/goods and services sharing/mobility
Mercado Livre	34	Platform/e-commerce
OLX	34	Platform/e-commerce
Twitter	29	Platform/social network/content
Ifood	29	Platform/goods and services sharing/food
Caixa	26	Application/bank
Skype	25	Platform/social network/messenger
BB	23	Application/bank
Itaú	20	Application/bank
Bradesco	19	Application/bank
Snapchat	18	Platform/social network/content
Ingresso.com	14	Platform/e-commerce
99 Taxis	12	Platform/goods and services sharing/mobility
Santander	11	Application/bank
Buscapé	10	Platform/e-commerce

Sites

Most accessed sites - Alexa (December 2017)		
Position	Site	Modality
1	Google.com.br	Platform/search mechanism
2	YouTube.com	Platform/content circulation/video streaming
3	Google.com	Platform/search mechanism
4	Facebook.com	Platform/social network/content
5	Live.com	Platform
6	Mercado Livre	Platform/e-commerce
7	Globo.com	Site/multimedia and multi theme content
8	Uol.com.br	Portal aggregator/multimedia and multi theme content
9	Yahoo.com	Platform/e-mail
10	Blastingnews.com	Platform/content circulation/journalism
11	Instagram	Platform/social network/content
12	Wikipedia	Platform/content circulation
13	Netflix.com	Site/video streaming
14	WhatsApp	Platform/social network/messenger
15	Xvideos	Platform/content circulation/video streaming
16	Olx.com.br	Platform/e-commerce
17	Americanas.com.br	Platform/e-commerce
18	Msn.com	Platform/multiservice

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Most accessed sites - Alexa (December 2017)

19	Explicandoo.com	Platform/content circulation
20	Metropoles.com	Platform/content circulation/journalism
21	Twitter.com	Platform/social network/content
22	Caixa.gov.br	Site/institutional/bank
23	Onoticioso.com	Site/entertainment
24	Correios.com.br	Site/institutional/mail
25	Fatosdesconhecidos.com.br	Site/entertainment
26	Reclameaqui.com.br	Platform/content circulation/
27	Popads.net	Advertisement
28	Otvfoco.com.br	Site/entertainment
29	Wordpress.com	Platform/content circulation/site development
30	Aliexpress.com	Platform/e-commerce

6.2. Context and nature of sectors and markets

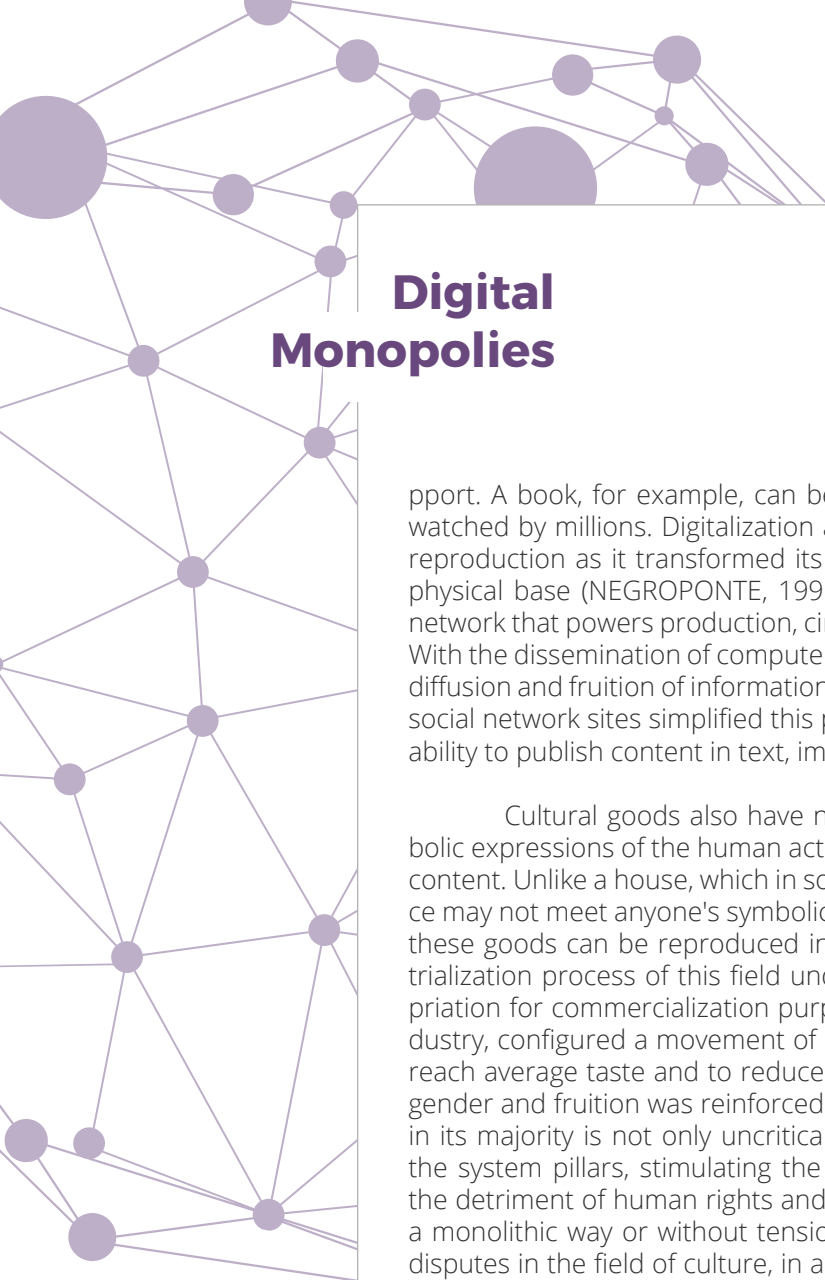
6.2.1 Nature and specific characteristics of transacted goods and services

The layer is based on two very particular types of goods: information and culture. Information is considered a "non-exclusive" and "non-rival" good (HERSCOVICI, 2012). Non-exclusivity refers to the difficulty of players to control this good. The non-rivalry is linked to the non extinction of this good when its consumed. Unlike a cake, which disappears after eaten, or a shoe, which is worn out over time as it is used, information can be consumed by a high number of people, depending on the availability and access capacity of the users. This is because it can be infinitely copied, depending on the storage and reproduction capacities (a person can have access to a video if she/he has a device and a program that allows its execution). Hess and Ostrom (2003) argue that this makes information a "common good".

Another characteristic is the possibility of use by different people at the same time. While a car can only be driven by one person at a time, a text can be read by millions of people at the same time, which powers its circulation and realization. Under the capitalist logic, a movement of the holders of information arises (not necessarily their producers) to impose restrictions, using intellectual property rights (IPR), aiming to limit access to them. The objective is to create an "artificial scarcity" (GARNHAM, 1990) to enable monetization of this good. On the other hand, there are forms of resistance in civil society to widen access to the largest possible number of information, be it through formal lawsuits or through social practice (as is the case of the so-called "piracy").

A conditioning of the forms of appropriation of information is its physical su-

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support. A book, for example, can be read by one person, while a TV program can be watched by millions. Digitalization allowed a high degree of information handling and reproduction as it transformed its content in 0s and 1s, almost detaching it from its physical base (NEGROPONTE, 1995). Internet is the summit of this process, being a network that powers production, circulation and consumption of these digitalized data. With the dissemination of computers and smartphones, the possibilities of elaboration, diffusion and fruition of information on the Web have also increased. The emergence of social network sites simplified this process by allowing the creation of profiles with the ability to publish content in text, image, sound and audio.

Cultural goods also have non-exclusive and non-rival characteristics. As symbolic expressions of the human action, there is also the random characteristics of their content. Unlike a house, which in some way fulfills a need for shelter, a music or art piece may not meet anyone's symbolic demand. Also because of this symbolic dimension, these goods can be reproduced in a wide way, a marked characteristic of the industrialization process of this field under capitalism (BENJAMIN, 1936/2000). This appropriation for commercialization purposes, in what some authors named as Cultural Industry, configured a movement of homogenization of formats and contents aiming to reach average taste and to reduce randomness. Entertainment became a hegemonic genre and fruition was reinforced as a passive relation (ADORNO, 1985). The content in its majority is not only uncritical, but more actively connected to the legitimacy of the system pillars, stimulating the valorization of individualism, market and profit to the detriment of human rights and social justice. This phenomenon does not occur in a monolithic way or without tensions. The 20th Century was also a stage for intense disputes in the field of culture, in a confrontation between homogeneity and diversity. Recognizing the existence of these forms, however, did not result in a reduction of the hegemonic condition of the industrialized cultural form.

6.2.2 Logic and structure of the value chains

The economy of the Internet applications and content layer is based on the logic of three segments: software, cultural goods and media.

The first one, software, involves the challenges already mentioned regarding information. The historically adopted model was the sale of "use licenses" as a way to limit the possibility of copying and sharing programs between users. In some cases, these licenses delimit also devices in which the software could be used. In this market, intellectual property rights have a central function as a way to repress reproduction. They oriented the creation of rules that made free sharing illegal, a practice commonly called "piracy".

Another tension in the sector is the existence of free programs developed by teams of developers who question the mercantile logic in the area. With the evolution of smartphones and the increasing use of applications for the simplest activities, there was a growth of the market of these products and a consequent competition increase. Such a scenario showed the emergence of new strategies, with the offer of free applications to obtain revenue for other sources, such as advertising.

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The economy of cultural goods is organized under capitalism according to specific social logics (TREMBLAY, 1997). The editorial logic involves, for example, the sale of unique works (such as CDs or movies), in an individual and irregular consumption. The publisher has the power to choose which works will be offered in the market and their profile, acting as a central intermediary. Financing is done through the direct sale of products. The press logic is related to serial products (such as newspapers and magazines), whose diffusion is discontinued but regular, with semi-individual consumption. The business model is based on the combination of direct sales and advertising. In these two examples, physical support matters (with the sale of units such as discs or printed editions), placing important issues of storage and distribution.

Under the logic of wave, which is a characteristic of TV and radio, there is a continuous and regular diffusion and the consumption is semi-individual. Programming organizes how the content is presented to the viewer. The costs of production (for the necessary differentiation to conquer the audience) and transmission (for the net of generators and retransmitters to be disseminated in the territory) are high, while the cost per user is low and not variable (a transmitted program can reach two or three million people). Financing, in the Brazilian case, is made by a special good: audience. The business model consists in attracting audiences through programs in order to advertise. The dynamic was based on capturing its attention and loyalty, an objective that implies a series of strategies from players.¹

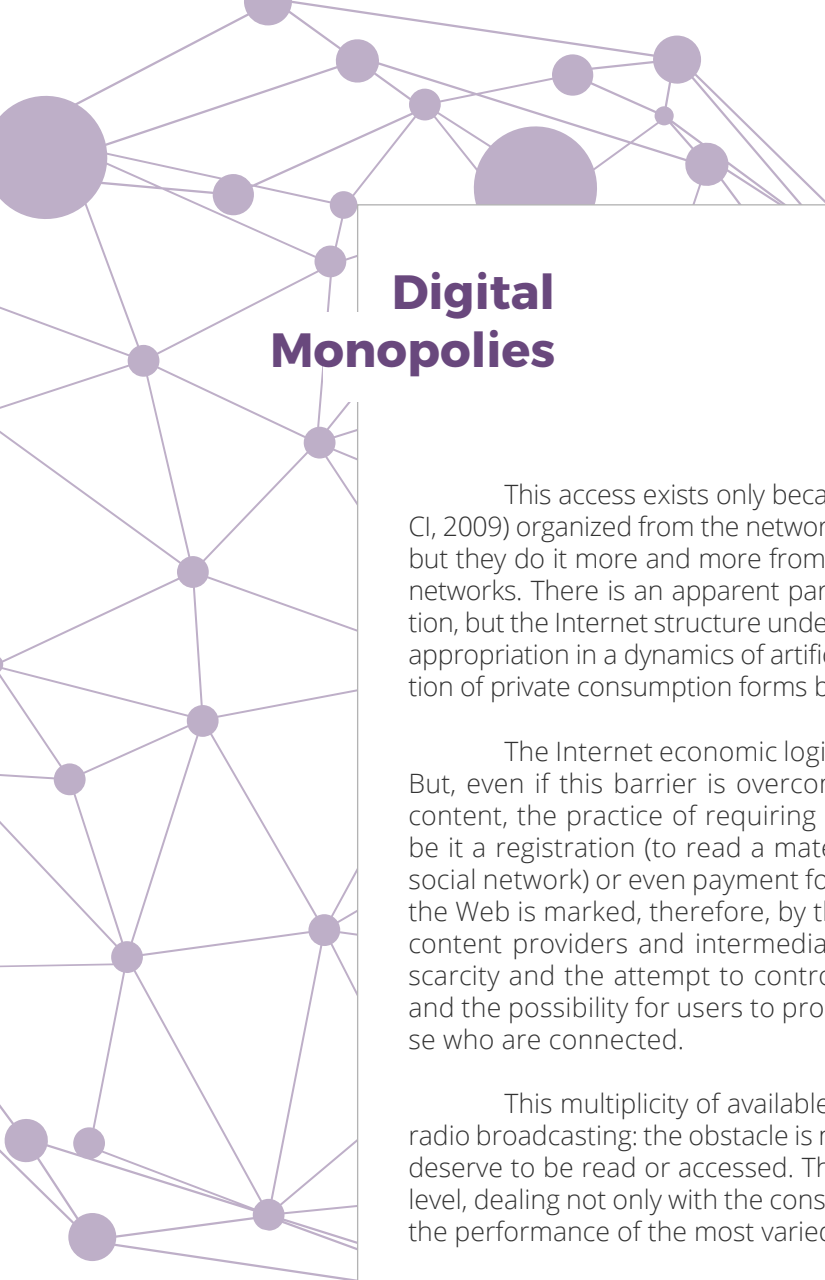
On the other hand, the logic of the Internet would configure what Tremblay calls "logic of club". According to this logic, users pay to access a set of content and services offered in an integrated way. Merchandise initiatives combine sales of products and services and revenue from advertising. In a first stage, the consumption of these products was monetized by the connection time (in a infrastructure still linked to telephone lines). Once the cost was affected by this element, the fruition capacity of users got limited. In a second stage, more recent network connection (such as ADSL and coaxial cables) altered the cost for packages depending on the speed, allowing use for unlimited time. The difference of the experience was in the data flow speed, which impacted, for example, the fruition of continuous contents, such as streaming. For file loading, the difference was the waiting time.

This model still exists, but coexisting with allowance packages, in which the cost is subjected to the volume of data consumed. More common in the mobile broadband, this paradigm begins to be guided by infrastructure operators in the Web as a way to increase their income, due to the improvement of data flow by increasingly "heavier" access to information and services.² In Brazil, we usually have unlimited packages or high allowance (that in practice do not limit consumption) for fixed broadband users and of more limited allowance for those who browse using mobile connections.

1 Serial fiction is the most classic of them. Soap operas, for example, have a long duration as a way to amortize production costs and keep audiences loyal. Series, although they may have a shorter duration, are also ways of valuing this element. Also with movies there is an attempt to maintain the audience through initiatives such as franchising and sequences (Star Wars is perhaps the longest and most successful example).

2 In Brazil, for example, operators tried to pressure the Congress to approve a law that institutionalizes the practice. But the initiative faced resistance from civil society entities and users and up to now it had not advanced.

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This access exists only because the Web constitutes a "social utility" (HERSCOVICI, 2009) organized from the networks on the internet. Users access information directly, but they do it more and more from networks or sharing, feeding their own and derived networks. There is an apparent paradox: information is a public good of collective fruition, but the Internet structure under the capitalist logic is given under intense attempt of appropriation in a dynamics of artificial scarcity created by market players and of imposition of private consumption forms by users, even inside spaces of collective interaction.

The Internet economic logic of "club" persists, with the need to pay for access. But, even if this barrier is overcome for those connected, despite the offer of free content, the practice of requiring a "credential" to use a space or service increases, be it a registration (to read a material on a news site), the creation of a profile (in a social network) or even payment for a service (such as Netflix and Spotify). The logic of the Web is marked, therefore, by the permanent tension between the effort from big content providers and intermediaries to constitute "walled gardens" (from artificial scarcity and the attempt to control access to other content "inside those gardens") and the possibility for users to produce and publish easily accessible content for those who are connected.

This multiplicity of available information created an inverse problem to that of radio broadcasting: the obstacle is not to produce, but managing to add contents which deserve to be read or accessed. The Web brought the economy of attention to a new level, dealing not only with the consumption of news or audiovisual works, but also with the performance of the most varied activities.

This gave intermediaries a fundamental role, which is reflected in the rise of portals. Even loaded content considered illegal required centralized sites and systems, as in the case of the historical sites Napster and Megaupload. In a second moment, new players appeared: the platforms. Through various services, they became entrance doors and important filters either for the consumption of contents or for interaction with other users. Search mechanisms and social networks are two good examples. In applications, this role started to be played by virtual stores, such as Play Store and Apple Store.

In order to explain the value chain of the applications and content layer, for explanatory purposes, we will divide it in stages and sub-stages, as follows:³

³ Those chains will be analyzed in detail in the case studies in chapter 7.

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1. Development

It is related to application development or content creation. It involves the creative process in itself, its control (by means of intellectual property or authors' rights) and the definition of its final form. It contains the following substages:

1.1. Creation

It is related to creation itself, such as writing a text, designing an image or recording a music, for example). It can be professional or non-professional, aiming at the whole chain (as an album to be offered in Spotify) or made as an aim in itself (a video published in a social network profile).

1.2. Edition

It involves the form definition of the created content, which can be set before or after its completion. It defines the artistic or informative line, the hierarchies of requirements, criteria and elements within the content. It may be related to a specific content unit (such as a journalistic report), a product (program) or series of products (YouTube channel).

1.3 Organization

It refers to the availability of the content in specific units, sections, products or spaces. It could be, for example, the structuring of the information in a site, the assembly of a videos catalogue (in a specific channel or in a platform as a whole) or the creation of a playlist.

2. Availability

After being created and gaining its final form, the content (be it in unit, in series or in a more complex structure) needs to be made available to the user so that it can be accessed. This can be done as an offer in a store, in the case of applications, or a site publishing, or a post in a social network. This can happen in different ways. This is perhaps the most complex stage of the value chain. Despite this diversity, there are some common substages:

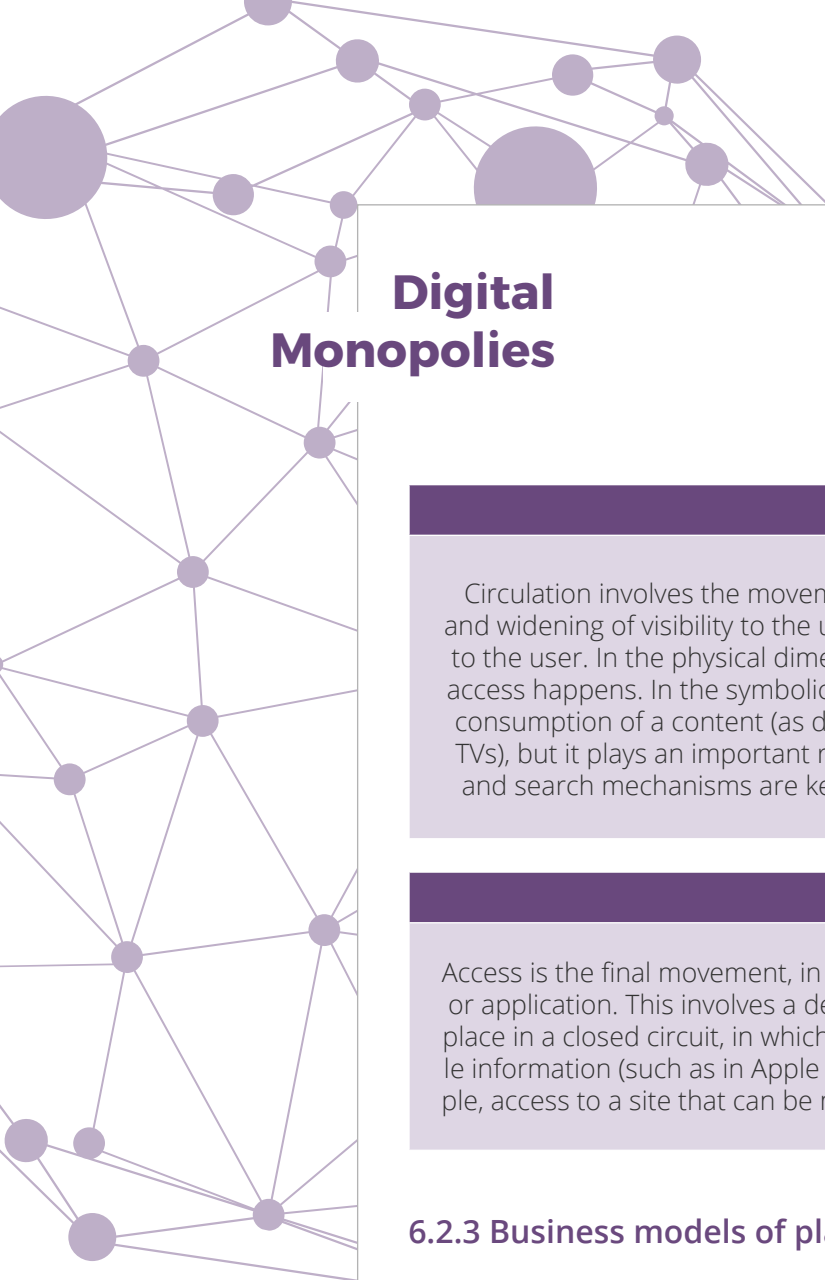
2.1. Publishing

Act through which the content becomes "public" in the World Network of Computers, becoming able of being accessed by users, whether in open or conditioned models (through password, payment or some other restriction mechanism). For applications, publishing happens when the user starts to have the possibility of loading it in her/his device, usually from application stores. In the case of sites, this substage includes server hosting and address definition.

2.2. Aggregation

Process through which one or more contents are gathered in a specific space, which serves as an "entrance door" for them. This aggregation can have different degrees of unity and differentiation.

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3. Circulation

Circulation involves the movement of the content regarding its dissemination and widening of visibility to the users. At this stage the available content is linked to the user. In the physical dimension, data is transported to the devices where access happens. In the symbolic dimension, circulation is not a condition for the consumption of a content (as distribution is in the value chain of open and pay TVs), but it plays an important role in the dispute for attention. Social networks and search mechanisms are key intermediates for the circulation of contents.

4. Access

Access is the final movement, in which the user effectively consumes the content or application. This involves a device and an interface. In some cases, it can take place in a closed circuit, in which the device is the base or conditions the available information (such as in Apple TV), or in an open circuit, when there is, for example, access to a site that can be made from any device connected to the Internet.

6.2.3 Business models of players

Historically, contents on the Internet have been offered free of charge. Connection was paid for in order to have access to information. In general, the content volume on the Web was built in a subsidized way by: 1) groups with other communication businesses from which they had most of their revenue (Globo.com, UOL, R7); 2) public institutions and private organizations that create or maintain their own sites; and 3) users and groups that publish on the Web without profit objectives or institutional exposure. Applications, on the other hand, have their origin in the software industry, characterized, as we have seen, by the sale of use licenses of specific versions.

Currently, gratuitousness is still the predominant model. Sustainability still comes in many cases in a subsidized way (such as bank institutions that finance all their online services offered to users with their traditional income). But the main source of income is based on advertising, with several types of adds, from banners to own products integrated to the service (such as sponsored filters in Snapchat). In this type of income, many sites join the model operated by Google and Facebook, which publish advertisements but, at the same time, became online advertising agencies for other sites, applications and platforms. The significant growth of revenues from these two platforms is linked to how they managed to arrange and centralize an important amount of online advertising.

The power of these two platforms is exactly in one central element of digital advertising: personalization. Differently from the era of TV and radio, in which advertisements were broadcast in a national chain to a wide audience, platforms process "digital footprints" left by the activities of their users, such as demographic characteristics,

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expressions of interest by means of what is published or shared, interactions such as "likes", images and any other information produced or with which the person has been somehow involved.

This enormous set of data is processed by intelligent programs, such as algorithms and those based on artificial intelligence in crosses that allow a very specific and quasi-individualized routing of the advertising message based on the target public. These mechanisms seek to make the offer and realization of goods more effective. In addition, the improvement of the diffusion possibilities of these messages (also for small entrepreneurs or free professionals, who no longer need to pay high advertising fees on TVs, for example, or even for individuals) generated an expansion of the market, reaching those who did not advertise before.

With the evolution of the Web, new business models began to emerge, with a cross-influence of historical business models. On websites, the charge for access became an increasingly widespread paradigm. This may appear as a condition for the whole site or service (as in Netflix) or as a requirement for access from a certain point. This is the case of Globo Play, which allows access to the contents of the day but charges for the access to older episodes of telenovelas and programs or those produced especially for the site. This line is also multiplying in news sites, which allow free reading of a limited quantity of texts and charge when this limit is exceeded, as occurs in Brazil with the sites of Folha de S. Paulo and Estado de S. Paulo newspapers or with Portal UOL. The case of Folha is emblematic, as it has obtained more subscribers for its digital edition than for the printed one.⁴

In an analysis of applications downloaded in the online stores Play Store and Apple Store related to the production, diffusion and circulation of contents,⁵ we come to a scenario marked by the dominance of free offer and financing via advertising.⁶ The access conditioned by integral or partial payment appears specifically on video and audio streaming sites, such as Netflix, Spotify, Globo Play and Deezer, being Netflix the only one in which payment is a basic condition. Additional mechanisms can be found on Facebook, which profits from sales made through their platform, and Snapchat, which developed a form of promotion with personalized filters. In the case of messengers, the financing models are even more incipient. FB Messenger started advertising in the end of 2017. WhatsApp, although it does not publish advertisements, collects data for use by its controller, Facebook.

⁴ According to the daily newspaper, of the average 316 thousand copies sold daily, 51% were from the digital edition. FOLHA DE S. PAULO. Folha is the first Brazilian newspaper to have a bigger digital circulation than the printed one. Folha de S. Paulo. Published on September 25, 2016. Available at: <<http://www1.folha.uol.com.br/mercado/2016/09/1816633-folha-e-o-1-jornal-do-pais-a-ter-circulacao-digital-maior-do-que-a-imprensa.shtml>>.

⁵ It did not include, for example, applications for electronic commerce, banks or mobility.

⁶ These stores make paid applications available, but the number of downloads in comparison with the free ones is much lower.

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Aplicativos mais baixados nas lojas Play (Google) e Apple

Applications		Business Model							
		Conditioned access		Advertise-ment	Gratuity	Finan-cing	Actions and transactions taxation	Promotion	Others
Application	Type	Integral	Par-tial						
Facebook	Platform/social network/content			X	X		X		
WhatsApp	Platform/social network/mes-senger				X				
Instagram	Platform/social network/content			X	X		X		
FB Messenger	Platform/social network/mes-senger			X	X				
Snapchat	Platform/social network/content			X	X			X	
Spotify	Platform/content circulation/music streaming		X	X	X				
Facebook lite	Platform/social network/content			X	X		X		
Netflix	Platform/content circulation/video streaming	X							
Palco MP3	Platform/content circulation/music streaming			X					
FB Messenger lite	Platform/social network/mes-senger			X	X				
Globo Play	Platform/content circulation/video streaming		X	X	X				
Deezer	Platform/content circulation/audio streaming		X	X	X				
Pinterest	Platform/social network/content			X		X			

In the case of sites, the dominance of the model based on gratuitousness and advertising is also visible. It occurs both on platforms such as Facebook and Google and on news or opinion content sites such as Blastingnews.com.br, Expli-candoo.com.br, otvfoco.com.br. As previously discussed, there is a big difference between these two types of players, once these platforms obtain great part of their revenue with advertisements and become intermediaries for the diffusion of ads.

In the list below, there are also multi-service portals, such as those of Micro-soft (Live.com) and Yahoo (Yahoo.com), which also publish advertisement, but are heavily subsidized by their conglomerates. Wordpress, as a space for hosting and developing sites, bases its business model on the availability of tools for those who want to build their page. An exception in the ranking is the presence of Wikipedia (also well placed in world lists), whose financing is done through donations and projects.

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Most accessed sites according to the Alexa ranking

Sites		Business Model							
		Conditioned access		Advertise-ment	Gratuity	Finan-cing	Actions and tran-sactions taxation	Pro-mo-tion	Others
Site	Modality	Integral	Partial						
Google.com.br	Platform/search mechanism			x	x				
Youtu-be.com	Platform/content circulation/video streaming			x	x				
Google.com	Platform/search mechanism			x	x				
Face-book.com	Platform/networks			x	x		x		
Live.com	Platform			x	x				
Globo.com	Site/Multimedia and multi-theme content		x	x	x	x			
Uol.com.br	Aggregator portal/ multimedia and multi-theme content		x	x	x	x			
Yahoo.com	Platform/e-mail			x	x	x			
Blas-ting-news.com	Platform/content circulation/			x	x				
Instagram	newspapers			x	x				
Wikipedia	Platform/networks								
Netflix.com	Platform/content circulation	x							
WhatsApp	Site/video streaming				x				
Xvideos	Platform/network			x	x	x			
msn.com	Platform/content circulation/video streaming			x	x	x			
Expli-candoo.com	Platform/multi-service			x	x				
Metro-poles.com	Platform/informa-tion circulation			x	x				
Twitter.com	Platform/content circulation/jour-nalism			x	x				x (venda de dados)
Onoti-cioso.com	Platform/social network/content			x	x				

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Sites		Business Model							
		Conditioned access		Advertisement	Gratuity	Financing	Actions and transactions taxation	Promotion	Others
Fatos-desconhecidos.com.br	Site/entertainment			x	x				
Otvfoco.com.br	Site/entertainment			x	x				
Wor-dpress.com	Site/entertainment		x	x					x (soluções para sites)
	Platform/content circulation/sites development								

6.2.4 Companies positioning strategies

The applications and content layer has become the object of intense disputes by economic players. It is becoming a space of confluence in which conglomerates of the most diverse segments of the Internet and of former industries (such as media, telecommunications and Information and Communication Technologies) begin to act and seek to increase their revenues, deepening the phenomenon of convergence already described here in all its dimensions.

A first group of this dispute is formed by connection providers, popularly known as "teles". In the Brazilian case, market concentration lead to a scenario in which few conglomerates operate in this segment: Telefônica/Vivo/GVT, Net/Claro/Embratel, Oi and TIM. All of them act in the content layer, confirming how the logic of integrated competition pressures players to spread themselves through all the stages of the chain. Vivo offers Vivo Play, an video on demand service that can be purchased together with its data packages.

Oi sells a similar service with the same name: Oi Play. TIM provides its users with an audio streaming service, TIM Music, operated by Deezer company. This example shows how the performance in the content layer does not necessarily requires offering their own services, but rather a partnership with those already established. NET/Claro/Embratel acts in the pay TV segment (as well as Telefônica/Vivo) to offer video on demand with the NET Now brand. The company opted for a segmentation and also implemented another VOD solution for mobile broadband users called Claro Vídeo.

Operators consider services providers on the Web as their big threat. In their vision, they are subject to heavier financial and regulatory rules, while those players can make their business more freely. Big platforms are considered the main competitors. Faced with their growth, operators developed some combat strategies.

The first one is the control of the data traffic (like the already mentioned degradation of the traffic of a competing service), violating the so called network neutra-

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lity. While in the United States the practice of degradation was resumed in November 2017,⁷ in Brazil the principle of neutrality is still in force, assured in the Brazilian Civil Rights Framework for the Internet. One attempt to circumvent neutrality is the offer of free services. In Brazil, connection providers offer from popular applications as a competitive advantage (and curiously from competitors such as Facebook and WhatsApp) to their own services (such as Claro Vídeo) without it being discounted from the subscribed data pack. Another one is the attempt to institutionalize packs (packs by volume of data) in fixed broadband.

A second group that disputes the content layer is formed by previously established media conglomerates, whose action happens now also on the Internet. All the main groups in this industry created their own sites or portals, such as G1 (from Globo), R7 (from Record), and Band.com.br (from Bandeirantes). This scope expansion brought tensions, once the increase in the time of Internet use could cause the reduction of the audience of traditional media, its main businesses.⁸

This movement has posed problems for the business models of various groups, with printed media being the most affected - for example, the dismantling of the Abril group and Diários Associados group, the end of the circulation of important publications, such as Gazeta do Povo (the main newspaper from Paraná) and the closing of several small organizations. A survey carried out with 11 great newspapers of the country showed that the number of printed edition subscribers in the country decreased from 1.3 million to 891 thousand, while the number of digital subscriptions increased from 532 thousand to 588 thousand (POWER 360, 2017). Faced with this scenario, several groups invested on paid content (such as Folha and Estadão), which caused an expansion of this modality, but still it has not been enough for compensating for the losses of traditional readers.

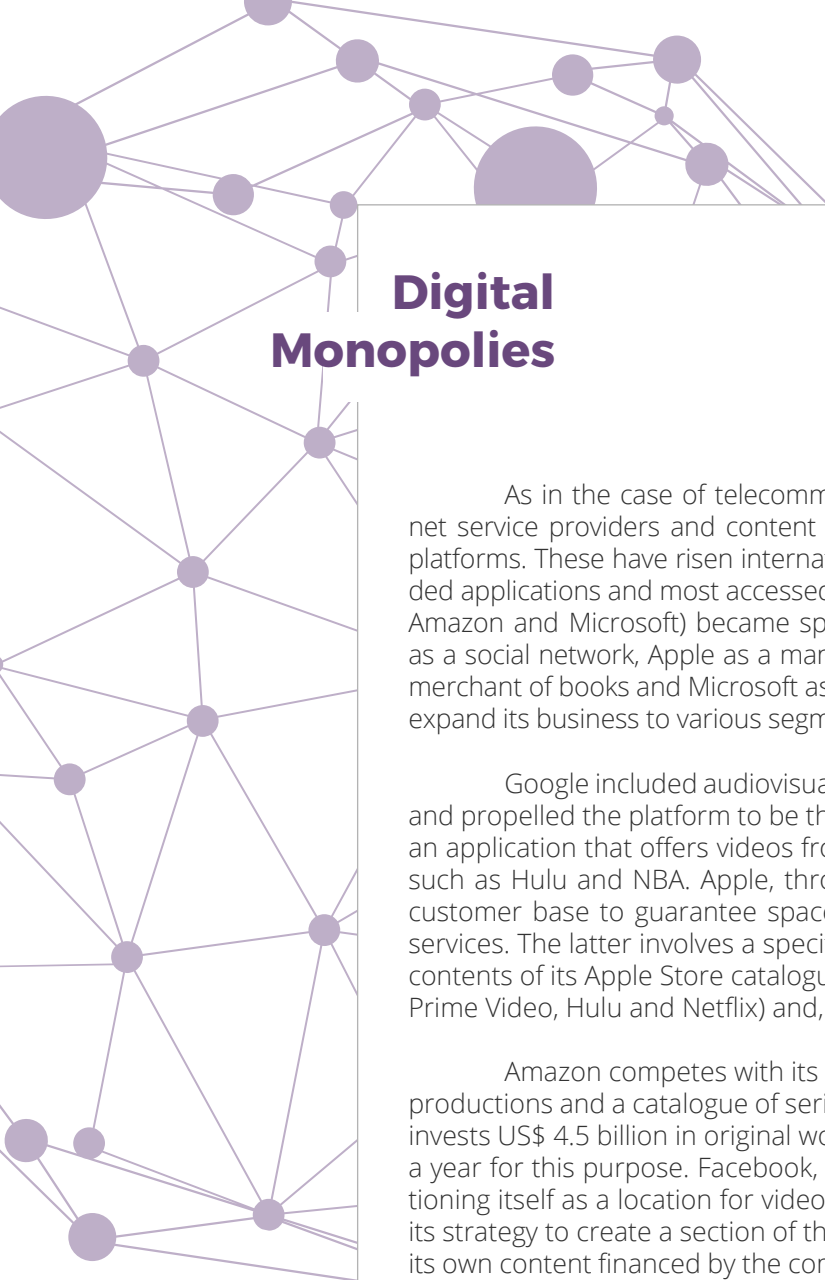
Open TV groups were already competing with pay TV, which reached 21.2 million accesses in 2014 in the country, but it is facing retraction due to the economic crisis. Two million customers were lost in this period until now.⁹ In spite of the fact that this difficult economic scenario has also caused the retraction of Web connections expansion in the country, the last few years have shown a migration of many people to the network, with direct and indirect impacts, once this movement can mean substitution or complementarity (which researchers call multi-screen). The Brazilian Media Research (Pesquisa Brasileira de Mídia), promoted by the Republic Presidency Secretariat of Communication (Secom), annually interviews citizens to assess their communication consumption habits. While in 2013 the main information means were TV (cited by 78% of the interviewees) and Internet (12%), in the 2016 edition, TV decreased to 63% and Internet increased to 26% (SECOM, 2016).

7 The Federal Communications Commission (FCC) revoked the rules that ensured network neutrality. The decision caused many reactions. Prosecutors filed a suit against the measure. Parliamentarians have presented bills to retake network neutrality. And in state legislatures, bills were presented to ensure neutrality.

8 This relation is not direct. Internet access also occurs simultaneously to the act of watching TV, a phenomenon that has been called multi-screen. Several platforms invest in these possible complementarities with cross-services such as Cartola FC from Globo.com for those who watch football matches on Globo or on the SportTV channel.

9 Brazilian Association of Pay TV (Associação Brasileira de TV por Assinatura). Data available at: <http://abta.org.br/dados_do_setor.asp>

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As in the case of telecommunications operators, media groups also see Internet service providers and content providers as the main threat, especially large-scale platforms. These have risen internationally, as confirmed by the listings of top downloaded applications and most accessed sites. The "Big Tech" elite (Google, Apple, Facebook, Amazon and Microsoft) became specific niches (Google as a search engine, Facebook as a social network, Apple as a manufacturer of computers and software, Amazon as a merchant of books and Microsoft as a developer of operating systems and programs) to expand its business to various segments in the applications and content layer.

Google included audiovisual products in its Play Store. It also acquired YouTube and propelled the platform to be the leader in video streaming. It launched AndroidTV, an application that offers videos from Play Store, YouTube and other paid streamings, such as Hulu and NBA. Apple, through its closed technology circuits, used its device customer base to guarantee space for its music (Apple Music) and video (Apple TV) services. The latter involves a specific device to connect to smart TVs, the packaging of contents of its Apple Store catalogue, the offer of competing services (such as Amazon Prime Video, Hulu and Netflix) and, in the future, its own productions.¹⁰

Amazon competes with its service Amazon Prime Video, which gathers its own productions and a catalogue of series, films, records and music. The company annually invests US\$ 4.5 billion in original works, only behind Netflix, which spends US\$ 6 billion a year for this purpose. Facebook, which up to recent years has only invested in positioning itself as a location for videos publication by users of the network, has changed its strategy to create a section of the user's timeline called "Watch", which will combine its own content financed by the company with videos by third parties (NEWTON, 2017). The company also announced its intention to invest approximately US\$ 1 billion in original audiovisual productions (TIFFANY, 2017).

6.3. Regulatory Framework

Until March 2018, Brazil did not have a specific law for the regulation of the applications and content layer or for digital platforms. Nevertheless, there are laws that impact the operation of players in the layer, especially the Civil Rights Framework for the Internet (Law 12965/2014), which establishes principles, guarantees, rights and duties for the use of the Internet in Brazil. The Civil Rights Framework for the Internet establishes in the article heading 2 that "the foundation of the discipline of the Internet use in Brazil is the respect to the freedom of expression". On the principles for the discipline of the Internet use, article 3 provides in its first clause "the guarantee of freedom of expression, communication and manifestation of thought, in the terms of the Federal Constitution". Freedom of expression still appears once again in article 8, cited as a condition for the full exercise of the right of access to the Internet in Brazil.

These articles of the Civil Rights Framework aim to guarantee freedom of expression as a foundation for the full development of the Internet. It is something notorious and purposeful, which seeks to guide all those involved in the process of manage-

¹⁰ The company announced that it will invest in 2018 US\$ 1 billion in the acquisition of rights and its own productions (ONG, 2017).

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ment and regulation of the development of the Internet - including platforms. Among the provisions that specifically affect companies of the Internet content layer is the general rule, defined by Civil Rights Framework in its articles 18 to 21, of restriction to the responsibility of application providers, according to denomination in the legal text, by content published by third parties.

free The understanding is that users located on both sides of the platform and the platform itself are not mixed. This logic intends to guarantee a safe environment so that - considering its open, collaborative and participative character - it has legal security for the development of new models of online business and that the general rule applied to the platforms is that of freedom of content offer by users, once they are the ones considered responsible for the published contents.

Thus, an online platform cannot be held civilly liable for content made available by its users unless, after a specific court order, it does not exclude the content: "Art. 19. In order to ensure freedom of expression and prevent censorship, providers of Internet applications can be held liable for damages resulting from content generated by third parties only if, after a specific court order, they do not make arrangements to, in the scope and technical limits of their service and within the indicated time, make the content identified as infringing unavailable, otherwise subject to the applicable legal provisions".

There is, however, provision in the Civil Rights Framework for two exceptions to the general rule. The first one, established in paragraph 2 of article 19, refers to the application of non-responsibility of Internet platforms in the case of author's right. "§2. The application of this article to violations of copyright or related rights depends on specific legal provisions, respecting freedom of expression and other guarantees described in article 5 of the Federal Constitution".

Brazilian legislators opted for the indication that the issue of the withdrawal of content that violates author's right should be dealt with a specific law.¹¹ Thus, the responsibility of the online platform in the case of author's right violation continues undefined, once the country did not advance in the development of a new law of author's rights. The present law (Law 9.610) from 1998, a result of its time, does not deal with the subject. With this option, Brazil distanced itself from the global tendency to follow the North American line, defined by the Digital Millennium Copyright Act (DMCA), to make the online platforms responsible for the acts of their users that infringe author's rights if, once notified, even out of court, they do not remove the questioned content (practice called Notice and Take Down).

The second exception to the general rule of non-responsibility of application providers on the Internet for content generated by third parties from notification is the case of availability of content involving images of nudity and/or sexual acts of private nature, without authorization of their participants: "Art. 21. The provider of Internet

¹¹ By the time of the Civil Rights Framework creation, before the impasse of how to proceed in the case of author's right - with strong pressure from content producers for the application of withdrawal obligation with extrajudicial notification for content that might infringe them, with the sectors linked to the national cultural production and organizations of defense of freedom of expression and access to information defending the need of judicial order-, the option made was to postpone the definition to be made in specific legislation.

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applications that make available content generated by third parties will be subsidiarily liable for the violation of privacy resulting from the disclosure, without authorization of its participants, of images, videos or other material containing nudity images or sexual acts of a private nature when, after receipt of notification by the participant or his/her legal representative, it does not take action, in a diligent manner, within the scope and technical limits of its service, to make the content unavailable.¹²

The Civil Rights Framework also states, in its article 20, that online platforms should, whenever within its reach, communicate the reasons and information related to the unavailability of content, with information that allows contradictory and ample defense in court, and replace the content made unavailable by the motivation or by the court order that gives grounds for the unavailability.

6.3.1. Proposals of new laws

After the Civil Rights Framework was approved, and the subjective civil liability of the platforms was defined regarding the content generated by third parties, a reverse pressure was initiated in Brazil to make platforms responsible for the content made available by third parties. The pressure of groups with speeches focused on the risks of the Internet - not only in the case of violations of the obligation of integral protection of children and adolescents, but also including fears about the advance of drug and human trafficking, money laundering and even terrorism using the global computer network - has been quite a bit akin to the conservative view of Brazilian parliamentarians. Thus, the pressure to extend the responsibility of online platforms to avoid crimes and violations to vulnerable groups is intense, even after the approval of the Civil Rights Framework.

In May 2016, the report of the Parliamentary Committee on Cybercrime, known as the CPI of Cybercrimes,¹³ of the Chamber of Deputies, was approved with the thesis that the Internet is a crime tool that needs to be controlled. In one of the versions of the report, deputy rapporteur Espiridião Amin (PP-SC) said that "search engines, social networks, e-mails or information aggregators (...) help covering crimes" or "advertising of criminal services".¹⁴ The report indicates the processing of seven law projects based on this narrative and that propose, for example, to expand the criminalization of practices in the network, facilitate the removal of contents and block total access to sites and applications.

One of the projects proposed to alter the Civil Rights Framework of the Internet, determining which platforms should remove content listed as identical to another recognized as infringing, without the need for a new court order, within 48 hours. The fear

¹² Sole paragraph. The notification mentioned in the heading shall include, under penalty of nullity, elements allowing for the specific identification of the material appointed as violator of the participant's intimacy and verification of the legitimacy for the presentation of the request.

¹³ On July 17th, 2015, the Parliamentary Committee on the Investigation of Cybercrimes was created in the Chamber of Deputies to investigate the practice of cybercrimes and its impact on the economy and society, according to its creation document. Learn more at <<http://www2.camara.leg.br/atividade-legislativa/comissoes/comissoes-temporarias/parlamentar-de-inquerito/55a-legislatura/cpi-crimes-ciberneticos/conheca-a-comissao/criacao-e-constituicao>>. Accessed on April 21st, 2018.

¹⁴ <http://convergenciadigital.uol.com.br/cgi/cgilua.exe/sys/start.htm?UserActiveTemplate=site&infoi-d=42326&sid=4&utm%2525252525255Fmedium=>

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from civil society organizations is that the proposal would allow abuses and attempts of censorship. It will be up to the providers to verify if the content is identical to the already judged one, but the probable practice, pointed out even by media organizations, is the removal based only on the notification.

Another bill promoted by the CPI of Cybercrimes proposes the blocking of Internet applications, under judicial order, directly by the connection provider, when "hosted abroad or not represented in Brazil and which is mainly dedicated to the practice of punishable crimes with a minimum penalty equal to or greater than two years of imprisonment, excluding crimes against honor", according to the text registered in the final report. News supporting such regulation demonstrate that, despite the speech of children protection, who have the greatest interest in its approval is the industry of author's rights, whose representatives have shown themselves to be important articulators of proposals to extend the responsibility of sites and online platforms in Brazil.

The interest of politicians in guaranteeing the control of public opinion about themselves has also been an important ingredient for the legislative proposal to hold sites and platforms accountable for third party posts. This movement seems to have accelerated, due to the increase in the number of denouncements, processes and condemnations of politicians in the country,¹⁵ in addition to the increase of political tension generated by the investigation processes of the Lava Jato operation.

As an example, the substitute to the bill 215/15 proposes the increase of the sentence, in a third, for the so-called crimes against honor, when committed in social networks, and creates the right to delete mentions to a crime from the network when someone has been absolved in definitive by Justice, altering the Civil Rights Framework in this sense. At the time, the author of the substitute, Juscelino Filho (PRB-MA), affirmed: "many people think that this measure aims at crimes of injustice and defamation against politicians, but it aims at protecting everyone who can be affected by false publications".¹⁶

6.3.2. As chamadas "Fake News"

Em 2017, na esteira do debate sobre notícias falsas impulsionado pelo resultado da eleição de Donald Trump nos Estados Unidos e do plebiscito que definiu a saída da Grã-Bretanha do bloco econômico europeu, a tensão para regular a divulgação de informações consideradas falsas aumentou no país e, com isso, aumentou o número de propostas com impacto em plataformas. Em março de 2018, eram quatro os PLs sobre o tema na Câmara dos Deputados, e seis iniciativas nacionais para regular notícias falsas, considerando também uma do Senado¹⁷ e a proposta do Conselho de Comunicação Social do Congresso Nacional¹⁸. Essas propostas imputam aos provedores de aplicações de Internet a retirada de conteúdo em prazo exíguo e sem a necessi-

15 <http://tiinside.com.br/telaviva/paytv/11/04/2016/fncp-defende-pl-que-autoriza-judiciario-a-bloquear-sites-e-aplicativos-que-distribuem-conteudo-ilegal/>

16 <http://www2.camara.leg.br/camaranoticias/noticias/DIREITO-E-JUSTICA/497149-RELATOR-PROPOE-DOBRAR-PENA-PARA-CRIMES-CONTRA-A-HONRA-COMETIDOS-NA-INTERNET.html>

17 <https://www.conjur.com.br/2018-mar-03/senado-discute-proposta-apagar-conteudo-considerado-fake-news>

18 <http://g1.globo.com/jornal-nacional/noticia/2018/03/projeto-para-combater-fake-news-vira-polemica-no-congresso.html>

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dade de ordem judicial, apenas por notificação de usuário, o que potencialmente viola o princípio sedimentado no MCI de liberdade de expressão na Internet e não-responsabilização dos intermediários.

O PL 9647/2018¹⁹, por exemplo, pretende modificar o MCI para responsabilizar civil e criminalmente o provedor de conteúdo e de conexão à Internet por danos decorrentes de conteúdo gerado por terceiros, inclusive os fakes (perfis falsos) e fake news (notícias falsas). Entidades da sociedade civil - entre elas o Intervozes, a Coalizão Direitos na Rede e o Fórum Nacional pela Democratização da Comunicação - manifestaram preocupação com opções como esta pelos riscos à liberdade de expressão e pelo tratamento equivocado do problema. Desinformação é uma prática antiga e é altamente problemático atribuir a plataformas, a instituições específicas ou à mídia tradicional a prerrogativa de definir o que é verdade e o que não é. Organizações da sociedade civil divulgaram carta no Fórum Global da Internet realizado em Genebra, em 2017, colocando estes alertas²⁰.

6.3.3. The so called "fake news"

In 2017, driven by the debate on fake news related to the result of Donald Trump's election in the United States and the plebiscite that decided the withdrawal of Great Britain from the European economic block, the tension to regulate the dissemination of information considered false increased in the country, also increasing the number of proposals with impact on platforms. In March 2018, there were four bills on this issue in the Chamber of Deputies, and six national projects to regulate fake news, plus one from the Senate²¹ and the proposal from the Council of Social Communication of the National Congress.²² These proposals impute to Internet applications providers the withdrawal of content in exemplary time and without the need of a judicial order, only by notification of the user, which potentially violates the principle established in the Civil Rights Framework of freedom of expression on the Internet and non-responsibility of intermediaries.

The bill 9647/2018²³, for example, seeks to modify the Civil Rights Framework to hold the content and Internet connection provider criminally and civilly liable for damages resulting from content generated by third parties, including fake profiles and fake news. Civil society entities - as Intervozes, Coalizão Direitos na Rede and Fórum Nacional pela Democratização da Comunicação - expressed concern about the risks for freedom of expression and the wrong treatment of the problem imposed by this kind of approach. Disinformation is an old practice and it is highly problematic to attribute to platforms, to specific institutions or to traditional media the responsibility of defining what is true and what is not. Civil society organizations presented a letter in the Global

¹⁹ <http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=2168550>

²⁰ <https://direitosnarede.org.br/p/carta-aberta-americalatinaecaribe-igf2017/>

²¹ <https://www.conjur.com.br/2018-mar-03/senado-discute-proposta-apagar-conteudo-considerado-fake-news>

²² <http://g1.globo.com/jornal-nacional/noticia/2018/03/projeto-para-combater-fake-news-vira-polemica-no-congresso.html>

²³ <http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=2168550>

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Internet Forum held in Geneva, in 2017, making these alerts publicly.²⁴

6.3.3. Video On Demand (VOD)

Among the Brazilian initiatives to try to regulate the Internet content layer, it is worth to mention the public consultation of the Cinema National Agency (Ancine) on the regulation of video on demand service (VOD).

The entire audiovisual sector of the country is subject to the collection of a contribution that supports the Audiovisual Sector Fund (Fundo Setorial do Audiovisual, FSA), Condecine - which, in turn, supports the independent production in the country. However, in the legislation (Law 12.485/2011) that establishes the forms of contribution to the fund, VOD is not defined as a specific audiovisual service, so that the charge for the fund falls on the "other markets" type. According to the rule of "other markets", it is necessary to pay R\$ 3,000 per feature film in the catalogue. Thus, the larger the VOD catalogue, the greater the payment, even if users do not effectively consume those films.

Although this charge is not actually being made, the legal insecurity created inhibits the growth of these services catalogues, which was the primary reason for the public consultation by the agency of promotion and control regarding the rules of the Brazilian audiovisual market. The proposal is to define a contribution model for the FSA which is appropriate for VOD companies. One of the most welcome formulations is that these services start contributing with a small percentage of their revenue and not by catalogue title, eliminating the inhibition factor.

Another factor for Ancine to analyze the need and types of regulation of VOD is the regulatory asymmetry between these services provided by the Internet and by pay TV. The Law 12.485/2011,²⁵ among others, established national and independent content quotas for qualified space channels, as well as the obligation to load independent Brazilian and Brazilian channels (not linked to open TV stations).

But the law did not define rules for VODs to offer national and national independent content and, thus, be inserted in the policy of incentive for the local audiovisual market. In March 2018, Ancine hired BB-Media Soluções Empresariais to analyze the market of digital platforms for content distribution (OTT, VoD, TV Everywhere, catch-up and web-streaming) in Brazil. The measure is considered as one more step in Ancine's intention to regulate the video on demand market.²⁶

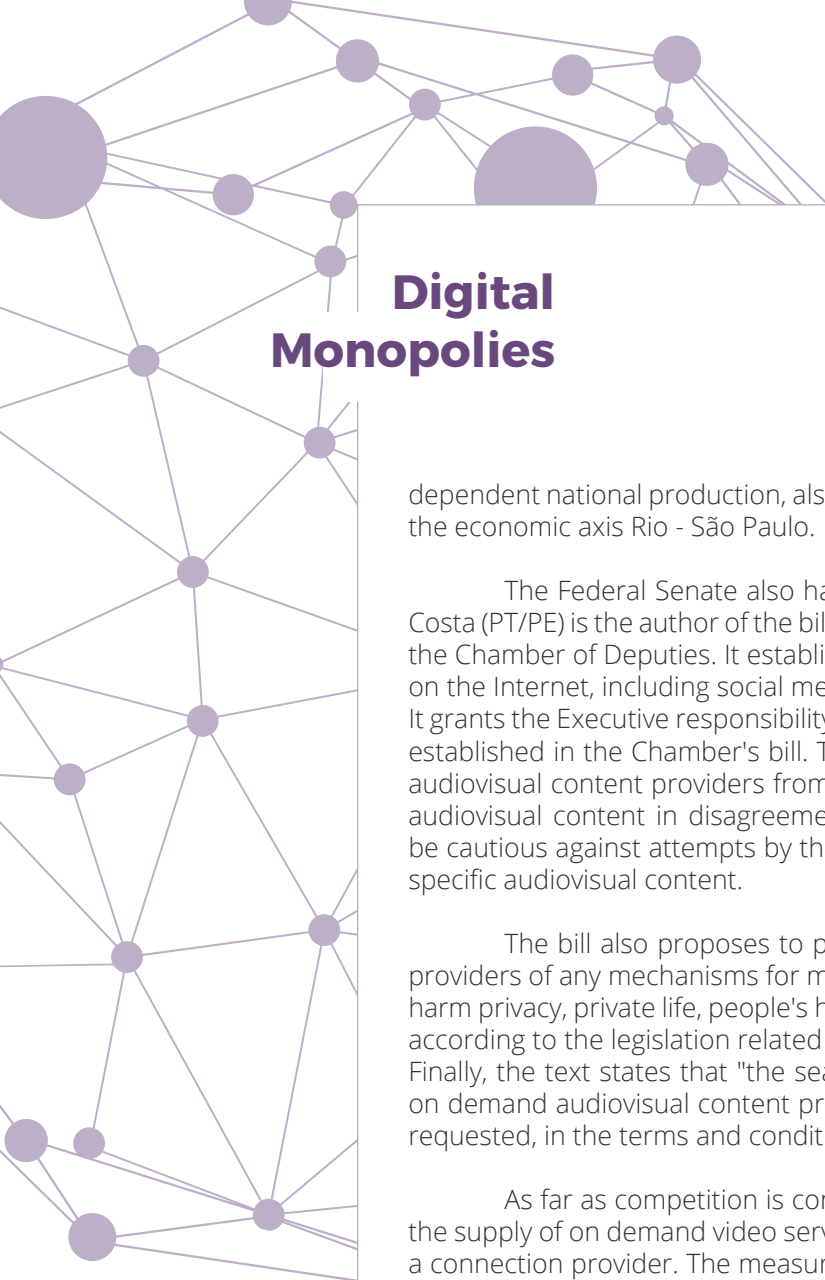
While the agency did not conclude this process, a bill being processed by the Chamber of Deputies rules the provision of audiovisual content on demand. Created by Paulo Teixeira (PT-SP), the bill proposes the creation of a progressive fund for the promotion of local production; the proeminence of the national content, with Brazilian films highlighted on players and not only available in the catalogues; and quotas for in-

²⁴ <https://direitosnarede.org.br/p/carta-aberta-americalatinaecaribe-igf2017/>

²⁵ It provides for audiovisual communication of conditioned access. Available <http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/L12485.htm>

²⁶ <http://www.telesintese.com.br/ancine-vai-pesquisar-o-mercado-de-vod-para-regulacao/>

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dependent national production, also foreseeing space for regional productions outside the economic axis Rio - São Paulo.

The Federal Senate also has an initiative to regulate VOD. Senator Humberto Costa (PT/PE) is the author of the bill 37/2018, which has similarities with the proposal in the Chamber of Deputies. It establishes that the various audiovisual distribution services on the Internet, including social media and social networks, would be ruled by the law. It grants the Executive responsibility for the regulation, and not necessarily to Ancine as established in the Chamber's bill. The proposal, also innovative, prohibits on-demand audiovisual content providers from using mechanisms to increase the prominence of audiovisual content in disagreement with the law, and determines that they should be cautious against attempts by third parties to artificially increase the prominence of specific audiovisual content.

The bill also proposes to prohibit the use by on demand audiovisual content providers of any mechanisms for measurement of use of audiovisual content that may harm privacy, private life, people's honour and image and individual liberties and rights, according to the legislation related to the treatment of personal data and information. Finally, the text states that "the search, selection and cataloguing algorithms used by on demand audiovisual content providers must be supplied to the government when requested, in the terms and conditions established in the regulation".

As far as competition is concerned, the bill 37/2018 innovates by obliging that the supply of on demand video services does not fall under the regime of exclusivity by a connection provider. The measure may be of extreme relevance as we observe that telecommunication companies are running to offer video services over the Internet, which could potentially be benefited by the non-collection of data traffic from subscribers or zero-rating. "There is a safeguard to prevent 'teles' from using VoD services in a way that brings competitive advantage. (...) companies that are at the same time on demand audiovisual content providers and Internet connection providers should provide functional separation of these activities."

The definition of functional separation between telecommunication service providers and organizers of the audiovisual offer (packagers, in the case of pay TV) is included in the regulation of Brazilian pay TV. For conflict solutions and arbitrations in relation to commercial disputes between on demand audiovisual content providers or between them and companies acting in the production and distribution segment of this market, the government is indicated as the arbitrator. According to the bill, complaints against anti-competitive practices in this market will be forwarded by the governments to the bodies of the Brazilian Competition Defense System. The bill states that the law applies to all economic players operating in Brazil, independently of the headquarters and the location of the infrastructure, but excludes journalistic services, incidental or accessory content providers to the provision of text or audio contents and services under the responsibility of powers represented by the Union.

6.3.4. National legislation on concentration

Brazil does not have a legislation that deals specifically with concentration and

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anti-competitive practices on the Internet, but the general laws on the subject also apply to that scenario. The Federal Constitution establishes in "Title VII: Of the economic order", in its Chapter I, the general principles of the economic activity, among which, in article 170, paragraph IV, the principle of free competition stands out. But this free initiative does not represent a total freedom, because, in the same line, it is established that the law will repress abuse of economic power that aims at the domination of markets and the elimination of wide competition.²⁷

Law 12.529/2011²⁸ provides for the prevention and repression of infringements against the economic order and brings rules that must be observed in the digital ecosystem. The provision for territoriality (Title I; Chapter II) reinforces the understanding that rules also apply to the Internet. By establishing that the regulation applies to "practices adopted in all or part of the national territory or that have or might have effects" (article 2). In other words, even if a company has no head office in the country, if its effects are felt in the national territory, the law applies to it.

The legislation considers violation of the economic order, independently of fault, to limit, to distort or in any way to harm free competition or free initiative; to dominate relevant market of goods or services; to arbitrarily increase profits and abusively exercise a dominant position. The dominant position, under the legislation, occurs when a company or group of companies is capable of unilaterally altering or coordinating market conditions, or when controlling 20% or more of the relevant market, and this percentage may be altered by the Administrative Council of Economic Defense (Cade) for specific sectors of the economy.

By this criteria, considering the market participation of Internet companies in the content layer, dominant power would be easily configured in the case of search mechanism and social networks, for example, what would place them under the focus of regulation. Among the various behavior indicated as infringements of the economic order (Title V, Violations of the Economic Order; Chapter II, Violations), we highlight some items that seem to have more probability to happen on the ecosystem of the Internet content layer.

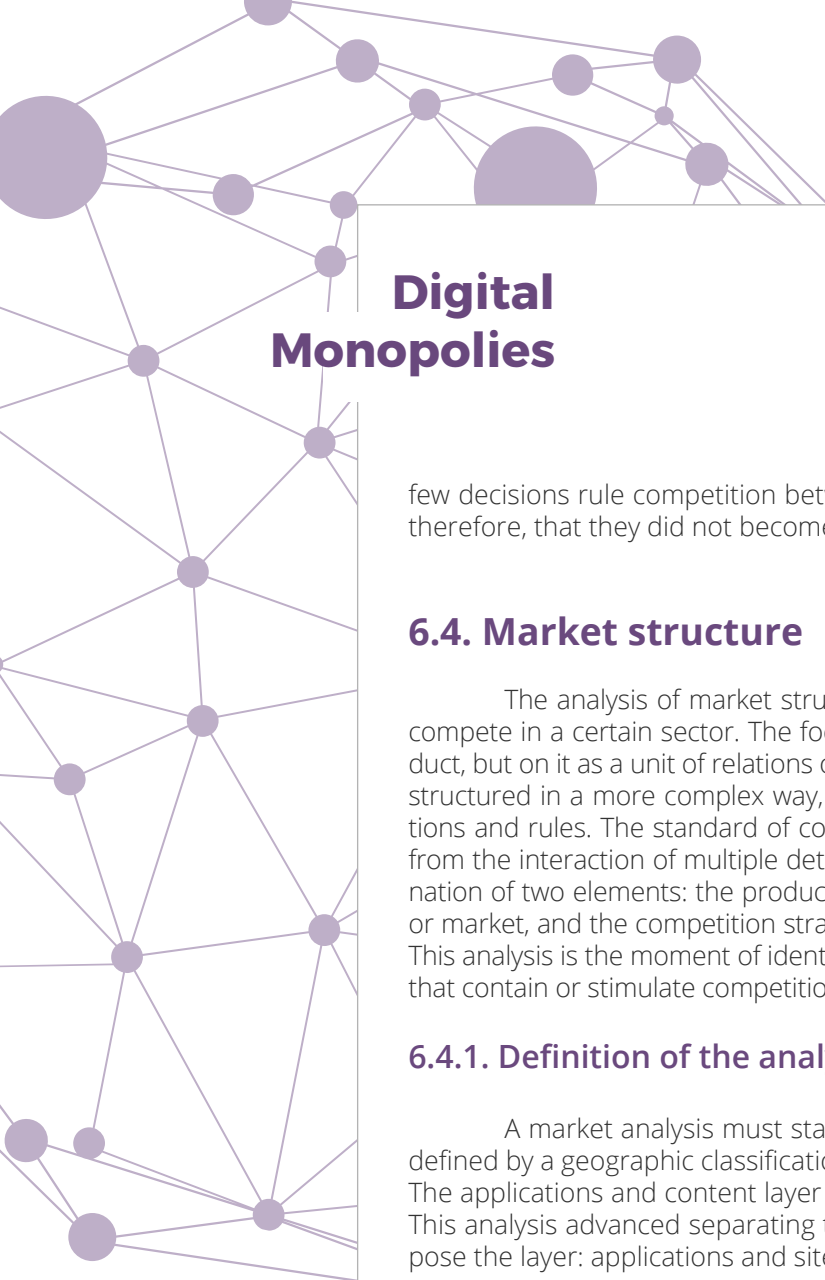
"IV - to create difficulties for the establishment, operation or development of a competitor company or supplier, purchaser or financier of goods or services; V - to impede access of competitors to raw material, equipment and technology sources, as well as to their distribution channels; X - to discriminate against purchasers or suppliers of goods or services by establishing price differentials or discriminatory operating conditions for the sale or performance of services; XVIII - to condition the sale of a product to the acquisition of another or to contracting a service, or providing a service under the condition of utilizing another or purchasing a product; e XIX - to take possession of abusively exploit the use of industrial or intellectual property rights, technology or brand rights."

Considering the Brazilian Competition Defense System, there are few published decisions that involve companies from the Internet content layer. And these

²⁷ <http://revista.cade.gov.br/index.php/revistadedefesadaconcorrencia/article/viewFile/64/71>

²⁸ It structures the Brazilian Competition Defense System; it regulates prevention and repression of infringements against the economic order. Available at <http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/Lei/L12529.htm>

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few decisions rule competition between product platforms and e-commerce services, therefore, that they did not become an object of analysis in this document.

6.4. Market structure

The analysis of market structure is the moment of understanding how players compete in a certain sector. The focus, therefore, is not only on the brand, on the product, but on it as a unit of relations of production, distribution and consumption that are structured in a more complex way, with the action of groups and mediation by institutions and rules. The standard of competition that makes up a market structure results from the interaction of multiple determinants. These can be perceived from the combination of two elements: the productive structure, set of characteristics of each industry or market, and the competition strategies (BRITTOS, 2001, p. 94; POSSAS, 1990, p. 129). This analysis is the moment of identifying the degree of concentration and the dynamics that contain or stimulate competition among the various players.

6.4.1. Definition of the analyzed markets

A market analysis must start with the delimitation of markets. Markets can be defined by a geographic classification or by having common products, "substitutables". The applications and content layer represents a challenge, as it is a complex universe. This analysis advanced separating these players in the two great modalities that compose the layer: applications and sites.

Applications have similarities as they are programs to be loaded and processed in devices. Another structural element is its offer through virtual pages, which allows a comparison from popularity rankings, the number of downloads and other criteria (such as user evaluation). Sites have similar forms as sources of information presented within the limits of the World Wide Web, with their respective addresses, graphical interfaces, connection of information through hyperlinks and contents in different languages. Pages form a universe constituted from a central gateway: navigators.

This division, however, is not static, but it was the choice made to facilitate this analysis effort. On the contrary, as sites allow the operation of complex programs running on the Web, there is even a coincidence between players of the group of applications and websites, as the case of platforms such as Facebook, Google and YouTube. Messengers are a special case. Among the most used ones, there are those which run autonomously in each one of the groups, such as FB Messenger, and which run in one side. WhatsApp, for example, works basically as an application, having its "Web" version for browsers as a kind of extension, depending on the presence of a connected smartphone in the same area.

As far as the geographical aspect is concerned, the choice made here is for national boundaries. Although we know that this may bring difficulties, especially regarding data, the choice is related to the need to understand the impacts of an increasingly internationalized market in public spheres and cultural ecosystems owned by each nation-state. Many times the interpretative effort will seek to understand the general

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aspects, even of international dimension, with its concrete manifestation for the Brazilian users, politics, culture and society.

6.4.2. Profile and market share

6.4.2.1. Applications

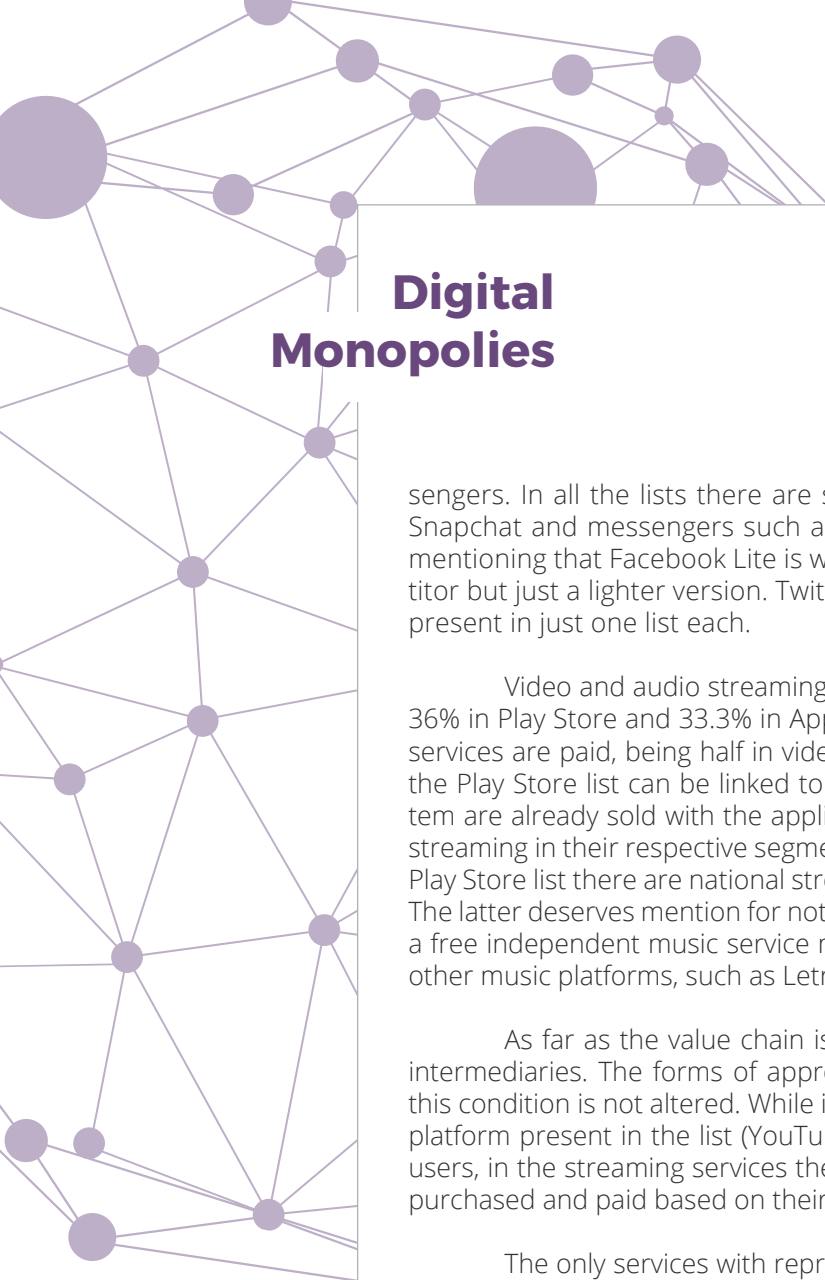
Due to the dispersion of statistical and information sources, the players' profile and market share will be discussed based on the available data. The universe of lists involved the selection of the first 25 to 30 of them. For this analysis, applications not related to content, such as games, e-commerce and image editors were not considered.

Players' profile

Play Store	
Platforms/social networks: 7 (63%)	
- Contents circulation: 4 (36%)	- Messengers: 3 (27%)
Application/video and audio streaming: 4 (36%)	
- Video: 2 (18%)	- Audio: 2 (18%)
Apple Store	
Platforms: 9 (75%)	
Social Networks: 7 (58%)	
- Contents circulation: 4 (33%)	- Messengers: 3 (25%)
Contents circulation: 1 (8,3%)	
Interaction: 1 (8,3%)	
Application/video and audio streaming: 3 (25%)	
- Video: 2 (16%)	- Audio: 1 (8%)
Conectaí	
Platforms: 7 (100%)	
Social networks: 7 (100%)	
- Contents circulation: 4 (57%)	- Messengers: 3 (43%)

There is a dominance of platforms in the three lists, with percentages ranging from 63% (Play Store) to 100% (Conectaí). Among these, the social networks are clearly majority. Among them, the intermediate ones of diverse contents (messages, photos, videos) appear more times in two rankings, with a slight advantage over mes-

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sengers. In all the lists there are social networks such as Facebook, Instagram and Snapchat and messengers such as WhatsApp and Facebook Messenger. It is worth mentioning that Facebook Lite is well placed in the Play Store list, not being a competitor but just a lighter version. Twitter and Pinterest are in more peripheral positions, present in just one list each.

Video and audio streaming emerge as the second largest group, representing 36% in Play Store and 33.3% in Apple Store. In the case of the Android store, the four services are paid, being half in video and half in audio. The absence of YouTube from the Play Store list can be linked to the fact that the devices with this operational system are already sold with the application installed. Both lists have the leaders of paid streaming in their respective segments, Netflix and Spotify, besides Deezer. Only in the Play Store list there are national streaming services, such as Globo Play and Palco Mp3. The latter deserves mention for not being linked to a traditional media group and being a free independent music service maintained by the Studio Sol group (which also has other music platforms, such as Letras.com.br and Cifras.com.br).

As far as the value chain is concerned, almost all applications are formed by intermediaries. The forms of appropriation and editorial definition are different, but this condition is not altered. While in the social networks and in the content circulation platform present in the list (YouTube) the production of the content is carried out by users, in the streaming services the rights of access to music and discs are previously purchased and paid based on their own rules and very low values (see box).

The only services with representative production of their own content are Netflix and Organizações Globo. In the first case, the original products are an important part of the strategy but do not form the entire available catalog. Annually, the company invests about US\$ 6 billion in this type of work (DUNN, 2017). Globo, on the other hand, has its application as an access service to the vast set of contents it produces as the leading conglomerate of the Brazilian media industry. Unlike Netflix and others, it is the only application with mostly owned content in the list.

That case illustrates another important aspect: the origin of players. There are only two Brazilian applications in the list, Palco MP3 and Globo Play, in a total of 13, representing 15% of the applications related to contents circulation in the analyzed lists. The USA is the dominant origin, with 79% of the applications. Sweden and France appear in the ranking with one application each (Spotify and Deezer, respectively), with 7.5% participation.

Applications – by origin

Aplicação	Origem
Facebook	EUA
WhatsApp	EUA
Instagram	EUA
FB Messenger	EUA
Snapchat	EUA

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Applications – by origin

Spotify	Suécia
Facebook Lite	EUA
Netflix	EUA
Palco MP3	Brasil
FB Messenger Lite	EUA
Globo Play	Brasil
Deezer	França
Pinterest	EUA

Market share

Despite the existence of millions of applications available to users, the analysis of the selected rankings reveals a concentration of this market. Of the 13 selected applications, Facebook controls six, or almost half of them (46%): Facebook, FB Lite, FB Messenger and FB Messenger Lite, WhatsApp and Instagram. If we observe the number of downloads, the proeminence of the company is even more evident: considering the accumulation of downloads from Play Store (the only one that makes this information available), Facebook accounts for 85% of the total downloads (292,983,000). Next, Snapchat, Spotify, Google, Netflix and Pinterest account for less than 5% each.

One observation is necessary: the absence of Google applications, such as Google itself (for searching), YouTube (streaming videos), Chrome (browsing) and Maps (mobility) can be explained by the fact that a high number of Brazilian Internet users have the Android operating system (which belong to the conglomerate) installed. Therefore, these applications are already available to the user and do not need to be downloaded. Research published by the Kantar Institute this year revealed that this system is present in 93% of mobile devices (CARVALHO, 2017).

Applications by controlling group

Application	Type	Group
Facebook	Platform/social network/content	FB
WhatsApp	Platform/social network/messenger	FB
Instagram	Platform/social network/content	FB
FB Messenger	Platform/social network/messenger	FB
Facebook Lite	Platform/social network/content	FB
FB Messenger Lite	Platform/social network/messenger	FB
Globo Play	Application/content circulation/video streaming	Globo
Netflix	Application/content circulation/video streaming	Netflix
Snapchat	Platform/social network/content	Snapchat
Spotify	Application/content circulation/music streaming	Spotify

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Applications by controlling group		
Palco MP3	Application/content circulation/music streaming	Studio Sol
Pinterest	Platform/social network/content	Pinterest
Deezer	Application/content/audio streaming	Deezer

Main groups in the applications market			
Group	Applications	Downloads	Percentage
Facebook	6	250.760.000	85%
Snapchat	1	14.500.000	4%
Spotify	1	10.000.000	3,40%
Google Play Games	1	6.000.000	2%
Netflix	1	4.700.000	1,60%
Pinterest	1	3.692.000	1,20%
Studio Sol	1	1.800.000	0,60%
Deezer	1	1.371.000	0,40%
Globo	1	160.000	0,05%

6.4.2.2 Sites

Players' profile

Alexa		
Sites: 23 from the 30 most accessed ones		
Platforms: 16 (70%)		
- Contents circulation: 7 (30%)	- Social networks: 4 (17%)	
Contents circulation: 3 (13%)		
Messengers: 1 (25%)		
- Multisservices: 2 (8%)	Search mechanism: 1 (4%)	Others (e-mail): 2 (8%)
Sites: 7 (30%)		
- Traditional sites: 6 (26%)	- Aggregator portal: 1 (4%)	

Like applications, platforms occupy the main positions in the sites market, representing 69% of the total. However, unlike the previous group, in this case, those related to the dissemination of contents appear more than the social networks. The set is quite diverse, with two video streaming platforms (the largest in the world, YouTube, and the most popular in pornography, Xvideos), two multi-service platforms (Live.com and MSN.com), two diverse content platforms (Blastingnews.com.br and Explicating.com), one dedicated to the exchange of information about stores, goods and services (Reclameaqui.com.br) and another one dedicated to the development and publication of sites (Wordpress.com). An exception worthy of registration is the Wikipedia site, a kind of "virtual encyclopedia" of international reference and which appears here as a platform without profit purposes in the top of the ranking.

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Among social networks, which account for 17% of the sites, the list is quite similar to that previously registered, with Facebook, Instagram, WhatsApp and Twitter. Differently from the group of applications, Twitter rises to the detriment of Snapchat. The first one already has a greater consumption tradition in desktops, while the second one is more recent and was created as an application to be used in smartphones, having its extension for desktops as a secondary form. WhatsApp, although it is also used in computers as an extension, enters the list in a good position, indicating the dissemination of its adoption in these devices. The absence of Facebook Messenger, present in the lists of applications, can be explained by the fact that this messenger can be accessed from inside Facebook.com, and not in a different address. But as an application, it demands its own installation.

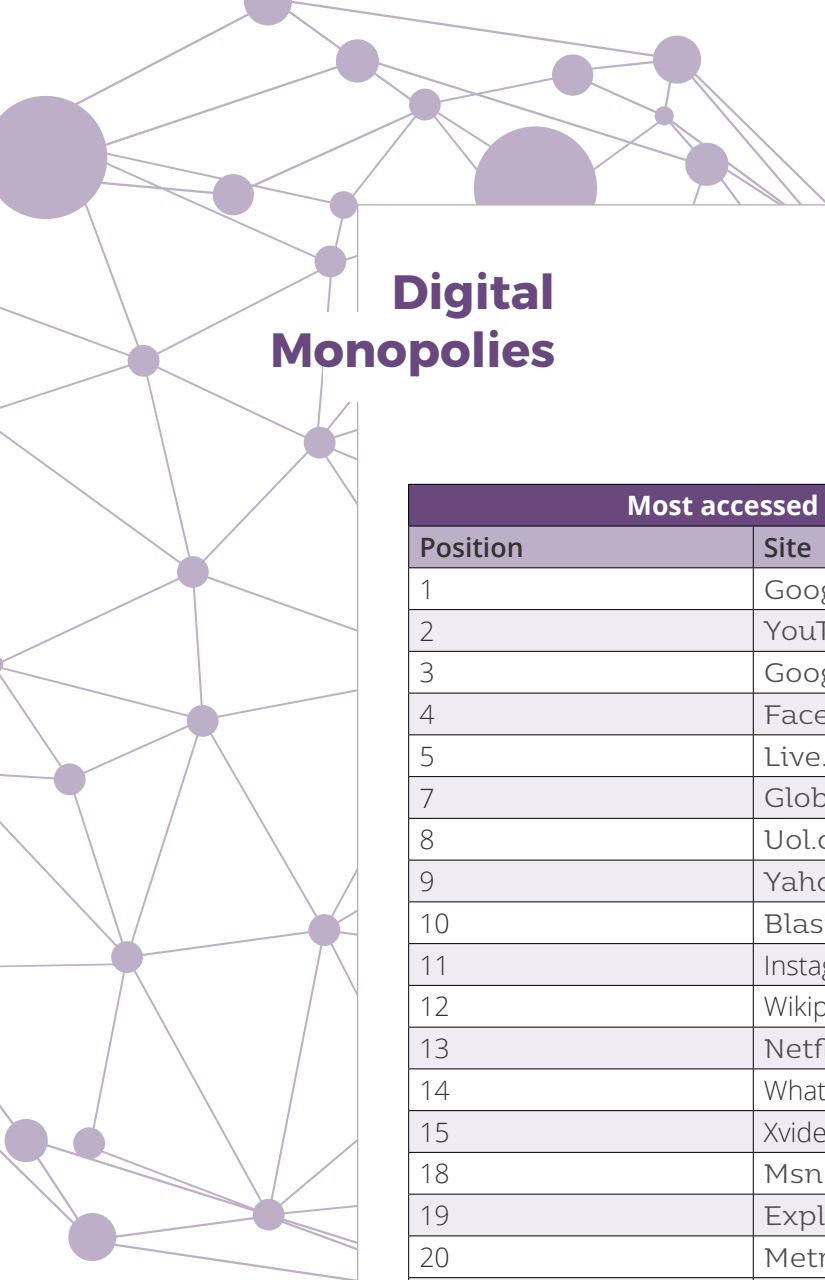
The second large group is the group of sites, with 30% of the analyzed addresses. A curiosity is the fact that only one aggregating portal is among them, UOL. A portal aims to gather several sites to, among other things, catalyze accesses. Globo.com, which has the form of a portal but no content, since it publishes only products of Grupo Globo, is another important site. The only purely journalistic content site that is among the first positions is Metr  poles, created by the businessman and former Senator, now imprisoned, Lu  s Estev  o, from Bras  lia. Sites less traditional and detached from large media groups, such as Blasting News, Explicandoo.com and O TV Foco are in better positions in Alexa's ranking.

However, a more detailed analysis of these profiles and their value chain raises important reflections to understand this phenomenon. All of them work with curiosities and texts of appellative profile, known popularly as "click-hunters". In the case of the sites otvfoco.com.br and fatosdesconhecidos.com.br, the chain is the diffusion of content of their own, whose visibility is related to the attraction generated by this type of content. The sites ONoticioso and Explicandoo are controlled by the Zip Network group, whose origin was not possible to confirm. The group does not gather users to produce content, but, on the contrary, provides content for people to act as "disseminators", offering a percentage of the revenue originating from clicks, interactions and advertising linked to that content. The purpose of these sites, therefore, is not the diffusion of texts – these are rather means to obtain revenue through diffusion, especially in social networks.

Still about the value chain, the other sites work based on their own production. Globo, as already mentioned, uses Globo.com as a place of convergence of the information generated in its most diverse media vehicles. At the same time, it stimulates access to it through these same media, in "crossed" strategies. Metr  poles surpassed traditional vehicles (such as Folha de S. Paulo and Estado de S. Paulo) publishing its own production, but also flirting with "click-hunting" strategies.

As to origin, the universe of sites brings more Brazilian initiatives, but even there the foreign domain has been long and consolidated. U.S. companies control 13 of the 23 most accessed sites according to this analysis, representing 56% of the total. Among the 10 most well placed, 8 are from the United States (80%). The national origin is in the second position, with six sites (26%). The sites in Brazil of Swiss and Polish origin are those aimed at monetization by the dissemination of contents, and not at their production.

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Most accessed sites - Alexa (December, 2017)

Position	Site	Origin
1	Google.com.br	EUA
2	YouTube.com	EUA
3	Google.com	EUA
4	Facebook.com	EUA
5	Live.com	EUA
7	Globo.com	Brasil
8	Uol.com.br	Brasil
9	Yahoo.com	EUA
10	Blastingnews.com	Suíça
11	Instagram	EUA
12	Wikipedia	EUA
13	Netflix.com	EUA
14	WhatsApp	EUA
15	Xvideos	Polônia
18	Msn.com	EUA
19	Explicandoo.com	Não disponível
20	Metropoles.com	Brasil
21	Twitter.com	EUA
23	Onoticioso.com	Não disponível
25	Fatosdesconhecidos.com.br	Brasil
26	Reclameaqui.com.br	Brasil
28	Otvfoco.com.br	Brasil
29	Wordpress.com	EUA

Market share

In terms of control, the universe of the sites is less controlled than the one of applications. There is no market share rate as big as the one of Facebook in the previous analysis. However, the dominance of big platforms is evident, with Facebook and Google in the first position, with 13% of the universe each. It is worth noting that, among the applications, Facebook stands out with different versions (such as Facebook Lite); among the sites Google appears with at least two different territorial extensions (Google.com, international, and Google.com.br, dedicated to Brazil). Next, we see another "big tech": Microsoft (8.6%). As a whole, the big North American technology conglomerates (including Netflix and Twitter) are responsible for 10 of the 23 best performance addresses, 43% of the total.

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Zip Networks emerges with two websites - however, as pointed before, because it is a company focused on monetizing content circulation, and not on its production. Among streaming services, there are two leaders of their segments, Netflix in pay video and Xvideos in pornographic audiovisual contents. Among the players of the traditional media industry, only the largest conglomerate of the sector appears in the ranking, Grupo Globo (Globo.com), and the leader in the newspaper market and pioneer on the internet field in Brazil, Grupo Folha (UOL), reinforcing the logic of cross ownership that characterizes the communications sector in the country.

Most accessed sites - Alexa (December, 2017)

Position	Site	Group
1	Google.com.br	Google
2	YouTube.com	Google
3	Google.com	Google
4	Facebook.com	Facebook
5	Live.com	Microsoft
7	Globo.com	Globo
8	Uol.com.br	Folha/Abril
9	Yahoo.com	Verizon
10	Blastingnews.com	Blasting AS
11	Instagram	FB
12	Wikipedia	Wikimedia Foundation
13	Netflix.com	Netflix
14	WhatsApp	Facebook
15	Xvideos	WGCZ Holding
18	Msn.com	Microsoft
19	Explicandoo.com	Zip Networks
20	Metropoles.com	Grupo OK
21	Twitter.com	Twitter
23	Onoticioso.com	Zip Networks
25	Fatosdesconhecidos.com.br	Fatos desconhecidos
26	Reclameaqui.com.br	Reclame Aqui
28	Otvfoco.com.br	TV Foco/IG
29	Wordpress.com	Wordpress.com

Sites controller groups

Group	Sites
Google	3
Facebook	3

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Sites controller groups	
Microsoft	2
Zip Networks	2
Globo	1
Folha/Abril	1
Verizon	1
Blasting AS	1
Wikimedia Foundation	1
Netflix	1
WGCZ Holding	1
Grupo OK	1
Twitter	1
Fatos desconhecidos	1
Reclame Aqui	1
TV Foco/IG	1
Wordpress.com	1

Profiles and channels

Observing the scenario of profiles in the two main platforms, Facebook pages and YouTube channels can contribute to a more complete understanding of the applications and content layer. On Facebook, out of the 50 pages with the largest number of followers (SOCIALBAKERS, 2017), 32 are related in some way to content circulation (media vehicles, channels, programs, artists and the like).²⁹ Of this total, 40% are artists profiles, 21% are sites (being 9% journalistic, 6.2% focused on entertainment and the rest of them focused on various subjects), 12.5% are TV programs, 9% are content circulation platforms, 9% are channels (Multishow, Telecine and Esporte Interativo) and 6.2% are open TV networks. Differently from the sites, pages on Facebook include other players that are not only platforms or content producing groups, such as artists, TV channels and programs, as well as celebrities and companies (groups that do not belong to the object of this analysis).

Pages with top number of followers on Facebook - Brazil			
Position	Page	Followers	Type
1	Cifras.com.br	36.410,264	Platform/content circulation
6	Facebook Brazil	15.393,822	Platform/social network/contents
7	Jorge e Mateus Brazil	14.718,482	Musician
8	Esporte Interativo Brazil	14.558,849	Channel/sports

²⁹ The others were not considered here or in the rankings of applications and sites, because they deal with activities different from contents circulation, such as e-commerce or because they are institutional pages of companies.

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Pages with top number of followers on Facebook - Brazil

Position	Page	Followers	Type
9	OS Cretinos Brazil	14.436,996	Artist
10	Aline Barros Brazil	14.378,244	Artist
11	Multishow Brazil	14.296,057	Channel/entertainment
12	Luan Santana Brazil	14.122,800	Artist
13	Tastemade Brasil Brazil	13.874,330	TV program
14	Programa Pânico Brazil	13.210,518	TV program
16	Vagalume Brazil	12.956,680	Platform/content circulation
17	Paula Fernandes Brazil	12.885,745	Artist
18	Rede Globo Brazil	12.827,636	Rede de TV
19	Lucas Lucco Brazil	12.826,300	Artist
20	Tasty Demais Brazil	12.814,873	TV program
22	Anitta Brazil	12.720,067	Artist
23	Portal R7 Brazil	12.405,519	Site/content circulation/journalism
26	Fatos Desconhecidos Brazil	12.170,269	Site/content circulation/curiosities
27	Bruna Karla Brazil	12.121,276	Artist
28	Hotel Urbano Brazil	12.070,388	E-commerce
29	Gusttavo Lima Brazil	11.990,180	Artist
31	Malhação Brazil	11.661,116	TV program
32	Ivete Sangalo Brazil	11.418,784	Artist
34	Mc Gui Brazil	10.967,790	Artist
35	SBT Brazil	10.906,498	TV network
38	UOL Esporte Brazil	10.642,866	Site/content circulation/journalism
39	Caio Castro Brazil	10.630,092	Artist
41	VIX Mulher Brazil	10.534,583	Site/content circulation/thematic
42	Telecine Brazil	10.482,779	TV channel
43	Gshow - O Entretenimento da Globo Brazil	10.260,303	Site/content circulation/entertainment
44	Eduardo Costa Brazil	10.103,276	Artist
46	Incrível Brazil	10.070,229	Site/content circulation/entertainment
48	G1 - O Portal de Notícias da Globo Brazil	9.770,227	Site/content circulation/journalism

On the other hand, if we consider the most popular Brazilian channels on YouTube, entertainment pages prevail, totaling 46 out of 50 analyzed (92%). From those, 25 (55% of this group) focus on what we are going to call here "diverse comments". People or groups speaking about amenities, making "sketches" (such as tricks, trolls or music parodies), trying to make pretensely humorous approaches to everyday life or creating scenes.³⁰

³⁰ As an example, some of the titles of the videos of the examined channels: "Tente não rir" and "Veja meu cabelo novo" (Felipe Neto); "Pequenas atitudes irritantes de mãe" and "Cotonetes nasais" (Canalha); "O anão beijou minha amiga" and "Coloquei neon no meu carro" (Rezende Evil); "Avaliando looks antigos" and "Horóscopo da depressão" (Sincominutes); "Provandos doces diferentes da Disney" and

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Among this type of profile, there is a small number, 3 (6%), that combines this type of video with others of a more informative nature, such as the Manual do Mundo, Você Sabia? and Cauê Moura. Unlike Facebook pages, YouTube channels involve only producers and content disseminators. In this universe a new profile emerges: the profile of individuals or groups whose channels are structured on top of the formerly called "diverse comments". This group is large, and its best example is the ranking leader, Whindersson Nunes, 11th biggest channel on the platform worldwide.

Most followed Youtube channels					
Position	Channel	Uploads	Subscribers	Views	Type
1	Whindersson Nunes	331	25799	2098954	Entertainment/diverse comments
2	Kondzilla	618	24590	12317511	Music
3	Felipe Neto	883	17451	2509815	Entertainment/diverse comments
4	Cana Canalha	175	15017	1016212	Entertainment/Diverse comments
5	Rezende Evil	5503	14388	5244448	Entertainment/diverse comments
6	Porta dos Fundos	792	13735	3626401	Entertainment/humor
7	Authentic Games	3149	12085	5027121	Entertainment/commented games
8	Sincominutos	303	11027	906029	Entertainment/diverse comments
9	Luccas Neto	369	10859	1411526	Entertainment/diverse comments
10	Canal Nostalgia	299	10512	810609	Information/diverse subjects
11	Gr6 Explode	1915	10277	4625880	Music
12	Parafernália	573	9810	1949391	Entertainment/humor
13	Você sabia?	448	9701	937992	Information&Entertainment/diverse comments
14	Galo Frito	339	9488	1392317	Entertainment/diverse comments
15	Manual do Mundo	1300	9397	1630699	Information&entertainment/
16	Eu fico Loko	705	9253	746279	diverse comments
17	Galinha Pintadinha	43	9101	7140429	Entertainment/diverse comments
18	Cia. Daniel Saboya	602	9089	2661709	For children
19	TazerCraft	2759	8861	3137688	Music/artist

"Gastei R\$ 500 na máquina de pegar urso" (Luccas Neto); "Sogra vs. Nora" and "Michel Temer vs Darth Vader" (Galo Frito); and "Minha futura namorada é a Gabi Lopes?" and "Nós já ficamos com a mesma Youtuber" (Eu fico Loko).

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Most followed Youtube channels					
Position	Channel	Uploads	Subscribers	Views	Type
20	AM3NIC	3347	8732	2509110	Entertainment/commented games
21	Dani Russo TV	84	8500	390253	Entertainment/diverse comments
22	Everson Zoio	318	8331	524992	Entertainment/diverse comments
23	Coisa de Nerd	1711	7600	1871067	Entertainment/diverse comments
24	Totoy Kids	646	7805	3724632	Entertainment/diverse comments
25	Anitta	37	6943	2128473	For children
26	Henrique e Juliano	161	6610	4371519	Music/artist
27	Venom Extreme	2475	6559	1046084	Music/artist
28	Marília Mendonça	61	6542	3831474	Entertainment/diverse comments
29	Fatos desconhecidos	1451	6528	777397	Music/artist
30	FitDance	675	6367	1763514	Music/artist
31	Tauz	153	6328	1359452	Music
32	Programa Pânico	3326	6301	2058576	Music/artist
33	Irmãos Neto	74	6251	295828	Entertainment/TV program
34	Mussoumano	278	6200	749777	Entertainment/diverse comments
35	BRKsEDU	3297	6197	1046253	Music/artist
36	Invento na Hora	342	6156	705264	Entertainment/commented games
37	Renato Garcia	1228	6017	674407	Entertainment/diverse comments
38	T3ddy	927	5951	786770	Entertainment/diverse comments
39	Turma da Mônica	554	5738	5376675	Entertainment/diverse comments
40	Lucas Lira	161	5554	255411	For children
41	Gameplayrj	11874	5457	2163434	Entertainment/diverse comments
42	Cellbit	782	5314	601656	Entertainment/commented games
43	Luan Santana	269	5254	1835293	Entertainment/diverse comments
44	Wesley Safadão	208	5226	2505936	Music/artist

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Most followed Youtube channels					
Position	Channel	Uploads	Subscribers	Views	Type
45	Caracol Raivoso	94	5217	282258	Music/artist
46	Jorge e Mateus Oficial	215	5192	2663924	Entertainment/diverse comments
47	Cauê Moura	517	5106	550233	Music/artist
48	Planeta das Gêmeas	342	5084	1365740	Entretenimento/Comentários diversos
49	Luba TV	682	5081	538780	Entretenimento/Comentários diversos
50	Kim Rosa-Cuca	568	5072	443386	Diversos/maquiagem

Summary table

Trying to reach a synthesis of the analyses of the large groups examined above, we propose a picture of the domain of the applications and content layer in Brazil, to be reviewed through out time as markets change.

In short, despite the large number of applications and sites, the applications and content layer is characterized by intense concentration, structured by the large conglomerates of the sector, national conglomerates and players of the elite of these markets, generally in the command of specific segments. It is worth noting, however, that non-traditional sites present in the ranking are those classified as "click-hunters".

1st level - Big platforms

Google/Facebook/Microsoft



2nd level - Content global leaders

Netflix – Spotify



3rd level - National leaders in the media industry

Globo – Folha



4th level - World elite of applications and sites

Deezer – Snapchat – Twitter – Yahoo

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6.5. Entry barriers

The degree of concentration of a market can be measured by the capacity of new players to compete "equally" with the leaders or even surpass them. Besides the history of the market structure, there must be an dynamics of opening, otherwise, competition becomes an artificial concept in comparison to the concrete reality. Researchers in the field of competition and digital economy point out the contradiction between the promise of a market with less entry barriers (with facilities such as offering an Internet service) and the reality of major obstacles (EZRACHI and STUCKE, 2016). Next, we will try to identify some of the entry barriers of this market.

Centralization and convergence

The applications and content layer is characterized by extreme centralization of its players, due to the process of economic, technological and media convergence that has developed in recent decades and which has its apex on the Internet. The reduction of physical barriers to the supply of goods and services stimulated the consolidation of conglomerates with global action. This scale is reflected in revenues, giving more "fire power" to these groups. This is especially important in technology markets, where product differentiation through unique technological solutions or technology with exclusive or specific functionalities plays a central role. The difference of revenues also impacts the content generation capacity.

In the analyzed markets, this is expressed through the main players. Google, Facebook and Microsoft have operations in hundreds of countries, as well as Netflix and Spotify. This allows these companies to use their financial capacity to create several entry barriers. The first one is the acquisition of competitors, as was the case of the purchase of YouTube by Google or WhatsApp and Instagram by Facebook.

On a national level, Organizações Globo profit five times more than the 2nd competitor (Record) (CASTRO, 2017), while Folha has been pressured by a revenue decrease of its printed editions, but it has expanded its business with the UOL portal, also into different markets, such as payment method (Pagseguro), making it difficult for competitors to act.

Vertical concentration

Centralization is present in the various stages of the value chain. Although the applications and content layer does not yet have a more aggressive presence of the infrastructure owners (the exception is Yahoo, bought by the American operator Verizon), within the activities of the layer itself it is possible to perceive this phenomenon. As previously discussed, practically all major platforms are investing in original products and will move on to compete in the online video market by brokering their own content.

It is not necessary to be pessimistic in order to foresee favoring practices, specially in the logic of availability of algorithmic contents that are not transparent at all. This movement alters the original line of video streaming services, initially constituted as catalogues, for broadcasters of original works, whose greatest example is Netflix.

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Google is today a big "entrance door" to the Internet as a whole through its search mechanism. This platform has already begun to make available part of the answers that the user searches in their own contents or edited from other sources (such as Wikipedia). In addition, it offers services such as videos (YouTube), price comparison, messaging (Hangout) and sale of applications and cultural goods (Play Store). In the field of applications, the ownership of operating systems allows Google to impose to users their set of programs as something "normal". This practice already existed, for example, with Microsoft building programs such as Media Player, Paint and Internet Explorer in its Windows operating system.

Facebook also works as an "entrance door" for many users who access content from what is shown in their timeline. Although this platform makes the intermediation of messages generated by users, the definition of availability criteria is something central and quite powerful in the hands of the company, specially when it is beginning to offer streaming service and its own contents. Besides that, this conglomerate has a messenger application and has already advanced to the market of devices with its Oculus, a virtual reality experience device.

There is vertical concentration also among national players. Globo controls from rights of audiovisual works (through Globofilmes) to the audience consumption through GloboPlay or Globo.com. This conglomerate has had an important participation in telecommunication operators, such as NET, but today such presence is residual.³¹

UOL, on the other hand, combines the production of its own content (such as through Folha de S. Paulo and the team of its own portal) with the aggregation of blogs and sites from third parties, covering the stages of production, availability and distribution. But, even for those conglomerates, the vertical concentration of their international competitors pose an important entry barrier.

Impacts of the "network effect" in the Brazilian market

As a "network of networks", much of the Internet activity is related to the interconnection between people, networks, services and contents. This brings a risk to the competition. From the moment a player benefits from having many users or connections, such condition can generate a reinforcement of its own, with the best positioned having the best chance of advancing, and the ones with the worst performance having the biggest difficulty.

This "network effect" is a specific characteristic of platforms, as their central activity is to put people in contact (be it in "one side", like Facebook users, or with the "other side", in the interaction between users and advertisers, for example). This network effect is not always positive (the presence of many people can be seen as something bad in a social network), but it is in general, specially for the main players.

It is not by chance that platforms arouse as leaders in the Brazilian market, as

³¹ Grupo Globo has left its participation in the pay TV company, NET, so that its programmer, Globosat, could obtain an independent programmer certificate, according to the Conditional Access Service Law (Law 12.485/2011).

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well as in the international market. YouTube is popular because it gathers a huge set of videos published by users, and maintain these works because of their audience, in a mutually reinforcing movement. Facebook grows in number of users thanks to the fact that more and more people, organizations and activities will pass through it. Many people and organizations stop having websites to adopt just a profile or a page. The company itself stimulates this with workshops training people on how to use the tool. This attribute greatly hinders the emergence of new competitors or their stabilization.

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Such change is not impossible, as the history of social network Orkut shows. But up to the present moment, the network effect has been working well for Facebook in the social network market, as well as for others, such as Twitter or Pinterest. Another example among Brazilian is Palco MP3. As an independent music platform, the already acquired base of artists with published songs stimulates the search of the public, which, in turn, feeds back the audience.

Collection and exploitation of personal data

The ability that these applications and sites have to collect and exploit personal data is another barrier. Facebook and Google are strongly based on the collection of information about the users of their services. Snowden called them "surveillance companies" (MURDOCK, 2018). This capacity makes it difficult in many ways for new competitors to enter. In the first place, it gives these platforms a much more "efficient" personalized advertising capacity than traditional organizations. This capacity is at the root of revenue increase from advertising. Secondly, the promotion of contents depends directly on these information and on the mapping of audiences. This is a new form of marketing that has been attracting resources that stop being invested in other destinations.

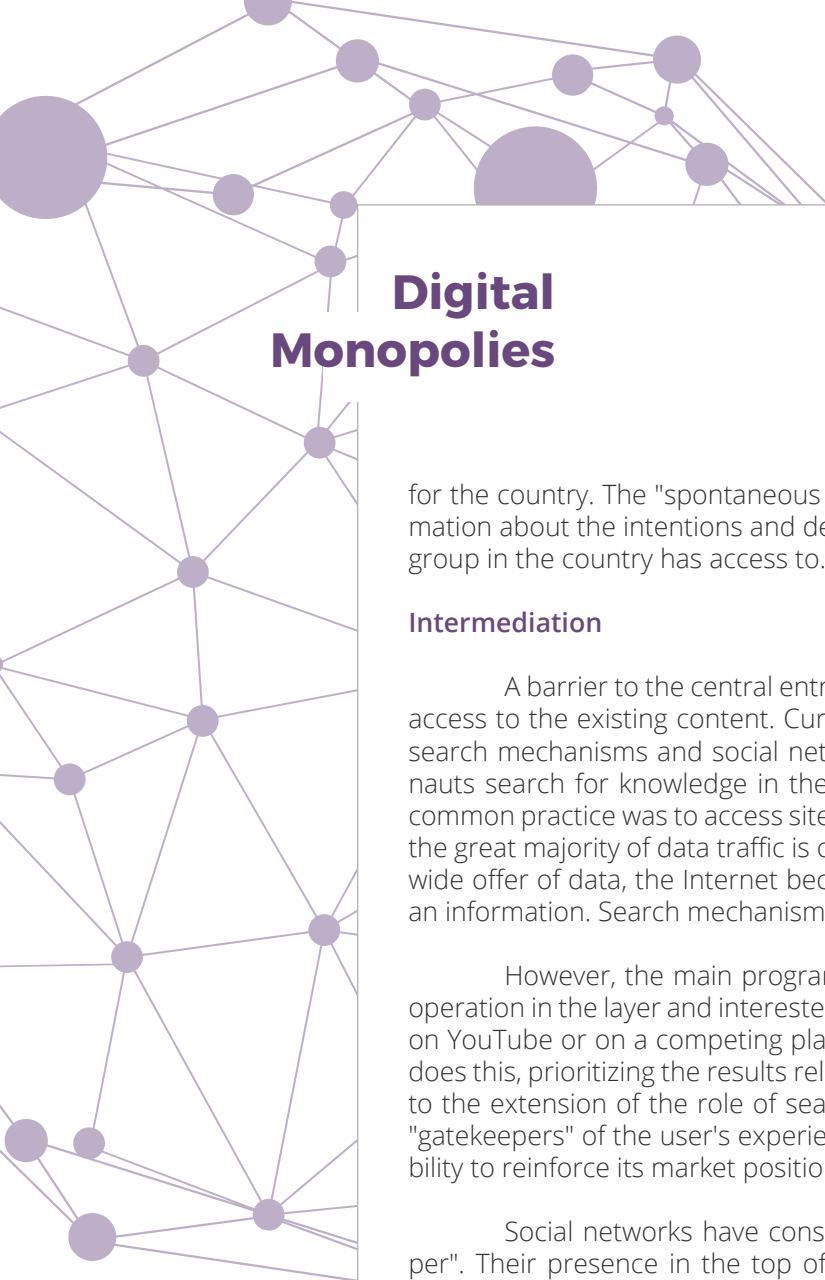
The gigantic database of platforms also allows them to have a much greater capacity to verify the effectiveness of their services and to anticipate needs. This is a huge competitive advantage for these players. In the specific case of the contents and applications layer, the launch of Watch by Facebook (its own video service) and of YouTube TV by Google (its live streaming channel) are important examples. These two competitors have a knowledge about the preference of their users that a normal TV channel (such as Record or Bandeirantes) would not have if they competed in the paid streaming market.

This mass of data can also be used to anticipate demands that have not yet been met in the market. Thus, Facebook, Google and Microsoft are much more capable of launching a new product or service of great popularity than a very inventive person from start-ups, traditional media conglomerates or youtubers.

This is not exclusive to platforms. In the first semester of 2018, Grupo Globo launched a campaign for citizens to record 15-second videos about what they wished

32 The case of Snapchat is emblematic. Although this social network presents good growth rates of its user base, and has been seen by researchers as a possible threat to Facebook, this has not yet been confirmed. On the contrary, the Snapchat differential (the stories format) is now more used on Facebook and Instagram than on Snapchat itself.

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for the country. The "spontaneous survey" can provide Globo with contacts and information about the intentions and demands of the Brazilian society that no other media group in the country has access to.

Intermediation

A barrier to the central entrance on the layer is the intermediation of the users' access to the existing content. Currently, there are two central forms of this practice: search mechanisms and social networks. The first ones are related to how the inter-nauts search for knowledge in the Web. While in the first phase of the Network the common practice was to access sites and then have access to their contents, nowadays the great majority of data traffic is originated from search mechanisms. Because of the wide offer of data, the Internet became the central source for those who want to find an information. Search mechanisms are the most popular instrument for this.

However, the main program of this type, Google, is also a conglomerate with operation in the layer and interested in valuing its dominant condition. Between a video on YouTube or on a competing platform, which will appear first in the results? Google does this, prioritizing the results related to its services, be it YouTube or Play Store. Due to the extension of the role of search mechanisms, Google became one of the great "gatekeepers" of the user's experience on the Internet. And, with that, it has the capability to reinforce its market position and to hinder the advancement of competitors.

Social networks have consolidated themselves as another big Web "gatekeeper". Their presence in the top of applications and sites rankings shows their massive consumption in Brazil. Many users have these platforms as their "home page", accessing information from Facebook, Instagram, Snapchat feeds and similar networks. Survey of a site specialized in Quartz technology revealed that more than half of the Brazilian interviewees (55%) consider Internet as limited to Facebook (MIRANI, 2015).

According to the Digital News Report 2017, from Reuters Institute, 66% of the users interviewed in Brazil reported using social networks to get informed. Brazil was the second among the 36 analyzed countries in which news were mostly shared through social networks (63%) and the first in the ranking of diffusion through messengers (43%). This scenario, reinforced by the absolute domain of Facebook in the sector (with all the applications it controls), indicates a strong obstacle not only for the entry of new players in the social networks market but also of content producers who depend on the circulation in these spaces.

Technological differential

As previously stated, in the technology industry, technical solutions play a central role as a competitive differential. Google's rise to the condition of the largest search mechanism is related to the algorithm that allows to search part of the Internet to find sites. Microsoft has been at the forefront with the line of Windows operating systems and with several programs that run on it, such as the Office package.

The company is one of those that seeks to create "closed circuits" or "walled gardens" with its products, having already been sued for anticompetitive practice when

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trying to impose its programs built up on Windows, such as Explorer. These practices make it difficult for competing programs developers to act. Although it does not appear in the rankings, it is worth mentioning Apple as an avant-garde of this type of approach. The company develops hermetic systems, which only run programs developed by them. The objective is to maintain a closed technological ecosystem, preventing the action of other firms in different solutions, thus having a worrying impact on the innovation of the sector as a whole.

Facebook offers its users a set of technological solutions that differentiates it from other social networks, such as news feeds, live videos and event mechanisms. All large technology conglomerates invest in complex and automated data processing algorithms as a way to manage their services. The technological differential is especially important in their applications, once these are software and their heart is the set of functionalities that they manage to offer.

The next frontier for these groups is the development of artificial intelligence solutions. Google, Facebook and Microsoft operate strongly in this field. Google launched the AIY project platform, with a technological base for developers to create innovations using this resource. Microsoft maintains the Azure platform, also with this purpose.

Facebook has been conducting research in this field through its FAIR (Facebook Artificial Intelligence Research). There is no consolidated use yet in the applications and content layer, but the high degree of information processing from user's information makes resources linked to AI to have a great potential to be a determining differential in the technology sector.

Techno-aesthetic standard

Among the challenges of competition in the markets of cultural goods are the overcoming of its randomness, the generation of a "quality standard" that attracts audiences and the differentiation in the aesthetic dimension in comparison to competitors. One of the strategies for this purpose is the creation of a techno-aesthetic standard³³ that execute these functions. It uses available financial resources, but it goes beyond that and includes the development of expertise related to this field, in addition to technical aspects. Examples are usability for an application, or elements such as photography, lighting and sound capture for an audiovisual work.

Facebook developed a different standard, although it has decided to keep the original graphic projects of applications it acquired, such as Instagram and WhatsApp. The changes are much more related to the technical aspect of programs operation. The company constantly innovates and includes new resources in each one of its products, such as live video transmission.

33 Brittos and Rosa (2010) define the techno-aesthetic standard as the production of a communication agent that involves not only the conception, but also the relations established with competitors, the State and the public. "The technical and aesthetic characteristics of the media product, therefore, will be related as much with the technical capacity of production developed by the agent as with the preferences of the target audience, as well as the socio-cultural characteristics of the environment where this symbolic good is produced and the purpose for which the agent creates it, among other elements. It necessarily involves economic resources on a large scale, but it also involves the mastery of the forms of doing it, in an area in which the economy of learning plays a key role" (p. 2).

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On the other hand, Google has been maintaining its products without large leaps, adding new functionalities over time, such as calendars, Hangout and group creation and management. Microsoft is an example of preserving the techno-aesthetic standard with the Windows operating system. Not only for the standard, but also for the intellectual property rights, the company is still looking to deploy its software package to the device users. Such a strategy was not successful with smartphones, a sector in which Windows Mobile market share is small in comparison to Android and iOS, but remains consistent among desktops, a segment in which there has been no progress, for example, from Google.

At the level of the national conglomerates present on the list, Rede Globo is recognized by several authors for creating a "quality standard" (BOLAÑO, 2004) that established an important differential in the dispute for the television market. This capacity was built with decades of public investments in infrastructure, advertising and audiovisual policies. Based on this, the group (which originated in the field of print media and then migrated to TV and radio) developed strong hegemony not only in terms of audience but also in productions that became a reference in the Brazilian television. It continues to improve this standard, which is based on their performance on the Internet, with the commercialization of access to their productions.

6.6. Anticompetitive practices

In this section we will discuss some anticompetitive practices of market players. The term refers here to the behavior which, intentionally or not, has harmful effects on competition in the market or over competing players. The debate proposed in this section is affected by the absence of information from market players, and does not have the intention to reach a depth of analysis such as those carried out by competition defense bodies. However, within these limits, it is still important to shed light on some initiatives that impact the market of the applications and content layer.

Demolition of the organic reach of posts

As stated in the previous subsection, social networks have great power as intermediaries in the circulation of content. More than just defining what appears in first place in the feed, Facebook has been knocking down the so-called "organic reach" of pages posts (people who view the publication without the need for its promotion). BuzzSumo consulting study detected a 20% decrease of this reach since January 2017 (RAYSON, 2017). Facing this situation, organizations and companies with pages in the platform started to use a series of strategies, from promotion of posts to content management in order to try to bypass the obstacles of the algorithm.

In December 2017, Facebook announced a change in the News Feed to reduce the reach of what it called "engaging hunters" (SILVERMAN, 2017). Among this type of content are those that ask for or suggest interactions (such as likes and sharings).³⁴ Regardless of the examination of these posts quality, knocking down posts aimed at

³⁴ A popular type of post in Brazil are surveys whose responses should be given through interactions: if the answer is A, the user is invited to give a like; if the answer is B, he is asked to share the post.

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surpassing the limits imposed by Facebook itself is a practice that affects organizations and companies which are dependent on the performance in social networks.

In the beginning of 2018, Facebook promoted a new change in its News Feed, reducing the reach of pages posts, including pages of traditional media organizations. In Brazil, there was an extreme reaction from Folha de S. Paulo, which announced that it would stop publishing contents on the platform (FOLHA DE S. PAULO, 2018). Facebook argued that the change had the intention of valuing "the most significant interactions". But in practice this meant a hard blow in the traditional media and a pressure for the use of the content promotion tool.

Prioritization of ownership services in search results

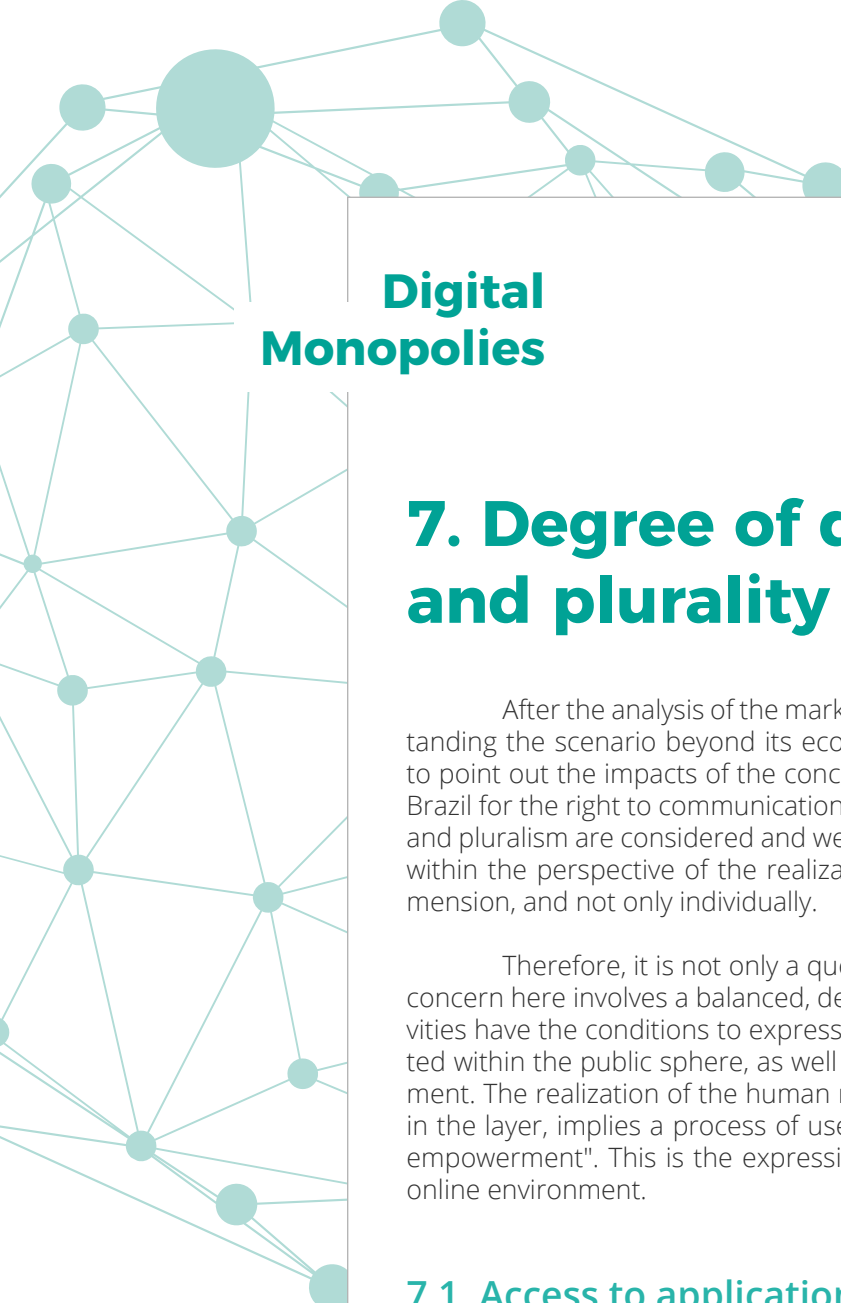
Studies show that, in search mechanisms, most users do not click to access a second page. According to the Advanced Web Rankings 2014, 67% of the clicks originated in results pages occur in the first five results of the list. That is, the position in the ranking makes a difference in the click conversion rate (known in the market as Click-Through Rates). A study from the digital marketing agency Ignite Visibility³⁵ mapped rates by position: 1st position has 20.5%; 2nd, 13.3%; 3rd, 13.14%; 4th, 9%; 5th, 9%; and 6th, 6.7%. That is, the click rates of the first position are three times higher than those of the sixth.

Analyst Benjamin Edelman's study showed that Google presents links related to its services in prominent positions (EDELMAN, 2010), for example searches related to the financial market whose results page brought links to Google Finances, although, according to the researcher, the site is not among the most popular in the segment. In June 2017, the European Union antitrust body fined Google in € 2.4 billion for concluding that the company abused its market position to favor its price comparison services.³⁶ In India, the competition regulatory authority attested that Google favors its air ticket search service (KALRA and SHAH, 2018).

³⁵ Lincoln, John. Google click-through rates in 2017 by ranking position. Ignite Visibility. Available at: <https://ignitevisibility.com/ctr-google-2017/>

³⁶ European Commission. Antitrust: Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service. Available at: http://europa.eu/rapid/press-release_IP-17-1784_en.htm

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7. Degree of diversity and plurality

After the analysis of the market and its structure, the last stage involves understanding the scenario beyond its economic dimension. The objective of this section is to point out the impacts of the concentration on the applications and content layer in Brazil for the right to communication. Within this broader notion, the pillars of diversity and pluralism are considered and were previously discussed. This frame will be worked within the perspective of the realization of freedom of expression in its collective dimension, and not only individually.

Therefore, it is not only a question of not limiting the exercise of this right. The concern here involves a balanced, democratic system, in which individuals and collectivities have the conditions to express their visions and see them considered and debated within the public sphere, as well as to feel adequately represented in this environment. The realization of the human right to communication on the Internet, especially in the layer, implies a process of users' empowerment, which here we will call "digital empowerment". This is the expression of this right and its various dimensions in the online environment.

7.1. Access to applications and contents

Before examining the internal situation of the layer itself, there is an obstacle worthy of mention: digital exclusion that still affects 40% of Brazilians (CETIC.Br, 2017). That is, an expressive amount of people still does not participate in the online environment because they do not have access to it. This universe is formed, above all, by poor people and people from peripheral regions, especially from rural areas.

However, even among those who are connected, the quality of access is getting worse. Between 2014 and 2016, the percentage of Internet users browsing only on cell phones increased from 20% to 43%, while the rate of those using both mobile and fixed devices dropped from 56% to 51%. Mobile broadband has a more limiting experience due to the imposition of the data limit in the offered packs, which hinders the consumption of heavier contents, such as audio and video streaming. To have an idea, when watching Netflix, a person consumes about 1Gb per hour of video in low definition and 3 Gb in high definition.¹ The most common plans marketed by operators range from 1 Gb to 6 Gb. That is to say, a user would consume all his pack of one month data by watching only six hours of videos on Netflix in low definition or two in high definition.

The practice of offering services free of consumption of the data pack by operators, usually in Brazil through the zero-rating call (DERECHOS DIGITALES and INTERVIZOS, 2017), also impacts the diversity and pluralism in the Network. Claro, for example,

¹ This estimate is from Netflix itself. Available at: <https://help.netflix.com/pt/node/87>

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provides this service for Facebook, WhatsApp and Twitter. Oi does not deduct from the package its own music service (Oi Toca Ai). TIM offers a certain amount of daily data for the use of WhatsApp without affecting the client's balance. Vivo offers free services of mobility applications (such as Waze, 99 Taxi and Cabify) and markets a package (Vivo Família) in which the contracting party "wins" a certain amount of data for exclusive access to certain streaming services (YouTube, Spotify, Vivo Play and NBA).

The impact on diversity, in these cases, is harmful in two senses. In the first place, this business model favors the operators own applications, strengthening a logic of centralization and vertical concentration, which are important entry barriers to this market. Secondly, when they offer free applications from third parties, operators favor the main services, such as WhatsApp, Facebook, YouTube and Spotify. Despite the conflict between infrastructure owners and service providers, this partnership, in the Brazilian case, feeds back the domain of those who are already in the top of the layer list.

Inside the layer, another obstacle to the access to contents is the business model with paid subscription. Among the applications and sites analyzed in the country, this type of limitation is found in the main streaming services (Netflix, Spotify and Deezer) and in the main national content services (UOL and Globo Play). This practice is extended to important national printed means, such as Folha de S. Paulo and Estadão. This observation does not mean, however, that diversity necessarily involves access to these sources. On the contrary, they are groups historically linked to media oligopolies in Brazil. But, as a requirement to content access, the obligation to pay constitutes a barrier.

Another dimension to be considered is the protection of personal data. Just as the user must have the right to search for information, he/she must also have the guarantee to define what he/she wants to share and with whom on the Network. Access here inverts its direction: the person is converted from subject into an object, and his or her data and digital footprints are the information left by the technology companies acting in the content layer.

The mapping of interests, activities and characteristics does not serve only the promotion of personalized advertisement. Only this would already be a problem from the point of view of diversity, because this practice places groups controlling these data in a position much superior to the other competitors. Since culture is a symbolic good, markedly random, the precise mapping of audience interests becomes a relevant strategy to overcome this obstacle and to position oneself in the market and in the public sphere.

Google and Facebook are two of the biggest data collectors of Internet users. The first one through the registration of searches, keywords and clicked links. In addition, Google has one of the largest data sources of Internet users: the Android operating system, installed in 8 of every 10 Brazilian smartphones (CIRIACO, 2017). By obliging users to perform various activities through their own applications, the company broadens the information registration forms. By combining several applications and sites (YouTube, Maps, Google, Play Store, Agenda, etc.), the company potentializes the scope of this process, acquiring ever-increasing quantities of data for processing and transformation into technological solutions.



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But not only these two companies are massively collecting data. Netflix identifies various aspects of its clients' experience, such as works watched, time, frequency, search, etc. Thus, it can use these information to support the production of its original works. This service also processes these data to feed its recommendation algorithm, a central mechanism in a large catalogue like that one. Spotify, although it has not entered (yet) the field of artists' management, it also uses the clients' activity metrics to build their playlists and recommendations to the audience.

7.2 Pluralism and diversity of sources and players

Historically, in the discussion about traditional media such as press, radio and TV, a central aspect of pluralism used to be the number of organizations offering content. Internet allowed the spread of sources, with ease to create sites and profiles in social networks. According to Registro.br, of the Internet Management Committee, there are 3.8 million domains registered in Brazil. Of this total, 91% are sites with ".com.br" extension, used mostly for company pages. BigData Corp's survey shows that there are, in total, 10 million active sites in Brazil, of which 5.5 million are blogs.

However, instead of leading to the conclusion that there is a high diversity of content circulating in the Network, these numbers should be considered in a more complex way. A large number of sites does not necessarily mean diversity. The ranking presented in the previous section allows us to point out that the prominence in this information source is of the leading companies among services and contents providers in the Web (be it platforms or streaming channels) and the traditional national media groups. The exceptions in the list are sites of curiosities, clearly driven by "click-hunter" strategies.

In the field of large providers of services and content on the Web, Google, Facebook and Microsoft are international giants of the sector, being among the companies with the highest value in the world (FORBES, 2017). As noted in the sub-section "Profile and market structure", Facebook accounts for 85% of the applications downloads in the analyzed store. In addition, it controls the four most popular social networks in Brazil: WhatsApp, Facebook itself, Instagram and FB Messenger. This conglomerate also controls three of the fifteen most accessed sites.

This year, the platform reached 2 billion users worldwide, being more than 100 million only in Brazil (COSSETTI, 2017). Another statistic that shows the influence of Facebook in the country is the specialized site Quartz study (2015), according to which more than 55% of the interviewees did not manage to differentiate Facebook from the Internet. Taking advantage of the network effect and favored by free services offers, Facebook has the potential to further expand its reach among Brazilian Internet users.

The fact that the company controls the two most used applications in the country is worrying. WhatsApp is the main communication channel for Internet users. Facebook already functions as the "home page" of its users, being the gateway for the experiences in the online environment. According to the Digital News Report (REUTERS INSTITUTE, 2017), 65% of the access to online content in the world is made in a non-direct way (and it increases to 73% among people up to 35 years old), being social

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networks the second most used mechanism to reach a specific link (23%).

The Google/Alphabet conglomerate also has a strong penetration in the country. In the sites ranking adopted in this analysis, the group has the three most popular addresses: Google.com.br, YouTube.com and Google.com. The company's sites were accessed by 88 million Brazilians in 2016.² In the search engine market, Google has a 97% share³ and is responsible for 95% of the traffic related to searches in the country.⁴ As previously stated, the company dominates almost the entirety of a market that has become one of the main "entrance doors" to access information on the Web. As already revealed, including in the investigation of the European Union resulting in a fine, the company uses this condition to favor its services and contents, creating an extremely harmful control for online diversity.

A second key segment in which the conglomerate acts is that of operating systems for mobile devices.⁵ A third segment in which Google has established its hegemony is online video, with YouTube.⁶ Microsoft, on the other hand, dominates the market of operating systems on desktops, despite of having lost the global position in relation to total accesses (including mobile devices) to Android.⁷ In the pay video streaming segment, Netflix has established a leadership position.⁸

The promise of a supposed possibility of greater competition on the Internet thanks to the reduction of costs turned to be, in this segment, a fragile argument. On the contrary, the international leadership condition of Netflix and the consequent revenue obtained allows the company to install servers with its content in traffic exchange

2 STATISTA. Most popular digital properties in Brazil as of January 2016, based on number of unique visitors (in millions). Statista, 2017. Available at: <https://www.statista.com/statistics/254727/most-visited-web-properties-in-brazil/>

3 STATISTA. Popular online search engines in Brazil in August 2017, based on market share. Statista, 2017. Available at: <https://www.statista.com/statistics/309652/brazil-market-share-search-engine/>

4 Statista. Share of desktop search traffic originating from Google in Latin America in August 2017, by country. 2017. Available at: <https://www.statista.com/statistics/639072/googles-share-of-search-market-in-selected-countries-latam/>

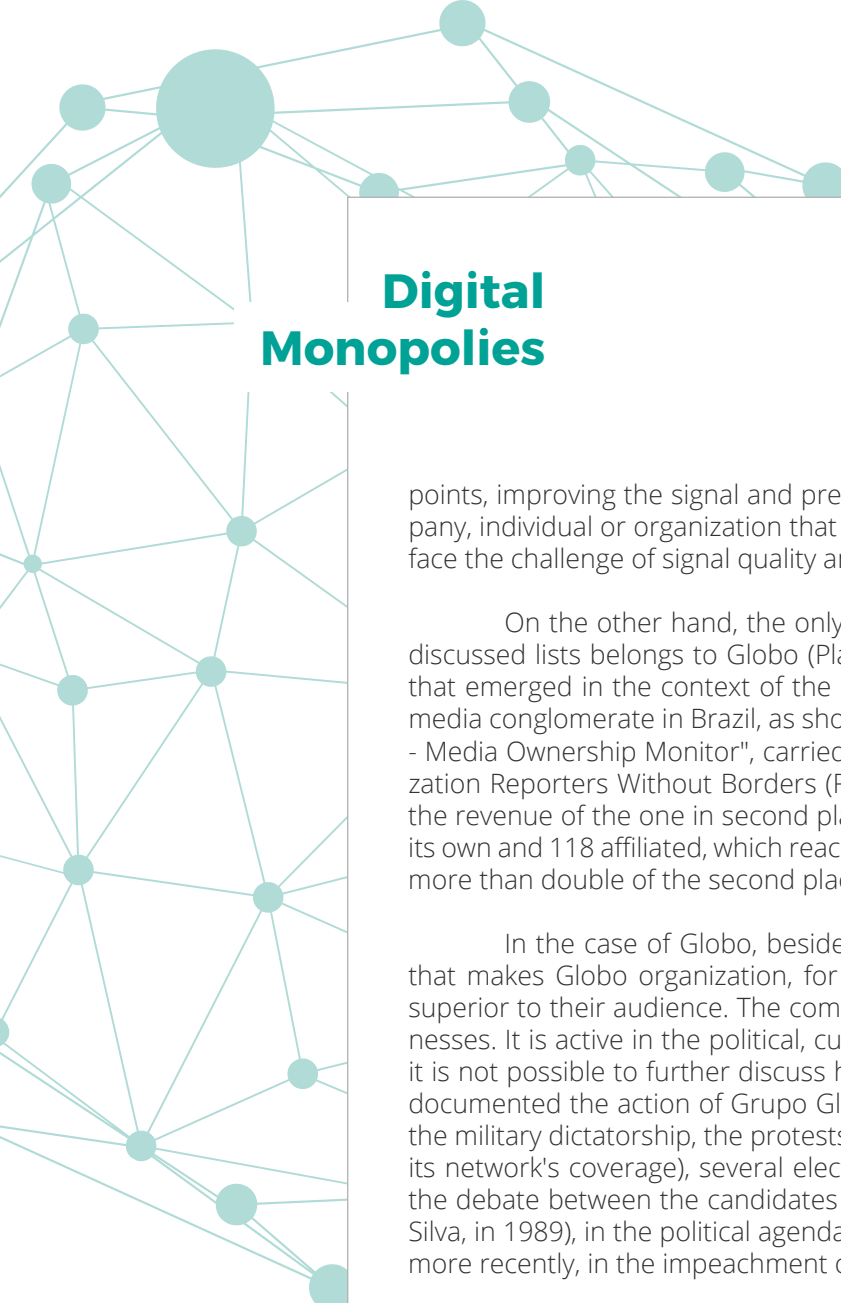
5 Android is present in 85% of the smartphones sold in the country, according to the IDC consulting survey (CIRIACO, 2017). Such condition gives Google a privileged direct channel to the users of these devices. To carry out different activities, the person must have an account on the platform, and the company directs the applications to be used by the users, affecting the diversity of choices needed in this segment. The link between the operational system and the application (and content) store thus functions as a worrying filter that gives the company great power over smartphone users. In the words of Tristan Harris, former Google design ethics consultant, "who controls the menu controls the choices".

6 A survey from the beginning of 2016 showed that Brazil was the second country with the highest number of users of the platform, with 70 million people, staying only behind the United States, with 167 million. A study carried out in 2016 by eMarketer, a company specialized in digital marketing, showed that 84% of Internet users in Brazil used YouTube to watch videos (EMARKETER, 2016). While YouTube has 1.5 billion users worldwide, the second free online video service, Vimeo, reached 100 million (SMITH, 2017).

7 The company has two of its portals (MSN.com and Live.com) among the most accessed sites analyzed. The market in which the company did not manage to enter was that of operating systems in mobile devices, reaching less than 1% of sales (SANTINO, 2016). The Android-iOS duopoly is so consolidated that no giant in the sector managed to gain market share, confirming the strong entry barriers and the consequent impact for the diversity from having only two operating systems effectively operating in the market.

8 Although the company did not provide information on users in the country, the above mentioned eMarketer survey indicated that 71% of interviewees said they had seen videos through the service. Next, with 50%, comes Globo, Google Play with 40%, Amazon with 20% and iTunes with 17% (EMARKETER, 2016). There is not, among other international services, a concrete threat for this leadership, with Netflix performing 177% better than the second place and 350% better than the third place.

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points, improving the signal and preventing interruptions in the streamings. Any company, individual or organization that might want have a reach like Netflix has today will face the challenge of signal quality and quite expensive cost.

On the other hand, the only national online video service that appears in the discussed lists belongs to Globo (Play Globe). Not by chance, this is not a new group that emerged in the context of the Internet or a non-profit producer, but the largest media conglomerate in Brazil, as shown by the study "Who controls the media in Brazil - Media Ownership Monitor", carried out by Intervozes in partnership with the organization Reporters Without Borders (RSF).⁹ The group revenue is five times bigger than the revenue of the one in second place (Record). Rede Globo has five broadcasters of its own and 118 affiliated, which reaches 99% of the population. The audience was 37%, more than double of the second placed network, SBT (14.9%).¹⁰

In the case of Globo, besides market dominance, there is one more element that makes Globo organization, for example, have an advertising share which is far superior to their audience. The company is not limited to the profit motive of its businesses. It is active in the political, cultural and social spheres of the country. Although it is not possible to further discuss here this aspect, several researchers have already documented the action of Grupo Globo¹¹ in the history of Brazil, in moments such as the military dictatorship, the protests for direct elections "Diretas Já" (made invisible by its network's coverage), several elections (and the historical episode of the edition of the debate between the candidates Fernando Collor de Mello and Luiz Inácio Lula da Silva, in 1989), in the political agenda in the most diverse subjects and decisions¹² and, more recently, in the impeachment of President Dilma Rousseff in 2016.

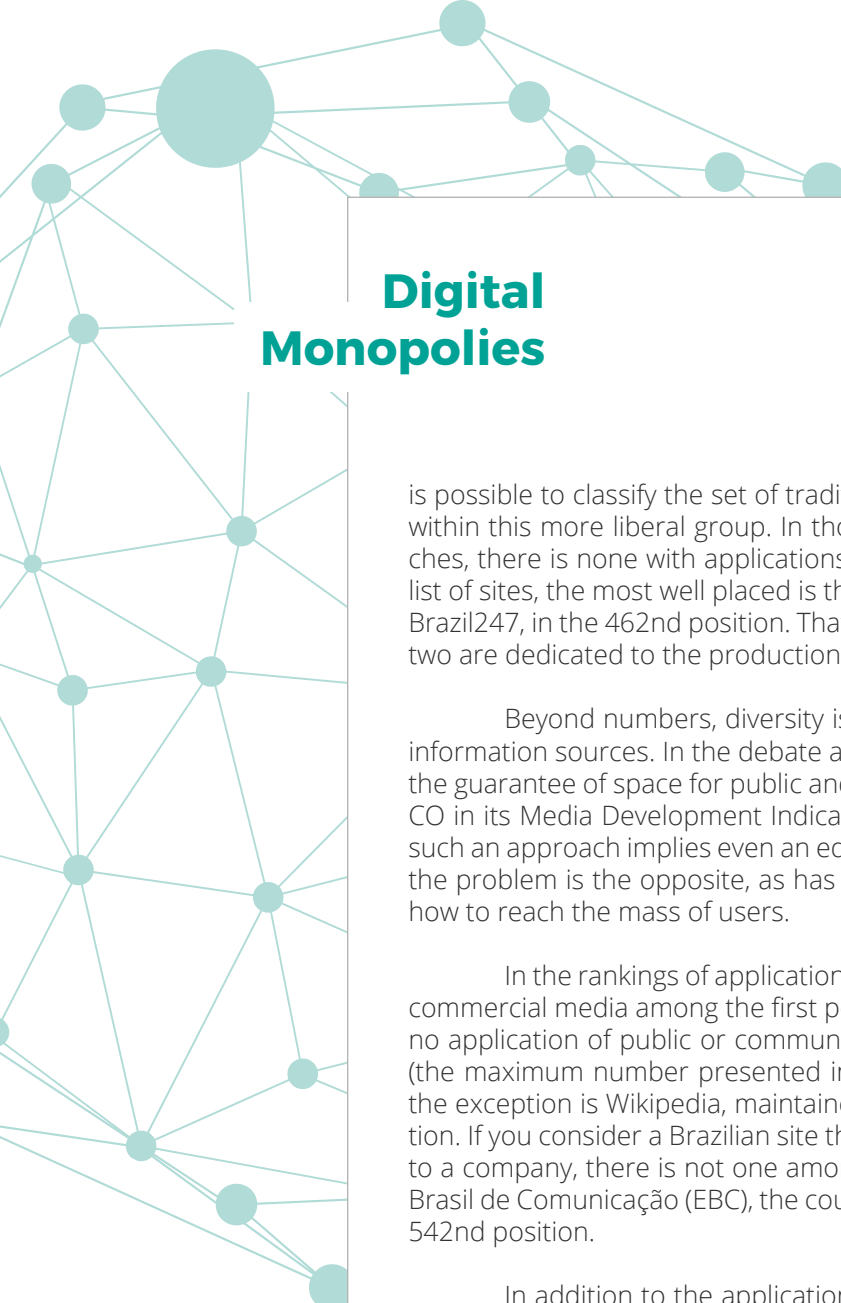
In 2017, Globo launched an advertising campaign entitled "100 million of

9 The project, the information collected and the analyses are available at <https://brazil.mom-rsf.org/br>.

10 Information compiled by the project "Who controls the media in Brazil". Available at <https://brazil.mom-rsf.org/br/midia/detail/outlet/rede-globo/>

11 As in Herz, Daniel, Celso Augusto Schröder and Nilo André Piana de Castro. *A história secreta da Rede Globo (The secret history of Globo network)*. Dom Quixote Editora, 2009; Brittos, Valério Cruz and César Bolaño. *Globe Network: 40 anos de poder e hegemonia (40 years of power and hegemony)*. Paulus, 2005; Bolaño, César. *Mercado brasileiro de televisão (The Brazilian television market)*. Editora da PUC-SP, 2004; De Lima, Venício Artur. *Mídia: crise política e poder no Brasil (Media, political crisis and power in Brazil)*. Editora Fundação Perseu Abramo, 2006; and Miguel, Luís Felipe, Biroli, Flávia. *Notícias em disputa: mídia, democracia e formação de preferências no Brasil (News in dispute: media, democracy and preferences shaping in Brazil)*. São Paulo: Contexto, 2017. Contexto, 2017.

12 In 1985, Ulysses Guimarães, a key politician of PMDB, questioned president Tancredo Neves, criticizing Antônio Carlos Magalhães' indication to the Ministry of Communications because of the request of Globo's patriarch Roberto Marinho and he replied: "Look, Ulysses, I fight with the Pope, I fight with the Catholic Church, I argue with the PMDB, with everyone, I just don't fight with doctor Roberto", as portrayed in Pieranti, Octavio Penna. *Políticas públicas para radiodifusão e imprensa (Public policies for broadcasting and press)*. FGV Editora, 2007. In 2002, candidate Luiz Inácio Lula da Silva stood out in the elections and was the victim of a panic wave provoked by businessmen and opposing sectors. Antônio Palocci, then campaign coordinator, who later became minister of Lula's finance ministry, wrote a document entitled "Letter to the Brazilian People" with commitments to calm these sectors. The content was negotiated with João Roberto Marinho, now president of the group council and Roberto Marinho's heir. The episode was told by himself in his book *"Sobre Formigas e Cigarras" (About ants and cicadas)* (Objetiva, 2007). In 2017, it was reported that the current President of Brazil, Michel Temer, met with João Roberto Marinho to discuss the coverage of his government and the approval of the pension reform proposed by the executive. DIAS, Marina. Boghossian, Bruno. *Temer se encontrou com cúpula da Globo para discutir delação e reforma (Temer met Globo leaders to discuss delation and reform)*. Folha de S. Paulo. Published on December 21, 2017.



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is possible to classify the set of traditional organizations, called in Brazil "great media", within this more liberal group. In those media players with more progressive approaches, there is none with applications between the 500 most downloaded ones. In the list of sites, the most well placed is the Portal Fórum, in the 233rd position, followed by Brazil247, in the 462nd position. That is, among the 500 most visited sites in Brazil, only two are dedicated to the production and dissemination of progressist information.

Beyond numbers, diversity is also expressed in different institutional forms of information sources. In the debate about traditional media, such a perspective implies the guarantee of space for public and community organization, as advocated by UNESCO in its Media Development Indicators (UNESCO, 2010). While in radio broadcasting such an approach implies even an equitable distribution of frequencies, on the internet the problem is the opposite, as has already been introduced: among millions of sites, how to reach the mass of users.

In the rankings of applications and sites, there is a clear absence of public or no commercial media among the first positions. In the case of applications, Play Store has no application of public or community media among the 540 most downloaded ones (the maximum number presented in the store site). Among the most accessed sites, the exception is Wikipedia, maintained by the Wikimedia Foundation, in the 13th position. If you consider a Brazilian site that has no profit purposes or that does not belong to a company, there is not one among the 500 most accessed. The portal of Empresa Brasil de Comunicação (EBC), the country's public media company, is ranked only in the 542nd position.

In addition to the applications and sites, a global look at pluralism and the diversity of information sources passes through the profiles of the two main content platforms existing in the country: Facebook and YouTube. More optimistic views see these platforms as a way to democratize the online environment, in which anyone could reach millions and influence the public debate. But a more attentive look, once again, deconstructs this idealized perception of the Web.

In the case of Facebook pages, if we consider media products and spaces (which would exclude, for example, artists), six of the 19 pages analyzed are linked to the Organizações Globo (31.5%). In addition to the percentage being representative, not by chance the company is the largest media conglomerate in the country and also figures in the rankings of most popular applications and sites. This transversal presence evidences the convergent character of the layer and also its centralization by players with greater market power. There are exceptions, such as the leadership of Cifras.com.br and the presence of the programmer Esporte Interativo in the ranking.

However, the first example refers to a platform of information about music (like notations and lyrics), and not a space for the exchange of messages that influences the public debate. The second example involves an issue of considerable appeal for the Brazilian population, with a differentiated product for football lovers: the transmission and coverage of the main European club tournament (Champions League). Among the pages of journalistic organizations and sites on Facebook, besides the already discussed Globo and UOL, only the site R7, from the Record group (controller of Record and RecordNews networks) and Rede SBT appear in the list. Regarding the great presence

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of artists, it is important to remember that this visibility is driven by their performance in other spaces of the cultural industry.

Regarding YouTube channels, there is a strong hegemony of contents dedicated to entertainment. But here there is a new and specific phenomenon: the existence of a large group of people doing what we previously called "diverse comments": videos about amenities, jokes or opinions about everyday life. Whindersson Nunes has 24 million followers. However, it is worth noting that, unlike a TV audience, it does not mean that all people in that condition are audience, because they do not all view all the videos of a given channel. The emergence of these players should be considered with caution, also considering the profile of spread contents, a discussion that will be better developed in the next subsection.

In an attempt to build up a general picture, we can say that, if on the one hand the Internet increased the number of players in its applications and content layer in comparison to other media, such as TV, on the other hand, the hegemony of large platforms and large national media groups prevents an effectively democratized space. On the contrary, the reach of platforms such as Facebook and YouTube has a dimension that no other player of the cultural industry achieved previously, even though several segments were already internationalized (such as the cinema and pay TV programmers). These platforms regulate the way in which other players will compete politically, socially and economically in this(ese) market(s).

As discussed throughout the subsection, the control of the layer and its internal segments (such as paid streaming) is geographically centralized, with a brutal hegemony of U.S. players, and concentrated in the giants of the Internet and national conglomerates, in a competition that does not occur without tension. The advancement of the big platforms' own works points to a scenario of even more concentration in the near future, since it is not unrealistic to think that these groups will act to benefit their own productions, as they already do.

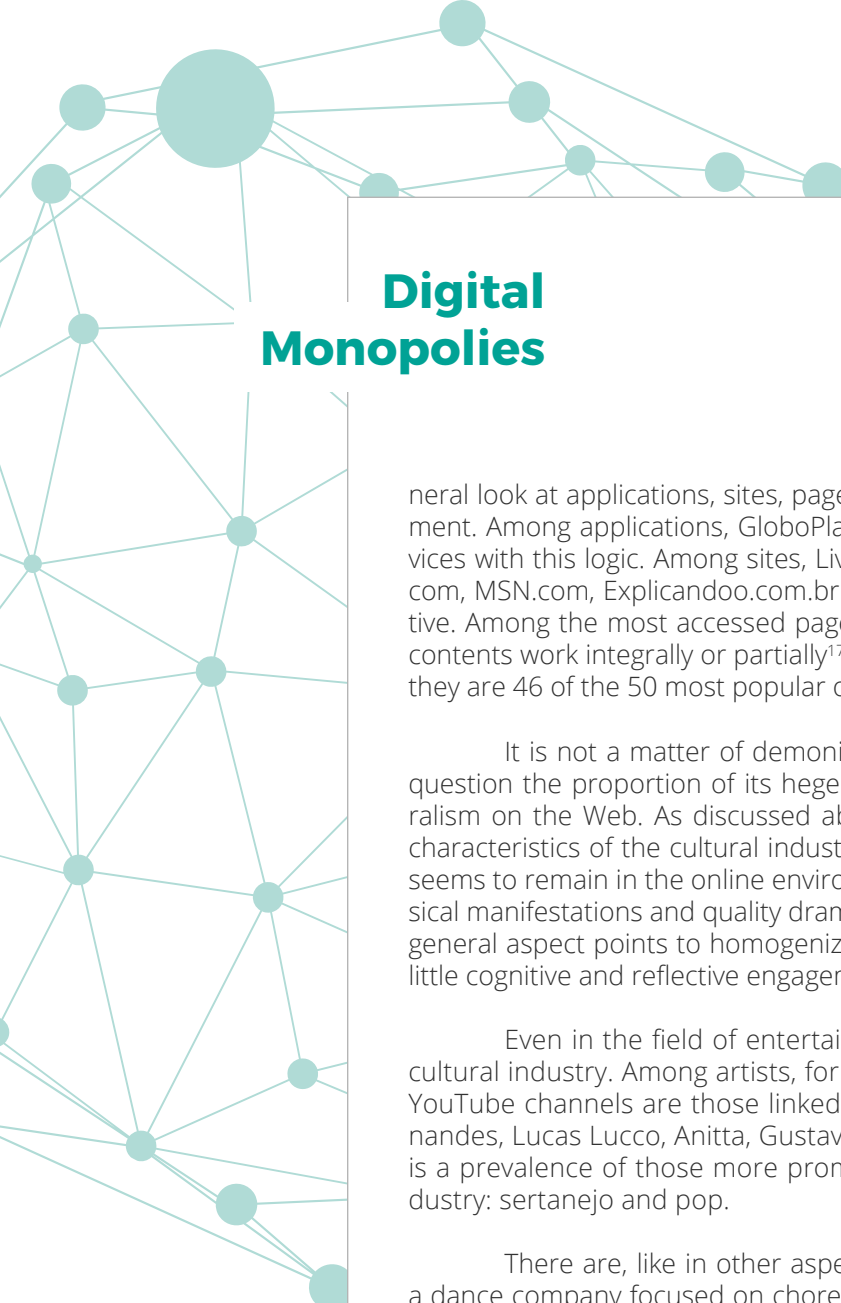
7.3 Variety de offered contents and formats

Diversity involves not only several sources of information, but also different formats, visions and contents. This difference is central both from the political point of view, in order to allow the democratic debate to equalize divergent understandings, and from the formation of cultural identities, to recognize the different segments and allow their expressions to be placed, reproduced and conversed, produced the dynamic element of conformation of new socio-cultural matrices.

The heterogeneity of the applications and content layer makes the identification of the degree of variety more appropriate in a combined way, identifying both general and specific trends of each of the segments. This will be the effort of this subsection, in which different dimensions of difference will be considered, considering the type of service, the purpose of the activity, the nature of the content, genders and formats and other aspects.

A first general tendency refers to the purpose of disseminated contents. A ge-

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neral look at applications, sites, pages and channels reveals a hegemony of entertainment. Among applications, GloboPlay, Netflix, Spotify, Palco MP3 and Deezer are services with this logic. Among sites, Live.com, Globo.com, Uol.com, Yahoo.com, Xvideos.com, MSN.com, Explicandoo.com.br and Otvfoco.com.br also operate with this objective. Among the most accessed pages, 27 of the 32 pages linked to the circulation of contents work integrally or partially¹⁷ with entertainment (84%). On YouTube channels, they are 46 of the 50 most popular ones, with an even higher percentage: 92%.

It is not a matter of demonizing entertainment. However, it is appropriate to question the proportion of its hegemony and the effects it has on diversity and pluralism on the Web. As discussed above, the domain of entertainment is one of the characteristics of the cultural industry consolidated in the twentieth century and that seems to remain in the online environment. There is this large universe of diverse musical manifestations and quality dramaturgy (such as in Globo Play and Netflix), but the general aspect points to homogenized, little or no critical content and that generates little cognitive and reflective engagement of audiences on their realities.

Even in the field of entertainment, we see hegemonic manifestations of the cultural industry. Among artists, for example, the most popular Facebook pages and YouTube channels are those linked to singers such as Jorge and Mateus, Paula Fernandes, Lucas Lucco, Anitta, Gustavo Lima and Ivete Sangalo. In terms of style, there is a prevalence of those more promoted by recording labels and the promotion industry: sertanejo and pop.

There are, like in other aspects, exceptions. This is the case of "Os Cretinos", a dance company focused on choreography for hits. Other two channels are relevant because they are constituted as alternatives in the field of music: Kondzilla and GR6 Explode. However, from the point of view of formats and their own content, both reproduce another dominant style in the national music industry (although it is worth highlighting its peripheral cultural character): funk. Aline Barros and Bruna Karla are specific cases, once the gospel music industry is strong, although sometimes it keeps a distance from traditional channels. The large number of Christians in the country and their circuits, stimulated (or often imposed) as part of religious practice, guarantee an important visibility for these and other singers.

Additionally, there is a concern about what is not present among the most popular in the layer and, therefore, despite being produced, they are not massively consumed and do not influence a big group of users. One of these formats is that of journalistic sites, which are minority, even though they are linked to traditional media conglomerates of similar approaches. There is not neither educational content, with some exceptions of channels about curiosities on YouTube. The informative dimension itself of some sources is mixed with entertainment with the aim at attracting audiences with the curiosity of the messages, such as in sites like Explicandoo and Fatos Desconhecidos.

Despite the fact that younger generations are becoming more and more connected, only YouTube channels show programmers aimed at children, such as Galinha

¹⁷ Some portals like UOL, and sites like Globo.com, Live.com, MSN.com and Yahoo.com.

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Pintadinha¹⁸ and Turma da Mônica. This generation deserves special attention, once it became orphan of television programming after the change of strategy of the big networks, which removed great part of the series and other attractions aimed at this public, except the Public TV Network run by TV Brazil.

As for the nature of the activities, another general characteristic is the hegemonic presence of the platforms both among applications and sites. In the first group, their presence varies between 63% (Play Store) and 75% (Apple Store) of downloads in virtual pages. In the second, they are responsible for 69% of the most accessed pages. Although there is a internal variety in the platforms (according to modalities already previously listed and defined), the predominance of this type of player brings a series of important issues related to diversity.

The first one refers to the already mentioned entry barriers, such as convergence, centralization and network effect. That is, if in a market characterized by giants or large conglomerates there is already the difficulty of expressing diversity (such as the Brazilian television market), in a segment led by platforms, the conditions for an environment that ensures different expressions in a balanced way are even more difficult.

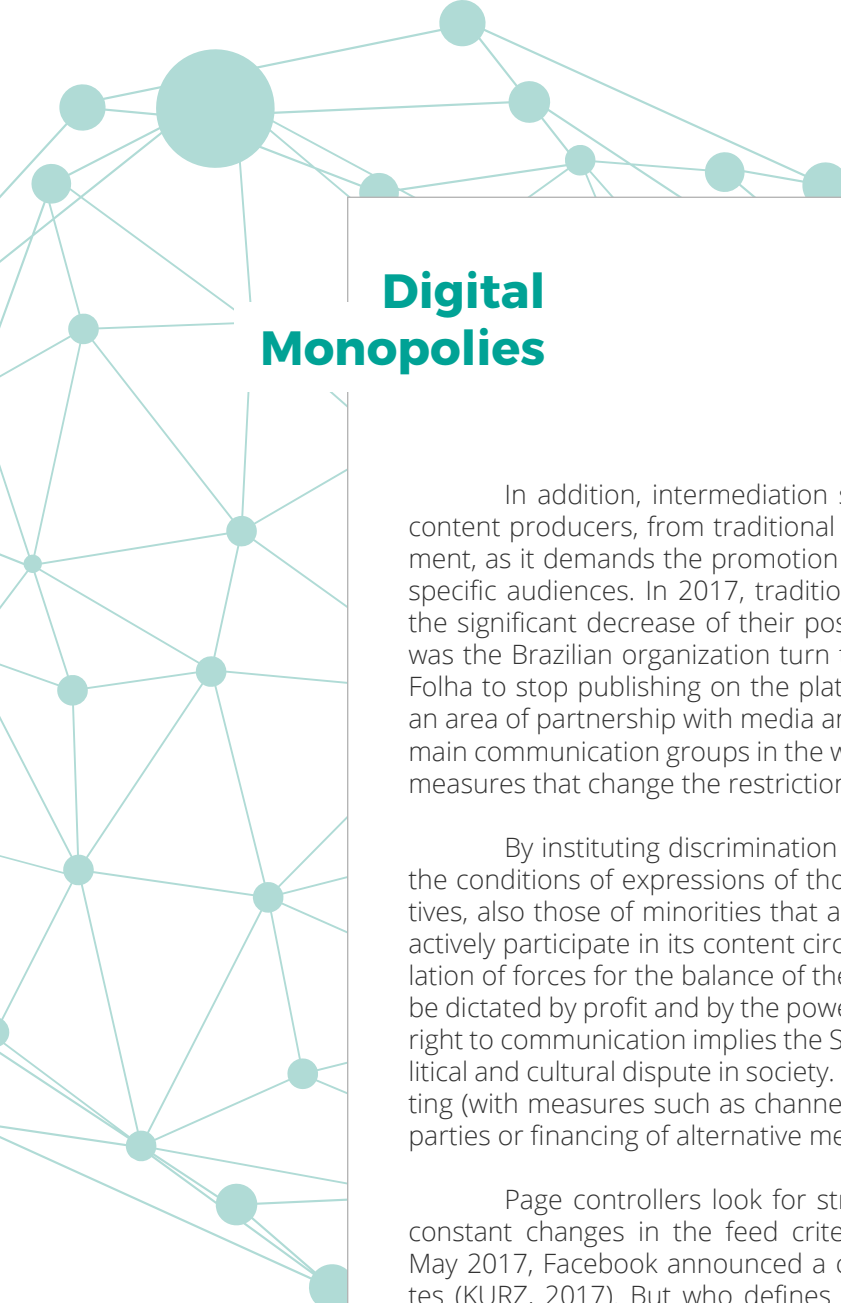
The second issue is the control of intermediation. This topic deserves special attention because of the depth of the impacts on the Internet diversity. This activity, far from being something new, emerged at the beginning of the 20th century, with film distributors. But on the Internet, with the profusion of available contents, the intermediation gained a central position, organizing the access of users to these information. In the Brazilian case, this activity, part of the nature of platforms, is strongly predominant not only among these players. UOL created a "community" of sites, blogs and the like exactly because of the intermediation that plays the role of an aggregating portal.

Facebook and YouTube consolidated their condition of digital monopolies on the constitution of this intermediation, favored by the network effect. On Facebook, this process is structured from the timeline, which defines what content will appear to users. This mechanism brings problems in terms of diversity. It removes from the user the basic right to search for information (by defining which profiles and pages to follow or which he/she will become friends with) and passes to the system algorithm this prerogative (ESLAMI et al., 2015). Since in the Internet is not enough to produce and publish, but to be seen and consumed, this filter creates a fundamental barrier to an effective presence in the online environment.

On the side of information producers, intermediation is also problematic. The requirements and rules to access audiences started to be defined by these players. On the Internet, even with regulations at national and international levels (be it in laws and regulations or protocols and standards), the platforms gained enormous power to manage their global communities. The demolition of the organic reach of pages, pointed at this work as an anticompetitive practice, is one of the examples. It had an immediate impact on reducing the reach of these information sources.

¹⁸ In February, Galinha Pintadinha's channel became the biggest music channel on YouTube Brazil, surpassing singer Rihanna's channel. SABBAGA, Julia. Galinha Pintadinha overcomes Rihanna and becomes the biggest music channel on YouTube Omelete. Available at: <<https://omelete.com.br/musica/noticia/galinha-pintadinha-supera-rihanna-e-se-torna-o-maior-canal-de-musica-no-youtube/>>

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In addition, intermediation subjects all pages authors (among them, various content producers, from traditional and alternative organizations) to the logic of payment, as it demands the promotion of posts so that they can reach their followers or specific audiences. In 2017, traditional newspapers of the United States questioned the significant decrease of their posts reach (FOLHA DE S. PAULO, 2017). In 2018, it was the Brazilian organization turn to complain about the same, with the decision of Folha to stop publishing on the platform. Due to claims like these, Facebook created an area of partnership with media and has been trying to establish a dialogue with the main communication groups in the world. However, the company did not take effective measures that change the restrictions to the pages.

By instituting discrimination by the economic criterion, Facebook undermines the conditions of expressions of those with few resources (including non-profit initiatives, also those of minorities that are not represented in the traditional channels) to actively participate in its content circulation. This represents an extremely unequal relation of forces for the balance of the democratic debate in the network, which cannot be dictated by profit and by the power of money. On the contrary, the notion of human right to communication implies the State as an active entity to balance the forces in political and cultural dispute in society. While this debate already exists in radio broadcasting (with measures such as channels and productions quota, broadcasting rights for parties or financing of alternative media), it is very incipient in the digital environment.

Page controllers look for strategies to overcome these limitations. However, constant changes in the feed criteria make this adaptation movement difficult. In May 2017, Facebook announced a change to reduce the visibility of "click-hunter" sites (KURZ, 2017). But who defines what this is? Certainly there is fertile ground for confusion and posts without this type of intention will be classified as such, especially because the selection is automatically made by algorithms. The risk for freedom of expression - and, consequently, for online diversity - is significant. Another change already mentioned was made in December 2017 to reach the "engaging hunters" sites, such as those that request likes or make surveys. What if an organization wants to organize a voting for its network using the platform?

The criteria for the reach demolition or promotion of certain pages are not at all transparent, leaving the user without knowing why a certain content appears in his/her timeline and another does not. At the same time, the tool that allows the user to see posts in chronological order or the so-called "main stories" automatically changes to the second mode, legitimating the selection made by the algorithm. These systems are configured by what Frank Pasquale calls "black-boxes" (PASQUALE, 2015), and there are frequent studies that register how algorithms can discriminate when treating data¹⁹ (SANDVIG et al., 2016).

The opacity maintained by digital platforms has motivated several questions. The first one is related to the formation of bubbles (PARISER, 2011) or, that is, the exposure of users to positions similar to theirs and the reproduction of these fluxes. The second one, linked to that, refers to the diffusion of the so-called "fake news", which

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¹⁹ In 2009, Hewlett-Packard suffered public questioning after indications that a facial recognition algorithm did not identify black faces under certain conditions.

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has already been previously discussed, especially regarding the risk of the reactions resulting in violations of the users' freedom of expression. The issue received special attention in Brazil, including bills aimed at criminalizing the practice and with initiatives of the Superior Electoral Court (TSE) to prevent "fake news" during the 2018 elections.

The disproportionate response of the country's main electoral body is a result of the concern of authorities and the political class regarding the influence of Facebook and other platforms on the country's next electoral dispute, following the global debate triggered by the controversial role of the company in Donald Trump's election, in the United States. In Brazil, WhatsApp is also a social network whose impact has been discussed, both because it is the most popular in the country and because of its architecture, which makes it difficult to identify the origin of the messages,²⁰ as well as the difficulty of monitoring the reach of texts.

Also in the electoral sphere, the mini-reform approved in October 2017 (Law 13.488/17) allowed paid propaganda through the promotion of contents by candidates. Until the municipal elections of 2016, this type of practice was forbidden, with candidates being able only to maintain site, profiles in social networks and send messages to the voters. Besides benefiting only Facebook and Google, such measure benefits candidates with more resources to the detriment of those with lower structure. Another worrying impact for the democratic debate in the elections is the possibility of messages driven individually or directed to very specific groups, making it difficult for competitors and voters to control candidates' proposals and promises (PITA, 2017).

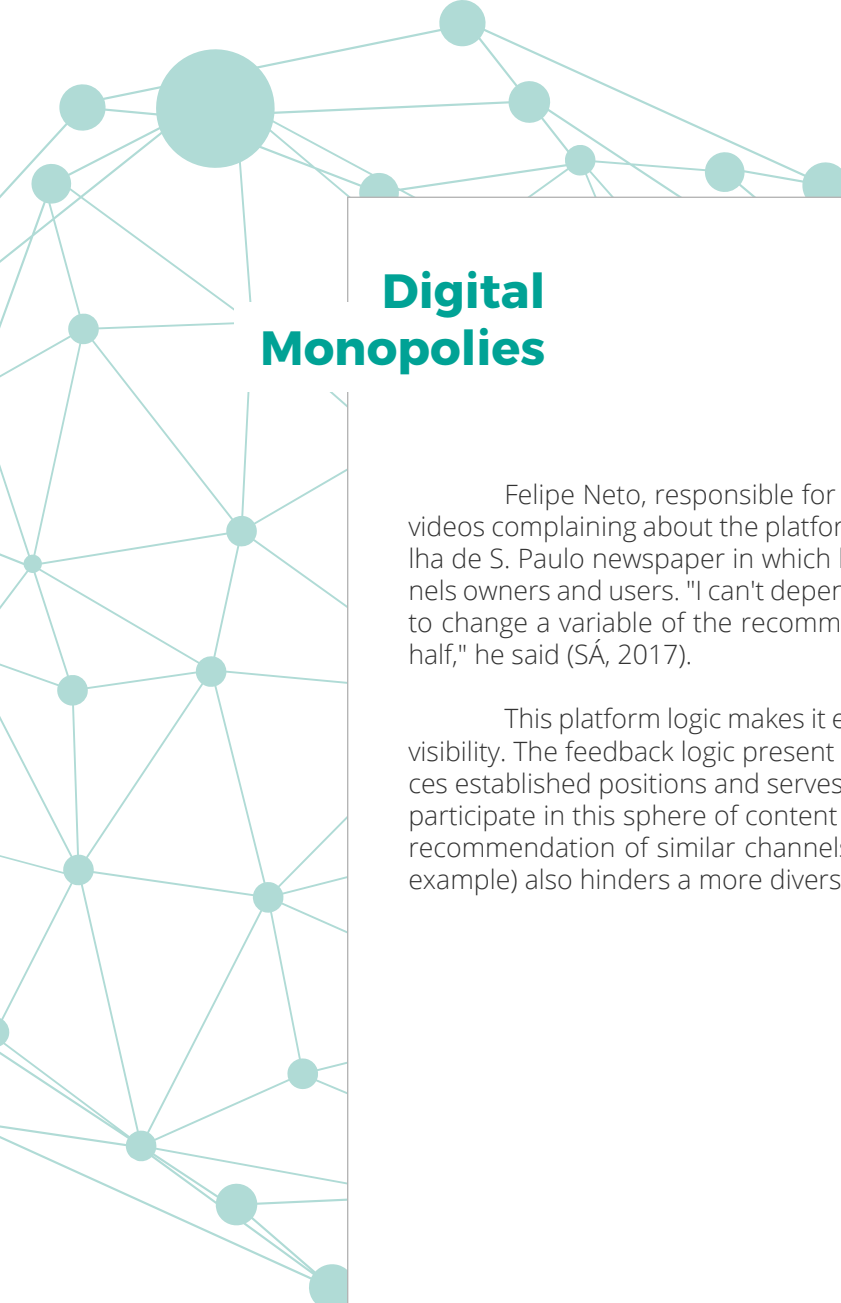
Great part of these intermediation logics, and the problems arising from them, also include YouTube. On the user's home page, recommended videos appear from the processing of the system algorithm. There are also functionalities such as filters by theme and the identification of what has visibility at the moment (trending). The network architecture is more vertical, with channels and their followers, but each user can subscribe playlists and follow other profiles.

These filters are critical for videos to circulate and call the attention of the viewers. Thanks to its repository size, YouTube also works with an on demand logic, both from searches inside the platform and in other mechanisms, such as Google itself. Differently from Facebook, where the user spends time "role-playing the feed" to see what his/her network produced or shared, on YouTube the user spends less time receiving what is offered and moves to find specific content.

Even channels with millions of followers, like the ones already presented, depend on the notifications sent to these people so that such network get visualizations - the real reference for the monetization of the channels owners with advertisements. Lucas Lira, the 4th Brazilian channel in the list of followers, had to leave the space alleging technical problems of the platform, such as failures in the notifications, and created a new channel, Invento na Hora, which also appears in the list of the most popular channels in the country.

²⁰ Unlike Facebook, where a shared post keeps the record of its origin, in Whatsapp the routing of a text occurs only with the copy of that text, without any information about where it comes from.

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Felipe Neto, responsible for the second largest channel, has already recorded videos complaining about the platform. In September 2017, he gave an interview to *Folha de S. Paulo* newspaper in which he criticized the power of YouTube over the channels owners and users. "I can't depend on that for my life. If tomorrow YouTube decides to change a variable of the recommendation algorithm, it will reduce my audience by half," he said (SÁ, 2017).

This platform logic makes it even more difficult for a less known channel to gain visibility. The feedback logic present in the platform's intermediation dynamics reinforces established positions and serves as an obstacle to individuals or groups wishing to participate in this sphere of content circulation. From the point of view of formats, the recommendation of similar channels (be it by type of content or by musical style, for example) also hinders a more diverse consumption behavior by users.

8. Case studies

Next, we present two case studies of relevant players in the applications and content layer in Brazil. The choice was to highlight two national content producers/distributors. The two main national content production groups operating on the Internet chosen were: UOL/Folha and Globo. The case studies are not exhaustive examinations, but they unravel a portrait of these players and how they move, highlighting four dimensions: history, activities, finances (business model and financial situation) and strategies.

8.1 Grupo Globo¹

History

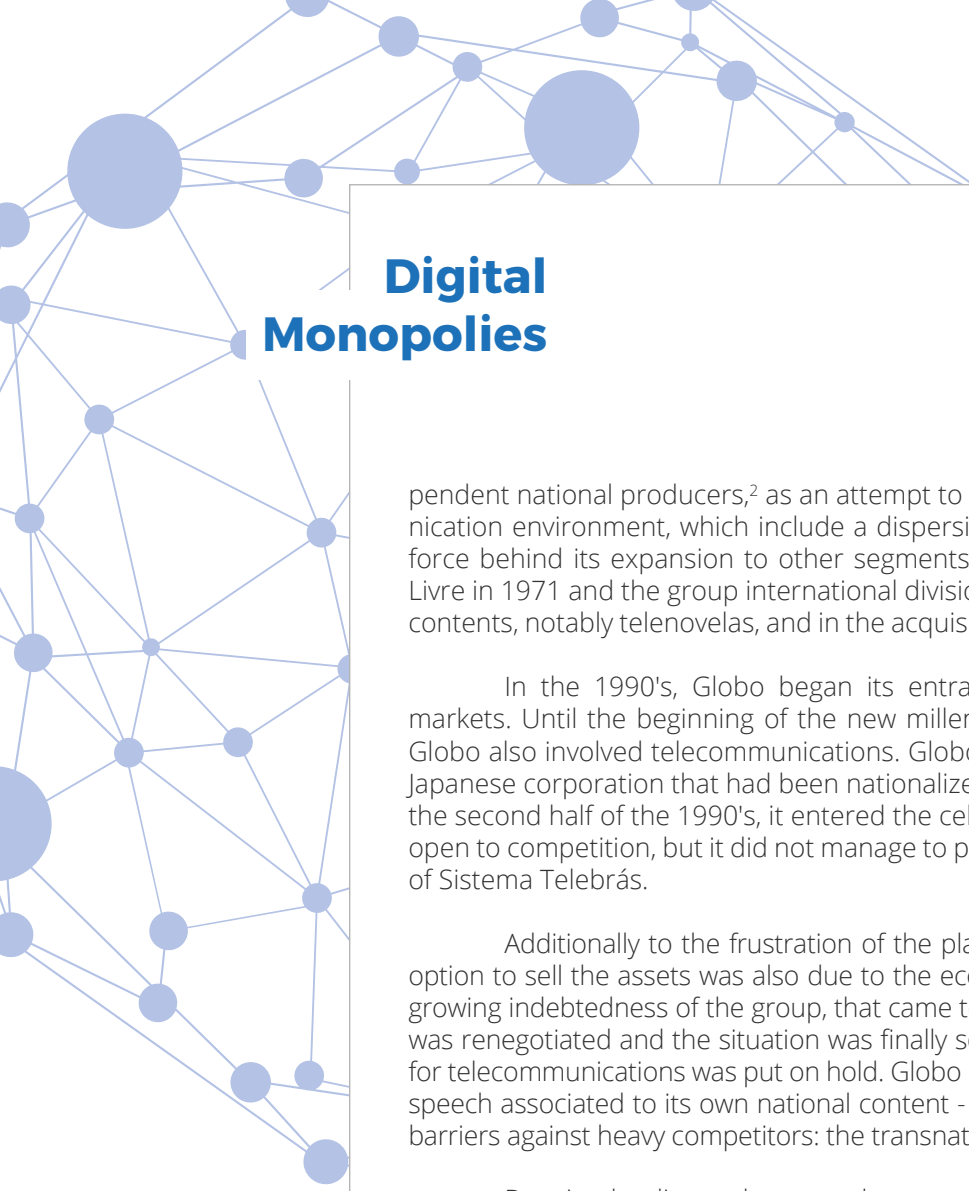
The first incursion of the Marinho family in the field of communications was in the area of printed newspapers, with newspapers A Noite, launched in 1911, and O Globo, of 1925. The printed production concentrated attention until 1944, when Rádio Globo do Rio de Janeiro was founded, first step for the expansion of the businesses to other segments.

In the 1960's, especially after the military coup, Rede Globo took over the role of acting as a mediator between the multinational financial-industrial interests and the associates of the national market that was constituted with the income concentration and that would be stimulated by it. Simultaneously, the group would act in the production and homogenization of a consumerist and conservative cultural standard, in accordance with the project defended and imposed by the civil-military dictatorship (CAPARELLI, 1982). In addition to financing the technical base of this expansion, the State allowed Globo to expand through the formation of a network of affiliates beyond the concentration limits established by the legislation.

On the screen, the broadcaster developed a model with a horizontally and vertically organized programming, which had the objectives of creating the habit of watching TV, building audience loyalty and maintaining a growing audience. In this case, it is worth highlighting the proposal of the prime-time formula, a privileged space for capturing audiences and advertising resources, with the strategy of placing the National News between two soap operas. This model took TV Globo to the leadership in the 1970s (BORELLI; PRIOLLI, 2000, p. 19). An important element of its model is the fact that most of the programs shown on TV Globo were produced by the company itself, which led, in 1995, to the formation of a large production structure, Central Globo de Produções, known as Projac.

In the last decade, Globo has incorporated other contents to its programming, specially series and miniseries produced by other groups, including contents of inde-

¹ Written by Helena Martins, research collaborator.



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pendent national producers,² as an attempt to respond to the changes in the communication environment, which include a dispersion of the audience. TV was the driving force behind its expansion to other segments, as evidenced by the creation of *Som Livre* in 1971 and the group international division in 1980, which acted in the export of contents, notably telenovelas, and in the acquisition of Italian Tele Monte Carlo in 1985.

In the 1990's, Globo began its entrance into segmented TV and telecom markets. Until the beginning of the new millennium, the expansionist plan of Grupo Globo also involved telecommunications. Globo had the largest share of NEC Brazil, a Japanese corporation that had been nationalized by governmental decision in 1982. In the second half of the 1990's, it entered the cellular telephony sector, which had been open to competition, but it did not manage to participate in the process of privatization of Sistema Telebrás.

Additionally to the frustration of the plans related to the telephony sector, the option to sell the assets was also due to the economic scenario of the country and the growing indebtedness of the group, that came to enter in a "default" situation. The debt was renegotiated and the situation was finally solved in 2006. Since then, the ambition for telecommunications was put on hold. Globo began to strategically adopt a nationalist speech associated to its own national content - which, in practice, meant creating entry barriers against heavy competitors: the transnational telecommunication operators.

Despite the dispute between the segments, in 2011 a new Law for Pay TV (Conditional Access Service Law) settled the agreement that defined the limits of every player, reserving to radio broadcasting and to Globo the focus on open TV and pay TV programming. Also in this period the Group increased its investments on the internet through streaming services.

Activities

Today, only in the communications sector, Globo operates in the audiovisual, editorial, sound and digital segments, through various companies added to the holding belonging to the Marinho family, Organizações Globo Participações S.A., currently Grupo Globo, and its subsidiaries. In addition to the control of communication organizations, the group has maintained, since 1977, the Roberto Marinho Foundation, which works on various projects in the areas of culture and education.

Open TV

Main organization of the group, TV Globo owns five stations located in Rio de Janeiro (RJ), São Paulo (SP), Recife (PE), Brasília (DF) and Belo Horizonte (MG), which distribute their contents through a network of 118 affiliated stations, which also provide content for the group's head programmers and other organizations, such as the news portal G1.

² The first and until now the main producer associated with the broadcaster in the production of a series was O2 Filmes. Partnerships were made for the following contents: *Cidade dos Homens* (series, 2002 - 2006); *Antônia* (miniseries, 2006 - 2007); *Som e Fúria* (miniseries that adapted a Canadian series, 2009); *A Mulher do Prefeito* (series, 2013); *Felizes Para Sempre?* (series, 2015); *Os Experientes* (series, 2015, with a second season in 2017); *13 dias longe do sol* (miniseries, 2018). See, among other information: <<http://www.o2filmes.com/noticias/2748/nos-50-anos-da-tv-globo-conheca-as-serie-produzidas-em-parceria-com-a-o2/>>. Accessed on January 15, 2018.

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Globo Internacional³ distributes seven pay television channels to countries on all continents, holding more than three million subscriptions. Signals are transmitted via satellite, cable, IPTV and OTT. Globo's international enterprise has already led to the acquisition of the Italian Tele Monte Carlo channel TV Internazionale, holder of the rights of transmission of the World Cup in Italian, in 1982, and to a partnership with the Sociedade Independente de Comunicação (SIC), Portugal's main private channel, in 1992. Both participations were sold in 1994 and 2003, respectively. Since 2001, it has a contract with the North American network Telemundo, offshoot of NBC network directed to the audience of Latin origin and which shows Globo telenovelas.

Pay TV

Today, Globo is the company with more pay TV channels: 61, which is equivalent to 30.7% of the total. According to Ancine study, the group has six programmers. According to Ancine (2016), there are 2 news channels; 2 channels for children; 6 sports channels; 18 pay-per-view sports channels, being 16 dedicated to soccer and 2 to martial arts; 12 variety channels and 20 dedicated to movies and series. Of the total, 10 channels linked to Grupo Globo are considered Brazilian Channels of Qualified Space. The main group programmer, Globosat, besides representing and mediating programming related to pay TV for the operators NET, SKY and Claro TV, also acts as a representative for programming negotiation of Telecine, NBCUniversal, PB Brazil, Canal Brazil and Rádio Globo for other operators in the market, according to the company financial report.⁴

Cinema and audiovisual production

In the audiovisual industry, Globo Filmes, the group's cinematographic branch operating since 1998, has an important participation in the Brazilian market. According to official information,⁵ it has already participated in more than 200 productions, in association with independent producers and national and international distributors.

Publications

It has newspapers and magazines in printed and digital versions. Infoglobo, a company owned by the group, controls O Globo, Extra and Expresso newspapers, Globo and Extra sites, and O Globo agency. The group also controls Valor Econômico newspaper, initially the result of a partnership with Grupo Folha, but which became fully controlled by Grupo Globo in 2016. Agência O Globo distributes reportages, photographs, infographics, articles and special coverage from newspapers and sites, but it also produces its own content and promotes books, exhibitions and other projects.

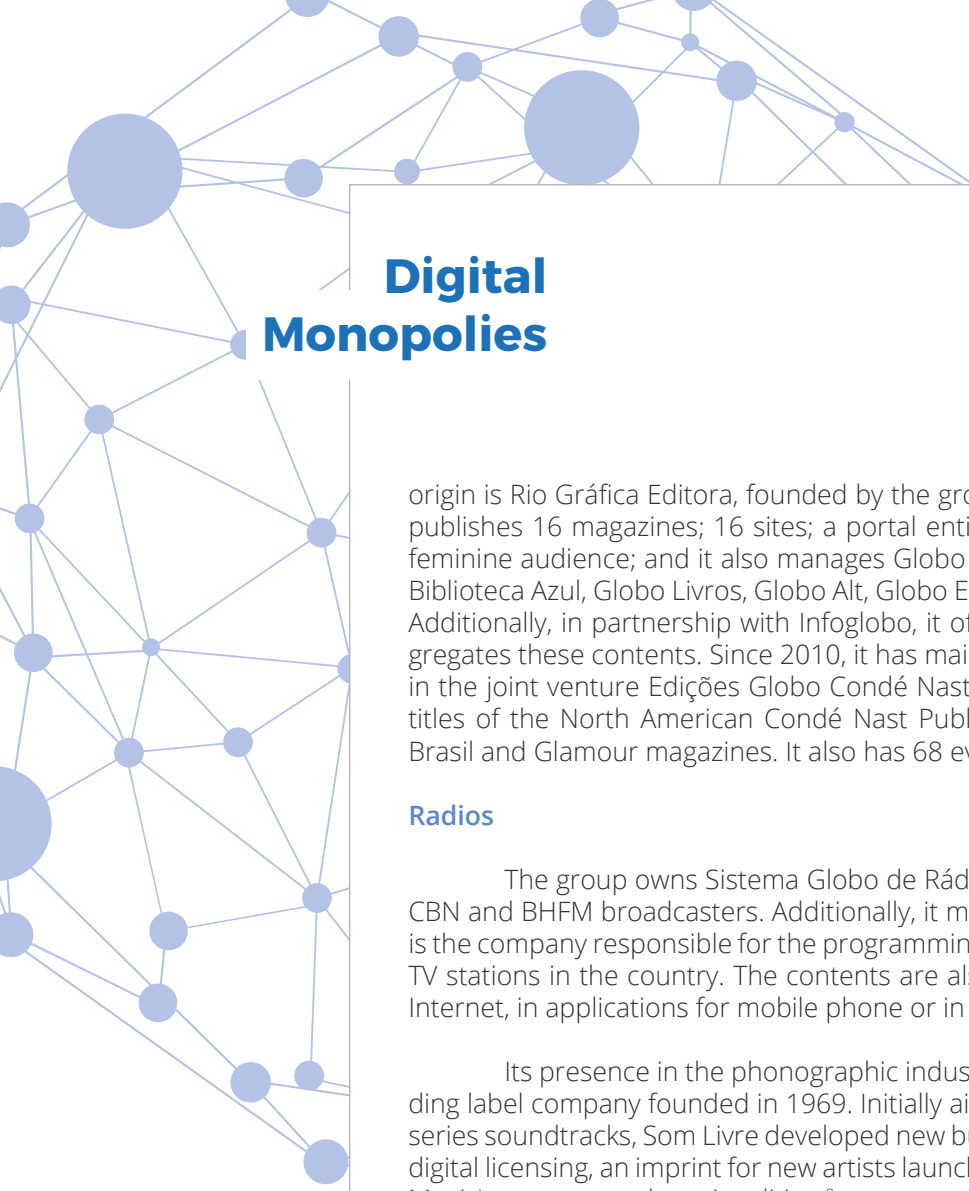
Editora Globo⁶ is responsible for the magazines and their respective sites. Its

3 Available at: <<http://globointernacional.globo.com/GloboOn/paginas/Institucional.aspx>>. Accessed on December 7, 2017.

4 Globosat, Administration Report 2015 – 2016. Available at: <https://brazil.mom-rsf.org/uploads/tx_lfrogmom/documents/70-1071_import.pdf>. Accessed on January 2nd, 2018.

5 Available at: <<http://globofilmes.globo.com/quem-somos/>>. Accessed on December 7, 2017.

6 Editora Globo also values its presence in a multiplatform environment. In its institutional presentation, it emphasizes: "Fully connected with its readers and consumers, Editora Globo is present in all platforms, producing an independent journalism that anticipates the transformations of society and



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origin is Rio Gráfica Editora, founded by the group, in Rio de Janeiro, in 1952. Today, it publishes 16 magazines; 16 sites; a portal entitled "Meus 5 minutos", directed to the feminine audience; and it also manages Globo Livros, the publishing house that owns Biblioteca Azul, Globo Livros, Globo Alt, Globo Estilo, Globinho and Principium imprints. Additionally, in partnership with Infoglobo, it offers an application, Globo+,⁷ which aggregates these contents. Since 2010, it has maintained a partnership with Condé Nast, in the joint venture Edições Globo Condé Nast, responsible for the publication of the titles of the North American Condé Nast Publications in Brazil, among which Vogue Brasil and Glamour magazines. It also has 68 event brands.

Radios

The group owns Sistema Globo de Rádio (SGR), which comprises Rádio Globo, CBN and BHFM broadcasters. Additionally, it maintains more than 50 affiliates. Sound! is the company responsible for the programming of 32 music channels for the main pay TV stations in the country. The contents are also available in sites and players on the Internet, in applications for mobile phone or in their social networks.⁸

Its presence in the phonographic industry is guaranteed by Som Livre, a recording label company founded in 1969. Initially aimed at promoting telenovela and mini-series soundtracks, Som Livre developed new business areas, such as international and digital licensing, an imprint for new artists launching (Slap), an electronic imprint (Austro Music), concerts and music editing.⁹

Digital

The main aggregator of the group's portals is Globo.com, which integrates at least 187 sites of the different communication companies of the Marinho's family, with emphasis on G1, a news portal launched in 2006.¹⁰ Globo.com also acts in the provision of services and technological platforms related to the Internet for the group's companies.¹¹ Besides the sites gathered in the main portal, there is the portal Meus 5 Minutos,

helps to build a better world." Available at: <http://editora.globo.com/midiakit/arquivos/MidiaKit_Institucional.pdf>. Accessed on December 6, 2017. However, we must notice that the Globo Mags aggregator was launched only in 2015, offering access to 15 magazines of the group through an application.

7 In September 2017, the Globo Mags application was converted into Globo+, adapted for cell phones and tablets, through a partnership between Infoglobo and Editora Globo. In addition to publications editions, both from newspapers and magazines, it offers updated digital content throughout the day, with reports, articles, analysis, videos and other exclusive and segmented material. The business model is as follows: in the first 30 days, access to all content is free. After this period, it is necessary to subscribe it, with the following options: the complete package with the versions of the magazines, O Globo and Extra for the monthly value of R\$ 29,90, and the basic version without the daily editions of the two newspapers, for R\$ 19,90. For those who subscribe the daily newspaper O Globo and have premium digital subscription packages or receive the daily newspaper at home, Globo+ is free. Information available at: <http://www.grupoglobo.globo.com/noticias/infoglobo_publisher_globe_lancam_aplicativo_globo+.php>. Accessed on December 6, 2017.

8 Information available at: <<http://anuncie.globo.com/sgr/noticia/2014/07/institucional.html>>. Accessed on December 5, 2017.

9 Information available at: < <http://www.somlivre.com/>>. Accessed on December 5, 2017.

10 Information available at: < <https://brasil.mom-rsf.org/br/midia/detail/outlet/globocom/>>. Accessed on December 5, 2017.

11 Information available at: <<http://grupoglobo.globo.com/>>. Accessed on January 5, 2017.

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which claims to be dedicated to the feminine public; the technology portal Techtudo; those directed to the real estate market, Zap Imóveis for ads and Zap Pro, for brokers; and the institutional ones, such as Memória Globo and the site of the Roberto Marinho Foundation itself.

Finance

Balances presented include businesses of Globo Comunicação e Participações, such as open and cable television channels, magazines, Internet and music businesses, as well as the group's participations in other companies, but not the results of printed media and radio organizations. Data is expressed in nominal values, therefore they do not consider the inflation of each period. Although the values presented by Globo are doubtful - there is ongoing investigation on undeclared negotiations involving the rights of the transmission of sports championships -, they can be useful for the visualization of how the group presents its financial situation.

The net revenue, which was R\$ 8,734 billion in 2010, increased steadily until 2015, when it reached R\$ 15,332 billion. The situation changed in the following years. In total, the revenue of 2016 was R\$ 14,801 billions. Analyzing the financial balance in detail, we see that there was an expressive decrease on the controller (TV Globo and Internet operations, as shown below), but also a decrease on the controlled ones (pay TV, magazines and partnerships).

Em R\$	2010	2011	2012	2013	2014	2015	2016	2017
Net revenue	8,7 bi	9,5 bi	12,5 bi	14,6 bi	16,2 bi	16,0 bi	15,3 bi	14,8 bi
Net profit	2,7 bi	2,1 bi	2,9 bi	2,5 bi	2,3 bi	3,0 bi	1,9 bi	1,8 bi
Consolidated revenue	270,4 mi	483,7 mi	1,2 bi	749,8 mi	918,1 mi	2,1 bi	1,6 bi	943,4 mi
Consolidated expenses	106,4 mi	263,6 mi	344,4 mi	530,0 mi	875,4 mi	1,4 bi	1,2 bi	422,1 mi

Fonte: Martins, 2018

The controller net revenue was R\$ 9,779 billion in 2017, against R\$ 10,247 billion in 2016. When we consider its operational result, we see that, for the first time since Globo began to disclose these reports with the current methodology, in 2009, a deficit of R\$ 83.352 million was recorded. The negative values are, above all, linked to operational expenses, such as sales expenses (R\$ -1,152 billion) and the so-called general and administrative expenses (R\$ -1 billion). Still so, the group obtained a net profit of R\$ 1,8 billion, which was possible thanks to the businesses of pay TV and other investments, especially the financial ones.

Last year, financial revenue also dropped from R\$ 1.67 billion in 2016 to R\$ 943.4 million in 2017 - a decrease of more than 41%. However, when compared to the financial revenue of 2010, which was R\$ 270.408 million, the total value increased and played an important role for the group net results. In 2017, while the controller operations have generated a large deficit, the financial balance was more than R\$ 522 million, which is equivalent to less than one third of the total net profit.

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Strategies

Although it has not completely abandoned the logic of the walled gardens, Globo began to compete for space on the Internet and in the various technological devices available today.

Globo Play

On the commercialization of contents in multiple screens, Globosat Play and Globo Play platforms stand out. This new distribution platform enabled free access to live programming and program sections, as well as on demand programs, getting closer to the Netflix model. With Globo Play, the group began to participate and dispute the streaming, making all its programming available for smartphone, tablet or desktop. Currently, these two aggregators are available on Samsung, LG, Sony, Philips, and Panasonic Smart TVs; on Xbox One and Xbox 360 video game consoles; as well as on the Web and the main application stores.

In November 2016, Globo announced that 9.5 million downloads were made from Globo Play. Regarding Globosat Play, it informed, through the January 2018 release, that the number of users increased 36% in 2017, but did not present the downloads volume - which, as we saw, is much lower than the one registered by the application linked to open TV. Other numbers help understand tendencies. According to Globo, the video consumption on Globosat Play increased 28%. On the other hand, video on demand consumption, 248%. The consumption of live video increased only 4%.

Besides Globo Play and Globosat Play, two main elements of the current strategy to guarantee the presence of the group in multiple screens, Globo states that its presence on the Internet, be it through official profiles in social networks or the sites of the conglomerate organizations, makes it reach an average of 14 million people per day, having impacted 63 million users per month, in 2017. For this reason, the company says that "[...] provenly, Globo occupies a leading position in on and offline audiences".¹²

New services

Although it has not completely abandoned the logic of the walled gardens, Globo began to compete for space on the Internet and in the various technological devices available today.

New services

As part of the change of its strategic vision, Globosat launched at the end of last year a new business unit, VIU Hub, specialized in digital content and presented as the digital branch of Globosat. The performance of this unit is divided into two fronts: the first one, of content, focus in the search for new talents that result in the realization of projects for Globosat channels and the offer of digital content focused

¹² This information and the sentence can be seen on the disclosure of the campaign "100 million of some". Available at: <<https://redeglobo.globo.com/novidades/noticia/em-nova-etapa-da-plataforma-milhoes-de-uns-globo-compartilha-conhecimento-com-o-mercado.ghml>>. Accessed on April 30, 2018.

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on social networks and influencers.¹³

This shows an important cultural change. If before Globo artists themselves were the cultural references of most of the Brazilians, now they are also personalities of the digital world, which the group started to hire to promote their contents in the network. The second front is aimed at solutions for brands, which includes the so-called content marketing (advertisements formatted as entertainment programs), sponsorship, content licensing, creation of their own channels on the Web or even distribution on mobile platforms.¹⁴ There is also information that suggests that Globo is developing a new online video platform that would be more similar to Netflix.

According to news published in the press, the project would be launched in 2018 and, through it, live content and the collection from TV Globo and Globosat channels would be commercialized, as well as third party productions, such as movies from Telecine catalogue. However, Globo is adapting to contemporary forms of content availability, but it is not letting go segmented TV and, in order not to compete with it, most probably the new service will not sell linear pay TV subscriptions, but only its collection.¹⁵

8.2. UOL

History

UOL was created in 1996. The initiative represented the entrance of Grupo Folha on the internet arena. In addition to the content from Folha de S. Paulo and the organizations of the group (such as Folha da Tarde and Notícias Populares newspapers), texts from other publications (such as The New York Times, translated into Portuguese, and IstoÉ magazine) were made available. The portal also offered services such as chat rooms and ads and presented thematic sections, such as UOL Esporte (sports), UOL Notícias (news) and UOL Saúde (health).

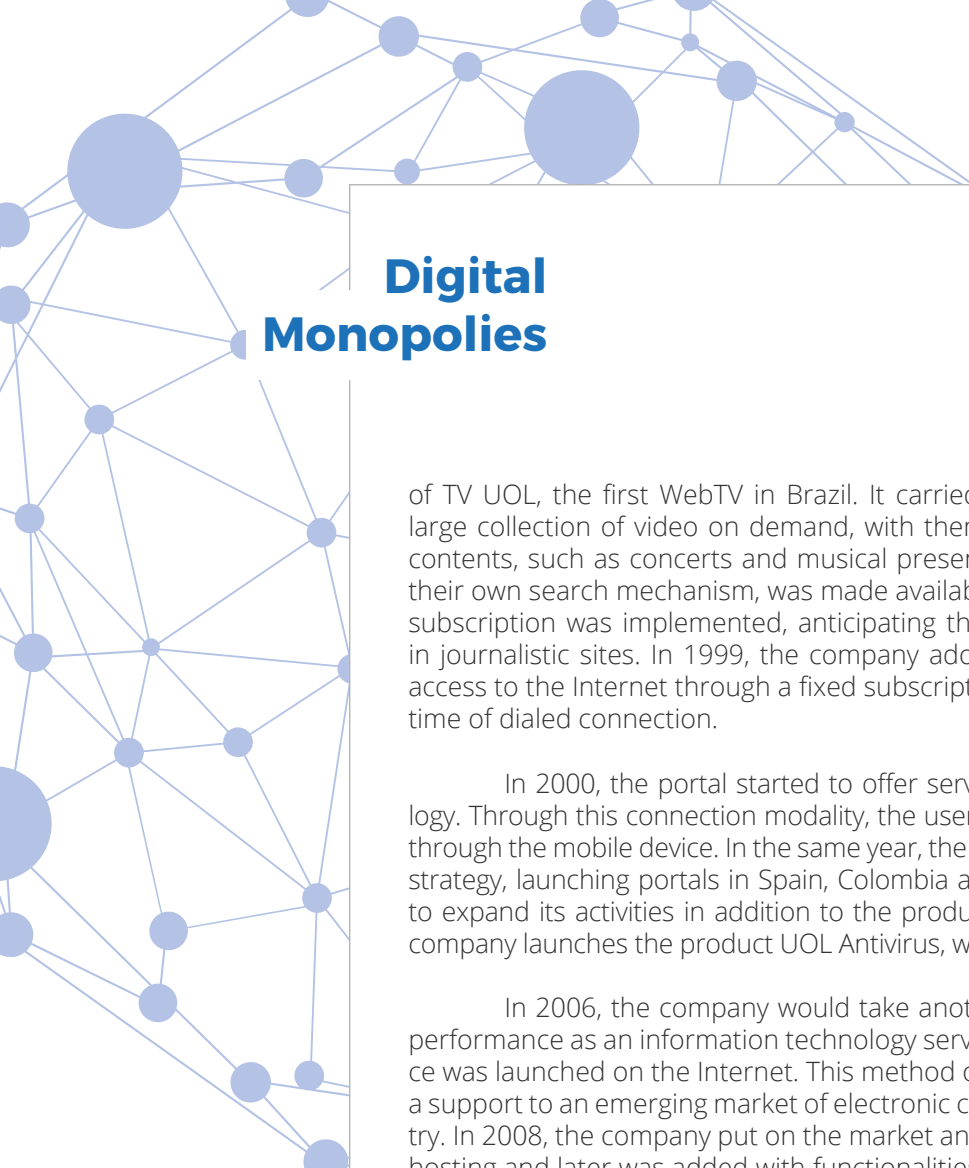
More than a portal, UOL was launched as an access provider, a popular and necessary service to authenticate a connection at that time, which was then operated through a dialed line. The combined offer of contents and access provision served as a competitive advantage, option also adopted by competitors, such as IG and Zaz (later transformed in Terra portal). The portal had since the beginning the strategy of searching among its businesses support to electronic commerce. The first virtual store, still in 1996, was from Pão de Açúcar.

Also in the beginning there was a multimedia strategy, with the launch in 1997

¹³ Among the projects of this unit, the first original production is a YouTube channel of the instagrammer Thaynara OG and a digital culture festival called Like Fest. The event aims to bring together personalities from YouTube and Instagram in São Paulo and will be broadcasted live by Multishow, according to the Viu Hub leader, Paulo Daudt Marinho. Available at: <<http://noticiasdatv.uol.com.br/mobile/noticia/mercado/nao-vejo-tv-morrendo-diz-porta-voz-da-nova-geracao-dos-donos-da-globo--20027.amp>>. Accessed on May 1st, 2018.

¹⁴ Information about the unit is available at <<http://viu.com.br/>>. Accessed on April 30, 2018.

¹⁵ The information was disclosed by the Notícias da TV portal. Available at: <<http://noticiasdatv.uol.com.br/noticia/mercado/grupo-globo-vai-lancar-plataforma-de-tv-por-assinatura-pela-internet--17494>>. Accessed on May 1st, 2018.



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of TV UOL, the first WebTV in Brazil. It carried out live transmissions and offered a large collection of video on demand, with thematic sections and highlight of cultural contents, such as concerts and musical presentations. In the same year, UOL Radar, their own search mechanism, was made available. Also that year a modality of content subscription was implemented, anticipating the models of paywall currently in force in journalistic sites. In 1999, the company adopted the business model of unlimited access to the Internet through a fixed subscription, different from the payment for the time of dialed connection.

In 2000, the portal started to offer services for cell phones using wap technology. Through this connection modality, the user was able to access the portal contents through the mobile device. In the same year, the company started an internationalization strategy, launching portals in Spain, Colombia and Venezuela. In 2005, the UOL begins to expand its activities in addition to the production and aggregation of contents. The company launches the product UOL Antivirus, with a security system for computers.

In 2006, the company would take another important step in consolidating its performance as an information technology service provider. PagSeguro payment service was launched on the Internet. This method of payment was placed in the market as a support to an emerging market of electronic commerce that was growing in the country. In 2008, the company put on the market another service, UOL Host. It offered sites hosting and later was added with functionalities of e-commerce, cloud computing and other resources for digital businesses. In the same year, UOL Assistência Técnica (technical assistance) was launched, offering support not only for the company services, but also for computer equipment and systems and information and communication technology in general.

Keeping the objective of expanding its performance in the area of ICTs, in 2010 UOL launches UOL Diveo, a specific company created to offer solutions in information technology, such as infrastructure, cloud computing, security, application management, payment methods, technical assistance, architecture and electronic commerce. The company develops consulting applications for companies seeking for a digital transformation of their businesses. Its creation placed UOL as a player in the segment of digital economy.

In 2012, UOL took advantage of the technological resources developed in its various businesses to enter a growing segment from the expansion of private education in the country. With the creation of EdTech, it began to offer solutions for distance education.

Activities

UOL was born as a portal but currently includes a wide range of activities, especially in the area of Information and Communication Technologies.

Portal UOL

The original and still central product of the company is the Portal UOL. It includes its own thematic sites (news, sports, cars, entertainment, TV and famous people, university, life style and education), in addition to providing information from main newspaper of the controlling group, Folha de S. Paulo, the portal also provides services

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(as chat rooms). In this space there is also TV UOL, which makes video content available on various topics. The service has partnerships with other channels and offers, for example, audiovisual content from Band, SBT, RedeTV!, BBC Brasil, Jovem Pan radio, Folha and Caras magazine.

Who subscribes the portal has also the right to use other services, such as e-mail address. The plans with different prices are related to security functionalities (such as antiviruses), quantity of stored data, number of accounts and technical assistance. The subscriber is also included in a discount club, which gives discounts in online stores, bars and concerts. According to UOL official site, there are more than 10 thousand establishments and attractions registered in the program. Another service is video chat, with a chat using desktop or smartphone cameras.

Contents

Besides UOL portal, the company offers specific content services. UOL digital books works as a subscription model for the access to a collection of more than 15 thousand books, using the same logic of paid streamings such as Netflix and Spotify. The subscriber of the service, which costs R\$ 9.90 in 2018, also gain access to the UOL portal sites. There are more than 80 categories, including learning and foreign languages books.

The same subscription model for a collection access is the base of the service of UOL Banca Digital. For the same value (R\$ 9.90), the subscriber has access to more than 200 titles of newspapers and magazines such as IstoÉ, História, Caras, Rolling Stone, Contigo and Casa & Construção. Among newspapers, the most visible ones are O Dia, from Rio de Janeiro, and Metro. As the subscriber has access to the remaining content of the portal, this universe also includes the editions of Folha de S. Paulo.

UOL PlayKids is a collection of videos on demand dedicated to children, also based on the model of fixed monthly subscription (at the cost of R\$ 14.90 or variations, depending on the plan duration). It allows the consumption of the content even in non connected devices (functionality also present in Spotify). Galinha Pintadinha, Turma da Mônica, Show de Luna, Smurfs and Hello Kitty are among the animations in the collection. According to the service official site, there are contents in English and Spanish. Among the available resources there is an exclusive area to the parents that allows the control of accessed videos, allowing monitoring what children watch.

Internet services

UOL portal subscription gives the right to an e-mail service, with plans varying according to the number of accounts, volume of stored data and security functionalities. Additionally, UOL has other Internet services. One of them is UOL Wifi. Through a subscription (R\$ 19.90 in 2018) the user has the right to connection through this technology in more than 6 thousand locations, such as airports, shopping centers and various establishments. UOL Segurança Digital offers a package of security applications, including its traditional antivirus for the subscribers devices. This service brings other resources, such as analysis of sites security level (to help decisions about transactions, for example), passwords manager, antispam and protection against theft (*phishing*).

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Entertainment

In the entertainment field, the company offers services such as its own games store with categories like board games, casino and cards, action and RPG (Role Playing Games). In addition, it is possible to access game rooms to dispute modalities with other people. The user can buy specific credits for a certain game (such as Ragnarok and Warface). The Gametrack pack offers 15 traditional games in an online version for a monthly subscription. XLG (Xtreme league) is the UOL independent e-sports league. It involves competitions between videogame players, with live streaming channels of the platform and their own coverage. In 2018, the league had disputes in three games: Crossfire, Gwent and Rainbow Six.

UOL Sexo is a paid video on demand service for pornographic content. It hosts several sites, such as Sexy Clube, Sexo Amador, Sexsites, Porntube and XXX-Premium. The site also provides access to works from national porn producers, such as Brasileirinhas. There are also specific packages for pornographic content aimed at LGBT audiences. In addition, it provides exclusive content, such as the Sereias contest. The service offers as a differential the security of access to this type of content without risks of viruses or other malicious systems. Prices vary from R\$ 39.69 to R\$ 69.69 per month.

e-Commerce

PagSeguro is the UOL platform for e-commerce. A central product of this service is its own digital payment system. The online transactions include 18 credit card operators, in addition to the payment slip option. There is also the possibility of payment from current account from Bradesco, Itaú, Banco do Brasil and Banrisul banks. One of the branches of the service is the sale of payment machines. In 2018, UOL offers four models: Moderninha pro, Moderninha Wifi, Minizinha Chip and Minizinha. The model was based on the commercialization of the machine and the collection of rates over sales. The values vary according to the type of terminal, from R\$ 68.40 to R\$ 778.

Distance education

UOL Edtech is a company dedicated to the field of distance education and qualification. It is made up of six companies: Cresça Brasil (focused on free courses in the banking area), Portal Educação (focused on professional training), Ciatech (focused on corporate education), Concurseiro Online (with courses for bank exams) and EA Certificação Bancária (training activities for banking certification). According to the institutional site, 1.2 million students from 100 corporate universities are linked to the service in 2018. Also according to the site, the platform makes available 2,000 video classrooms, 10,000 hours of pedagogical content, and 1,500 online courses in 37 areas of knowledge.

Information technology

UOL has created a specific company to offer integrated solutions in information technology, named UOL Diveo. According to the official site, the company

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provides methodologies for the digital transformation of businesses, including "architecture, development, implementation, maintenance and management of applications and platforms". This process includes diagnosis of where the technology can be applied, programs development, support and training and results monitoring. Such consultancy involves the digitalization of production routines in the industry or company and also the development of electronic commerce channels for the commercialization of goods and services. For this purpose, UOL Diveo also provides infrastructure services, such as data storage in clouds. Together with the storage of data they offer security functionalities, such as protection of information against threats, thefts and possible attacks.

Finance

UOL is owned by Grupo Folha. In 2016, Grupo Folha closed the year with a turnover of R\$ 4 billion.¹⁶ Besides UOL, the group has newspapers and businesses in the areas of logistics, printing and publications. UOL has already become the unit with the biggest turnover in the group.

In 2016, the company generated R\$ 1.9 billion in net revenue (VALOR ECONÔMICO, 2017).¹⁷ The net profit was R\$ 162.7 million. The Ebitda was R\$ 213 million. The total assets of the company was R\$ 4.1 billion. In the Valor Econômico ranking of the 1000 largest companies, it was in the 294th position among all sectors and in the 13th position among Information Technology companies.

The variation compared to the previous year was 12%, when the company registered a net revenue of R\$ 1.73 billion. In 2014, the net revenue was R\$ 1.62 billion. In 2013, it was R\$ 1.51 billion and in 2012, R\$ 1.36 billion.

Strategies

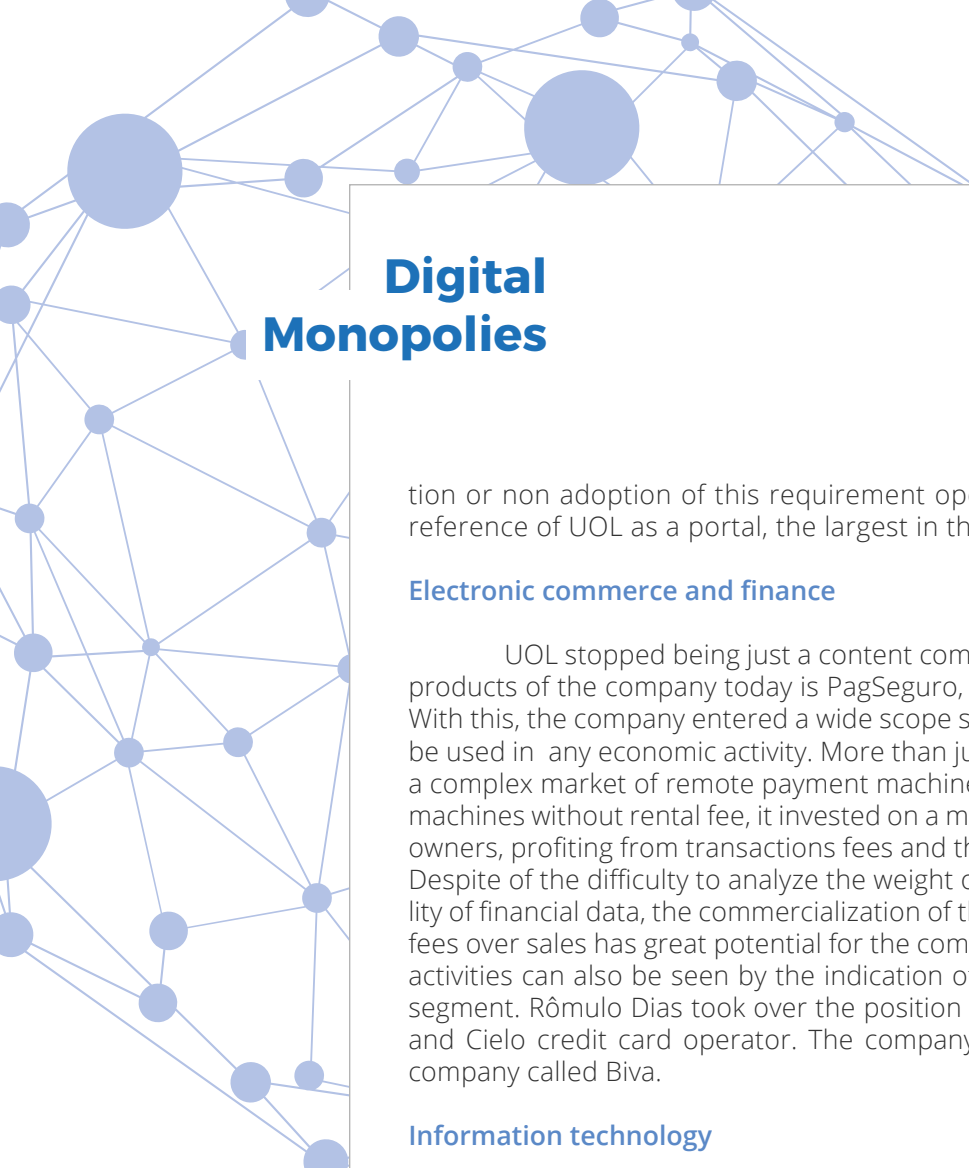
Content

UOL has always included access to content as part of the service offered through a monthly subscription, as well as e-mail and others. But in October 2017, it began to adopt the general collection for all readers, a system known in the market as "paywall". In 2012, Folha de S. Paulo, the main organization of the portal and its controlling group, had already migrated to this model increasingly adopted worldwide. In the case of UOL, this logic established a reduced number of free news and, when reaching the limit, the demand for registration and payment to continue reading the contents of the portal. "We are evaluating, testing different scenarios and perceiving how people react to this model", says Rodrigo Flores, UOL content manager at the specialized site Meio & Mensagem (SACCHITIELO, 2017).¹⁸ The adop-

¹⁶ FRIEDLANDER, David. Starting with the newspaper, Grupo Folha has diversified and now has 5 companies. Folha de S. Paulo. Published on February 27, 2016. Available at: <<http://www1.folha.uol.com.br/poder/2016/02/1744086-a-partir-do-jornal-grupo-folha-se-diversificou-e-hoje-tem-5-empresas.shtml>>.

¹⁷ VALOR ECONÔMICO. The 1000 largest companies in 2017. Valor Econômico. Available at: http://www.valor.com.br/valor1000/2017/ranking1000maiores/TI_Telecom.

¹⁸ SACCHITIELO, Barbara. "We had no way of not testing the paywall," UOL director said. Meio & Mensagem. Published on December 5, 2017. Available at: <<http://www.meioemensagem.com.br/home/mi->



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tion or non adoption of this requirement opens a period of questioning as to the reference of UOL as a portal, the largest in the country together with Globo.com.

Electronic commerce and finance

UOL stopped being just a content company some years ago. One of the main products of the company today is PagSeguro, the leading payment method in Brazil. With this, the company entered a wide scope segment of digital economy, once it can be used in any economic activity. More than just a method of payment, UOL entered a complex market of remote payment machines. With "moderninha" and "minizinha" machines without rental fee, it invested on a more attractive business model for store owners, profiting from transactions fees and the machine price, and not on its "rent". Despite of the difficulty to analyze the weight of each business due to the unavailability of financial data, the commercialization of the machines and the revenue from the fees over sales has great potential for the company. The movement towards financial activities can also be seen by the indication of a new director who comes from that segment. Rômulo Dias took over the position in 2018 after having worked for banks and Cielo credit card operator. The company also acquired a financial technology company called Biva.

Information technology

If the PagSeguro is UOL's branch in the area of commerce and finance, UOL Diveo is the company expansion in the Information Technology market. UOL was already born as an access provider, having technology as an integral part of its services, and it has slowly evolved with functionalities on the Internet that complemented its subscription package (such as e-mail, antiviruses and site hosting). But Diveo is a unit in which the solutions were integrated in a complex way, disputing an emerging market of consulting and support to digital transformations of companies, a challenge considered critical by international organizations, the federal government and business entities such as the National Confederation of Industry (CNI). According to an article from Valor Econômico newspaper, UOL considered opening the company's capital, but this decision was not taken. Another possibility is its sale, either of the entire unit or of part of the company (MOREIRA ET AL, 2018).¹⁹

[dia/2017/12/05/nao-tinhamos-como-ficar-de-fora-do-paywall-diz-diretor-do-uol.html](http://valor.com.br/empresas/5427611/apos-pagseguro-uol-busca-investidores-para-outros-negocios)>

¹⁹ MOREIRA, Talita et al. Após PagSeguro, UOL busca investidores para outros negócios. Valor Econômico. Published on April 4, 2018. Available at: <http://www.valor.com.br/empresas/5427611/apos-pagseguro-uol-busca-investidores-para-outros-negocios>.

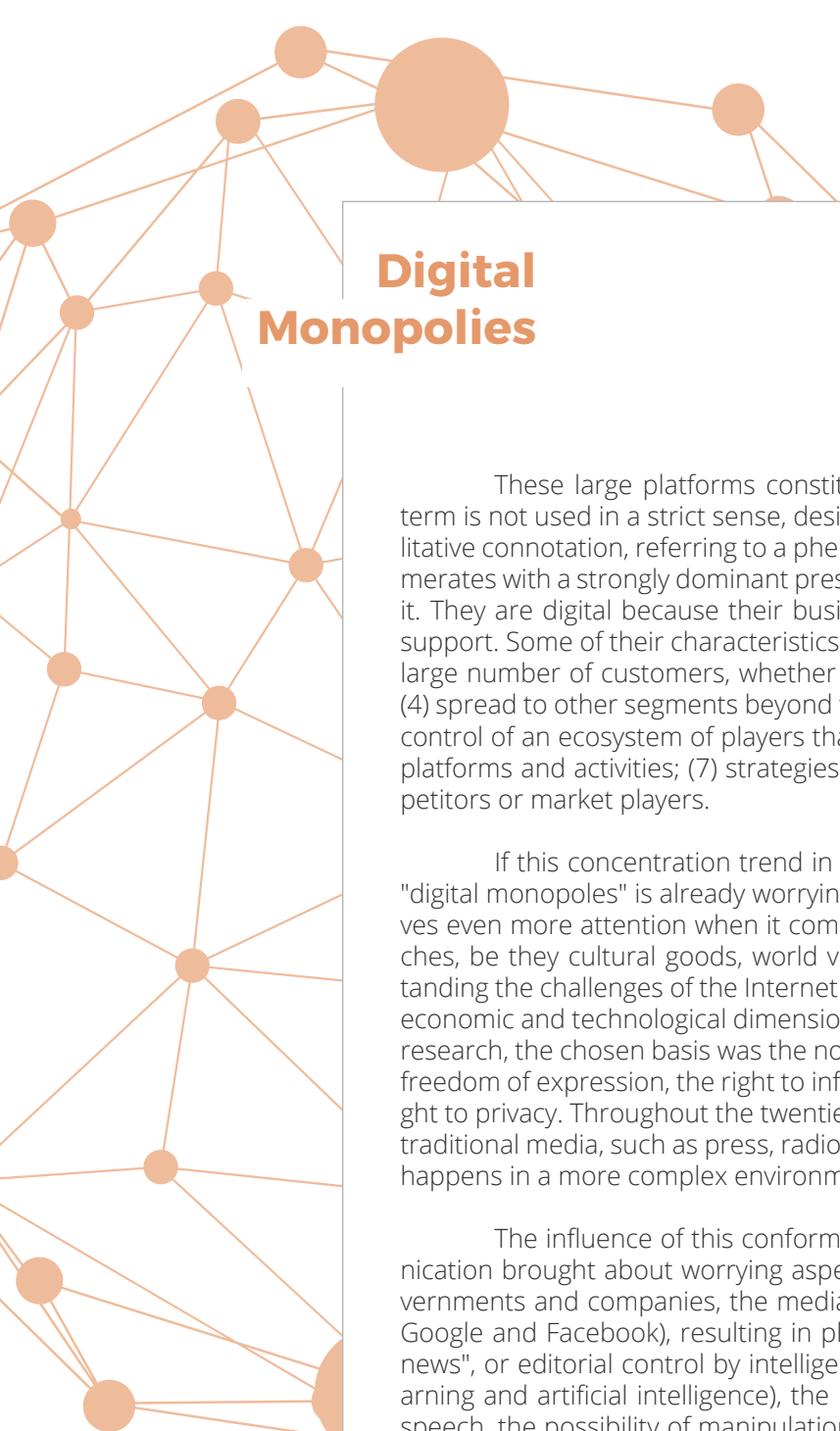
Conclusions

The research "Concentration and Diversity on the Internet", carried out by Intervozes - Coletivo Brasil de Comunicação Social, aims to enter into a complex debate of enormous social importance, once the Web reaches more than the half of Brazilians, gaining increasing importance, and this environment is increasingly challenged by the influence of large conglomerates, from traditional monopole to new digital monopolies. The question about the levels of concentration and degree of diversity results in an analysis of the environment and general trends of the Internet with the examination of the concrete reality - in this case, the applications and content layer in Brazil.

Within the limits of this research (which was not intended to be exhaustive - neither from the historical point of view or from the scope of evaluated applications and sites - but a picture of the main ones), it was possible to learn the contradictory nature of the Internet, which opens up possibilities for the presence of new players through sites, blogs and profiles but, at the same time, it powers the control through the generic dynamics of the systems (such as business concentration and geographic centralization) and the specific logics of the Information and Communication Technologies segment (such as network effect, technological differential and base on data). While there are more voices in the sphere of production, the concentration is increasingly greater in the sphere of circulation, with platforms and all forms of intermediaries modulating and establishing limits, rules and standards of control to the mass of created information. This contradiction is not static, but the result of the dispute between the various players of society (market, State and civil society) that is established both in the market competition and in the institution of rules disciplining activities.

The way capitalism works, increasingly internationalized and operating under a speculative logic mainly impulsed by technology companies (such as Apple, Alphabet/Google, Amazon, Microsoft and Facebook), stimulated these companies to a global competition and strengthened those which are based in the USA. The exceptions are Chinese players (such as Baidu, Alibaba and Tencent) and some specific cases in other countries (such as Swedish Spotify and French Deezer). The growth of the market value of these companies, among the most valuable in the world, stimulated their capitalization, in a spiral of growth of revenue and investments. As a result, the most well established in the market are on the top of the "food chain", acquiring flourishing start-up companies.

But there are dynamics which are proper to the segment of technology and of the platform form, widely hegemonic at the present time. The "network effect" strengthens concentration, since the greater the number of users, the more attractive the platform becomes. The technological differential makes players' technical resources (i.e. algorithms, artificial intelligence solutions and functionalities) become a difficulty to the emergence of competitors. Being data based reinforces these entry barriers, once the greater the competition, more data it controls, and the greater its advantage in mapping demands and supply of goods and services. The unequal dispute is not only between aesthetic standards and speeches, but in the capacity to collect and process data, in increasingly complex resources dominated by few groups.



Digital Monopolies

These large platforms constitute what we call here "digital monopolies". The term is not used in a strict sense, designating a certain market structure, but with qualitative connotation, referring to a phenomenon led by these players. These are conglomerates with a strongly dominant presence in one area but with actions that go beyond it. They are digital because their businesses are strongly focused on ICTs and in this support. Some of their characteristics are: (1) strong dominance of a market sector; (2) large number of customers, whether they pay or not; (3) operation on a global scale; (4) spread to other segments beyond the original sector; (5) intensive data activities; (6) control of an ecosystem of players that develop services and goods mediated by their platforms and activities; (7) strategies of acquisition or share control of possible competitors or market players.

If this concentration trend in the applications and content layer controlled by "digital monopolies" is already worrying only from the economic ethics aspect, it deserves even more attention when it comes to the production and dissemination of speeches, be they cultural goods, world views, news stories or political opinions. Understanding the challenges of the Internet necessarily involves the articulation between the economic and technological dimensions and the diversity of ideas and contents. In this research, the chosen basis was the notion of human right to communication, based on freedom of expression, the right to information, technological appropriation and the right to privacy. Throughout the twentieth century, this concept was treated considering traditional media, such as press, radio and TV. Now it is necessary to think about how it happens in a more complex environment.

The influence of this conformation of Internet on the human right to communication brought about worrying aspects, such as the powering of surveillance by governments and companies, the mediation of public debate by few platforms (such as Google and Facebook), resulting in phenomena like the growth of the so-called "fake news", or editorial control by intelligent technologies (such as algorithms, machine learning and artificial intelligence), the reinforcement of "ideological bubbles" and hate speech, the possibility of manipulation of debates and elections - with the use of profiles creation and personalized advertisements - and the growing privatization of the consumption of culture, to the detriment of free circulation and shared knowledge.

Taking competition and diversity indicators that served as reference for the construction of the analysis model, the research finds important clues about how this contradictory and worrying context manifests itself in Brazil at the time of this publication. The synthesis of the applications and content layer shows that it was dominated by a first level of players formed by the big platforms (Facebook, Google and Microsoft). A second level is composed of content global leaders (Netflix and Spotify), a third level comprises national leaders of the media industry (Globo and Folha) and a fourth level brings together world representatives of the elite of social networks and contents (Snapchat, Deezer, Yahoo, Twitter).

The market structure of applications is dominated by platforms. They represent 63% of Play Store applications and 75% of Apple Store applications, besides topping the list of the ConectaÍ research. Among these, the most popular are digital social networks (such as Facebook, Instagram and Snapchat). The second category is paid streaming, with the presence of both video and audio applications (representing 36% in Play Store

CONCLUSIONS

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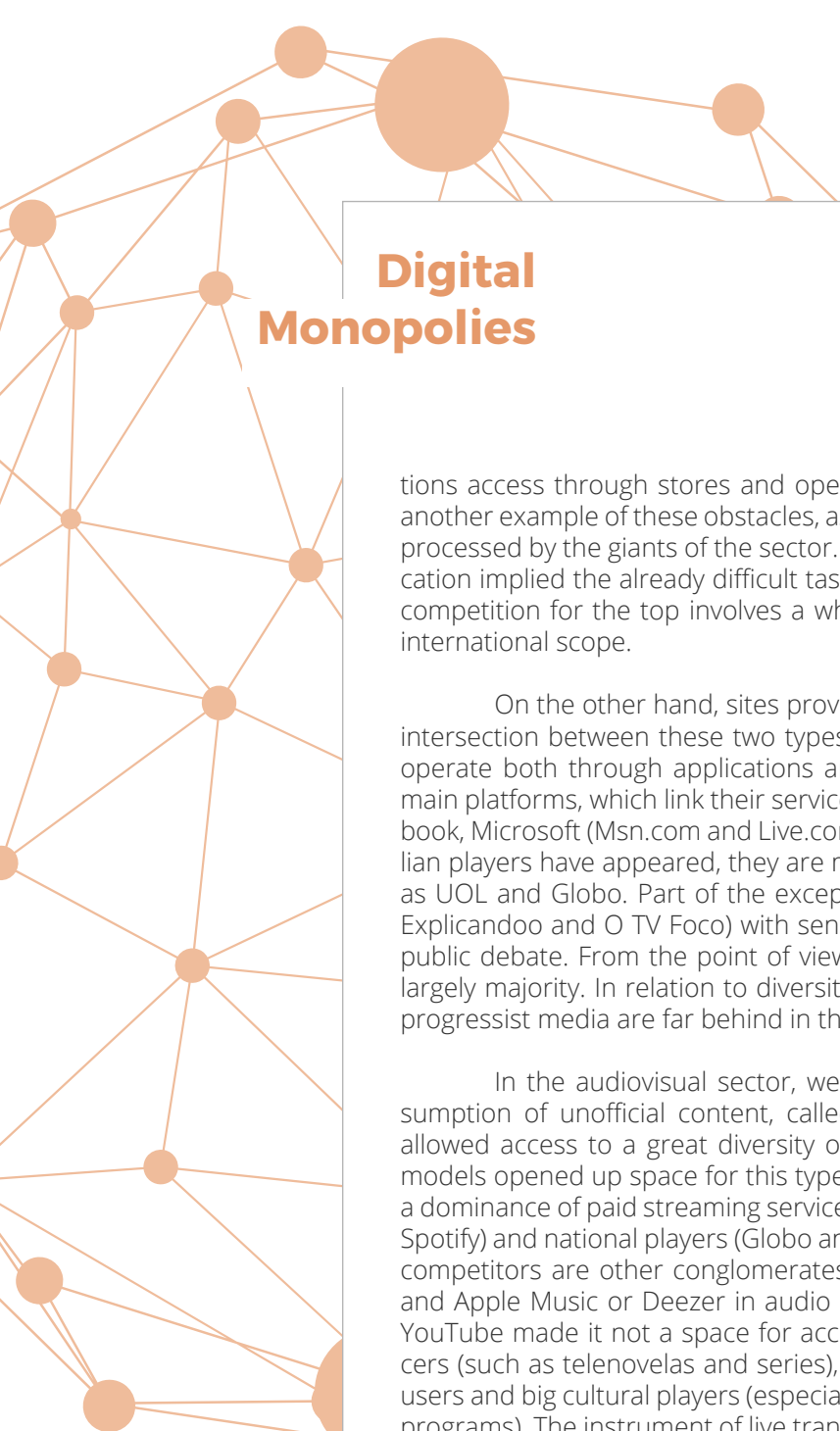
and 25% in Apple Store). As for origin, Americans represent 80% of the most downloaded apps. Brazil participates only with Globo.com and Palco Mp3. Exceptions are Sweden (Spotify) and France (Deezer). As far as market share is concerned, Facebook controls 46% of the most popular applications.¹ Regarding Play Store, if considered the downloads, the company's participation is over 85%. On Apple Store, the number of downloads is not available. That is, even with the abundance of available applications, it shows a brutal concentration among the most popular ones, and it is serious that in the list of the 30 most downloaded applications related to content circulation (not included, for example, banking applications) only two of them are Brazilian.

Among sites we selected those that have produced and disseminated contents among the 30 largest ones, in a total of 23 (not including, for example, banks and institutional pages). From these, 70% are platforms. But in this case, the content circulation pages get more presence (30%), followed by social networks (17%), e-mail and multi-services (8% each). Non platform sites are the remaining 30%, with traditional pages representing 26% and an aggregator portal (UOL) with 4%. Differently from applications, here there are also entrance sites of conglomerates (such as Google.com, Live and MSN, from Microsoft, and Yahoo), in addition to "click-hunters" pages, such as Blastingnews, Explicandoo and O TV Foco. The only non-commercial site on the list is Wikipedia. From representatives of traditional media groups, we have only Globo.com, from the Grupo Globo, which gathers G1, Gshow and Globoesporte, and UOL, from Grupo Folha. Besides these, the only journalistic organization present in the list is Metrôpoles, owned by the Brazilian businessman and former Senator Luiz Estevão. As far as origin is concerned, American companies control more than half, but the presence of Brazilian initiatives is greater than among applications. As for the share of business groups, once again the large conglomerates are on the top, with Facebook and Google responsible for 13% of the sites and Microsoft for 8.6%.

The research also analyzed Facebook pages and YouTube channels. Among the first ones, we selected those with focus on content circulation, which totaled 32 of the 50 pages with the highest number of followers. There is a different profile, with domination of artist spaces (40%), followed by diverse sites (21%), TV programs (12.5%) and platforms and channels (9% each). YouTube channels show another approach, with what we call "diverse comments": people or groups speaking about amenities, making "sketches" (such as tricks, trolls or music parodies), trying to make pretensely humorous approaches to everyday life or creating scenes. This type of channel represents half of the most popular channels (50%). A small number, 3 (6%) of them, brings some kind of diverse educational content of pure and exclusive entertainment.

This scenario provokes several reflections about the challenges for freedom of expression. The market of applications heavily based on platforms reveals a domination of American players, with little Brazilian participation which is still dominated by traditional media conglomerates, such as Globo, with some exceptions, such as the Palco Mp3. The diverse forms of intermediation configure entry barriers to new players, as evidenced by the case of Facebook with the demolition of pages organic reach or Google privileging its services in its search mechanism results. The control of applica-

¹ It is important to notice that the low number of downloads of Google apps, such as Gmail, Google Maps, etc. may be related to the fact that in the main operating system, Android, these programs are already installed by default.



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tions access through stores and operating systems (both from Google and Apple) is another example of these obstacles, as well as the possession of a large amount of data processed by the giants of the sector. If before competition in the market of communication implied the already difficult task of launching a station or publication, now the competition for the top involves a whole chain of services and solutions operated in international scope.

On the other hand, sites prove to be a little more "open" spaces, despite of an intersection between these two types of spaces (Google, Facebook and many others operate both through applications and sites). This universe is still controlled by the main platforms, which link their services to their portals, as in the case of Google, Facebook, Microsoft (Msn.com and Live.com) and Yahoo (Yahoo.com). Although more Brazilian players have appeared, they are mainly linked to large native conglomerates, such as UOL and Globo. Part of the exceptions include "click-hunter" sites (Blasting news, Explicandoo and O TV Foco) with sensationalist calls and doubtful contribution to the public debate. From the point of view of the nature of the content, entertainment is largely majority. In relation to diversity in the political spectrum, sites of the so-called progressist media are far behind in the ranking.

In the audiovisual sector, we see increasing privatization. Although the consumption of unofficial content, called piracy, not being a licit practice, for years it allowed access to a great diversity of works in audio and video. Even free business models opened up space for this type of access. What we have seen in recent years is a dominance of paid streaming services, in a division between international (Netflix and Spotify) and national players (Globo and Palco Mp3). The latter is the exception. But the competitors are other conglomerates, such as Amazon and Hulu in video streaming and Apple Music or Deezer in audio streaming. The restrictions of authors' rights on YouTube made it not a space for accessing audiovisual works by professional producers (such as telenovelas and series), but a diverse ecosystem of videos produced by users and big cultural players (especially clips from large recorders and some television programs). The instrument of live transmissions begins to be used, although not by the main competitors.

In this gap, YouTube channels have become an option for many people and groups eager to express their opinions. But the predominance of "diverse comments" suggests a leadership in this specific market of channels aimed at monetizing video visualizations through the humor of the less sophisticated ones. The direction of several youtubers to the children's audience has generated reflections about the impacts of these "idols" in the education of children. We cannot disregard the use of this platform by many individuals and collectives that spread provocative and critical contents, trying to break the bubble of the Brazilian cultural industry. On the other hand, those profiles still haven't gained space among the most popular ones.

Facebook pages are spaces used not only by traditional media but also by civil society organizations and interest groups, but far from being instruments of diffusion or more alternative spaces. In the first place, the domain of cultural references (such as artists, channels and programs) reinforce players that already have an outstanding position in the cultural industry. Pages are still not seen as possible media, but spaces more similar to sites. Secondly, the significant demolition of the publications reach in

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these spaces weakened their reference to the platform users.

The research "Concentration and Diversity on the Internet", within its limits, sought to connect theoretical and political reflections, in addition to a concrete analysis of the Brazilian case. In this effort, it was possible to point out significant concentration levels, a still limited diversity degree and trends which are worrying for those who defend the Web as a space for the promotion and realization of the human right to communication. On the other hand, in addition to statements and reflections on the risks from this environment to the diversity of cultural manifestations and opinions, the study seeks to shed light on these issues in order to provoke debate among players in the field and Brazilian society about which Internet is desirable and how it can be built, assuring that it can contribute to the construction of a more equal and democratic society, specially in a period marked by an institutional crisis and by the restriction of liberties as the moment of this publication.

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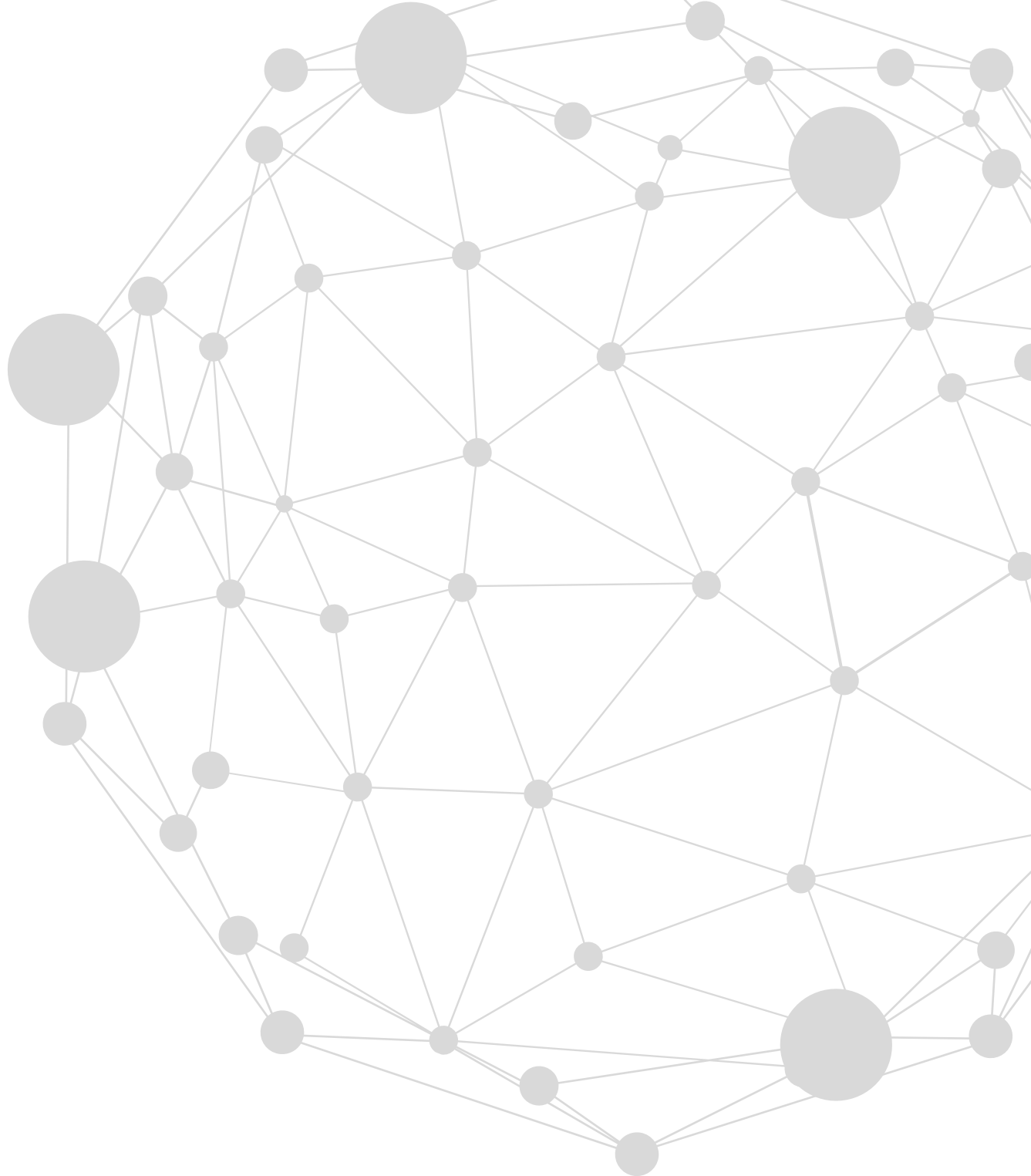
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