# 04

SUPPORTING FAIRER PLATFORMS AND ACCOUNTABLE ALGORITHMS

In this chapter:

You will learn why global platforms should adopt a responsible and accountable behaviour, to ensure a sustainable open Internet experience and prevent that privileged access to huge amount of data, Artificial Ingelligence (AI), algorithms and new technologies transform platforms into enduring bottlenecks.
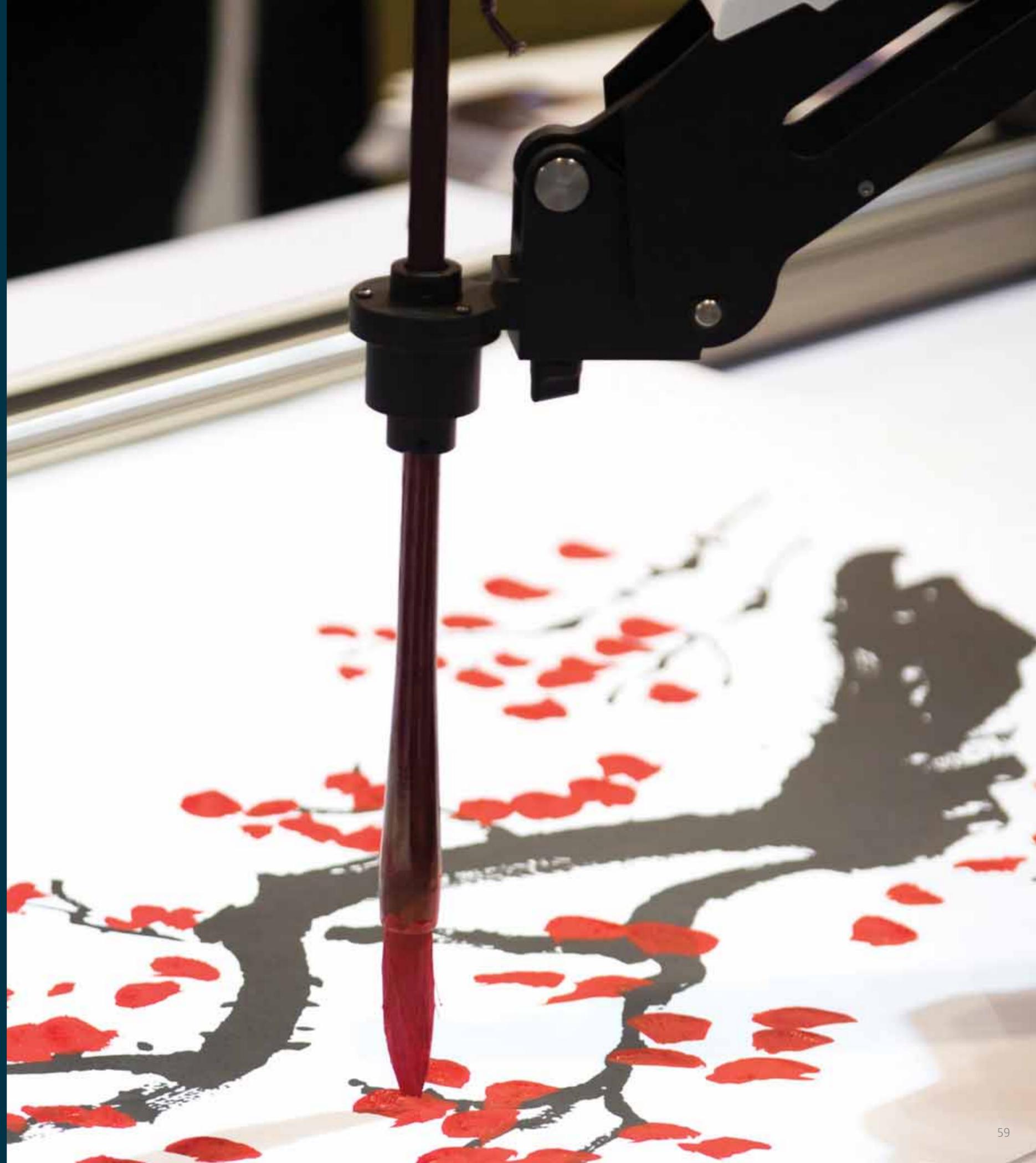
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The Issue

- A small number of global platforms are becoming the new gatekeepers of people's digital experience with a disproportionate influence on their lives and even the ability to shape public opinion.

- Their privileged access to huge amounts of data and the adoption of data-driven Artificial Intelligence (AI) and algorithms have the potential to increase their influence, ultimately creating persistent and essential digital bottlenecks that shape users' digital experience and threaten competition.

- The global nature of digital platforms creates additional challenges regarding enforcement of national rules on taxation, security, privacy and consumer protection.

Our Belief

- Societies demand respect for their laws and values from all businesses, as well as fair contributions to national welfare, employment and taxes.

- Digital platforms should match their great power with increased responsibility by adopting ethical principles, make better choices and increase transparency for users.

- Policymakers and regulators should hold platforms accountable and insist on defending the application of existing values, norms and rule of law.

- Data is a competitive asset with real value and should be considered as such by authorities during their supervision of markets.

- Use of Artificial Intelligence (AI) and algorithms should be human-centric, ethical, and avoid undue discrimination and anti-competitive outcomes.

- Blockchain may provide new possibilities to keep digital markets competitive by fostering decentralisation, could help with better market supervision by authorities and give people better control over their data.

1. The Internet of platforms

Our digital experience circles around a few digital applications and services. People may have many applications installed on their smartphones, but in reality they spend most of their time on only a handful[32]. These applications serve to access information and entertainment, communicate with others and buy products.

Chart 1. Number of active users (in millions)

Facebook	2,061
Youtube	1,500
WhatsApp	1,300
Facebook Messenger	1,300
WeChat	963
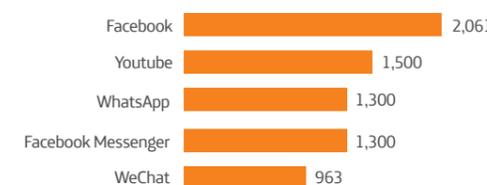
Google's Android[24] and Facebook[25] each have more than 2 billion active users –over half of Internet users–, with Facebook having three of the top five apps by number of active users (Facebook, WhatsApp and Facebook Messenger), and Google having the two most used search tools, its Google search engine and YouTube's.

These globally used applications and services have become the main drivers of digitalisation, powering the global expansion and growth of smartphone-based Internet usage.
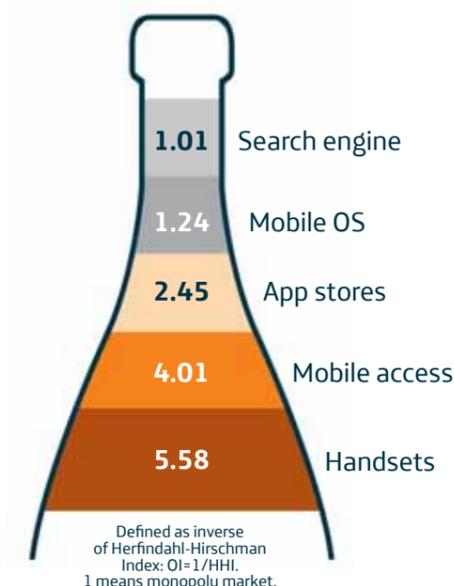
They access and capitalise on huge amounts of data, a fact that is often not fully grasped by their users, who erroneously consider these services to be free.

These applications and services run on digital platforms owned by the same companies that have become the main drivers of digitalisation, acting as hubs of the managed data. Moreover, as platforms usually integrate several vertical markets, users may find themselves locked into a closed ecosystem. Indeed, some platform owners bundle devices, operating systems, app stores and other services, such as communication, video and e-commerce. Due to this vertical integration, platform owners usually compete with third parties in downstream markets and have the ability to discriminate in favour of their own

services, apps and products in those markets, a situation[26] that has already raised many concerns by competition authorities[27].

Additionally, network effects are creating "winner-takes-all" market dynamics, where the most widely used application, service or platform is continuously becoming more attractive for users, leading to monopolistic markets with only one or two players and services, further reinforcing dominant positions of such vertically integrated players.

Chart 1. Digital Market Openness Index (Brazil)

1.01	Search engine
1.24	Mobile OS
2.45	App stores
4.01	Mobile access
5.58	Handsets

Defined as inverse of Herfindahl-Hirschman Index: OI=1/HHI. 1 means monopoly market.

Market shares

Search engine		App stores	
Google	99.5%	iOS	55.3%
Yahoo	0.3%	App Stores: Google Play	27.6%
Bing	0.2%	App Stores: Other Android	16.3%
Mobile OS		Mobile access	
Android	89.1%	Telefonica	31%
Mobile OS: Android	10.3%	Telecom Italia	24%
Mobile OS: Microsoft	0.5%	Telecom Americas	25%
		OI	17%
Handsets			
Samsung	52.7%		
Lenovo-Motorola	15.4%		
Huawei	11.4%		
LG	13.6%		
Apple	14.3%		
TCL-Alcatel	17.5%		
ZTE	5.2%		

Source: Telefónica analysis based on data from App Annie, Strategy Analytics, Anatel and Stat Counter.

The combination of new data processing technologies based on AI, automated decision-making processes by Machine Learning and massive access to data have the potential to further reinforce the dominance of just a few digital platforms. AI only works well with access to massive amounts of data and information. Today, only the major digital platforms are in a privileged position to access and use such great "data lakes", enabling them to offer new, customised and better services. This will add

another barrier which will make disruption by smaller competitors increasingly unlikely, if not impossible[28]: there seems to be an increasing degree of stability and concentration in the Internet. In the early years, there was a significant rotation of leading businesses, with eight of the top 15 US online services providers from 1999 no longer existing or being absorbed into another company by 2009. By contrast, six years later, eleven of the top 15 in 2009 were still among the top 15 in 2015.

- Competition law and procedures are not prepared to tackle challenges arising in digital markets with new, digital, data-based business models due to the unprecedented speed of market developments.
- Individuals and even administrations and supervisors lack the necessary knowledge and understanding of digital business models which are often based on access to and use of massive amounts of data by AI and algorithms.

These issues are a threat to the sustainability of digitalisation because they generate unease, lack of trust and unwillingness to provide access to data. That puts at risk the positive contributions which digital platforms can bring to societies.

Chart 2. Privacy or security concern as main reason for household not online[29]
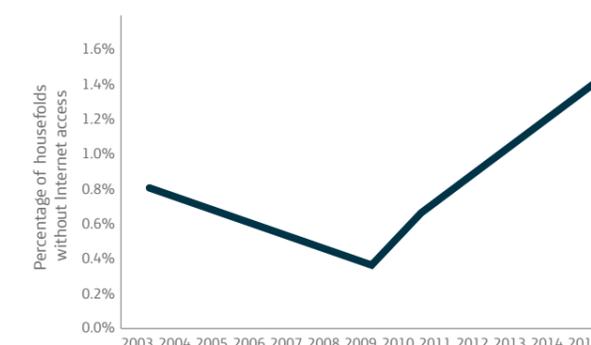
Source: NTIA Digital Nation Data Explorer, 2016

2. The issue of digital platforms and bottlenecks

It is not necessarily digital platforms themselves that are creating concerns, but rather **the combination of network effects, access to huge amounts of data and the use of AI and algorithms that are in some cases causing digital platforms to become gatekeepers and bottlenecks.**

Such platforms can abuse their powerful position as gatekeepers to control the digital experiences of people globally and, therefore, create digital bottlenecks.

Other companies have no choice but to deal with them in order to be able to run their business in an increasingly digitalised economy, making some of these platforms essential elements of most commercial and economic activity. Even governments are becoming increasingly dependent on them, as they turn to platforms like social media or app stores to ask for help in imposing restrictions and limitations. This creates major constitutional issues in democratic societies, while additionally highlighting the power of such digital gatekeepers in controlling access and activities on their platforms and how indispensable they have become to exert such control.

Digital platforms are becoming gatekeepers and bottlenecks, controlling the digital experiences of people, businesses and governments globally.

In addition to such concerns about dominance and power, other issues related to digital platforms are increasingly being raised:

- The global nature of many popular platforms can lead to situations where tax contributions are not made in the local communities where transactions take place and digital services are used. Additionally, security, privacy and consumer protection rules may not be enforceable against global platforms and services, decreasing consumer protection and lowering privacy standards. All these issues create an uneven playing field for local companies, which must comply with local laws (privacy, consumer protection, etc.) whilst providing a competitive advantage to such global players.

"The web that many connected to years ago is not what new users will find today. What was once a rich selection of blogs and websites has been compressed under the powerful weight of a few dominant platforms. This concentration of power creates a new set of gatekeepers, allowing a handful of platforms to control which ideas and opinions are seen and shared".

Sir Tim Berners-Lee, founder and web inventor

3. The clash of global platforms with national jurisdictions

The global nature of digital platforms creates challenges regarding taxation, security, privacy and consumer protection, areas that are mostly subject to national policies and legislation.

The world has become a global marketplace for companies and communities, both small and large, with digital platforms of all sizes offering services across borders to a global customer base. As such, cooperation at global and regional levels remains a priority. Most of these platforms are legally constituted in a single country, where they are subject to local legislation and regulations, such as those related to privacy, consumer protection, the powers of legal enforcement agencies and taxation. However, they provide services to users in jurisdictions across the world.

This clash of global services and national jurisdictions raises significant issues:

- **People:** when using similar digital services, people may be subject to different rights depending on where the service provider is based, thus generating confusion and un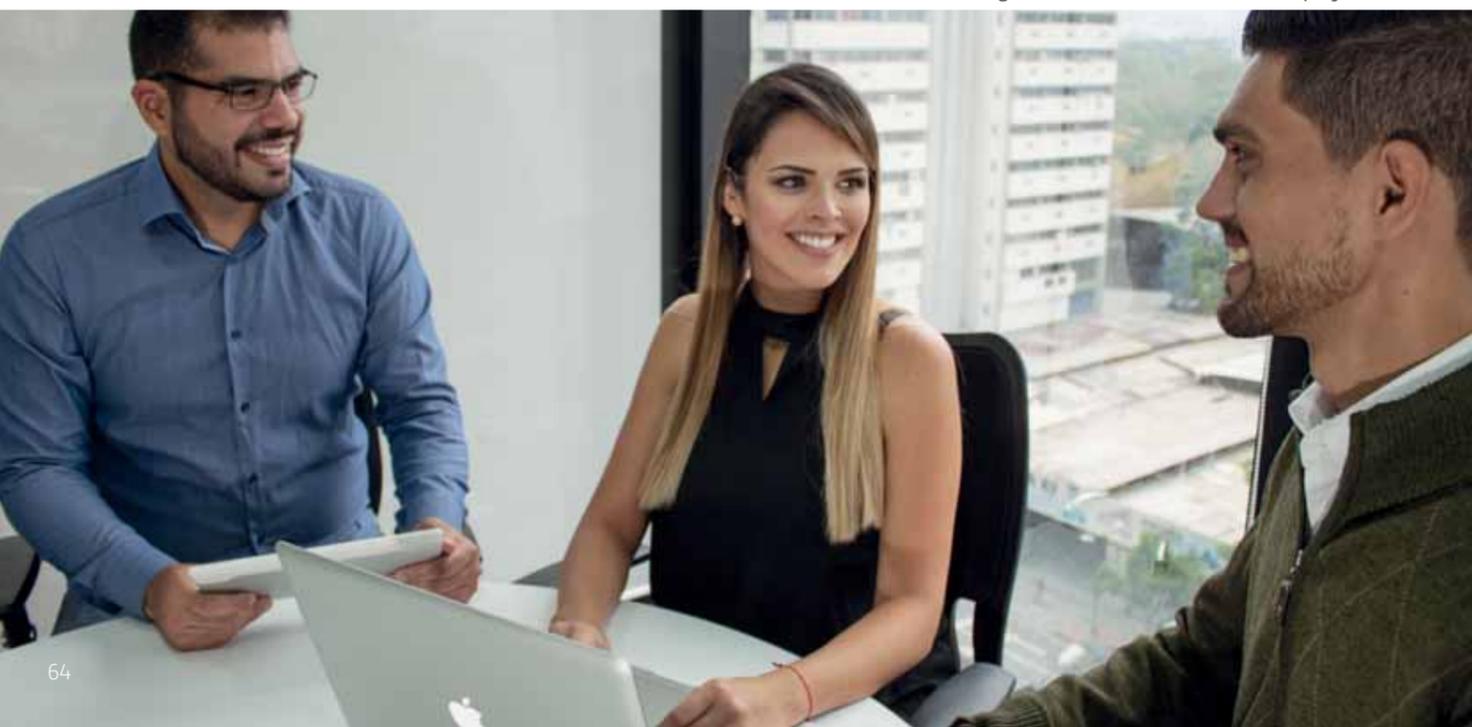certainty. Even if it is clear how to exercise their rights, it may not be feasible to start a legal procedure in a foreign country.

- **Nations and governments:** legal enforcement agencies and courts may not be able to enforce decisions if there is no local legal representative. Defined international legal procedures, like MLATs, are too inefficient and slow for a digital and globalised economy.

- **Global businesses:** they may be confronted with diverging legislations, forcing them to decide whether to comply with the law in their home country or that in another country where their service is delivered, thus posing a significant legal risk for the company, its operations, managers and representatives.

In many societies, there is a growing perception that **global digital companies do not make a fair contribution to the countries where they operate and provide their services (see chapter 2).**

Digital platforms are, in some cases, becoming detached from control and national regulations. They are defining the terms and conditions of their services and deciding how they are implemented and enforced by themselves. Transparency and accountable processes for redress of decisions and complaints are often lacking or insufficient. Global digital platforms can dictate the rules which customers need to accept, and reserve for themselves the right to decide about enforcement of legal obligations on their platforms. Concessions are often only made under strong pressure from users, public opinion and administrations, if at all. Some platforms are responding to concerns by changing their behaviour and implementing self-regulation[30], but more should be done to avoid further backlash by societies and policymakers.

Jesús Gil, Rafael Muñoz and Angélica Roa, Telefónica's Venezuela employees.

THE UNEVEN GLOBAL DISTRIBUTION OF THE APP ECONOMY

Good examples of two-sided markets are app stores, which provide perhaps the easiest and fastest way to start a digital business. Once an app is created, the developer only has to upload it to an app store which takes care of the rest: worldwide sales, storage, discovery, distribution, delivery and payments. It is an ecosystem which has grown to be worth billions of dollars in just a few years.

Nevertheless, a major concern raised is that the **value of the app economy is not equally divided across geographies.**

Developed countries, and especially the U.S., capture a vast amount of value from apps, while developing countries – where the majority of Internet users live – obtain just a very small percentage:

- A country like Brazil has half the number of Internet users but captures only a tenth of the value from the app economy in comparison to the U.S.

- Even China, which ranks second globally with a 10% share of value, has a considerable lower share as it hosts twice the number of Internet users of the US, but only captures a third of the value.

Sustainable, global, digital development will require a more balanced distribution of the app economy between the global south and north.

Relative share of developers and value capture across 37 markets.

■ % of developers   ■ % of value

United States
China
United Kingdom
South Korea
Japan
Russia
Germany
India
Taiwan
Spain
France
Israel
Vietnam
Canada
Turkey
Hong Kong
Brazil
Australia
Italy
Finland
Thailand
Indonesia
South Africa
Ukraine
Argentina
Belarus
Mexico
Pakistan
Egypt
Nigeria
Colombia
Philippines
Peru
Venezuela
Kenya
Ghana
Tanzania

0%   5%   10%   15%   20%   25%   30%   35%

Source: Caribou Digital (2016)

4. The importance of Artificial Intelligence and algorithms

Algorithms are the engines within platforms and a key factor that shapes the digital experiences of users. These algorithms decide what people read on social media, what they find when searching the Internet and app stores and what products or content is recommended to them by e-commerce and video platforms. This puts them increasingly into the focus of regulators and policymakers. Algorithms are also key to AI and Machine Learning processes.

Artificial Intelligence

AI technologies trained from massive amounts of data are able to learn from patterns and eventually can make autonomous decisions. Development of advanced AI systems would not be possible without access to huge amounts of data (such as pictures, voice recordings, etc.).

AI can offer great benefits to society. For example, it helps to obtain better medical diagnostics by analysing images of skin lesions which, combined with patients' health data, provide doctors with objective data for melanoma and skin cancer detection. Technology not only accelerates the detection process and thus increases the survival rate, but it also reduces the number of unnecessary biopsies, making the process less stressful for patients while significantly reducing healthcare costs[31].

However, AI also creates relevant challenges. For example, some applications are powered by algorithmic pricing whereby sellers set their prices using computer algorithms. Travel websites and e-retailers have already adopted algorithmic pricing strategies, which can make them more competitive and potentially increase their revenue. This can create significant challenges regarding accountability and competition analysis when going a step forward: pricing based on Machine Learning. Such systems could eventually even learn to collude on prices, an illegal practice where competing businesses agree to fix market prices, if this is the most efficient pricing strategy between competing platforms. In that case, who should be held responsible for such illegal collusion? How can this outcome be prevented?

Even greater challenges will come when AI evolves to replace people in decision-making processes. Once machines start making their own decisions, this will have massive ethical implications:

- Faced with a clearly predicted collision, should an autonomous car opt to save the vehicle's occupants by swerving onto the pavement or else protect a group of school-children playing on that side of the street?
- Can AI-based recruiting processes take what are supposed to be most efficient decisions if they result in discriminating minority groups or other actions that unduly discriminate groups of society? How can it be prevented that machine-learning systems, e.g. used in companies' recruitment processes, inadvertently start to discriminate candidates based on biased data or – even more complex to detect – a combination of information (such as school attended, home address, etc.) that may indirectly reveal sensitive data, such as race and gender?
- What should be done if autonomous AI systems deny control over themselves to their creators and owners?
- Who is responsible for an AI system's decisions? The algorithm's designer, its manufacturer, its seller or the final owner?
- Since data used for training determines how AI operates, how do we ensure that data used for training is not biased and thus results in replication of unfair behaviours observed in real life?

Societies and decision-makers will need to reflect on these complex issues. A wide range of stakeholders should be involved in finding more human-centric and ethical approaches to AI development.

Watchdogs, NGOs and consumer associations are already stepping up their knowledge and activities related to AI and algorithms. In Germany, AlgorithmWatch was founded already in 2015 as a non-profit research and advocacy organisation to evaluate and shed light on socially relevant, algorithmic decision-making processes. The organisation has developed "The ADM Manifesto", proposing a set of principles for an accountable governance and use of algorithms.

In the same way as environmental impacts of production are today seen as a corporate responsibility, businesses will be held accountable for the impact of AI on societies.

Businesses could do so by:

- Implementing in-company AI ethics committees to provide oversight and guidance for the company's AI initiatives. AI start-up, Lucid, took the lead by creating an Ethics Advisory Panel within the company[32], an example followed by other like Microsoft with its AI[33] and Ethics in Engineering and research (Aether) advisory panel.
- Developing industry partnerships to formulate and share best practices, improve people's understanding and openly discuss the benefits and challenges of AI. Partnership on AI has gathered wide representation from AI industry leaders with this aim.

Fake News

The rising prevalence of fake news on social networks and media has become a global concern for individuals and governments. Social media is now the main source of information for many people in the U.S.[34], playing an increasingly decisive role in political processes. Social networks have given social movements a quick and inexpensive method of disseminating information and mobilising people, for example playing an instrumental role in the success of the anti-government protests that led to the fall of regimes during the "Arab Spring"[35]. But social media has recently also played a significant role in the US election, where it is claimed that Russian operatives bought over 3,000 social media ads[46] with the aim of influencing voters' decisions.

This particular use of fake news is seen as the most harmful because of its impact on democratic processes and elections. The information people see and read shapes their opinions and, ultimately, influences their vote. Cases like the last US general election, France's presidential election and the UK's Brexit referendum have shown that the targeted use of fake news via social media can have an impact on democratic processes.

Algorithms play a decisive role in spreading fake news. It is an algorithm that decides who will see which news and information, based on interests and other information on users collected previously. This greatly enhances the effectiveness of fake news by targeting users that are receptive to them and, accordingly, more willing to share them again, multiplying their effect and visibility.

Due to public and political pressure, global platforms have shown a willingness to take action: from publicly starting to disclose information on the reach of fake news[37], to hiring staff devoted to checking news[38]. However, these measures have been criticised for their limited impact and potential negative effect on freedom of speech through censorship without proper judicial overview.

Therefore, other solutions to address this problem have been put forward:

▪ Social media should be regulated as traditional media and broadcasters, following disclosure obligations on political ads.

▪ Allowing users to choose whether their news feed is sorted chronologically or in another, more objective way, or prioritised by algorithms.

▪ Reduction of anonymity on social platforms by requiring verification of users' real identities in order to enhance their accountability.

Going forward, this situation will most probably require the application of various measures, from improved transparency and disclosure as in traditional media, to better control by social media platforms. However, it seems that changes to the algorithms that make fake news visible to users will be required in order to have a scalable and sustainable solution to prevent them being spread. **Additionally, it may be necessary to give users greater choice about how they want to visualise information**, e.g. filtered by algorithms or not, and also use specific algorithms that are able to detect fake news and provide alternative content, in order for social networks to become more reliable sources of information.

Improved responsibility, accountability and transparency are basic principles that should guide solutions to the fake news conundrum.

Virtual Assistants: the new app stores?

The main channel to access digital information, applications and services has changed over the last years, from the World Wide Web and Internet browsers to applications running on smartphones. **By 2021, revenues from app stores[39] are expected to be five times greater than those from the music industry[40] and double Internet TV and video revenues[41].** At the same time, app stores and operating systems are highly concentrated and globally dominated by just two companies, making them bottlenecks of the digital experience (see chart 1). This high concentration of apps stores and operating systems has already generated various dominance and control issues. (see case study " Why are people concerned with App Stores?)

WHY ARE PEOPLE CONCERNED WITH APP STORES?

Certain essential platforms can determine our digital experiences, the services and apps we use and the content we access. As governments become increasingly aware of this situation, they seek to take advantage of it in order to implement effective forms of censorship:

▪ As Internet usage has become increasingly mobile based, apps have become the main way to use services. However, app stores are highly concentrated, with just two global providers reaping over 80% of revenues (App Annie; Market Forecast 2016-2021; actual data for 2016), thus making them convenient choke points — the very points of control that the Internet was originally designed to eliminate.

▪ The Chinese and Russian governments have demanded that app stores remove certain apps after the developers failed to comply with their

demands. By excluding an app from a local app store, it effectively does not exist in that country. This is a far more effective measure than blocking a website, since a VPN and other means can be used to circumvent those government censorship actions.

The power to determine digital experiences is not just abused by governments; platforms are also exerting such power themselves.

▪ Chinese app developers have lodged an antitrust complaint against Apple with accusations of anti-competitive behaviour.

▪ App developers have alleged unfair treatment: when Apple's partners complain about apps infringing their rights, Apple will eliminate them from its App Store with very little evidence. In June 2017, Apple removed 58,000 apps after deeming they had breached their conditions, with Chinese developers claiming that they did not receive sufficient explanation for this action.

▪ The complaint also extends to Apple's policy for in-app purchases, for which Apple charges a 30% revenue share fee. This fee has also been contested by companies in Europe.

Source: MLex, 18 July 2017.
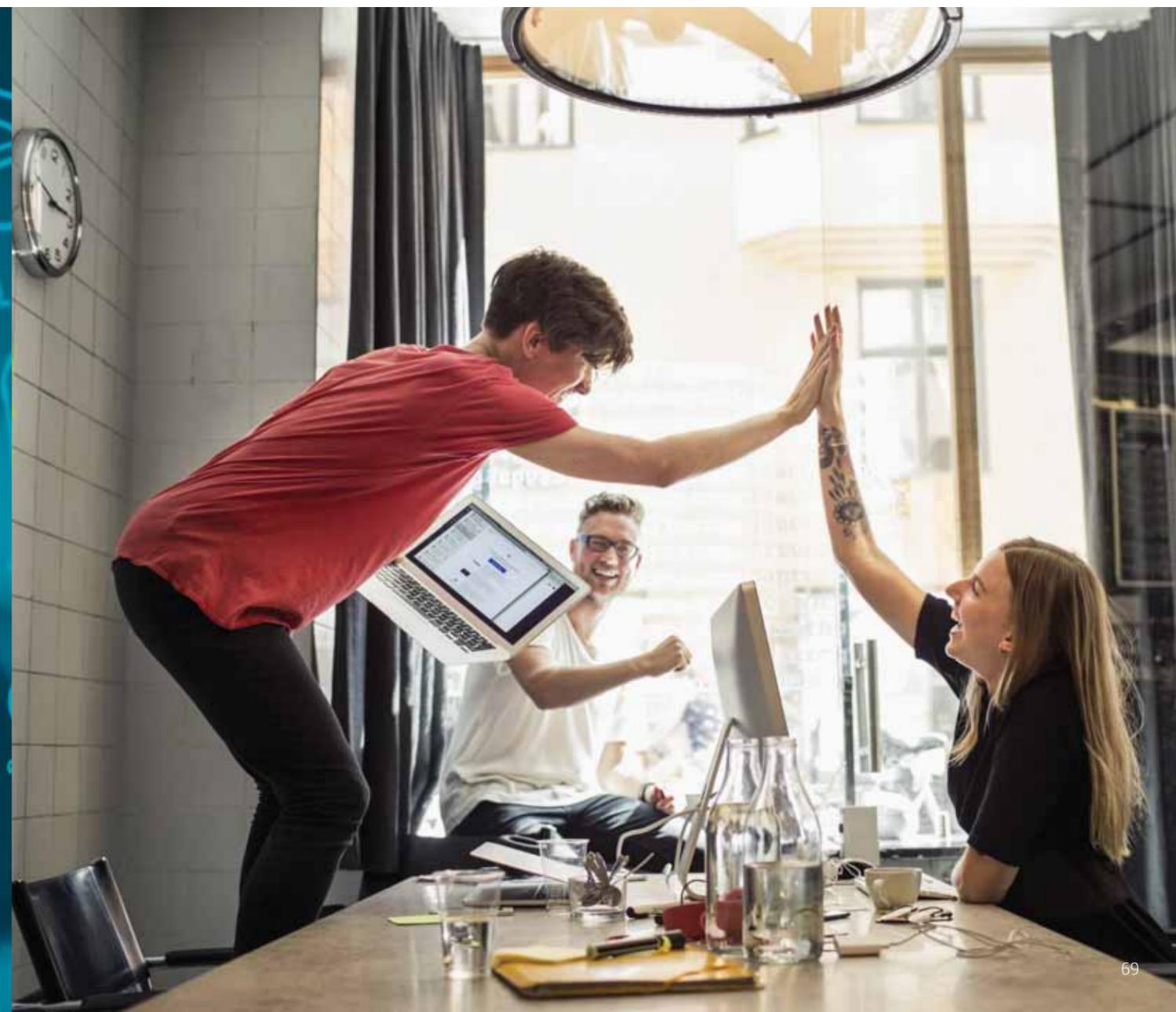
However, the next wave of innovation is already being deployed; Virtual Assistants like Amazon's Alexa, Apple's Siri, Google's Assistant and Microsoft's Cortana are set to become the new channel to digitally access information and services. They will provide a convenient voice interface to search products, services and information. The underlying AI will be powered by algorithms and access to user's data, preferences and information.

Although this creates new interfaces for users, it will not change the underlying problem of digital bottlenecks. In fact, it is more likely to fuel the current debate on concentration of online search markets and app stores. The issues of transparency

and accountability of algorithms will become even more pressing in the future, when virtual assistants guide people through the digital world and even become able to make commercial decisions on their behalf ("Order a pepperoni pizza"). **It is quite likely that these voice interfaces powered by data and AI will become the main channels for information and consumption, making them future key bottlenecks for people's digital experience.**

Most likely, the principles discussed as remedies for online search and to prevent users being locked into digital platforms – **interoperability, data portability, non-discrimination and transparency** – will also need to apply to the friendly Alexas, Siris and Cortanas of the future.

5. Policy responses

Due to their great relevance, it does not come as a surprise that analysing the impact of digital platforms and addressing identified concerns has become a focus area for governments and public administrations:

- In France, the communication regulator has published reports on the "State of the Internet in France"[42] and "End-user devices: Analysis of their influence on Internet Openness"[43]
- In Germany, the Federal Ministry for Economic Affairs and Energy has published a "White Paper on Digital Platforms"[44]
- In the UK, a green paper on "Internet Safety Strategy" was published by the UK Government[45].

Through such reports, regulators and policymakers are assessing how to respond to new, data-driven platform models. It is becoming apparent that both **the economic value of data, as well as the effect of data in competition make modernisation of rules a necessity.**

Examples include:

- EU Merger Control Regulation currently includes an obligation to notify mergers to the EU based on the companies' turnover. This is not fit for purpose in a world in which services are provided to people in exchange for their personal data rather than money.

- The competitive effects of data concentration in digital markets with strong network effects are also out of sight for merger control regulation. The difficulty in defining relevant markets in the digital economy, an unavoidable first step in competition analysis procedures, together with unquantified network effects, has permitted significant mergers to go "unnoticed" despite evidence of negative effects on competition. Facebook's acquisitions of WhatsApp and Instagram, both fast-growing competitors, clearly highlighted those shortcomings and the need for an update to the EU's Merger Control Regulation, in order to fully address the far-reaching implications of such mergers between digital companies[46].

Renan Kawakami, Luana da Olieria and Bianca Guardia, Telefónica's Brazil employees.

6. The way forward

Digital platforms are key for digitalisation of societies and have many positive effects. However, it is also obvious that they entail relevant risks and challenges. As a result, resistance towards them is growing across the world. A comprehensive approach which includes elements of self-regulation and policy modernisation should be adopted in order to avoid further backlash from societies and policymakers.

A potential way forward would include these elements:

- **A more responsible and accountable behaviour by digital platforms:** platforms should take a more human-centric approach, adopt ethical principles in the implementation of their algorithms and put people back in control of their data. Consumer choice, transparency, innovation and inclusiveness are essential for a sustainable Internet. Societies demand that businesses respect local laws and values and contribute to national welfare, employment and taxes, in order to share the

value of digitalisation more fairly across different geographies.

- **Policymakers and regulators should hold platforms accountable and insist on defending the application of values, norms and rule of law:** they need to modernise policy frameworks to ensure that fairer tax and other contributions are made to the communities in which transactions take place and digital services are used, and adapt consumer and data protection regulations to ensure that companies compete on an equal footing, while preserving fundamental privacy and security rights. It is essential that data, the foundation of most business models in the digital economy, is not exclusively considered in terms of privacy. Instead, going forward it should be increasingly regarded as a competitive asset with real value. Competition authorities should take this into account in their analysis and competition rules should be reviewed in this light in order to account for the value of personal data provided in exchange for "free" services.

- **The use of AI and algorithms by platforms should be guided by ethical principles and seek to avoid undue discrimination and anti-competitive outcomes:** decentralised and distributed technologies, like Blockchain, may provide a technical solution to challenge dominant positions and keep digital markets competitive.

Data as a currency or a form of remuneration

Data, the foundation of business models in the digital economy, **should not only be considered in terms of privacy: it is a competitive asset with real value.** Access, management, storage and use of personal data are dealt with by privacy and data protection regulations. Compliance with such regulations is necessary, but not sufficient to achieve digital sustainability. People still do not feel in control of their data. A new, more responsible approach to transparency and choice is required from businesses in order to empower users and put them in control of their digital footprint[58].

Data should also be viewed and treated differently by regulators. Just like businesses already do, it is important to regard data as a strategic asset which needs to be subject to the same oversight and control as other key assets. Data is valuable and access to it and control by users will have an increasingly important impact on competitive dynamics and the possibility to innovate. **Remedies,**

including data portability, should be put in place whenever competition problems are identified.

Global services and national jurisdictions

There is an expectation by societies that global business and services need to respect the sovereignty and laws of States and consider each set of national, cultural, historical and socio-economic approaches, traditions and values when they offer their services.

Digital platforms need to adopt a more responsible and accountable behaviour and always strive to fully comply with local requirements.

It appears that a sustainable digitalisation process will require a more responsible and value-driven approach from all stakeholders, particularly from digital platforms. When market developments outpace legal systems and policymaking, businesses need to go beyond strict legal compliance and act responsibly in the interest of their users and the whole of society.

Digital services should, therefore, always strive to fully comply with local requirements:

- **Consumer protection:** e.g. possibility for local redress to courts for consumer services.
- **Privacy and Data Protection:** e.g. as stated in the new EU Regulation on Data Protection.
- **National security requirements:** as long as they respect international Human Rights standards (e.g. lawful intercept of communication by independent judges).
- **Fair taxation:** by considering the place where transactions take place and services are used.

AI and ethics

The development of AI will need to be human-centric and take ethical considerations and established values into account. In the same way as environmental impacts of production are generally seen today as a corporate responsibility, businesses will be held accountable for the social impacts of their AI platforms on societies[59].

Businesses should engage with stakeholders, decision-makers and civil society to ensure that their concerns about transparency, ethics, accountability and others aspects are addressed during the development of AI technologies. Sharing of best-practices and self-regulation initiatives between companies would be helpful.

A first step could be to define principles of responsible innovation for AI between key players. Moreover, businesses should not shy away from acting responsibly and be open regarding the social impact of automation and AI, e.g. on labour, jobs and taxation.

Policymakers should foster and engage in these debates and also insist on platforms respecting the established values of democratic societies. In some cases, regulation might be needed for certain applications of AI and automation (e.g. modernisation of traffic rules for autonomous vehicles) and to provide legal certainty in some cases (e.g. responsibility for damages caused by an AI's decisions). Authorities should also make sure that the combination of new technologies like AI, voice interfaces and massive access to data will not

reinforce the current dominance of leading digital platforms and that innovation around AI is also possible for smaller companies and players.

Overall, the objective of all stakeholders should be to foster a fair, accountable and transparent development of AI technology.

Blockchain

Decentralised and distributed technologies, like Blockchain, may provide a technical way to challenge the dominant positions of digital platforms and keep digital markets competitive.

Blockchain technology is widely regarded as a way to decentralise transactions of all kinds and make Peer-to-Peer value transactions possible. Up until now, the most popular applications have included cryptocurrencies, like Bitcoin, but the use of Blockchain technology is already being considered for many other services and usage cases, including many which today are dominated by a few players (e.g. social networks, car and house sharing). Additionally, the reward mechanism of digitalised tokens could generate new business models for digital services[60].

Regulators should also study the possibilities offered by Blockchain for **better market supervision** and a potential way to provide remedies in cases of dominance and market concentration. Blockchain-driven innovation could, for example, offer people the possibility to better control and manage their data and digital identity. **Data portability based on Blockchain** technology would make data and its value interoperable and transferable, improving competition in digital markets. Ultimately, this would result in greater public awareness of the value of their personal data, potentially changing attitudes and market dynamics.

BLOCKCHAIN: A POTENTIAL SOLUTION TO ADDRESS DIGITAL BOTTLENECKS

Blockchain's inherent decentralisation can contribute to a fair distribution of the value generated by the sharing economy and two-sided digital business models, potentially lowering the dominance of centralised systems and platforms that act as intermediaries.

- Blockchain allows the creation of Decentralized Autonomous Organizations (DAOs). These enable individuals and communities to exchange value without the intervention of intermediaries through a token or cryptocurrency defined by the DAO.

- Thus, DAOs can provide the trust required by parties and enable transactions between them without the need for any additional or prior trust or relationship.

- Such DAOs could replace the role of current digital platforms by enabling a trusted and direct interaction among participants without a need for intermediary.

Another application of Blockchain technology could be for people sharing computing power for mining activities. This could create a new business model to compete with the current one, in which "free" services are paid for by providing access to users' data and advertising:

- Cryptocurrencies, such as Bitcoin and its successors, are backed by a system of "miners", who race to be the first to solve complex computing problems in exchange for a reward. To do so they require large amounts of computing power, which can be increased by adding the processing power of connected devices that work for the miner.

- Instead of presenting online ads and charging advertisers, websites and applications would send mining code, which the users' devices would then execute to share part of their computing power for mining activities. This computing power would be the users' payment to access the "free" services and content provided by the website or application, replacing ad revenues.
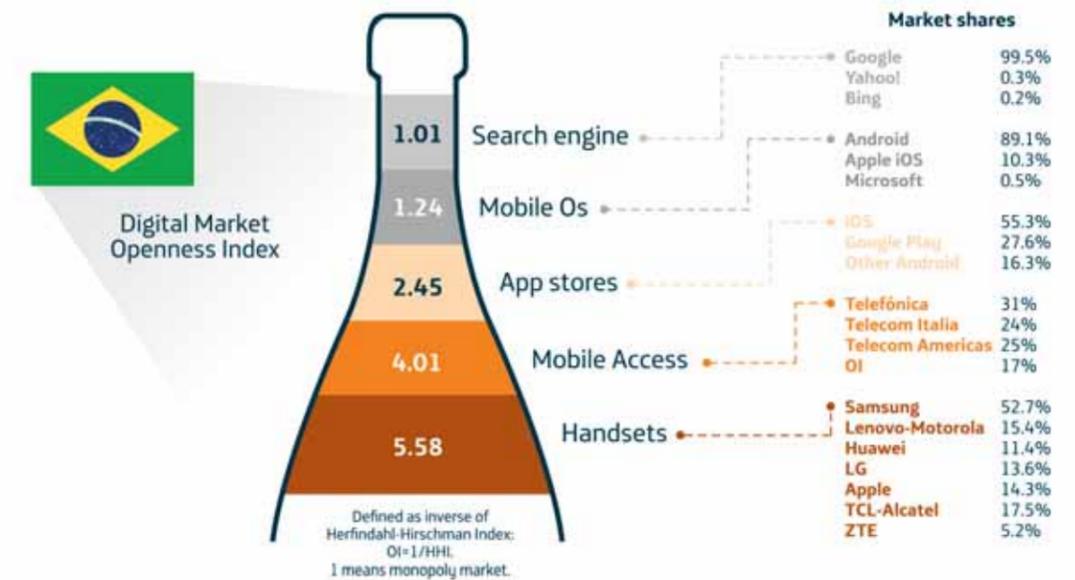
- In such a scenario, online advertising would cease to be the dominant revenue source of Internet-based businesses, thereby limiting the need to use personal data and advertising.

Such a profound change might open digital markets to new entrants, creating more competition and choice for consumers.

Chapter 4: At a glance

The Issue

Global platforms are becoming bottlenecks of the digital experience, a position that could be strengthened through their access to data and the adoption of Artificial Intelligence. These platforms are challenging enforcement of national rules on taxation, security, privacy and consumer protection.

Digital Market Openness Index

		Market shares	
1.01	Search engine	Google	99.5%
		Yahoo!	0.3%
		Bing	0.2%
1.24	Mobile Os	Android	89.1%
		Apple iOS	10.3%
		Microsoft	0.5%
2.45	App stores	iOS	55.3%
		Google Play	27.6%
		Other Android	16.3%
4.01	Mobile Access	Telefónica	31%
		Telecom Italia	24%
		Telecom Americas	25%
		OI	17%
5.58	Handsets	Samsung	52.7%
		Lenovo-Motorola	15.4%
		Huawei	11.4%
		LG	13.6%
		Apple	14.3%
		TCL-Alcatel	17.5%
		ZTE	5.2%

Defined as inverse of Herfindahl-Hirschman Index: OI=1/HHI. 1 means monopoly market.

Source: Telefónica analysis based on data from Anatel, Strategy Analytics, Stat Counter and App Annie.

Our Belief

01. RESPONSIBLE AND ACCOUNTABLE BEHAVIOR
Global platforms should take a human-centric and value driven approach by putting people back in control of their data, adopting ethical principles in the implementation of AI and algorithms and assuring fair tax contribution to local communities.

02. UPHOLD THE APPLICATION OF VALUES AND RULE OF LAW
Policymakers and regulators should hold platforms accountable and insist on defending the application of existing values, norms and rule of law. They should make sure that companies compete on an equal footing, while fundamental privacy and security rights are preserved.

03. DATA AS A COMPETITIVE ASSET
Data is a competitive asset with real value and has an important impact on competitive dynamics and possibility to innovate. Regulators and policy makers should view and treat data accordingly, and not just in privacy terms.

04. GLOBAL SERVICES AND NATIONAL JURISDICTIONS
Global business and services need to respect the sovereignty and laws of states, and consider the cultural, historical and socio-economic approaches, traditions and values when offering services. They should always strive to fully comply with local requirements.