THE DIGITAL DECADE: FROM A DIFENSIVE TO A PRO GROWTH APPROACH[1]

A PROPOSAL TO EUROPE FOR THE 21ST CENTURY

(AND SEVEN IDEAS TO IMPROVE EU DIGITAL REGULATION AND INVESTMENT STRATEGY)

[1] The report was made by Vision & Value, a strategic consultancy society, with Amazon's support. However, the study is to be considered as totally independent. The statements contained in the report are attributable only to Vision & Value and none of them can be referred to Amazon, its clients or its corporate partners.

INTRODUCTION

"*The goal was to prevent restraints of free competition in business and commercial transactions which tended to restrict production, raise prices, or otherwise control the market to the detriment of purchasers or consumers of goods and services, all of which had come to be regarded as a special form of public injury*"[2].

The future can sometimes be found by recovering the original nature of the institutions that we urgently need to reform and bring into the 21st century. This may apply, for example, to the debate of competition and regulatory policies in the digital world, which are in fact an integral part of a broader portfolio of digital policies that European Union (EU) is in the process of implementing: what is at stake is the possibility to get back into a game that, according to some[3], is only played out between the United States and China.

The words that introduce this report were indeed used by the American Supreme Court to recall that, originally, Antitrust was designed to have the final consumers (and not companies) as the subjects whose interests require competition policy to exist (CSERES, 2005). Therefore, the intention was to protect consumers/citizens from practices that were explicitly designed to restrict competition and, consequently, innovation with the final result of a reduction of prices and quality.

Therefore, the size of a company was not - in the original vision of the US regulator, - a problem per se as long as it had been achieved through better organization or efficiency or successful innovation. As a matter of fact, scale can even be seen as a lever for widespread economic growth and, indeed, as Paolo Sylos Labini warns (going back to Joseph Schumpeter's lesson) "*a condition for guaranteeing the minimum scale that radical innovations may require*"[4].

It is true that in a global and technology-dominated environment, size in itself might become a factor reducing the contestability of markets (potentially leading to "lock-in effects" as the scholars of "platform economy"[5] note). Nevertheless, the emergence of the so called "digital platforms" or, better, "digital infrastructures", following the terminology introduced in Vision's work about the effects of digitization on the economy[6] raises the fundamental question of striking a new balance between two different interpretations of what regulations (and antitrust) are about: one historically traceable to Louis Brandeis' thinking against the tendency of American[7] capitalism to create giants, and the other to the writings of Robert

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[2] It was the American Supreme Court (Apex Hosiery Co. v. Leader 310 U. S. 469) that, in 1940, expressed itself in this way to recall the original purpose of the Sherman Act that was introduced in 1898 and to which the origin of Antitrust policies is normally traced.

[3] The Economist, The Land that Ambition Forgot, June 5th 2021. https://www.economist.com/briefing/2021/06/05/once-a-corporate-heavyweight-europe-is-now-an-also-ran-can-it-recover-its-footing

[4] Labini P.S. (1992) Oligopoly: Static and Dynamic Analysis. In: Baldassarri M. (eds) Oligopoly and Dynamic Competition. Central Issues in Contemporary Economic Theory and Policy. Palgrave Macmillan, London. https://doi.org/10.1007/978-1-349-12818-1_3.

[5] Kenney, M., & Zysman, J. (2016). The rise of the platform economy. Issues in science and technology, 32(3), 61.

[6] "Digital Infrastructures: definitions, effects on consumers and industries, strategic options to maximize their value", 2022, Vision & Value.

[7] Brandeis, Louis. "The Regulation of Competition Versus the Regulation of Monopoly" Archived address to the Economic Club of New York on November 1, 1912

Bork[8] who, instead, put forward arguments in favor of mega-mergers. These two different approaches to competition policy are one of the main dialectics which defined the economic debate in the last century.

This is the starting point for the second part of the research project Vision undertook to assess the impact that the so called “digital platforms” are having on the European economy. One terminological premise is, however, useful: in the first part of the research project we showed that the term "global digital platforms" brings together companies that operate in different markets, start from completely different positioning and ambitions, use different business models and have different economic incentives. Therefore, it would be inappropriate to imagine assessing their role and impact with the same tools. Although, we will see, there is a common thread which makes them a technological – organization model that all firms (including those which are not digitally native), in all industries are gradually adopting.

The purpose of this work is, therefore, to formulate a series of recommendations that can guide the action of European and national policy makers to govern digital innovation and require new intellectual and governance tools that go beyond regulatory interventions.

The study starts from a series of hypotheses we will test:

a) It is crucial for Europe to have a proper strategy of what to do about these digital infrastructures which are driving a profound mutation of economic systems and institutions. “Information is still power”[9] and it is true that they are creating a reallocation of information, value (and, therefore, of power) that is having great consequences on levels of well-being and their distribution.

b) While the rising of digital infrastructure (which tend to be almost all non-European) are often associated to alleged “dominance”, economic evidence, including our previous research, shows that they also act as a trigger for great processes of value creation, competition and innovation. Infrastructures are, in fact, generating a reallocation of value from incumbent and “traditional” economic subjects that were dominant in the pre-digital world, to consumers and small businesses.

c) Moreover, the “digital infrastructure model” is progressively inspiring former incumbents to change and adapt their business models and corporate culture: this normally implies to move from a focus on *products* to one where the *customer* is at the centre, where most of decisions are taken though data–driven processes. This implies that regulating these infrastructures moves away from dealing about competition within a specific sector (the so called “digital” one) and increasingly becomes an attempt to maximize positive externalities of what now is an organizational model that technologies enable and which has been increasingly adopted by everybody. This poses a cognitive question of whether the institutions

[8] The Antitrust Paradox. New York: Free Press. ISBN 0-465-00369-9

[9] This is what Bacone says in *New Atlantis*, referring to "knowledge" and not to "information" per se, and the difference between the two terms is substantial.

(competition authorities and policy makers) and the intellectual instruments which we used in a pre-internet era are still adequate.

Therefore, an appropriate policy approach should aim not only at ensuring that any potential adverse effects of new business models are minimized, but also at maximizing the spillover of innovation that these digital infrastructures can produce in Europe: this leads us to propose a constructive criticism which can improve the effectiveness of an approach solely based on regulation (e.g. the EU's Digital Strategy) and suggest to integrate regulations with policies meant to increase the capabilities of EU firms to generate value out of existing technologies and business models. An approach which would go beyond the current legislative package on digital would require not only a dialogue between governments and infrastructure on rules and their application, but also the creation of public-private partnerships: they, in fact, can not only generate spillovers of capital and knowledge towards local firms (for instance, Amazon supports the growth and the internalization of SMEs selling on its marketplace[10] and Alphabet have been the main venture capitalist in sectors like healthcare in recent years[11]) but can provide data which are relevant to governments (e.g. Regions and Cities partnering with OTAs such as Expedia and Airbnb). EU member states (like France, Germany, Sweden or Estonia) have, in fact, already successfully nurtured unicorns which can become potential leaders in their industries and they are doing so by leveraging on collaborations with non-EU digital platforms.

d) It's right to protect consumers from "illegal contents" (as for the objective of the Digital Services Act) and yet the problem is to find a mechanism to define what is illegal and look for such contents. Likewise, it is right to focus on data ownership as a truly fundamental element of the phenomena we are observing. Nevertheless, the success of any regulation of this kind depends on the presence of mechanism that makes these rules effectively known by citizens so that they can ask – with low transaction costs - that they are respected.
Finally, policy making is made difficult by a cognitive problem: we are trying to make sense of a rapidly moving target[12].
This was true in the past for the relationship between regulators and telcos (whose alleged monopolies were overtaken by Internet Cos that turned telephone services into commodities); but also, in the Internet world there are giants (from Aol to Yahoo)

[10] Small and medium businesses now make up approximately 60% of physical product sales on Amazon and have created an estimated 2.2 million jobs. See https://www.aboutamazon.com/impact/empowerment
[11] "Alphabet is spending millions to become a force in health care", The Economist, June 20th 2022; Sharon, T. (2018). "When digital health meets digital capitalism, how many common goods are at stake?", Big Data & Society, 5(2); in recent years, almost all the major consumer technology corporations (Google, Meta, Apple, Microsoft, IBM…) have moved into the biomedical/health sector.
[12] In 2022, some of the main digital companies (e.g. Meta, Alphabet, Amazon, Microsoft, Apple…) experienced a dramatic decrease of their market value (for instance, Meta's value fell by 70% in just over a year). The reasons of this so-called "big-tech crisis" were several: the gradual return to old habits after the boom of technology during the pandemic (which had determined the impressive growth of the technology sector), the war in Ukraine and the spectrum of a global recession which discouraged investors, etc. The big tech crisis in 2022 seemed to prove that the predominance of the main digital giants is not so stable after all (See "Digital Infrastructures: definitions, effects on consumers and industries, strategic options to maximize their value", Vision & Value, 2022).

that have almost disappeared. More recently the idea of a Web redesigned on blockchains and the very notion of the Metaverse generate further competitive pressure, and this happens even beyond rises and falls which appear to be both exaggerated.

A more recent example is represented by TikTok, the video sharing social media platform launched in China in 2016. In a few years, it has become the 6th social media in the world by number of monthly users, after Facebook, Youtube, Whatsapp, Instagram and WeChat, but experts believe that the it will soon overtake its competitors. As of 2023, TikTok counts more than 1.60 billion users (out of which 1.05 billion are active users) spread across 154 countries and it is the most downloaded application of all time. In 2018, TikTok overcame Instagram and WhatsApp with regard to the number of downloads in the Apple App Store. So far in 2023, TikTok has generated $205 million more than Facebook, Instagram, Snapchat and Twitter combined, via IAP revenue.

Even more notable is the AI generative system of ChatGPT, another example of a disruptive technology that risk to make the most common web browsers obsolete. CHAT-GPT excels is in its ability to give information in a conversational manner, generating human-like responses. Google, the long-time winner of online search, seems to suddenly have a challenger. Such tools allow to get information in a more rapid way than Google, representing a much better tool for research.

STRUCTURE OF THE REPORT

The report consists of five chapters:

1) The conclusions of the first Vision report on effects of digital infrastructures on consumers, SMEs and incumbents

This section summarizes the main findings of the first part of our research project "*Digital Infrastructures: definitions, effects on consumers and industries, strategic options to maximize their value*", including the differences amongst digital infrastructures, the taxonomy we proposed, the evidence on their effects on competition and consumer welfare. We will extract from this the main inputs that will feed into this report.

2) Towards 21st century policies: how to turn Europe's problem into an opportunity.

This part sets out the general principles to the design of effective digital policies. It will underline the need to move - at European and Italian level - from a "defensive" approach strongly focused on rules that protect Europe (the concept of "digital sovereignty") to a more proactive one that seeks the generation of value for European businesses and consumers.

3) A new approach to competition rules and policies.

This section focuses on the international comparisons of different competition policy approaches. The chapter will be divided internally into various analyses: a) recent trends in UK, USA and China; b) the European Digital Strategy and its capability to achieve its objectives; c) the issue of harmonization between European and national instruments (focusing on Italy and Germany); d) the question of the enforceability of a system which heavily relies on fines (and here we will also discuss their proportionality).

One major finding of this section is that an approach which is almost entirely dedicated to minimize risks (which are associated to the emergence of the "platform economy") rather than maximize the opportunities that "digital infrastructures" are unfolding, is likely to have flaws: for instance, overregulation which is too complex to really empower citizens and firms whose rights need to be protected; contradictions in the definitions of the phenomena we want to regulate, which creates uncertainties. For each main blocks of regulations, we will also identify potential areas for improvements.

4) 21st century industrial policies.

Alongside the question of regulation, the challenge to the EU is to find a way of devising industrial policies that are appropriate to a context in which it has fallen behind some key innovation trends.

The EU may pursue a policy approach different both form the US and Chinese counterparts and one which is more oriented to produce public goods[13] (such as healthcare and education).

[13] Oakland, W. H. (1987) Theory of Public Goods. In handbook of public economics. Elsevier

The application of digital technologies to healthcare and to education are examples of areas where markets have failed and great opportunities exist so that European companies may fill the void.

The section is articulated in various analyses: a) the "*entrepreneurial state*" as enabler of "*animal spirits*": the American and Chinese case; b) partial successes in Europe: Estonia, France, Germany; c) the case of the European investment programs – *Horizon Europe*, *Smart Specialization Strategies*, *Next Generation EU*; d) the innovative state and Venture Capitalists; e) innovation as an open process; f) failure as an unavoidable part of publicly-funded innovation policies and experimentations as a method to "*navigate unchartered waters*".

5) Conclusions

The last section presents the main findings and puts forward seven recommendations for policy makers.

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1. THE EFFECTS OF GLOBAL DIGITAL PLATFORMS ON CONSUMERS AND OTHER BUSINESSES.

The report on **"Digital Infrastructures: definitions, effects on consumers and industries, strategic options to maximize their value**" (Vision and Value, 2022) conveys seven key messages, which represents the starting point of this paper:

1) **A "digital infrastructure" is a totally new way of organizing and using technology as a strategic lever, which is enabled by the Internet.**

   Digital infrastructures are Internet-native firms operating in very different sectors (such as search engines, advertising, social media, retail, etc.) which first adopted this organization mode to better serve and connect end-users and businesses and build a competitive advantage. However, these firms are very different amongst them and policy makers should consider such profound differences.
   Our taxonomy considers such differences and proposes six types of "infrastructures" that are grouped together based on the different role that technology has in their strategy and their "business model". A distinction that appears fundamental is between those who immediately set themselves the objective of proposing a different value chain using technology to do so (the case of Amazon) and those who instead start from a technological problem and then build value propositions on it (the case of Google). This is reflected in a different economics and it also implies different impacts that require a more articulated analysis of the phenomenon to account for this diversity. This diversity is also reflected in a very different approach to processes (WEB3, Metaverse, Internet of beings) that could change the very structure of digital innovation, which becomes a transformative lever of the entire economy.

2) **Technological innovation enabled by the internet has created challenges for all industries that have gradually adapted to the new paradigm**. **This has happened particularly in an apparently mature sector such as retail.**

   While digital infrastructures are increasingly equipping themselves with physical locations (which are, moreover, "gateways" to more sophisticated digital dimensions as the case of Apple demonstrates), the large traditional operators (the largest example is Walmart in the United States) are all engaged in digitization strategies: multi-channeling is emerging as a modern form of commerce. In fact, we see various types of initiatives, such as online shopping with in-store pick-up by Zara, H&M, Unieuro and Euronics; the creation of virtual spaces and fitting rooms with the help of augmented/virtual reality (Zara, H&M); the creation of online flagship stores with or without the assistance of digital native companies (such as the partnership between Yoox and various brands like Armani, Prada or Adidas). In this sense, the only difference between different companies is between those that are internet native and those that are not (and that have to question their very nature and core business to become so).

3) **Significant are the benefits that digital infrastructures bring to consumers, in terms of better selection and range, price, lower transaction costs and quality of service (e.g. e-commerce infrastructures).**

Infrastructures are driving systematic extraction along the distribution and logistics chain (such the logistic infrastructure developed by Amazon) that becomes value returned to the customer. But also, they are driving the identification of new needs through the analysis of data that have reached an enormously increased granularity. In this respect, the example of digital marketing is interesting: customers generally value having targeted advertising, although this feature is precisely one of the elements that are often contested. Such data collection can also translate into a more targeted product offer.

4) **The "digital infrastructure" model also creates opportunities that did not exist for small and medium-sized economic operators; the analyses show that this is happening in all the verticals (e-commerce, advertising, travel) considered.**

Taking Italy as an example, we see that, through digitization, local shops and SMEs are digitalizing to bring their products (including Made in Italy products) to a wider range of consumers, albeit slowly compared to other European countries, and they are innovating to offer their customers experiences that are different from those of large-scale distribution. Independent bookshops are regaining space and new authors are emerging who are helping to provide novelty to an intellectual debate that the (e.g. Italian) publishing industry could no longer sustain as it once did. Small agricultural enterprises are arriving on the large urban markets (the same is happening in Europe especially for producers of distinctive niches) and e-commerce is even being used as a lever for local economic development (following an example that has become very central to Amazon's growth strategies). In tourism - even before the great crisis of the last two years - infrastructures have had the net effect of growing small hotels and places that were remote.

5) **Digital innovation is, however, also providing useful competitive pressure to the 'incumbents', large chains and corporations, who have had to adapt their business models to the new context.**

Book publishers and newspapers have long since undertaken a reorganization of their production and content selection model. The entire textile sector has become highly differentiated, and players such as Zalando, YOOX, Farfetch and DePop are gaining competitive advantages, even over generalist e-commerce infrastructures. In electronics, large chains are reacting by adopting models with a strong emphasis on "design" and in person-consultancy (for instance, Ceconomy). Hotel and retail chains are trying to close the data gap through loyalty programs. An interesting example is the case of Poste Italiane, which has found in a partnership with Amazon a strategic opportunity to modernize its core business (and safeguard jobs).

6) **Digitization can be an ally for sustainability, especially in e-commerce**.

A comparison between the world that preceded e-commerce (and the strong acceleration of the pandemic) and the one we are now entering shows that rationalized logistics chains cut down - compared to a context in which every consumer went, in person and often, in person and often by car to the supermarket or shopping centre – has a positive impact on the environment, in terms of transport pollution (and therefore CO2 and particulate emissions), packaging (and therefore the production of plastic that cannot easily be recycled) and food waste (the innovations of the refrigerator and the intelligent supermarket are very interesting in this respect).

The data available through the infrastructures also make it possible to avoid 'overstocking' situations, or to propose an offer with a more 'on-demand' logic as in the case of Asos (which buys designs and calibrates its production through the use of data). It is also interesting to note that in this perspective the paradigm of "sustainability" and that of "efficiency" coincide once again and this gives the environmental challenge a strong concreteness.

7) **Information assets that infrastructures hold can be very useful for policy makers**.

This has been demonstrated in the pandemic by the use of mobility data provided by Google, which in some countries - Israel, South Korea - have been an essential lever for tracking cases. But even the planning of policies to relaunch tourism - vital in Italy after the devastating crisis experienced in the last three years - absolutely needs data (*who are my current and potential customers? what are the factors they consider to 'buy' my destination or to build loyalty to it? what are my competitors and the economic value and foot-print of different segments?*) that governments are not used to considering as strategic assets. The same industrial policies of the future will integrate production chains and technologies and will need Internet native approaches.
The consequence of this evidence is that digital infrastructures can be functional to the implementation of the National Recovery and Resilience Plan (PNRR) in Italy (and of the different Recovery and Resilience Facilities at European level). This is particularly true for the digital and green transition to which we will devote a section of the second report.

These considerations do not diminish the importance of designing new policies and a new approach to governing a reality that is changing much faster than institutions which were designed for a different century.

If regulations are needed, then they need to avoid the undesirable effects that any technological revolution implies, without sacrificing its transformative and innovative potential. Bearing in mind that, as this report points out, the “digital infrastructure” is now an organizational-technological mode and not a sector (to be regulated) or a group of companies (which are in any case different from each other). Everyone becomes a 'digital

infrastructure' and if they succeed, they are immediately global. Regulating global digital infrastructures is therefore an attempt to govern a new business model (a bit like when the joint-stock company emerged in the 19th century and changed the relationship between entrepreneurs and management, or when the first modern factories emerged around assembly lines).

Moreover, it should be stressed that it would be a very serious mistake to conceive the world of global digital infrastructures as stable. The history of the Internet is made up of the extinction of 'giants' (Yahoo, Aol) who lost their competitive advantage because they were surprised by innovations and they were unable to anticipate; even recently competitive advantages which seemed “entrenched” and “stable” (as for the recent EU regulations on digital markets) crumbled (as for Meta with TikTok).

The following table (1.1) shows how the market capitalization of the five Big Tech Giants (Meta, Amazon, Microsoft, Apple, Alphabet) registered significant losses as a consequence of what has been defined “Big Tech crisis” (between 2021 and 2022), which proved how current market structures can be exposed to external turmoil.

TABLE 1.1 - MAAMA (Meta, Amazon, Microsoft, Apple, Alphabet) market capitalization 2021, 2022.

Company	Market cap. 30 SET 2021 (billion USD)	Market cap. 9 NOV 2022 (billion USD)
Apple	2.324	2.174
Microsoft	2.117	1.688
Alphabet	1.772	1.122
Amazon	1.666	890
Meta	948	257

Source: Vision on Financial Times data.

2. THE NATURE OF THE PROBLEM

This section describes the general approach to the design of effective digital policies. In particular, it will underline the need to move - at European and national level (particularly, Italian) - from a "defensive" approach strongly focused on rules that protect Europe (the concept of "digital sovereignty") to a more proactive one that seeks the generation of value for European businesses and consumers.

2.1 THE PROTECTION OF PERSONAL DATA AS THE STARTING POINT OF THE EU DIGITAL POLICIES

One of not obvious characteristic of the so-called “EU digital decade” program is that it was born not out of economic concerns but from a major worry about privacy and protection of personal data.

Indeed, the EU’s policy on the protection of personal data finds its basis in one of the basic “freedoms” established by the article 8 of the preamble of “Charter of Fundamental Rights of the European Union”. More specifically the EU envisages that “*everyone has the right to the protection of personal data*”; that “*such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law*”; that “*everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified; and that “compliance with these rules is controlled by an independent authority*”.

It is from those bases that the General Data Protection Regulation (GDPR), which came into force in 2016 and was amended in 2018, defined several principles and mechanisms which many legislators around the world have found inspiring for their actions.

2.2 THE EU’S GAP AND THE NOTION OF DIGITAL SOVEREIGNTY

Until couple of years ago, if we had considered the trends[14] defining the quest for global digital leadership, Europe seemed to have been left out of the “battle”.

There was no European digital infrastructure for e-commerce, social networking or other digital services and the only exception was Spotify which - although being capable to become a leader in music streaming - was still very far from other global digital infrastructures in terms of market valuation. With the departure of UK, the EU lost even the

[14] In a recent paper Vision measured leaderships in ten crucial industries/ innovation trends: suit for PCs, tablets and mobiles (dominated by Microsoft and Kingsoft), search engine (here Google is challenged only by Baidu and Yandex), mobile makers and designers (Apple, Samsung, Huawei, Xiaomi), online payment platform (WeChat and Alipay), e-commerce (Amazon and Alibaba), Social media (Facebook, We hat, Weibo, V Kontakte), chipset makers and designers (Intel, NVidia, IBM, Qualcomm, Huawei, ARM, TSMC), self-driving automakers (Tesla Autopilot, Google and Baidu Apollo, Yandex OS), turbo jet engine maker (Boeing), electric cars and lithium batteries (Tesla, BYD). Pratically in none of these industries EU is competing for market leadership (amongst very few exceptions we can name the Dutcsh ASML and the French Saffran). See Vision & Value “Digital Infrastructures”: Definitions, effects on consumers and industries, strategic options to maximise their value”.

economy with the highest number of unicorns (technology start-ups whose value is higher than one billion USD) and the most globalized technology cluster (in Cambridge).

More recently, however, the picture has started to change. If we look to where is venture capital flowing, we see countries like France, Germany, Spain that are becoming more attractive (we will come back to this in section 4.4)[15].

However, the potential held by the digital infrastructure is far-reaching, as they capture and trade one of the most important commodities of today: data. Not only are digital infrastructures among the most valuable companies in the world; they are re-shaping entire chains of production value and our consumer habits, redefining public spaces, and impacting the efforts of the ecological transition. Digital sovereignty is therefore something that needs to be integrated and conceived as a priority for policymaking at EU level.

The idea of a digital sovereignty is therefore something which sums up to an almost natural reaction of the EU towards an evolution which has seen the EU on the side of the "user" and the pandemic/ war in Ukraine has even strengthened this tendency (with the debate on shortening value chains which were disrupted by so dramatic events). Is however digital sovereignty really feasible? Up to what extent? Is it beneficial?

The search for a European third way to the Internet (third because different from both the US and the Chinese one) is characterized by two different elements:

a) A very articulated regulation package; and

b) Programs to facilitate the creation of start-ups, which countries like France, Estonia, Germany and Spain have attempted.

2.3 RADICAL INNOVATIONS AND EXPERIMENTATIONS AS A POLICY PARADIGMA

"We are navigating unchartered waters": these are the words that Mario Draghi, the former Governor of the European Central Bank and former Prime Minister of Italy, used few times to describe the context policy makers are trying to make sense of and to govern.

We are witnessing a revolution which may be about to unfold transformations much deeper than the industrial revolutions of the eighteenth, nineteenth or twentieth centuries and it is reasonable to say that which are the outcomes of policies and innovations we may adopt.

This is the reason why experiments are becoming an essential tool for policy makers in different parts of the world[16]. By "experimentation" we mean a specific method by which:

a) Reforms or technological innovations are tested on specific local contexts (which are comparable and yet differ for some, limited preexisting conditions);

b) Outcomes of the experiments are measured using key performance indicators

[15] The Economist, "Tech investors can't get enough of Europe's fizzing startup scene", November 22nd 2021.
[16] Paradoxically, it is China to have developed a particularly sophisticated method to experiment reforms and technological innovation before scaling up them ("*Mozhe shitou guo he* [crossing the river, feeling the stone]" (Yun, 1980). It was Deng Xiaoping's lifetime comrade, Chen Yun who came up with the popular description of the most distinctive characteristic of China's method of governing a rapidly transforming society).

capable to generate knowledge both from successes and failures;

c) Results are scaled up and replicated elsewhere.

Experiments are extremely useful when it comes to technology-triggered changes: robotics applied to healthcare; self-driving cars used in urban contexts; and radical redesigns of waste creation and waste management processes. This may also apply to rules regulating digital infrastructures.

The speed required by the relentless technological development has made the digital field less susceptible of being embedded in stiff legislative frameworks. In the trade - off between innovation and legal certainty, experimental regulations find a place. Regulatory experimentalism can be declined in different shapes, such as experimental clauses, experimental regulations as well as free-zones and regulatory sandboxes. There are three main features characterising experimental regulations: temporary nature, a trail-and-error approach to regulation and a multilevel and collaborative involvement of several stakeholders[17].

Broadly speaking, experimental regimes lies between the two traditional approaches of intervention by state on the economy: the *laissez-faire* approach – minimal role by state and minimal regulation - and interventionism – with rules imposed in a top-down or bottom-up logic. Regulatory experimentalism differs from the two approaches to the extent that an authority outlines a regulatory framework where testing exercise under its own supervision. They overcome the dualism between the top-down and bottom-up logics since their underlying principle is the trial-and-error model, consistent with quick developments where authorities can not foresee all problems and complexities[18].

Experiments contain, by definition, elements of both which are top - down (in the design of the experiments) and bottom-up (because it is individual cities or hospitals or schools which volunteer to test the innovations). Central policymakers encourage local officials to try out new ways of problem solving and then feed the local experiences back into the national policy formulation stage, similar to John Dewey's "learning by doing" theories (Dewey, 1917).

In the EU, the first attempts of experimental legal regimes were not seen favourably until the early 2000s since considered not consistent with the principles of legal certainty, proportionality and equal treatment[19]. Scepticism towards these instruments has been gradually abandoned, as the principles give room to flexibility in order to accommodate experimental tools and, in the past twenty years, lawmakers started embraced the potential of experimental regulatory tools for their flexibility and temporary nature[20].

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[17] Ranchordas, S. (2021). Experimental regulations for AI: sandboxes for morals and mores. University of Groningen Faculty of Law Research Paper, (7).
[18] 6 Poncibò, C. (2022). The Methodology of Regulatory Sandboxes in the EU: A Preliminary Assessment from A Competition Law Perspective.
[19] Ranchordas, S. (2021). Experimental regulations for AI: sandboxes for morals and mores. University of Groningen Faculty of Law Research Paper, (7).
[20] Ranchordas, S. (2021). Experimental regulations for AI: sandboxes for morals and mores. University of Groningen Faculty of Law Research Paper, (7). s 19 Ranchordás, S. (2021).

Among the experimentalism regimes, regulatory sandboxes deserve a deepening. Their use is fast-growing world-wide as they represent, if well designed, the right compromise between the exigence of innovation and the one of regulation. A regulatory sandbox can open up a new channel for ‘dialogue’ between legislator, innovators and other stakeholders. Sandboxes allow businesses to test new products and services under a regulator's supervision for a limited time in a safe and artificially created environment. Regulatory sandboxes are testbeds to experiment innovative solutions without compromising the whole system, letting their users operating in a controlled space and waiving temporarily from requirements normally applicable.

In a nutshell, experimentalism is different from other forms of policymaking: it acknowledges that policies may fail, either because the knowledge of a government is limited and/or because we cannot predict in advance how a social organization (human beings taken as individuals and as groups) will react to an innovation. Experimentalism is, therefore, an intelligent way to respond to a cognitive problem, which accommodates for failures to happen and for knowledge to be generated through failures and evaluation outcomes.

3. A NEW APPROACH TO COMPETITION RULES AND POLICIES

Antitrust policies have been run for decades by authorities established with the aim to guarantee independence of the competition authority from governments. And yet, antitrust is still somehow thought by some politicians (as in the literature of the so called “antitrust populism”[21]) as the 'ultimate weapon' that governments can use not only to maintain acceptable levels of competition, but also to 'settle pending accounts” with private companies that, in some cases, risk becoming more 'powerful' than the entire state[22]. In this context, the case of digital infrastructures is challenging the very definitions that competition regulators have used for years.

The Economist coined the term “techlash” to identify the widespread hostility toward large technology companies[23]. The neologism stems from both the consumers’ and government’s reaction to the growing influence of tech companies. Increased hostility is due to their perceived dominance, concerns about disinformation and data security, and, even, effect on mental health[24]. In particular, the acronym MAMAA (Meta, Amazon, Microsoft, Apple and Alphabet) is used to indicate the five most prominent tech companies that reached an alleged dominant position in their respective sectors[25]. According to this line of thought, “Big Tech” act as oligarchs in an ecosystem where new businesses cannot penetrate[26]. Therefore, antitrust and regulation have not used their means in an effective and adequate way, being too weak[27].

We, however, believe that we need to go beyond the debate on regulation as a matter of ideological clash amongst different principles. Regulation may have a whole range of both positive and negative impacts; some of the consequences may even be undesired; where the outcomes may depend on “details” that policy makers may overlook[28].

In fact, since the first major case of application of antitrust to an internet giant (Microsoft[29] in 2002), the problem has been that of defining “(digital) markets” whose boundaries are difficult to outline, due to evolving technologies[30]. Are “digital infrastructures” a

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[21] George L Paul, D Daniel Sokol and Gabriela Baca, Key Developments in the United States, on www.globalcompetitionreview.com, 7 December 2021.

[22] After all, this must have been the profound motive underlying the history of the whole antitrust from the moment of its introduction in the United States (with the SHERMAN ACT of 1898) until today, from the first historical ruling on Standard Oil (in 1911) until the New York vs Microsoft case (in 2002). However, the most recent and sudden suspension of the largest IPO in history, which took place in China just a few hours before Ant Financial was listed on the Shanghai market, also follows the same logic.

[23] Adrian Wooldridge (2013), “The coming tech-lash”, The Economist, 2013, https://www.economist.com/news/2013/11/18/the-coming-tech-lash

[24] Francis Hardcastle, (2022), WHAT IS TECHLASH AND WHAT DOES IT MEAN FOR THE DIGITAL INDUSTRY?, https://www.balticapprenticeships.com/blog/what-is-techlash-and-what-does-it-mean-for-the-digital-industry

[25] The previous acronymous was GAFAM, before Google and Facebook changed their names in Alphabet and Meta.

[26] Libertini M., (2021), Digital markets and competition policy. Some remarks on the suitability of the antitrust toolkit, Orizzonti del diritto Commerciale 2021.

[27] Libertini M., (2021), Digital markets and competition policy. Some remarks on the suitability of the antitrust toolkit, Orizzonti del diritto Commerciale 2021.

[28] P. Aghion et al., (2021) “The impact of Reguation on innovation” National Bureau of Economic Research

[29] New York v. Microsoft Corp., 224 F. Supp. 2d 76 (D.D.C. 2002) (D.D.C. States Remedy2002), aff’d sub nom. Massachusetts v. Microsoft Corp., 373 F.3d 1199 (D.C. Cir. 2004) (entering Final Judgment in the district court case that was brought by the various litigating states).

[30] Shapiro, C. (2009). Microsoft: A remedial failure. Antitrust Law Journal, 75(3), 739–772.

homogeneous lot to be regulated? These unsolved questions create a conceptual problem with very concrete[31] implications and call for a totally new approach[32].

The research will also look at the recent debate leading to the introduction of ex-ante rules (alongside the traditional antitrust instrument) and the rise of the so-called "populist antitrust".

The chapter will be divided into various sections: we will start by analyzing recent trends in countries which have recently changed tack into their approach to regulating digital markets; we will then consider the European digital package where we will try to grasp the main feature of each of the main regulations and suggest areas of improvements; and, eventually we will consider two more wider problems: the question of harmonization between the European and the national level; and the one of enforceability of rules.

3.1 RECENT TRENDS IN UK, USA AND CHINA AND "THE EX-ANTE" METHOD

There is no doubt that most of the big economies are considering an increasingly hands-on approach to governing the digital world. In countries as different as the USA and China, the trend is about governments becoming increasingly worried about privately held companies having an information advantage vis-a-vis even States. Today, at the entrance to the Fourth Industrial Revolution, certain governments are worried that a few big digital conglomerates may concentrate significant resources and an enormous economic power in their hands.[33]

As a consequence, governments are recurring to digital regulation to mitigate such a significant concentration of power but also to protect consumers from the negative consequences of digital monopolies. The debate on competition policies usually distinguishes two different types of approach: "ex-post" solutions on the one hand and "ex-ante" policies on the other.

The main difference between ex-post and ex-ante competition policies is that ex-post solutions are based on a series of principles to be applied once a competitive distortion occurs. Thus, these solutions are the mere implementation of anti-trust principles which result into punishments of anticompetitive behaviors by businesses (in this way, the regulator tells businesses what *not* to do). On the other hand, ex-ante regulations aim to broadly identify potential issues beforehand and to dictate businesses how they should behave in order to avoid potential conflicts. This is the main reason why those who criticize an excessively intrusive role of the State in the economy usually advocate "ex post" anti-trust policies. In fact, the "ex-post" solutions do not entail specific rules of behavior for businesses, the "ex-ante" regulations not only tell businesses what not to do, but even what they should do in order to avoid the violation of the rules.

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[31] Frank Easterbrook was already talking thirty years ago about two possible mistakes the regulator can make: that of pursuing an apparent dominant position with the effect of destroying value; or on the contrary of not addressing the problem in time and letting monopolies grow which limit innovation (Easterbrook, F. (1984). The limits of antitrust. Texas Law Review, 63(1), 1-40.

[32] Crandall, R.W. The Dubious Antitrust Argument for Breaking Up the Internet Giants. Rev Ind Organ 54, 627–649 (2019). https://doi.org/10.1007/s11151-019-09680-

[33] A. De Streel, *Should digital antitrust be ordoliberal?*, on Concurrences N°1-2020 | pp.2-4.

However, even though the former solutions have been traditionally used in anti-trust, most countries[34] have been moving towards the latter[35].

The renovated interest in competition policies and thus a stronger role of the regulator is paralleled by the growing perception that antitrust rules are no longer enough to govern a phenomenon which is even making the boundaries amongst "sectors"/ industries to blur[36]. However, the new wave of "ex-ante" interventions is also raising concerns about the so-called "anti-trust populism", that is to say an excessive use of regulations aimed at "punishing" firms on the basis of their size without considering the costs in terms of innovation and consumer welfare[37].

3.1.1 THE EX-ANTE APPROACH AS AN GLOBAL TREND: REASONS AND LIMITS

The "ex-ante" approach raises several conceptual problems, including:

a) Possible redundancies between "ex ante" regulations and competition laws[38];

b) The novel and experimental nature of this approach and the mechanisms through which it should be reviewed;

c) The skills challenge that such a sophisticated approach will require to the regulating agencies;

d) The risk that law making may become "ad persona", i.e. targeted to companies which can be identified only by referring to a specific list;

e) Where information costs are particularly high, ex-ante regulation implies higher costs than ex-post remedies (e.g., the government's cost of collecting information about the rule and disseminating it to the public, the cost of understanding whether a firm has or has not violated a certain rule, the cost faced by in-scope firms to adapt to the new regulations etc.)

f) The possible lack of flexibility due to fixed rules which would need to be reformed often, as a "one size fits all" approach is clearly ineffective when it comes to regulate such a rapidly evolving phenomenon. Many suggest a "dynamic" supervision of digital companies' behavior, especially if we consider the high rate of innovation and change in this sector[39].

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[34] Only countries where ex ante regulation was rejected are Brazil and Mexico. The debate is, instead, splitting lawmakers and advisors in Israel and Taiwan. In Australia, India and South Africa, proposals are likely to soon being formalized.

[35] As in Frieden, R. (2015). Ex ante versus Ex post approaches to Network neutrality: A Comparative assessment. *Berkeley Tech. LJ*, *30*, 1561 or

[36] As in Kalesna, K., & Patakyova, M. T. (2021). Digital Platforms: Competition Law versus Ex Ante Regulation. *Pravny Obzor*, *104*, 26.

[37] Portuese A., Biden Antitrust: The Paradox of the New Antitrust Populism, Information Technology & Innovation Foundation, May 8, 2022

[38] As in M. Libertini, *Cumulative Enforcement of European and National Competition Law and the* Ne bis in idem *principle. Case Comment to the Judgment of the EU Court of Justice of 3 April 2019 (Case C-617/17),* in *Yearbook of Antitrust and Regulatory Studies (Warsaw),* 2019, 231 ss. But also A.P. Komninos, *The Digital Markets Act: How Does it Compare with Competition Law?,* in *Portale di diritto europeo e internazionale,* 2022.

[39] Xin Lu, Thoughts on Antitrust of Digital Economy in the New Era, on Asian Business Research, Vol.7, No.3, 2022

g) Barriers to innovation that may come from excessive ex-ante regulation. A poorly designed ex-ante regulation, in fact, might slow down or discourage innovation in an economy, making it difficult to catch up with other competitors – this is especially true in a rapidly evolving sector as the digital one[40].

3.1.2 THE *AD HOC* METHOD OF THE CMA IN UK

The digital economy is strongly developed in the UK, with Manchester, London, Bristol, Oxford and Cambridge being among Europe's top 20 cities for tech investment. Unlocking the full potential of digital markets is a priority for the UK government, especially in the framework of the post-pandemic recovery.

In the last years, the government has proposed an ambitious reform of its anti-trust laws in the framework of an ex-ante regulatory approach. In July 2021, the government started to study a reform of its Competition and Consumer Policy and, in May 2022, it published the outcome of the consultation envisaging a new pro-competition strategy.

The Digital Markets, Competition and Consumer Bill (DMCC Bill) has just been published (April 2023) after a delay due to political circumstances[41].

The DMCC Bill aims to promote free and vigorous competition amongst businesses, both online and on the high street, thereby ensuring growth in the UK economy[42]. The bill strengthens the Competition and Market Authority's role, reinforces its key principles, and has three areas of focus: consumer protection, digital markets, and competition.

The Bill introduces a new digital markets regime to regulate the conduct of the most powerful tech firms, which will include a mandatory merger reporting requirement. Additionally, the country's competition law regime will undergo significant changes, including the implementation of a new merger control threshold and the reinforcement of the CMA's enforcement powers. The Bill will also strengthen the Competition and Market Authority's power in enforcing consumer protection legislation, allowing it to directly enforce legislation against companies instead of going through the courts. Finally, the Bill will enhance consumer protection rights to keep pace with developments, particularly in retail and advertising.

Overall, the DMCC Bill is expected to create a highly attractive environment for investment and business in the UK, promoting economic growth and benefiting consumers and fair-dealing firms alike.

One of the key points of the reform is the establishment of a dedicated **Digital Markets Unit** (DMU) within the CMA. The DMU has the mandate of promoting competition in digital markets and the statutory duty to consult with other regulators where needed, to ensure the

[40] Hosuk Lee-Makiyama, Badri Narayanan Gopalakrishnan, Economic costs of ex-ante regulations, on European Centre For International Political Economy, Oct.2020

[41] The reference here is especially to the political turmoil due to the decease of Queen Elizabeth II and to the quick succession of three heads of government (Boris Johnson, Liz Truss, Rishi Sunak) in less than two months (September – October 2022).

[42] https://www.gov.uk/government/news/new-bill-to-stamp-out-unfair-practices-and-promote-competition-in-digital-markets

effective coordination of the new regime with other regulatory systems. This new regulatory body will be responsible for designing and enforcing ex-ante regulation of firms that have been identified as having Strategic Market Status (SMS) in digital activities. The Bill provides legal definitions and thresholds for SMS and "digital activities", which are deliberately broad to give the regulator discretion. The UK Government defined as “a substantial and entrenched market power in one or more activities which gives them [the small number of firms] a strategic position”[43].To be designated as having SMS, a firm must meet a turnover threshold of £25bn worldwide and/or £1bn in the UK. Once a firm is designated with a Strategic Market Status, the DMU sets out the conduct requirements it is expected to follow

Instead of applying regulations company-wide, specific activities within a firm will be targeted by the regulations. The DMU will evaluate each activity and determine if the firm has SMS related to that particular digital activity. The designation of SMS will be open for public consultation. The DMU will customize regulations based on various business models and enforce conduct rules on designated companies to control the effects of their alleged market dominance and achieve fair dealing, openness, trust, and transparency. In case of suspected misconduct, the regulator may receive voluntary commitments from the firm to conclude an investigation. The permissible conduct requirements may be modified by the current government, posing a potential expansion risk for the system's coverage over time.

The Bill will also give e the DMU the possibility to implement targeted pro-competitive interventions (e.g., actions aimed at supporting interoperability) which can radically transform digital markets. The regulator may prevent firms from implementing certain changes in other areas of their business that could enhance their market power in the SMS activity. The purpose of this measure is to tackle concerns related to leveraging. The Bill specifies that this would only happen if the proposed changes significantly increase the firm's market power or strengthen its strategic position in relation to the relevant digital activity.

The DMU may choose to complement the conduct requirements by implementing Pro-competitive Interventions (PCIs). The conduct requirements aim, indeed, to control the consequences of a company's alleged dominance. PCIs aim instead to tackle its underlying causes. These interventions may involve compelling companies to allow interoperability or furnish data to third parties. The DMU will seek public feedback before implementing any PCIs.

The DMU is authorized to enforce financial penalties in case of non-compliance, amounting to a maximum of 10% of the global group turnover (or daily penalties equating to 5% of daily turnover), Additionally, the DMU has the ability to hold senior managers accountable for ensuring the firm meets information requests.

Firms will have the opportunity to contest regulatory decisions using a "judicial review" standard. This means that firms can challenge the decision-making process of the regulator,

[43] Government response to the consultation on a new pro-competition regime for digital markets, May 2022, p.7 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1073164/E02740688_CP_657_Gov_Resp_Consultation_on_pro-comp_digital_markets_Accessible.pdf)

such as whether the correct procedures were followed, rather than the actual decision made by the regulator.

The legislation introduces a dispute resolution mechanism that utilizes arbitration to settle pricing conflicts between SMS firms and third-party companies. In response to concerns expressed by the industry, the Government has included safeguards to ensure that this measure is only employed as a last resort in cases where a firm has violated conduct standards and regulatory intervention through other means has been unsuccessful. These safeguards are intended to maintain proportionality and prevent abuse of the mechanism.

The Bill would grant the CMA with broad authority to gather information, which it could employ to scrutinize the algorithms utilized by SMS firms. In specific situations, this may involve compelling SMS firms to conduct demonstrations and tests, such as A/B tests on user bases, and disclosing the outcomes to the DMU.

The Government, in response to Amazon and other companies' requests, has included a consumer benefits exemption, allowing a firm to claim an exemption from the conduct requirements when it happens that the benefit to consumers from a firm's action is greater than the competition harm.

The government has abandoned plans to create a different Merger and Acquisition regime for SMS firms, instead obliging them to report certain transactions subject to the same approval process as transactions by all other firms.

The proposed reforms, will enhance the powers of the regulation authority and make some procedures easier. They will also allow a more integrated and flexible international cooperation between anti-trust authorities, by reforming the rules of information sharing between different countries.

The CMA's approach appears to contrast with a sectoral intervention that imposes one-size-fits-all rules[44], as it is based on principles (rather than specific rules like the DMA, see section 3.2.1 below) and firm-specific codes of conduct. The legally binding codes of conduct will be customized to the specific business model and activity of firms that have a strategic position, and it is expected that only a small number of digital companies will meet the SMS criteria[45].

The motivation for the new regime is not limited to the concern that a firm may have substantial market power in a narrow area but extends to cases where the impact of a firm's market power is particularly significant. This distinction is crucial in justifying the introduction of the SMS regime, setting it apart from existing laws, and reducing the number of firms that meet the SMS test. This approach has been endorsed by the Australian Competition and Consumer Commission[46].

[44] Colangelo, G. (2022). DMA begins. *Available at SSRN 4292049*
[45] Colangelo, G. (2022). DMA begins. *Available at SSRN 4292049*
[46] Colangelo, G. (2022). DMA begins. *Available at SSRN 4292049*

Dialogue among different regulatory authorities within the UK was also fostered through the establishment of the **Digital Regulation Cooperation Forum**[47], aimed at developing cross-disciplinary cooperation to tackle the challenges of digital regulation.

3.1.3 THE US AND THE "ANTI TRUST POPULISM"

The USA appears to have recently changes approach to digital companies that have been the backbone of US technology leadership in the last decade.

President Biden's election in 2021 saw the marginalization of anti-trust moderates while "techlash" took control of the competition policy agenda [48]. The Department of Justice (DOJ) and the Federal Trade Commission (FTC) have been particularly active in advocating for a deep change of an approach in competition policy, responding to the aforementioned trend of **"anti-trust populism"**[49]. According to this new perspective, existing anti-trust laws are not adequate to tackle challenges by digital companies and need to be reformed. Requests for reforms came from both Republicans and Democrats in the US Congress: both houses proposed several bills to tackle potential lack of competition in the digital market. Some senators, for instance, proposed to make acquisitions by big digital firms presumptively illegal. This again appears to some a not entirely justified allocation of scares resources amongst different policies: agencies appear to have the propensity to have a much higher priority on "big tech" than for instance protecting consumers from high energy bills.

In 2021, the White House issued an Executive Order[50] which asked a number of federal agencies to adopt regulations aimed at pursuing several competition goals, including challenging past tech and digital mergers that were not addressed by previous administrations. The order also established a **Competition Council,** composed by eight cabinet secretaries and eight managers of independent agencies, with the task of implementing the executive order and coordinating the government's response to non-competitive behaviors. Even though there was a bipartisan consensus on the need to reform US anti-trust regulations, many of the proposed reforms are still under consideration at the Congress as members of both parties expressed some doubts on the unintended consequences the proposed bills might have.
The bills that were presented to the Congress include the **American Innovation and Choice Online Act** (addressing self-preferencing behaviors, challenging fairness and competition) and the **Ending Platform Monopolies Act** (addressing the situations where a dominant digital company controls access to a market and at the same time acts as a competitor in that market). The proposed **Platform Competition and Opportunity Act,** in addition, would pose a general ban on dominant infrastructures which try to acquire potential (or current) competitors.

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[47] The DRCF was established in 2020 by the Competition and Markets Authority, the Information Commissioner's Office and the Office of Communications. In 2021, the Financial Conduct Authority joined the forum as well.
[48] The appointment of the anti-trust progressive thinker Tim Wu as Special Assistant to the President for Technology and Competition Policy on the National Economic Council was a clear sign of this change.
[49] George L Paul, D Daniel Sokol and Gabriela Baca , Key Developments in the United States, on www.globalcompetitionreview.com, 7 December 2021
[50] "Executive Order on Promoting Competition In the American Economy", issued on 9 July 2021

While the Acts are unlikely to be become law,[51] federal agencies have enhanced their enforcement in the digital economy: in fact, both the FTC and the DOJ adopted a more **skeptical and aggressive approach**, exemplified in three major lawsuits - two of which were against Google and Facebook. Moreover, between 2019 and 2021 the federal agencies challenged several mergers and acquisitions by digital and technology companies, increasingly focusing on acquisitions of new competitors by bigger companies.
In 2021, the FTC introduced some ambiguity in its merger review approach by withdrawing its 2020 Vertical Merger Guidelines (claiming they needed to be reformed and included some unsound theories). This withdrawal signaled that, from that moment, vertical mergers would be subjected to an even closer scrutiny by the FTC (this includes the decision to open court proceedings on Microsoft's take-over of Activision Blizzard). Moreover, the Competition and Antitrust Law Enforcement Reform Act (CALERA), introduced in 2021, aimed at enhancing the FTC's power to block new M&As, proposing the establishment of a specific division with the task of studying the effects of past mergers and acquisitions[52].

3.1.4 CHINA: CRACKDOW AND NORMALIZATION

China began to invest widely into Internet at the beginning of the century, but it was only between 2008 and 2015 that its digital economy rapidly grew, making it the second-largest digital economy in 2020 and the first by overall growth rate[53].

By 2015, a number of giants in the Internet industry were already born and it became clear that the existing anti-trust regulation, approved in 2007 and mainly conceived for traditional economy, was inadequate to address the new challenges posed by the digital economy. As a matter of fact, the absence of effective anti-monopoly rules allowed the merger of the bigger digital companies, which took advantage of their strong market position and often adopted non-competitive behaviors.

As a consequence, **since 2019 anti-trust supervision in China has entered a new stage**: the anti-trust laws and policies have been reformed and improved, adopting a stronger regulatory approach, and enforcement agencies have investigated monopolistic behaviors on a larger scale. China's clampdown started in 2020, with new boundaries and strict regulations on its biggest companies. The online financial service units of 13 tech giants were in regulator's sights, such as Tencent, Baidu, Bytedance, Meituan and Didi[54].

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[51] https://time.com/6243256/schumer-kills-antitrust-big-tech-bills/
[52] In December 2022, the Federal Trade Commission sued to block Microsoft's acquisition of the video game maker Activision Blizzard, a deal worth $69 billion. Such acquisition would put together Microsoft's Xbox console and Activision's titles such as Candy Crush or Call of Duty; according to the FTA, the acquisition would harm consumers as Microsoft would be able to use Activision's most popular games to lure clients from rivals. The FTA claimed that it wanted "to stop Microsoft from gaining control over a leading independent game studio and using it to harm competition in multiple dynamic and fast-growing gaming markets" (Weise, K., McCabe, D., FTC. Sues to Block Microsoft's $69 Billion Acquisition of Activision, on The New York Times, December 8th 2022), but Microsoft announced to be ready to fight in court and that it is not willing to abandon the deal.
[53] Bing Chen, Xiaou Fu, Antitrust Regulation Insight: China's Digital Platforms' New Phase, Sept.2022, on CPI (Competition Policy International), www.competitionpolicyinternational.com
54 Michelle Toh, (2021), "China orders Tencent and other big tech firms to curb their finance businesses", CNN Business, Apr 2021 https://edition.cnn.com/2021/04/30/tech/china-tech-crackdown-finance-intl-hnk/index.html

This heavy-handed regulatory approach was due to the government's purpose to control and reduce the Chinese private enterprise's power, become too strong according to the ruling Community Party[55].

So far, the Chinese antitrust regulator has been particularly active in the field of digital economy: in 2020, the **State Administration for Market Regulation ("SAMR")** imposed the maximum administrative penalty existing on three proposed M&As[56]. It was the first time that a concentration of businesses in the digital economy was fined by the Chinese anti-trust authority. In 2021, 176 monopoly cases were investigated in China, imposing a total amount of fines of 23.586 billion yuan (almost 3.4 billion dollars). Moreover, 727 business concentration cases were reviewed by the court system.

In 2021, the SAMR blocked the merger of Huya and Douyu declared by Tencent, realizing the first prohibition of an Internet infrastructure merger in China.

In 2021, the Anti-Monopoly Commission of the State Council adopted the ***Antitrust Guidelines on Platform Economy***, the world's first government-issued regulatory document specifically addressing the digital economy. In the same year, the ***Personal Information Protection Law*** set out specific requirements on data processing for digital infrastructures, established a system for information disclosure and external audit, increased infrastructures' responsibilities and reduced the risk of monopoly.

On June **2022**, the Standing Committee of the National People's Congress provided the final version of the **revised Anti-Monopoly Law** (AML), which came into force on August 2022. The revised AML introduces a series of changes. First of all, it increases liabilities for companies that violate the law, raising the maximum fines for violations, and enlarges the tools at disposal of anti-trust authorities.

Among the various changes introduced, the revised AML lowers the threshold for M&A review, extends conditions for anti-trust review and bans companies for abusing their dominant position in the market through the use of technological means (as data, algorithms) to undermine competition.

However, the revised AML also aims at reducing the risk of abuses by anti-trust authorities. This is mainly thought to curb local protectionism, so as to avoid the tendency of local governments to ensure a competitive advantage to local companies, preventing companies from other regions from expanding in their market. The revised AML even allows anti-trust agencies to investigate on abuse of administrative power by local institutions.

An interesting element of the Chinese ex-ante regulation approach is represented by the **administrative guidance meetings** held by the SAMR with industry-specific regulators in the digital economy, to lay out ex-ante regulation guidelines.

For example, in the past two years, right before the national digital sales day (the so-called "Double 11"), the SAMR held an **Administrative Guidance Symposium on Regulating**

[55] He Laure, (2023), "China's crackdown on tech giants is 'basically' over, top official says", CNN Business, Jan 2023, https://edition.cnn.com/2023/01/09/economy/china-economy-guo-shuqing-ant-group-intl-hnk/index.html

[56] Which included Alibaba's investment in acquiring equity in Yintai Commercial, Yuewen's acquisition of Xinli Media, and Fengchao's acquisition of Zhongyouzhidi. Source: competitionpolicyinternational.com

Online Business Activities and an **Administrative Guidance Conference on Regulating Online Economic Order.** Similar administrative guidance meetings are also held by local market regulatory departments, so as to help digital enterprises to operate in accordance with the requirements set by law.

Thus, a multi-level governance for digital economy was developed by both local and central governments.

Even though the Chinese approach to the governance of digital economy is close to that of other major countries, there are several differences regarding regulatory methods and measures. Generally, China focuses on policy guidance and multilateral governance, through an accurate diversification of measures and a consistent enforcement. Regulatory agencies have fully implemented the directions set by the central government, strengthening regulation and enforcement against non-competitive behaviors.

Ensuring free and fair competition and fostering the development of the digital market are among the basic requirements of China's "14th Five-Year plan", with the mission of promoting a sustainable development of the digital economy. According to a circular issued by the General Office of the State Council on January 2022, in fact, by 2025 the Chinese digital economy should be in full expansion mode and "a sound digital economy governance system will be established with the participation of governments, platforms, enterprises, industrial organizations, and the general public"[57].

In recent months, the government's approach towards tech giants has changed again and the so called "crackdown" seems drawing to an end. The shift of behavior stems from the policymakers' aim to revive confidence in China's leadership and fostering growth: to do that, tech firms play an important role[58]. Guo Shuqing, the Communist Party head at the People's Bank of China, said that the crackdown on fintech firms is basically over in an interview with state-run Xinhua news agency: "Next, we'll promote healthy development of internet platforms. We'll encourage them to come out strong in leading economic growth, creating more jobs, and competing globally."[59]

Next months will say if China has eventually reached a new normal: the paradigm appears to be one which aims to steer innovation and individual talents towards the continuous renewal of "digital infrastructures" meant as a quasi-public utility where ideas, goods, services are exchanged.

[57] Plan focuses on digital economy development during 14th Five-Year Plan period, english.www.gov.cn, January 12, 2022
[58] The Economist (2023), "China's tech crack down starts to ease", https://www.economist.com/business/2023/01/19/chinas-tech-crackdown-starts-to-ease
[59] He Laure, (2023), "China's crackdown on tech giants is 'basically' over, top official says", CNN Business, Jan 2023, https://edition.cnn.com/2023/01/09/economy/china-economy-guo-shuqing-ant-group-intl-hnk/index.html

3.2 THE EUROPEAN DIGITAL PACKAGE

The first daunting evidence that anybody trying to map the EU regulation on digital policies would find is that the EU is undertaking a massive regulatory effort of the digital world. The table below summarizes the main EU legislative acts on digital, since 2016.

TABLE 3.1 - MAIN EU LEGISLATIVE ACTS (SINCE 2016)

Name	Type *	Date	Pages	Articles
DATA ACT	PR	23-feb-22	**63**	**42**
Artificial Intelligence ACT	PR	21-apr-21	**88**	**85**
GOVERNMENT DATA ACT	PR	25-nov-20	**42**	**35**
DIGITAL SERVICES ACT	R	18-jul-22	**113**	**74**
DIGITAL MARKETS ACT	R	25-jul-22	**81**	**39**
PLATFORM TO BUSINESS PRACTICES	R	20-jun-19	**23**	**19**
GEO-BLOCKING	R	28-feb-18	**15**	**11**
General Data Protection Rights	R	27-feb-16	**88**	**99**
DIGITAL COPYRIGHT	D	17-apr-19	**34**	**32**
EUROPEAN ELECTRONIC COMMUNICATION CODE	D	11-dec-18	**179**	**127**
TOTAL			**726**	**563**

* Type: we here distinguish between Directives which need to be transposed into national laws; regulations issued by the European Parliament and the Council which are immediately applicable; and proposal of regulation of the European Commission for a regulation of the European Parliament and the Council.

**Author: EC = The European Commission; EP + EC = The European Parliament and the Council

SOURCE: EUROPEAN COMMISSION AND EUROPEAN PARLIAMENT

We are, in fact, referring to 10 different pieces of legislations produced in the last six years: the **Data Act** proposed by the European Commission in February 2022 which complements the **Data Government Act** which dates back to November 2020; the **Artificial Intelligence Act** proposed in 2021; the **Directive on Digital Copyright** of the April 2021; the **Digital Markets Act (DMA)** proposed in 2020 by the European Commission, which entered into force on November 1, 2022; the **Digital Services Act (DSA)**, which came into force on November 16, 2022; the **General Data Protection Regulation (GDPR)** on personal data which is the oldest and dates back to 2016; the **Directive on European Electronic Communication Code** of 2018; the **Platform to Business regulation** (2019); the **Regulation on Geo-blocking** which has been effective since 2018.

As outlined by the analysis in the table, the package sums up to more than 700 pages and more than 550 articles. Such a massive legislative effort shows a strong priority and yet runs the following five risks:

a) Definitions tend to be too wide (the ones which are being designed to identify the “use of data” or “artificial intelligence” may theoretically apply to any software; the same applies to the notion of “core platform services” and even the idea of the mere existence of “digital markets”)) and this paradoxically may result into identification of

techniques/ applications/ companies (within “annexes”) which risk to be too narrow (violating the general principle that law cannot be “ad personam”)[60];

b) Some practices (it is the example of “surveillance in public spaces”) are rightly banned in the EU and yet this may backfire, whereas other countries may experiment both the potential and the drawbacks of such practices (achieving a first mover advantage);

c) In some cases, overregulation (as for the expectation that any artificial intelligence product is “controlled by a person” during its functioning) may kill the very reason (higher productivity, greater efficiency, customer demand) which is behind certain innovations; or the incentives which make a company to spend into R&D (as for the provision that data are released free of charge to third parties by companies upon request of user – as in the “Data Act” as we will see below);

d) There may be national laws that duplicates or contrast with the EU approach (as for the penalties which can be theoretically imposed by each of the 27 countries creating potentially a damage which is not proportional to the violation); and

e) The assumption that public administrations have the systems and the skills, the talents and the resources to govern a hyper fast transformation, may overlook a huge problem of implementation.

3.2.1 THE DIGITAL MARKETS ACT (DMA)

On 25th of March 2022, the Council and the Parliament reached a provisional agreement on a proposal of the European Commission to establish a Digital Markets Act (DMA) whose overall aim is to make digital markets fairer and more competitive. The agreement on the DMA preceded of one month a similar consensus reached on the twin regulation called Digital Services Act (DSA) and whose main purpose is to protect consumers from the diffusion of “illegal contents”.

The DMA entered in force last November but the implementation phase will begin to apply in six months (2 May 2023). DMA and DSA will be fully enacted since January 2024, and they are seen as the pillars of the EU regulation.

3.2.1.1 THE REGULATION APPROACH

The objective of the DMA is better articulated by the regulation into three more specific purposes: a) to enhance consumer choice; b) to boost innovation and c) to unlock the potential economic value of those markets.

The targets of the DMA are the platforms identified “gatekeepers”, in relation to one or more “core platform services (CPS)”. CPS are, for instance, online intermediation services, online search engines, online social networking services, video-sharing platform services, number-

[60] Not less risky is the expectation that it will be the tribunals to say what lawmakers was meaning.

independent interpersonal communications services, operating systems, web browsers, virtual assistants, cloud computing services and online advertising services when offered by platforms providing any of the other CPS.

The DMA establishes the criteria that determine the status of a large online platform as a "gatekeeper". Such platforms, indeed, serve as a crucial gateway between businesses and consumers and their influential position confers upon them the authority to act as *de facto* regulators, creating chokepoints in the digital marketplace. In response to these concerns, the DMA prescribes a set of obligations that gatekeepers must adhere to, including restrictions on certain types of conduct. There are three criteria that a firm has to meet in order to be a gatekeeper:

a) A remarkable impact on the internal market: the firm should have an annual turnover of at least 7.5 billion in the EU, reached in the last three financial years, or a market valuation of 75 billion euro in the last financial year; it also shall provide the same CPS in at least three EU States;

b) Being an important gateway for business users to reach end – users: the gatekeeper shall provide a CPS that, in the last financial year, has had 45 million monthly end users and 10.000 business users within the EU;

c) An entrenched and durable position: in its operations (or it is foreseeable that it will enjoy such a position in the near future) in the case the company met the second criterion during the last three years.

It has been noted that the EU's motivation for this intervention is that the "digital platforms" themselves are regulators[61]. They themselves are the referee of a market which is their own "platform" where they are "gatekeeper" which means that they establish and enforce the mechanisms through which different products compete amongst themselves. More remarkably the European Commission recognized that through personalized ranking (which is the hugely important mechanism which determines which item is displayed first) and advertising of various nature (which is eventually how different items are shown), it is the platform which dictates the rules through which competition happens.

In order to assure a coherent implementation of the DMA and other regulations applicable to gatekeepers, the European Commission adopted the decision to establish the High-Level Group on the Digital Markets Act (DMA) in March 2023. It will be composed by 30 representatives nominated from difference bodies[62].

By 3rd July 2023, companies are required to furnish the Commission with details regarding their user count to facilitate the identification of "gatekeepers" before 6th September: CPS

[61] As for comments of one of the participants to the Vision seminar on digital policies held on the 16th June 2022 (link at https://www.thinktank.vision/en/media-en/events/the-bossy-state) together with Jan Piotrowski, Business Editor of The Economist and author of the "Beware of the Bossy State", cover story published by British magazine on January 15th 2022.

[62] The Body of the European Regulators for Electronic Communications (BEREC), the European Data Protection Supervisor (EDPS) and European Data Protection Board, the European Competition Network (ECN), the Consumer Protection Cooperation Network (CPC Network), and the European Regulatory Group of Audiovisual Media Regulators (ERGA), in accordance with the requirements outlined in the DMA.

providers will have to assess themselves whether they meet the quantitative thresholds above mentioned. Following this, gatekeepers will be mandated to comply with the obligations set forth in the DMA by March 2024.

The idea is also that by "competition" amongst "items" the European Commission is considering not only the one amongst different products (as in a marketplace), but also amongst different services (as amongst hotels through Booking.com) and websites (as through search engine).

Indeed, considering that the definition of "core platform services" to which the regulation applies (article 2), one may argue that the DMA also can be influential on how rankings compare different pieces of news and/ or political opinions (as on Facebook)[63].

It is also evident that the regulation is considering competition both amongst digital (as for digital advertising agencies or providers of cloud services) and not digital businesses (as for any producers of clothing which is selling through a marketplace or for any law firm which is promoting itself through Linkedin).

So, in fact, the DMA is not de facto about "making Digital Markets fairer and contestable" (whereas it is not immediately clear what the "digital markets" are), but about making sure that digital means of competition contribute to make virtually all markets (physical and digital) to be more competitive and open to innovation.

The fact that "large companies" are themselves "regulators" is not entirely new. A traditional brick and mortar book shop was and is also a "regulator" when it comes to decide how to position different books on the shelves and the same applies to any retailers of food or consumer goods, as Walmart or Euronics. The "regulation" function is, however, much bigger in a "core platform" where millions of consumers are exposed to information whose order is shaped according to individual preferences and commercial strategies.

The EC's concern is that this "regulation" function", means that private firms are entrusted of a very crucial (somebody would even call it "quasi-public") task. This gives them a power which is similar to the one that the State itself used to have with the transportation infrastructure (bridges, roads, ports) but also the communication/ energy networks: they were the "nervous system" through which goods, services and ideas were exchanged.

These networks were, sometimes, born as "public" since the start (as for most of the roads) or as run by private companies (the railways system in the USA or the electricity generators and networks in Italy) but became "state owned" at a later stage (as for electricity in Italy after WW2) or subject to regulation (as in the USA with the Granger laws[64]).

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[63] And a similar argument may be extended to comparisons amongst individuals (through a dating application).

[64] In the late 1860s and early 1870s, a collection of laws, known as the Granger Laws, were enacted in several midwestern states of the United States, including Minnesota, Iowa, Wisconsin, and Illinois. These laws were primarily advocated by a group of farmers belonging to The National Grange of the Order of Patrons of Husbandry. The primary objective of the Grangers was to regulate the escalating fare prices of railroad and grain elevator companies following the conclusion of the American Civil War. These laws, which created dissatisfaction among prominent railroad companies, were extensively debated at the time and resulted in significant court cases such as Munn v. Illinois and Wabash v. Illinois.

The approach of the DMA is, in fact, that it treats “platforms” as a “quasi-utilities” which provide a “quasi-public” good”:

This is very evident when one tries to read article 5 and 6 of the DMA: article 5 prescribes “*obligations for gatekeepers*” and article 6 “*obligations for gatekeepers susceptible of being further specified*” (therefore this article is a “grey area” upon which the European Commission is asking a *mandate* to better identify them). Thus, four provisions appear to be especially relevant:

a) Article 6.2 requires “*gatekeepers to refrain from using, in competition with business users, any data which is generated by those business users ... and their end users ... of its core platform services*”: considering how wide can be the notion of “competition” (which can be between “business user” and “core platform” but also indirectly between those business users and other business users) this article sums up to practically ask “gatekeepers” (for instance, marketplaces) to give up their core business which is, in fact, about “using data” (whereas this would apply ex ante even when the business/ end user gave the consent as for the GDPR);

b) Article 6.9 requires gatekeepers to “provide tools” for “data portability”, which basically equates to establish that data is “public” and that there is no “property right” on neither data nor – even worse – data made analyzable thanks to the investments made by the gatekeeper on technology; the consequence is also that when data is generated collectively by more than one end user (as for messages on WhatsApp) or by more business users (as on a business-to-business marketplace) the imposition ends up creating a technical problem which is almost impossible to solve;

c) Article 6.11 requires gatekeepers to provide to any “*third party providers of online search engines ... with access to ranking ... data in relation to ... research generated by end users*” which can, again, have the effect to make “public” the value accumulated by private companies;

d) Article 5.5 imposes an obligation to “*allow end users to access ... through the platform ... using the software application of a business user*” which, again, establishes de facto that the platform is a “public space”.

The problem, however, is that treating a marketplace or a search engine as a transportation or a phone network exposes the EU to a great conceptual problem because a digital platform is a much more sophisticated space as opposed to high-ways or an electric grid. This means that asking Meta or to Google to guarantee the neutrality of the internet, means to asks them to forgo their core skill, which is exactly about, in fact, differentiating what people see on their platforms according to their interest. In addition, neutrality would require them to solve problems which may even go beyond their possibilities. Problems which are not only technical but conceptual because it is not clear what a “neutral” platform would look like and what mechanisms would it employ.

It is this contradiction that makes the core request of the DMA at odds with the very nature of the subjects that the DMA wants to regulate.

3.2.1.2 POSSIBLE IMPROVEMENTS

One of the main problems of the DMA is that there is a contradiction between its being a "law" – whereas the application of the law needs to be generalizable to all – and the circumstance that it ends up being addressed to very few "gatekeepers" (as the regulation call the actors it wants to regulate).

Moreover, the DMA has been criticized because it would impose an overregulation that hampers innovation[65] and for the risk of overlap between the current antitrust regulations at both the European and national levels[66].

The risk is related to how these rules are enforced by National Competition Authorities, as the European Commission will not be constrained by competition law analysis, and therefore it is unlikely to use antitrust provisions to address issues covered by the DMA. The likelihood of an overlap is increased by the opportunity for Member States to enhance their antitrust enforcement measures by implementing provisions that are specific to digital platforms[67]. The German case has to be mentioned as some authors spoke about a risk of Germanexit[68] on digital regulation. The German legislature passed the Tenth Amendment to its antitrust law. In particular, since January 2021, section 19a has granted the Bundeskartellamt new authorities to pinpoint positions of notable market relevance, which includes entities that are of "paramount significance for competition across markets".

We believe that – immediately outside the EU - the UK approach has got merits. It understandably intervenes ex ante, however it does forgo the unrealistic aim of producing "laws" and provides a framework to establish "contractual agreements" between each digital infrastructure and the regulator.

This also implies the possibility:

1) To generate agreements seeking the collaboration of the regulated entity, whereas

2) They are made as transparent as possible so that all citizens and firms can access their provisions, partnerships will be about not only prohibitions but also about maximizing social and economic value that digital infrastructures can produce to citizens (some digital infrastructures are – de facto – providing already some common goods) and to firms (already many firms – especially small and medium – are taking advantages of infrastructures like marketplaces to better promote or distribute their goods/ services).

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[65] Libertini M., (2022), IL REGOLAMENTO EUROPEO SUI MERCATI DIGITALI E LE NORME GENERALI IN MATERIA DI CONCORRENZA, Rivista trimestrale di Diritto Pubblico, fasc.4 -2 022.
[66] Colangelo, G. (2022). The European Digital Markets Act and Antitrust Enforcement: A Liaison Dangereuse. European law review, (5), 597-621.
[67] Colangelo, G. (2022). The European Digital Markets Act and Antitrust Enforcement: A Liaison Dangereuse. European law review, (5), 597-621.
[68] Colangelo, G. (2022). The European Digital Markets Act and Antitrust Enforcement: A Liaison Dangereuse. European law review, (5), 597-621.

The UK's tailored approach seems to be a more consistent way to avoid blurring the line between regulation and competition law[69]. Also, it shows that the EU approach with DMA is not the only way to tackle the issue of digital regulation – additional models are being tested.

3.2.2 DIGITAL SERVICES ACT (DSA)

There seems to be a widespread concern in Europe that the concentration of influence in the hands of few multinationals, can generate risks for democracy itself. This is, indeed, a wide problem, of which the question of "fake news" is only the most famous symptom.

On 23rd of April 2022, the Digital Services Act (DSA) reached the political consensus and came into force on the 16th of November. The DSA will apply fifteen months or from 1 January 2024, whichever comes later, after entry into force.

Together with the DMA, the DSA introduces new rules aimed at making the digital space safer and more open. Indeed, their main goals are the creation of a safer digital environment where to guarantee the protection of the fundamental rights of all digital services' users and the establishment of a field where innovation and competitiveness is boosted, both in the European Single Market and globally.

The debate currently identifies two main methods to regulate the production and the diffusion of contents: one is about treating illegal contents (which is an "outcome" which can be identified only "ex post" after publication); the second is about dealing with the "systems" (made of algorithms, but also interfaces and incentives) which the platforms themselves use to regulate (rank or highlight or forbid) contents.

We will shortly see how both approaches have limitations; how the EU regulations falls in between; and how a different approach may look like and be tested.

3.2.2.1 THE REGULATION APPROACH

In 2020, the European Commission began to work aimed at updating the legislations defining the responsibilities of providers of digital services and especially of online platforms. An EU intervention was deemed necessary to harmonize the regulations on online services to protect fundamental rights and to ensure a trusted online environment.

As part of this process, the European Parliament adopted two resolutions:

1. Resolution on improving the functioning of the Single Market.
2. Resolution on adapting commercial and civil law rules for commercial entities operating online.

The first resolution was indented to reform the existing legal framework for e-commerce in the EU to better protect consumers and boost the competitiveness of the EU digital market/environment. The second one sought to improve users' safety online through greater

[69] Colangelo, G. (2022). DMA begins. *Available at SSRN 4292049*

transparency, accountability of contents, and with the guarantee of an independent recourse to judicial redress.

In addition, the European Parliament adopted the “Resolution on the Digital Service Act and fundamental rights issues” under a non-legislative procedure in 2020.

These initiatives led to the proposal for a **Digital Services Act**, whose main purpose are:

a) To protect fundamental rights online;

b) To ensure transparency, accountability for digital services providers;

c) To establish effective obligations to prevent the diffusion of so called “illegal contents” online;

d) To promote a cooperation between EU and national authorities across jurisdiction in enforcing the law.

The DSA regulation imposes stricter obligations to online platforms based on their dimension: according to the EC, accountability must be proportional to their sizes, and therefore the DSA proposes more severe requirements for larger platforms, defined “Very Large Online Platforms” (VLOP) and “Very Large Online Search Engines” (VLOSE).

VLOPs and VLOSEs share the same obligations according to the DSA and are defined as “online platforms (or search engines) which provide their services to a number of average monthly active recipients of the service in the Union equal to or higher than 45 million”.

The Commission has started to designate them on the basis of the amount of users they provide, which regardless of size, they were obliged to publish by 17 February 2023. VLOP and VLOSE must update these figures at least every 6 months.

Once a VLOP or a VLOSE is designated by the Commission, it has four months to comply with the DSA. The designation implies specific rules that tackle the particular risks such large services pose to Europeans and society when it comes to illegal content, and their impact on fundamental rights and public security. The Commission will revoke its decision if a VLOP or a VLOSE does not reach 45 million monthly users anymore during one full year.

On 25 April 2023, the Commission designated 17 VLOPs[70]:

VLOPs:

Alibaba AliExpress	Amazon Store	Apple AppStore	Booking.com
Facebook	Google Play	Google Maps	Google Shopping
Instagram	LinkedIn	Pinterest	Snapchat
TikTok	Twitter	Wikipedia	YouTube
Zalando			

The VLOSEs designated are just two: Bing and Google Search.

[70] https://ec.europa.eu/commission/presscorner/detail/en/ip_23_2413

The average monthly active recipients are verified by the Digital Service Coordinator at least every six months and currently the following companies fall in the category:

It is interesting to notice that out of the 19 VLOPs and VLOSEs, 16 are from the USA (and here we have 5 products within the Alphabet family and 2 under the META brand), 2 from China and only one from the EU (Germany's Zalando).

The Commission is currently examining[71] the user data of platforms like Spotify[72], Telegram, Pornhub, and Airbnb. These platforms have claimed that their monthly active user (MAU) count in the European Union is below 45 million. However, if revisions are made to their MAU figures, these services might also be subject to further classification or scrutiny.

The third Chapter on "*Due diligence obligations for a transparent and safe online environment*" is structured as follows:

- Section 1 and Section 2 are applicable to all providers;
- Section 3 is aimed at "all online platforms" but "it does not apply to online platforms that are micro or small";
- Section 4 is intended exclusively for VLOP (art 25-33).

As mentioned, the EU is combining

1. an approach which reacts "ex post" to illegal contents which applies to all including smaller platforms (Section 1 and 2).
2. one which requires to the largest one an "ex ante" prevention (section 4).
3. and an intermediate one for operators who are neither very large, nor micro (as in section 3).

Among the various obligations for VLOPs, the DSA introduces the requirement to conduct risk assessments of the systemic risks relating to the functioning and use of their services and to carry out risk reduction analysis. This evaluation must take place at least once a year and it should enable monitoring and risk reduction in areas such as: diffusion of illegal content, negatives effects on fundamental rights, manipulation of their service that affects democratic processes and public safety, adverse effects for example on gender-based violence and on receivers mental and physical health. Naturally, the risk assessments will follow with the implementation of measures to avoid, prevent and limited this kind of behaviors. Only VLOPs, however, are supposed to conduct such risk assessment and undergo annual audit to assess their own compliance to the DSA obligations.

Other obligations for VLOPs include:

- Data sharing with authorities and researchers (Article 31)

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[71] https://www.lexology.com/library/detail.aspx?g=cbf168f9-651e-47b8-92b8-080f4dba685e

[72] Although Spotify's latest financial results revealed that 146.7 million active users were in Europe, this amount included Nordic region, the UK and other non-EU countries.

- External and independent auditing, internal compliance function and public accountability (Article 28)

Another relevant point is related to the implementation of the regulation. It will be directly applicable 15 months after entering into force or from 1 January 2024 but as regards of the parts related to VLOPs and VLOSEs obligations the DSA will apply from an earlier date starting four months after these platforms will be entering the category of Very Large Online Platforms, according to the Commission criteria, whereas four months may be not enough to implement a complete set of rules.

The problem of protecting citizens' rights to a fair information and of, indeed, enabling public debate come, indeed, much before the creation of social media. Overall, it seems that there are two ways to tackle it.

The first prevails in the United States and it is to entrust the market with the task of correcting itself; the other which is emerging in Europe is that it must be the State that sets limits to a dream of freedom that risks turning into its opposite.

The Digital Services Act proposes an extremely complex tool to limit the distribution of illegal content. This will be done through a control of published content which will use supervision by end users, as well as by independent intermediaries who have earned their trust; but also, on the processes/algorithms that the platforms use upstream to allow, order, prohibit news. More than a regulation, that of the Commission resembles a method, an infrastructure that will need to be evaluated over time and which, above all, must be equipped with sufficient professional talent to be able to deal with the large concentrations of skills that platforms digital American (and Chinese) manage to aggregate.

There would be a third way: it provides that bans are accompanied by industrial policy actions (Macron is attempting them in France) that favor the birth of European platforms which can pursue an approach which may be different from the American one than the Chinese one.

3.2.2.2 POSSIBLE IMPROVEMENTS

As mentioned before, the approaches to regulating contents generation and distribution can follow two paths:

a) either we try to prevent the distribution of contents once it is produced (therefore the control happens "ex post") or

b) we ty to regulate the "systems" itself ("ex ante") which will extend the scope of the regulation also to the mechanisms through which contents are, for instance, ranked (whereas this is very important factor when assessing the influence of social media or advertisers).

As a matter of facts both approaches have problems:

a) the control (ex post) on contents means that we are expecting that (private) companies are supposed to have some normative standards which comply to the one of entire countries or communities. The reality is that – with the rare exception of

some extreme “hate speech” – there is no such a universal guidance, whereas values change both in space (Islamic communities do not accept any graphic representation of God, whereas Christian ones are built on anthropomorphism) and in time (we nowadays have very different standards as opposed to only last century).

b) The control (ex-ante) on systems does, instead, require an idea of what, for instance, “net neutrality” (vis-à-vis ranking) for which again there is no such an universally accepted notion.

We believe that crucial part of this mechanism is to set an “authority” that has got the institutional legitimacy to establish not only what is illegal, but also what is the “public interest”. National broadcasters (as BBC or ARD) were once established with the idea of not just regulating the public discourse but also encouraging its development around socially relevant issues.

3.2.3 DATA GOVERNANCE ACT and DATA ACT

The Data Governance Act (DGA)[73] and Data Act[74] are two complementary regulations which have both the objectives to make easier for the European economy and society to generate social and economic value out of data.

The DGA encourages public bodies and no profit organizations committed to “data altruism” to better share data. It establishes conditions and rules for the re-use of data coming from public sector bodies within the EU. While the EU had previously regulated – through the Open Data Act – the use of public open data, the Data Governance Act aims at regulating the use of public data which is protected by intellectual property rights, commercial/statistical confidentiality, etc. According to the European Commission, the DGA “seeks to increase trust in data sharing, strengthen mechanisms to increase data availability and overcome technical obstacles to the reuse of data”[75].

The “Data Act” is instead about ensuring that the value generated from data by “data holders” (which are typically companies) is allocated fairly. The Data Act is, thus, an horizontal regulation meant to improve data availability and data sharing among different users (businesses, consumers, government) across different economic sectors. In doing so, the Data Act seeks to specify who is allowed to use what data and why, identifying specific conditions for such data access. The main situations covered by the Data Act are 1) the mandatory access to data by users where who holds the data has data sharing obligations; 2) Data sharing in situations involving SMEs (Small and Medium Enterprises); 3) Services of data processing.

[73] The Data Governance Act entered into force on 23 June 2022 and will be applicable from September 2023 (after 15 months).
[74] The Data Act was adopted by the European Commission on 23 February 2022 in the framework of the 2020 “European strategy for data”, with the aim of harmonizing the rules on the fair access to and use of data. However, the proposed regulation still needs to be approved by the European Parliament and the European Council in order to enter into force.
[75] European Commission, European Data Governance Act, on digital-strategy.ec.europa.eu

3.2.3.1 THE REGULATION APPROACH

The DGA aims at providing a framework to enhance trust in voluntary data sharing for the benefit of businesses and citizens".

In order to do so, the DGA regulates:

- The re-use of protected data held by the public sector;
- Data intermediation services;
- Data altruism (the voluntary choice made by users of giving their consent to make their data public, without any reward, so that it is used in the public interest),
- The establishment of a European Data Innovation Board.

As for the first point, the re-use of protected data held by the public sector, the DGA sets:

- The requirement, for Member States, to be technically equipped in order to ensure the full respect of the privacy/confidentiality of this data.
- Where needed, assistance from the public sector to the re-user of data in order to seek the individual's consent to re-use their protected data.
- The possibility, for the public sector, to charge fees for the re-use of protected data as long as they do not exceed the necessary costs; the provision of incentives by the public sector for the re-use of data by SMEs and start-ups for non-commercial purposes or scientific research.
- The limit of two months for the public sector to respond to a request of re-use.
- The creation, in each Member State, of an information point to provide potential re-users of data relevant information on the type of data held by public authorities; also, the creation of a European single access point by the European Commission to make the research and re-use of data smoother and easier.

Secondly, the DGA regulates data intermediations services, in order to ensure that data intermediaries work as "trustworthy organizers of data" and to ensure that businesses do not lose their competitive advantage or run the risk of misuse of their data when they choose to make it available. To achieve these goals, the DGA:

- Requires data intermediaries to work as neutral third parties that cannot "monetize" the data, but only connect companies/individuals to data users;
- Obliges data intermediaries to communicate their intention to act as intermediaries to competent authorities (so as to be part of a central register of data intermediaries kept by the Commission) that will ensure they comply with the DGA requirements;
- Sets specific rules to ensure the neutrality of data intermediaries and to avoid conflicts of interest.

As for "data altruism" the DGA:

- Provides that non-profit entities willing to be recognized as "data altruism organizations" in the EU must comply with a rulebook, developed by the Commission

in cooperation with other stakeholders, which lays down specific safeguards and requirements to protect the rights and interests of data owners;

- Aims at introducing a common European consent form for data altruism, so that data can be collected and shared uniformly in all Member States, ensuring clarity and legal certainty.

Once again, the European Commission's intervention is based on the idea that data is the most powerful lever to generate economic value. However, even if the principles of the law are widely acknowledged to be worthwhile to be pursued, the complexity of the proposed regulation has been criticized as it reduces the enforceability and may end up "strangling the nascent European data-driven economy" [76]. This approach seems to prefer the use of public authorities and penalties, whereas one idea would be to use market forces to compensate the users as ultimate "owners of data".

Some analysts[77] have warned about the fact that the DGA does not designate any data protection authority to supervise and ensure compliance with the regulation. In fact, according to the DGA, Member States should appoint authorities for 1) supporting public authorities in the provision of data access to re-users; 2) data intermediation services; 3) registering data altruism organizations.

However, this approach may lead to a complex patchwork of authorities and a lack of clarity for both data subjects and digital actors. However, the EU Parliament and the Council underlined that the existing data protection authorities might be recognized as competent authorities for the supervision of DGA compliance too.

Another key point is that the DGA does not oblige public authorities to allow access to protected public sector data; instead, it sets a framework of harmonized conditions under which the public sector might permit the re-use of data – even though public authorities, according to the DGA, should encourage the re-use of data. Thus, much of the success of the regulation in terms of a wider use of data to create value depends on the willingness of Member States to allow the re-use of protected data held by the public sector.

The Data Act, which still needs to be approved by both the European Parliament and the Council in order to enter into force, would have several advantages but has also received critiques by stakeholders. On the one hand, one of the key strengths of the proposed Act is that it would create a clear framework for the internal market, clarifying EU regulation on non-personal data. In fact, further legislative fragmentation between member States would lead to higher transactional costs and legal uncertainty, as the EU Commission itself explained[78]. Moreover, the Act acknowledges the benefits of using data for the public good, especially in emergency situations – such as military conflicts or pandemics – where data-sharing between businesses and governments might be vital.

[76] CEPS, 2nd March 2022, "The Data Act: six impossible things before breakfast?"
[77] Commission Nationale de l'Informatique et des Libertés (CNIL), European strategy for data: the CNIL and its counterparts comment on the Data Governance Act and the Data Act, 13 July 2022.
[78] European Commission, Data Act – Explanatory Memo

However, many analysts and stakeholders expressed worries[79] about the drawbacks of the Data Act, claiming it risks to harm the European data economy if not properly modified. The critics of the Data Act highlighted, for example, that it increases barriers to entry into the EU data market for certain businesses; in fact, it imposes specific obligations on businesses (e.g., Article 30, on smart contracts for data sharing) on the collection and sharing of data entailing high legal and technical requirements that might be difficult to achieve for SMEs. In the attempt of minimizing these barriers, Articles 7 and 16 of the Data Act exempt SMEs from compliance with Chapters 2 and 5, thus introducing different rules for different sized businesses: not only rules should be applied to all businesses regardless their size, but this exception might also fail as businesses of all sizes would still have to comply with the ethos of the legislation. Moreover, Articles 3[80] and 30[81] imply considerable costs for businesses, as they would have to shape (or re-shape, if they already are in the market) many aspects of their product design to ensure future compliance. As underlined by surveys[82], if restrictions on data sharing occur, EU SMEs would redirect their resources towards compliance, irrespective of their smaller size. Thus, those who highlight this potential drawback suggest that the costs of compliance and the barriers to entry should be minimized for all the internet companies. In addition, according to some analysts the Data Act sets out an unfair treatment for international cross-border data flows, while protecting cross-border data flows within the EU borders. In fact, Chapter 7 of the Act requires providers of data processing services to "prevent international transfer or governmental access to non-personal data held in the Union where such transfer or access would create a conflict with Union law or the national law of the relevant Member State". This aspect of the regulation might make it harder for multinational companies to access European data, resulting in an increase of prices and a reduced quality of services. Instead, the objective should be that of making the EU data economy a market that foreign companies want (and find it convenient to) enter. Finally, critics of the proposed Data Act argue that it should be modified so that data accessibility and privacy safeguards can be properly balanced – especially in business-to-government interactions. In fact, Chapter 5[83] of the Act asks companies to make data available to government institutions in case of "exceptional need" and Article 15 clarifies the scope of such expression[84]. However, Chapter 5 does not clarify which type of data (and for how long) could be shared, or how it will be protected.

In conclusion, considering the aforementioned advantages and drawbacks of the proposed regulation, in order to achieve its overall goal ("ensure fairness in the digital environment,

[79] Center for Data Innovation, Feedback on the Data Act, 13 May 2022

[80] Article 3 of the Data Act imposes a series of obligations "to make data generated by the use of products or related services accessible", specifying (Art.3.1) that "Products shall be designed and manufactured, and related services shall be provided, in such a manner that data generated by their use are, by default, easily, securely and, where relevant and appropriate, directly accessible to the user".

[81] Article 30 of the Data Act sets "Essential requirements regarding smart contracts for data sharing".

[82] Frontier Economics, "Beyond Personal Data: Cost of Data Flow Restrictions to EU Companies", February 2022, https://www.frontier-economics.com/media/5065/beyond-personal-data_the-cost-of-data-flow-restrictions-to-eu-companies.pdf

[83] Article 14, "Obligation to make data available based on exceptional need".

[84] According to Article 15, an "exceptional need" to use data occurs where data is needed to respond to a public emergency, to assist the recovery from a public emergency or where the lack of data prevents the public sector from fulfilling a task provided by law in the public interest.

stimulate a competitive data market, open opportunities for data-driven innovation and make data more accessible for all"[85]) the Data Act needs some modifications.

3.2.3.2 POSSIBLE IMPROVEMENTS

A possible, bolder solution to the problem of data ownership is about using markets to transfer such ownership, as well as encouraging the emergence of market infomediaries which will operate on behalf of individuals and organizations whose rights are to be protected and monetized so to generate value for all[86].

This would greatly contribute to, in fact, solve one of the issues that the control of data raises and which is to us the greatest: the opacity of the ownership and the insufficient awareness amongst general public of data as something which has got economic value.

3.2.4 ARTIFICIAL INTELLIGENCE ACT

It is probably the most intellectually challenging piece of regulation that the EU is putting together due to the difficulty to define what the artificial intelligence is and the speed of scientific, technological and commercial developments which are putting forward game changers almost every day. Not surprisingly, then, the AI Act was the first law on artificial intelligence issued by a major regulator anywhere. The EU Commission presented this package of regulations in April 2021, but the proposed regulation is still a work in progress. In November 2022, the Council, after multiple amendments and discussions, approved a **compromise version** on December 6, 2022 and adopted its "general approach"[87] on the AI Act, which will allow it to enter negotiations with the Parliament – once the EP adopts its own position on the matter – to reach an agreement on the regulation. The Parliament is scheduled to vote by end of March 2023. Following this vote, discussions between the Member States, the Parliament and the Commission (so-called trilogue) are expected start in April. The AI Act is estimated to enter into force in late 2023 – early 2024.

The Artificial Intelligence Act follows a rather lengthy reflection (including a "white paper") involving a number of experts and wide consultation of process of many stakeholders. The overall idea is to provide a framework which is capable to maximize the opportunities (for EU companies and individuals) and minimize the risks which can be indeed big. The EU Commission claimed to aim at building a safe and trustworthy environment for users, developers and deployers of AI, developing a complementary framework of rules that would only intervene in the areas that are not covered by existing national and EU legislation.

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[85] European Commission, Press Release, "Data Act: Commission proposes measures for a fair and innovative data economy", 23 February 2022.

[86] It is the approach recently proposed by the Council for Global Problem Solving. See *Dennis J. Snower, Paul Twomey and Maria Farrell (2023) "Revisiting Digital Governance", Council for Global Problem Solving*

[87] Proposal for a Regulation of the European Parliament and of the Council laying down harmonized rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts- General approach, Council of the European Union, 25 November 2022

3.2.4.1 THE REGULATION APPROACH

The AI Act attempts to regulate a wide range of AI applications, aligning them with EU values and fundamental rights through a risk-based approach, classified into different legal regimes according to their degree of risks for public interest and EU fundamental rights.

The AI Act identifies three risk categories and sets out specific rules for applications of AI and systems creating each specific type of risk. First, the AI Act bans applications of AI which create an **unacceptable risk** (e.g. the government-run social scoring used in China); secondly, the act sets out specific requirements for **the high-risk applications** of artificial intelligence (e.g. the automatic screening of CVs often used to rank job applicants); finally, the AI Act leaves mostly unregulated the **remaining applications of AI** that do not fall under the previous definitions.

As an unprecedented attempt the AI Act needs to be considered liable to produce both positive and undesired effects. These will need to be assessed so that such an innovative regulation is gradually amended and adapted to an evolution we still do not have a complete theory about.

A preliminary reading of the Act leads to the following observations. Part of the text has been modified by the Council in its compromise version. At the time of writing, the Parliament has not released its text yet.

a) The challenge to give an enough generalizable account of what "artificial intelligence" is answered by using a definition which is easy to understand and yet not easy to limit; article 3 says that it is referring to a "system" (of "artificial intelligence") which is a "*software developed with one of the techniques which are listed separately (in an annex) and that can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations or decisions influencing the environment they interact with*"; it is a definition which has got the merit to be clear and the limit to basically be appliable to any software. In the compromise version, the Council intervened right on this point to make clearer the distinction between AI systems and simpler software system. The AI system, thus, are those developed through machine learning and logic- and knowledge-based approaches: an AI system is "*designed to operate with elements of autonomy and that, based on machine and/or human-provided data and inputs, infers how to achieve a given set of objectives using machine learning and/or logic- and knowledge based approaches, and produces system-generated outputs such as content (generative AI systems), predictions, recommendations or decisions, influencing the environments with which the AI system interacts*".

b) The identification of "artificial intelligence practices" to be prohibited is wide. The Commission considers unlawful systems using "subliminal techniques" in order to "*distort a person's behavior in a manner that can cause harm to that person or another person*"; a system which can exploit the "*vulnerabilities of specific groups*".

   It seems quite bold to ban any "social scoring system" when data to measure the trustworthiness of individuals are collected for a different purpose; the "use of real time biometrical identification in public spaces" unless for specific cases (like the

"prevention of a terrorist attack"). The Council's text extends to private actors the prohibition on using AI for social scoring. As far as the prohibition of using 'real-time' remote biometric identification systems in publicly accessible spaces by law enforcement authorities is concerned, the new version specifies the objectives where such use is strictly necessary for law enforcement purposes and for which law enforcement authorities should therefore be exceptionally allowed to use such systems.

c) The definition of "*AI systems as high risk*" is much less clear, as the regulation refers to two Annexes (II and III) which the European Commission proposes to amend. The Council has added a horizontal layer on top of the high-risk classification, to ensure that AI system which are not likely to provoke serious fundamental rights violations or other significant risks, are not captured.

d) The idea of article 14 (Human Oversight) that high-risk AI systems "*shall be designed in such a way ... including human – machine interface tools ... so that they can be effectively overseen by natural persons during the period in which the AI system is in use*" seems to be counterproductive or at least counter intuitive.

The case of "artificial intelligence" is probably the clearest example of "over regulation" or of more precisely "jumping into regulation" before "problem setting", i.e. before having better clarified the terms of the phenomena the regulator is dealing with.

3.2.4.2 POSSIBLE IMPROVEMENTS

The radical doubt here is about the convenience itself of this attempt to govern an all-encompassing technological/ social phenomenon with a law.

Our suggestion would be better to treat all potential risks in other pieces of legislation. This would, for instance, mean that

1) Abuse of personal data retrieved through facial recognition should be considered to the policies meant to protect privacy (GDPR); whereas,

2) Use of personal data for "scoring systems" should be addressed through the regulations addressing the use of data by securing that they are made transparent to citizens/ firms or their infomediaries.

Similarly to other areas, we also would underline that AI is not only about risks but about great potential advantages that countries (and firms) must harvest so not to be left behind.

Finally, in the case of artificial intelligence, there is a problem of an higher intellectual complexity, If we, in fact, define AI so that it more conveniently is associated to the idea of "computers learning to develop new computers", we are here talking about the possibility of what computer scientists call "singularity".

This is the point where technological progress escapes the control of humans: it is an existential threat (and chance for a quantum leap in the advancement of human mankind) which would require institutions to engage into experimentations and debate before "jumping into regulations".

3.2.5 GENERAL DATA PROTECTION REGULATION

The **General Data Protection Regulation** (GDPR) was issued in April 2016 and, thus, it is the first of the regulations which has defined the decade of the EU digital package (as for the section 3.2). The objective of the GDPR is to make sure that the rights of "natural persons" to own and control "personal data" are protected.

The EU itself defined the GDPR as the "toughest privacy and security law in the world"[88], and although it was designed and drafted by the EU it imposes obligations on each organization targeting or collecting data on EU citizens. The GDPR imposes heavy penalties (reaching into the tens of millions of euros) on those who violate its standards, and the regulation is so vast and specific on several issues that the official EU web page dedicated to the GDPR itself admits that GDPR compliance is a "daunting prospect, particularly for small and medium-sized enterprises (SMEs)"[89]. As a matter of fact, the GDPR is 88 pages long and the regulation's official web page suggests that each data collector should have a person in its team to ensure that the organization is compliant with the regulation.

The GDPR outlines seven principles on protection and accountability which the targeted organizations should respect:

1. Lawfulness, fairness and transparency (of data processing)
2. Purpose limitation (data must be processed for the legitimate purposes specified to the subject)
3. Data minimization (only the data that is absolutely necessary for the specified purposes should be collected)
4. Accuracy (about personal data, which should be kept up to date)
5. Storage limitation (data should be collected only as long as necessary for the specified purpose)
6. Integrity and confidentiality (should be guaranteed in collecting and processing data, e.g. through data encryption)
7. Accountability (each organization controlling collected and processed personal data needs to be able to prove its compliance with these principles)

One of the features of the GDPR is that organizations cannot prove their compliance with the GDPR afterwards; instead, data controllers have to actively demonstrate to be compliant with the regulation ("If you think you are compliant with the GDPR but can't show how, then you're not GDPR compliant"[90]). A data controller can prove to be compliant with the GDPR in several ways: it can establish data protection responsibilities to its team, or prove to have

[88] What is the GDPR, the EU's new data protection law?, on www.gdpr.eu
[89] What is the GDPR, the EU's new data protection law?, on www.gdpr.eu
[90] This explanation comes from the official EU web page of the GDPR (www.gdpr.eu)

trained its staff on specific security measures. It can also appoint a Data Protection Officer[91] or sign agreements with third parties which can process data in its place.

The GDPR entered into force in 2016 and by 2018 all the organizations were required to be compliant.

3.2.5.1 THE REGULATION APPROACH

The GDPR has been long championed by the EU as the benchmark that many countries are imitating and yet even this experience exposes two limits of the EU's approach to a digital strategy:

a) Relatively few people are aware of the rights they have and even less of the mechanisms to protect them; this makes the legislation enforceable only by players medium to large companies which are equipped enough to exactly know the contents of the regulation;

b) There is evidence that it may be a cost that the EU is inflicting to itself; there is literature that basically traces back to GDPR the difficulty of a platform like SPOTIFY to reflect its capability to generate income into market value[92].

The key to possible improvements is basically about to empower citizens and (especially small and medium) firms which means to engage them into the policy design (or regulation review) so that they become the agents for its implementation. This will also imply that, in our view, the (two) regulations on data and the one on persona data may be merged into a single policy initiative.

3.2.5.2 POSSIBLE IMPROVEMENTS

Our suggestions would be to:

1) Have individuals and companies to provide their typical, personal privacy profile that will be applied by default (unless a specific choice is made) as the "contract" that will regulate how any digital infrastructure will have to treat the data of that specific individual.

   Thus, instead of asking to an user to read long contracts every time she joins a network/ downloads an application or "accept" cookies every time she consults a web-site, they will have to construct her own preferences and asked to update them periodically (for instance, every year). Whereas such standard choice may be changed/ deviated from at any time should the user wish to do so. The "once-for-all" choice would however allow to have:

   a) a more efficient method for having citizens and firms to dedicate reasonable time to the choice (according to polls an average citizen does not read privacy rules 99% of

[91] Although three conditions should be met in order to appoint a DPO: the data controller should be a public authority other than a court; its activities require it to systematically monitor people's data on a large scale (as Google does, for instance); the data it processes belong to a specific category (listed in Article 9 of the GDPR)

[92] See for instance: The Drum, 26th July 2018 "Ad agencies gave Spotify a GDPR headache".

the times, whereas 99% of them appear not to know what is a “cookie” or which are the possibilities that GDPR provides).

b) users to make a more informed choice that takes into account the trade-offs existing between “privacy” (which needs to be differentiated by kind of data as health data may be more “sensible” than the ones on shopping behaviors) and other rights (such as the right to health – as for the case of track and tracing technologies meant to contain COVID19 infections – or, even, the right to be exposed to the advertising that they are interested in more).

2) Encourage the creation of infomediaries (of the type described in the section on “Data Act” and the Data Governance Act) which may not only act on behalf of users (in the case of violations of their rights) but also work on the education of users (so that they better know how to protect their privacy) and on their engagement when it comes to design policies.

3) Extend more clearly the scope of the regulation to the protection of intellectual property as the base for creating business value. GDPR appears to be focused on personal data and consumers and yet a not less serious concern should be the protection of the ownership of business relevant knowledge even when at the stage of “business ideas”. These are normally exchanged through digital infrastructures (like through emails or even chats) and yet they need to be protected even before they become formally covered by a “patent” or a “copyright” for the obvious reason that every “invention” starts as an “inspiration” which is shared amongst colleagues and associates in order to be gradually perfected into a new product or service.

As for other areas, we can then conclude that GDPR currently risks to both regulate too much (too many details which can produce uncertainty and scare potential investors) and too little (some problems may not be tackled). In addition, we believe that, to facilitate compliance by affected businesses, the GDPR, Data Act and Data Governance Act may be merged given that they are basically dealing with the same macro issue (data).

3.3 THE PROBLEM OF HARMONIZATION BETWEEN EUROPEAN AND NATIONAL INSTRUMENTS

“We risk to see national agencies fighting for their own survival and duplicating red tape”. The comment of some of the participant to a recent debate hosted by Vision on digital regulation[93], points out to one of the main problems of the EU package as far as regulating global digital platforms. The trend towards a Europeanization of the regulation is reasonable and probably also obvious; the collateral effect, however, is that national agencies may look for new space to have their influence to be still felt as a way to save legitimacy.

[93] Held on the 16th June 2022 (link at https://www.thinktank.vision/en/media-en/events/the-bossy-state) together with Jan Piotrowski, Business Editor of The Economist and author of the “Beware of the Bossy State”, cover story published by British magazine on January 15th 2022.

An example of such an undesired effect of the strengthening of EU regulating power is what is happening in Italy both in terms of decisions of authorities and of the law makers:

1. the national competition authority (AGCM) issued its biggest fine ever against Amazon on a case based on the definition as market of a very narrow niche of the e-commerce "value chain"[94];
2. the 2021 annual law on competition introduced an unprecedented "ex ante" assumption of existence of a "economic dependence" of business on digital platforms ¡[95].
3. More recently, the Italian data protection authority (*Garante per la protezione dei dati personali*) has temporarily banned the use of Chat-GPT with no coordination with other peer EU authorities (or with the European Commission)[96].

This situation may create further uncertainties for firms; lack of harmonization across EU; duplication of regulations and compliance efforts..

3.4 THE QUESTION OF THE EFFICIENCY OF THE LEGISLATION AND OF ITS ENFORCABILITY

The new set of rules on data regulation (the **DMA and the DSA**, which both entered into force in November 2022) gives the European Commission a central role in the enforcement of the legislation. With regards to the DMA enforcement, the EU Commission would act as the sole enforcer: the choice of putting decentralization aside and relying on the "central" enforcement of the Commission can be explained by the failure of the GDPR enforcement, which was assigned to member States. With the DMA enforcement, on the contrary, the national competition authorities would only have a supporting role.

Sanctions for DMA breaches can go up to 10% of the company's global turnover or even beyond 20% for repeated violations. The Commission is also able to impose periodic payments as penalties (up to 5% of the Gatekeeper's global daily turnover).

However, we tried to calculate on the basis of financial statements the impact of such a fine on the gatekeepers for a behavior that would technically be referred to a portion of their business (the European one).

[94] Issued by the "Autorità Garante della Concorrenza e del Mercato" on the 30th November 2021
[95] Article 32 of the 2022 Law on competition ("Legge annuale per il mercato e la concorrenza (legge n. 118/2022)" issued on the 5th August 2022
[96] Ban issued on the 30th March 2023.

TABLE 3.2 – THE POTENTIAL IMPACT OF DMA FINES ON THE EU ECONOMICS OF THE "GATE KEEPERS" (2020, IN BILLION USD)

Gatekeeper	Global revenues	Potential fine (10%) *	European revenues	European income	Number of years of income being wiped
META	86	8,6	20	5,9	1,46
ALPHA	183	18,3	12	12,2	1,5
AMAZON	386	38,6	43	0,3"	128
APPLE	274	27,4	95	30	0,9

* In case of repeated infringements, the fine can go up to 20% of worldwide turnover.

The numbers seem to say that a provision meant to "fit all" can produce very different effects due to different economics of companies that are grouped under the same legisdlation.

The Commission has a central role in the enforcement of the DSA too, as it will act as "supervisor" of the so-called "gatekeepers", to be identified as **VLOPs** and **VLOSEs**.The DSA gives the Commission investigation and enforcement powers, with the possibility to impose fines that can go up to 6% of the global turnover of the sanctioned conglomerate. Moreover, in the event of serious and repeated breeches, national courts can even stop companies from operating on European territory.

One of the main issues related to the new set of rules is that, as some analysts underlined[97], the success of the regulation depends on whether the EU will be able to get the funds and know-how needed to make it work. Bloomberg estimates that 25 million euros would be needed just to hire outside staff to enforce the new regulation – not an obvious target considering that the EU budget is already quite overstretched after the pandemic, the energy crisis and inflation.

Analysts also warn[98] that the EU Commission would need much more than the 180 people it planned to hire[99] in order to enforce the new set of rules. For instance, Germany alone (whose population is almost one-fifth of the EU population) announced that it would hire 200 people to ensure compliance with its national data regulation.

Another issue about the enforceability of the new legislation is that the EU would probably need to compete against digital companies to hire professionals (e.g. computer engineers and data scientists) who would be able to work in DSA-DMA enforcement. Even though digital companies have been hiring less people and significantly downsized their staff in 2022, they would still be able to offer higher salaries and longer-term contracts to their employees, compared to the EU[100].

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[97] J. Deutsch, Europe Passed New Tech Rules. That Was The Easy Part, on Bloomberg.com, 2nd August 2022
[98] Ibidem
[99] L. Bertuzzi, Commissioner hints at enforcement details as EU Parliament adopts DSA and DMA, on Euractiv.com, 5th July 2022
[100] J. Deutsch, Europe Passed New Tech Rules. That Was The Easy Part, on Bloomberg.com, 2nd August 2022

3.5 CONCLUSIONS ON DIGITAL REGULATION

When considering regulation, it seems that there is a necessary trade-off between level of regulation and capability of an economy to innovate and that, therefore, there is a choice to be made. In fact, this trade-off is not unavoidable, and regulation can also encourage innovation when designed as an incentive for firms and/ or consumers to change their behavior101. This is, for instance, the case of all those rewards (more than penalties) that governments introduce to encourage, for instance, environment responsible choices.

Regulations can also be, as mentioned, "ex post" – whereas specific damages or cases are blamed – or "ex ante" – where companies are suggested/ prevented to not even get into a position where they have the "potential" to damage consumers/ other firms.

Europe has, by and large and with some remarkable exceptions, chosen an approach which is more about identifying fines for wrongdoings than rewards for creating social value; it rather prefers "ex ante" rules shaping digital markets than "ex post" reactions to problems.

We believe that Europe is rightly perceived as forerunner into the attempt to regulate hugely important economic, social and political processes that digital technologies trigger. And yet we believe that:

a) EU regulations are overlooking the possibility to introduce rules which can promote the strengthening of an endogenous, vibrant digital ecosystems; this is a missed opportunity especially if we consider that market failures (for instance in the use of technologies as a lever to improve the production of "public goods" and on increasing access to less favored segments) exist.
b) An "ex ante" approach is certainly ambitious and yet it risks having significant drawbacks considering that we are still missing knowledge to better measure the impact of digital technologies and to understand which are the conditions for "digital markets" to work properly.

Our survey of the great regulatory effort coming from the EU, does confirm that it still needs to solve these high-level conceptual problems.

Too much regulation can self-damage the EU whose priority should be to gain "strategic autonomy" that basically means that it should develop its, own European, competitive and sustainable approach to the Internet. The overall picture of regulation tells of a gigantic effort mainly from the European Commission that seems not to acknowledge enough that Europe (like the rest of the world) in "navigating waters" made "unchartered" by technological discontinuities. A more focused, experimental, pragmatic regulatory style would help. The EU regulation attempt would also be greatly enhanced by a much more attention to design regulations that are concretely enforceable and understandable by the SMEs and the citizens whose rights the EU is called to defend.

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[101] Blind N. (2012), "The Impact of Regulation on Innovation" Nesta Working Paper. See also: Deloitte (22nd March 2023), "regulation that enables innovation"

4. 21ST CENTURY INDUSTRIAL POLICIES.

Radical technological discontinuities need forward-looking strategies so that societies can adapt to and benefit from innovation. This has been the case of the great industrial revolutions of the past which prompted States to invent the policies – from the universal healthcare to unemployment benefits – which made possible to make the costs that higher productivity generated politically acceptable. But they also require institutions capable of redesigning existing practices and policies to enable innovation.

According to some, the capability of the western governments to understand and manage radical changes is today paradoxically lower than the one that they had with past industrial revolutions[102]: this may be the reason why the Internet itself has still to produce the quantum leap in productivity[103] that mechanization and factories generated in the 19th and 20th centuries. An extension of this line of reasoning is that Europe (and to a lesser extent the USA) are losing ground with Asia for the same reason: in India or China, the country–wide deployment of technologies such as biometric recognition or mobile payments happened before and at a much wider scale that in the West, because there was less resistance to overcome.

This is a reminder that the States continue to have a very significant impact on making technological progress and innovation central to societies: both in terms of sustaining the transformation that technologies enable and in initiating that progress, because it is States that normally have the scale and the possibility to finance the boldest technological adventures: it happened for the US Apollo program in the sixties; but also for the travel of the navigators who discovered new worlds in the 15th century thanks to the sponsorship from the kings of Spain and Portugal. A public agency was essential to the mapping of the genetic codes and the Internet protocol was devised in response to a contest launched by the Pentagon's DARPA[104].

In this section we will try to answer to the following questions: does Europe (meant as EU and its member states) have a strategy on how to gain its own distinctiveness in the global battle for digital leadership? Are we doing enough beyond the regulation of US-based digital infrastructures in terms of beefing up our own, endogenous digital capabilities? How does this compare with what happened in other countries with which we compete (or partner)? What is meant by the theory of the "entrepreneurial State" and how is the State itself to be radically changed by the Internet? Are more generous state aid policies the solution?

4.1 BEYOND THE "ENTREPRENEURIAL STATE"

The theory of the "Entrepreneurial State" (as in Mazzucato, 2013) has been recently successful in influencing the agenda of a number of policy makers. The advocates of the

[102] We are here referring to the productivity paradox firstly noticed by Nobel Prize Robert Solow
See Solow R. "We'd better watch out", New York Times Book Review, July 12, 1987, page 36.
[103] Gordon, R. J. (2000). Does the "new economy" measure up to the great inventions of the past?. *Journal of economic perspectives*, *14*(4), 49-74.
[104] The Defense Advanced Research Projects Agency (DARPA) is a research and development organization within the United States Department of Defense, where it develops innovative technologies for the warfighter and national security.

theory notes that large innovations historically require a strong intervention of the State because it is the State that can accommodate for very large investments whose returns may be uncertain, with much spill overs (dispersed geographically) and to be waited a number of years.

The idea also partially underpinned the EU's design of Horizon Europe (we will come back to a more detailed description of this program in section 4.3) and the identification of the missions (meant as a numerical target to be achieved) which could work as motivators for community of innovators. And yet the theory appears to be still far from being developed in terms of its implications.

An even wider interpretation of such an idea is that we indeed need an *enabling State*[105] (meant as a policy maker and regulators), which operate so that rapid transformation become politically and socially sustainable and the very potential of new technologies is unlocked.

The innovation we need to promote is, indeed, an open process which requires that we design and deploy systematically experiments. Disruptive innovations do, in fact, face some crucial unknowns that are all about the interaction between machines and humans. They need local laboratories, evaluations and mechanisms for managing knowledge, channels for scaling up and facilitating imitation.

The chapter articulates an answer by looking at various analyses: we will consider how China and, more recently India, got to the point of challenging US' digital leadership (and the main factors behind US leadership which lasted at least until the end of twentieth century); we will then look at the responses that the EU is providing; and we will conclude by looking to the strategies of some of the European countries which seem to do better (France, Germany, Estonia and Sweden). The picture will point to the paradigm of a possible distinctive European approach which may be viable; and will bring evidence to the point that, whereas regulation (as in section 3) is becoming increasingly dominated by the EU level, grand investment programs are still essentially national.

4.2 POLICIES TO ENABLE 'ANIMAL SPIRITS': THE AMERICAN, CHINESE AND INDIAN CASES

We will now consider how the governments of the supposedly global, digital "superpowers" (USA, China and India) have been encouraging the creation of the companies capable to be leaders into the various innovation waves that Internet is triggering.

In particular, we consider:

a) The USA has nurtured the environment which facilitated the growth of some of the "Internet giants" and the role that publicly funded programs (including the most famous ones from Pentagon and NASA), as well as financial markets have played.

[105] As in "Economic and growth in the 21st century", 2019, F.Grillo and R. Nanetti, Palgrave - Nature

b) China has set up a series of digital policies which are not just about channeling public and private capitals in promising champions, but also about developing the infrastructures (in cities, for instance) and a world class work force necessary for the take-off of digital industries.

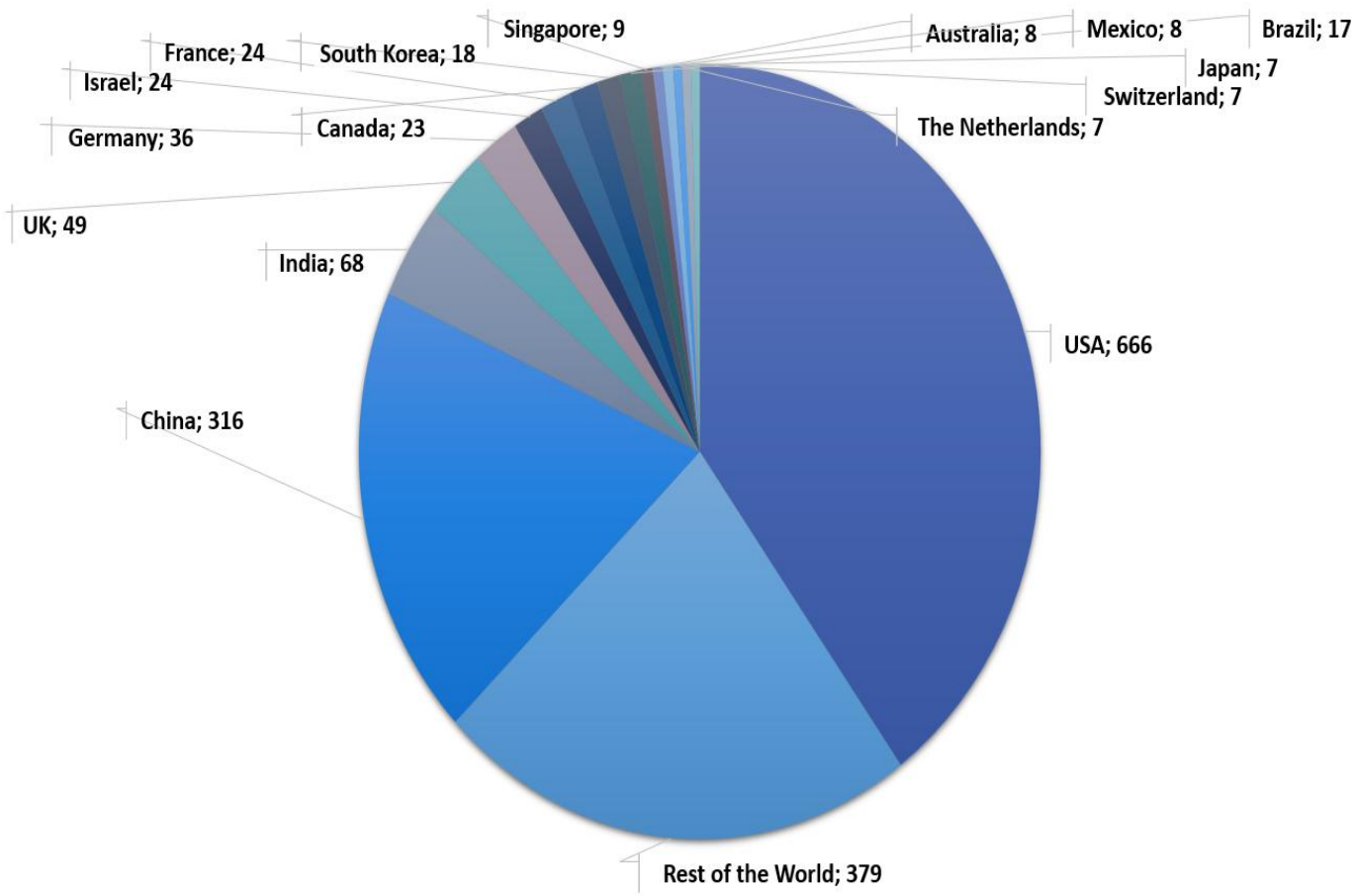
c) India is characterized by the emergence of high-tech districts (in places like Bangalore), the presence of pockets of hubs of world class graduates in STEM as well as the use of public services (as for the identification of citizens through biometrics) to leap frog the west in few, crucial areas.

America and China have two opposite ideological views on which should be the role of respectively the State and the markets: as we mentioned the most striking feature of the US Internet giants is their market capitalization and financial markets were indeed the driver of their exceptional growth. By contrast, Chinese Internet companies are still very muck linked to the government (and the Communist Party which is regularly present in their board) and they grew by being instrumental to the achievement of objectives (being them about social cohesion as for the role Alibaba is playing in the country side or about internal security in detecting dissent). India is somewhat different, because markets are not so large and sophisticated as in the US, and its democracy although imperfect was originally around the Westminster model.

And yet, both in America and Asia, government interventions have been absolutely essential to build the ecosystems which are competing for global digital leaderships.

The prominence of the three countries is demonstrated if one considers the distribution of unicorns, the not listed start-ups which have a market value higher than 1 billion USD and tend to be digital.

CHART 4.1 - DISTRIBUTION OF UNICORN AS OF MAY 2023 (START UP WHOSE VALUE IS HIGHER THAN ONE BILLION USD) PER COUNTRY - 100% =



Source: VISION on Hurun data 2023 – Global Unicorn Index

Hurun Research found 1,361 unicorns in the world, based in 48 countries and 271 cities.

ByteDance, a Beijing-based company founded in 2012, retains its position as the world's most valuable unicorn for the second consecutive year, with a valuation of $200 billion. In 2020, ByteDance reportedly generated $80 billion in revenues, primarily from its operations in China. TikTok is owned by ByteDance, and has emerged as a highly successful international Chinese brand, amassing a large following globally.

SpaceX, headquartered in Los Angeles and founded by Elon Musk in 2002, surpassed Ant Group to claim the second spot with a valuation of $137 billion. This represents a $37 billion increase over the previous year, driven significantly by the impact of the COVID-19 pandemic. SpaceX, recognized as the most valuable unicorn in the United States, has raised a total of $9.8 billion. The company's ambitious project, Starship, is a reusable transportation system intended for space exploration,

Ant Group, based in Hangzhou and spun out of Alibaba in 2014, slipped to third place. following a highly publicized failed initial public offering (IPO).

Fast fashion brand Shein, headquartered in Guangzhou, made an impressive entry into the top 10, climbing 12 positions during the year and an astounding 220 positions since

the start of the COVID-19 pandemic. With a valuation of $65 billion, Shein experienced a $45 billion increase in value over the past year and $63.5 billion since the pandemic began, solidifying its position as one of the most successful platforms during this period.

San Francisco-based payment solutions platform Stripe slipped to fifth place, having raised funds in March at a valuation of $50 billion, down from the previous year's $95 billion. Stripe has accumulated $8.7 billion through 20 funding rounds.

WeBank, a digital bank backed by Tencent, claimed the sixth spot with a valuation of $33 billion. Founded in 2014, WeBank has rapidly expanded, amassing $270 billion in assets under management.

Databricks, a San Francisco-based data and AI company, rose to seventh place with a valuation of $33 billion.

Telegram, a messenger application based in Dubai, entered the top 10. Since its establishment in 2013, Telegram has raised a total of $2.7 billion in funding and boasts nearly 900 million monthly active users, including 150 million in India.

Revolut, a London-based digital bank, climbed to ninth place worldwide and has become the largest unicorn in the UK, with a valuation of $28 billion. Over 19 rounds, Revolut has raised a total of $1.7 billion.

Cainiao, headquartered in Hangzhou, slipped to tenth place with a valuation of $27 billion. Backed by Alibaba, Cainiao was established in 2013 and has evolved into the world's most valuable logistics unicorn, with sales reaching $24 billion in the previous year, representing a 27% increase.

As far as the European Union is concerned, the 27 members have only just under 100 or 7% of the world's unicorns. Germany, France and the Netherlands are frontrunners in the field[106].

The US was led by San Francisco, China by Beijing and the rest of the world by London. The 'Big Two Cities' for the US and China made up 46% of their unicorns, while the rest of the world was more diversified, with the 'Big Two Cities' only making up 20% of their 379 unicorns.

4.1.1 THE US AND THE ENTREPRENEURIAL STATE

Franklin Delano Roosevelt's New Deal in the United States is probably the most famous example of the breadth and depth of wide-ranging innovative policies in the US. Essentially the Tennessee Valley Authority corporation was launched to engage in the pursuit of comprehensive development for the seven-state depressed area (and it also included the dimension of new town planning). The program also showed the capacity to innovate, as in the creation of the Social Security Administration, that for the first time insured most retired and needy Americans against poverty, the experimental novelty program of public housing,

[106] Global Unicorn Index 2023, Hurun Research, 2023, available at https://www.hurun.net/en-US/Info/Detail?num=3OEJNGKGFPDS

and the extensive Public Works programs to put millions of unemployed back to work. In American terms, the New Deal was innovatively revolutionary, as it turned the balance of power and policy responsibility away from the States and onto the Federal level.

4.1.2 CHINA: THE INCUBATOR STATE

More recently China has changed again its approach and the new, bold plan is about a State which even becomes an incubator. According to The Economist[107], the plan is to make China the world's center of the innovation over the next decade thanks to a strategy whose main characteristics are:

a) a switch from consumer-oriented Internet policy (the one which fed the extraordinary growth of Alibaba and Tencent) to a focus which would go back to manufacturing;

b) a relocation of the center of China's innovation system from the big East Coast metropoles (like Hangzhou or Shenzhen) to second tier of inland cities (like Zhuzhou or Hefei).

The stars of this new stage of development are startups like Baosighy, Maxscend, Sangflor, Supcon or Youedata.

4.1.2 THE INDIAN LEAPFROG: THE ADVANTAGE TO COME FROM BEHIND

Part of the BRICS group, India started off the path to become one of the biggest economies thanks to the huge government's effort in digitising the country. According to the forecasts of the International Monetary Fund[108], India is going to be the "world's fastest-growing big economy" for each of the three years in the 2022 – 2024 post COVID19 period. The country represents a successful example as it transformed its disadvantage in competitive advantage, turning its weaknesses into strengths.

In 2014, the country was the 10th largest economy in the world and in the seven following years it grew by 40%. The digital disruption allowed India to climb the global rankings in strategic sectors avoiding expensive and time-consuming industrial infrastructure investments. Indeed, India never fully witnessed to the Industrial Age and, basically, the country jumped from an agricultural economy to a service one. India is placed second in the global ranking for services export[109], despite being only 17th in goods according to Statista[110]. India is emerging as the global hub for the fintech industry with a projected market opportunity of US$ 1.3 trillion by 2025 and more than 42,000 active fintech firms[111].There are plenty of factors which contributed to increase India's digital power world-wide despite the lack of infrastructures.

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[107] "Xi Jinping's bold plan for China's next phase of innovation", The Economist, 16th April 2022
[108] Add reference to IMF
[109] https://hbs.unctad.org/total-trade-in-services/
[110] https://www.statista.com/statistics/264623/leading-export-countries-worldwide/
[111] https://www.ibef.org/blogs/a-public-digital-infrastructure-india-stack

- The Indian young demographic facilitated the "**mobile revolution**", that created the baseline digital infrastructure necessary for this leapfrog. In 1994, private telecom players were given for the first time the possibility to access the market and in few years, India became the second largest telecom market by mobile phone subscribers. According to the Global Economy ranking [112], India counted 1153.71 million subscribers in 2020, covering the 2nd position after China.
- With regard to the training in **STEM disciplines**, India ranks 9th worldwide in graduating science students.
- **Governmental policies**, undertaken under the first Minister Modi's leadership, **boosted the use of digital**. In 2016, the **cashless policy** brought the country to void high-value banknotes (500 and 1000 rupees) overnight. The demonetization incredibly fostered the use of digital in a country extremely used to cash. **"India stack"**[113] is a unitary national digital infrastructure that combines a set of Application Programme Interfacing (APIs). It is centred on Aadhar, a Unified Payment Interface (Upi) and Digilocker as well as other digital platforms. Aadhar is the most complex and largest biometric identity system in the world. Launched in 2010 in a tribal village of state of Maharashtra, it is based on biometrics (photo, fingerprints and iris scan) and it allows people's identity authentication in real time. Upi is interoperable digital payment platform that unifies multiple bank accounts into a single mobile application. Digilocker is a paperless initiative that provides private locker to every citizen in Government of India's cloud, allowing the issuance and verification of documents in a single platform. Moreover, Digital India Program is a flagship plan that aim to transform India into a digitally empowered society and knowledge economy. The program is focused on three main areas: Digital Infrastructure as a core utility to Every Citizen; Governance & Services on Demand; Digital Empowerment of Citizens. The mix of the mobile data, the national tech set and the strong STEM skills created a thrive ground for startups. Bangalore is a successful example as its low-key tech culture is boosting fostering a new generation of in the frontiers of space, drones and batteries. Bangalore is the first Indian city for start-ups and the 10th globally according to Startupblink[114].

4.3 THE EU INVESTMENT PROGRAMS: NEXT GENERATION EU, HORIZON EUROPE, SMART SPECIALIZATION STRATEGIES

The emergency conditions triggered by the Covid19 pandemic forced all the EU countries, even those devoted to austerity, to agree to a suspension of the Stability and Growth Pact (SGP) and to issue a common debt to sustain net economic recovery through "Next

[112] https://www.theglobaleconomy.com/rankings/mobile_phone_subscribers/
[113] https://www.indiastack.global/india-stack global/#:~:text=In%20the%20last%20seven%20years,Place%20(GeM)%2C%20DIKSHA%2C
[114] https://www.startupblink.com/startups/india

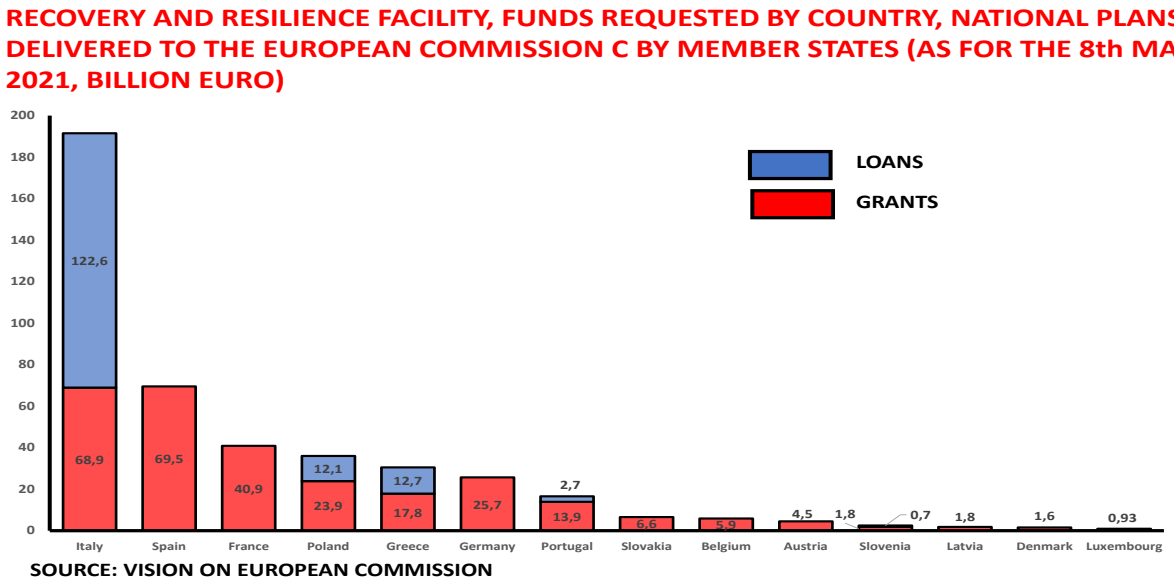
Generation EU" (NGEU) program[115]. This was seen by some as an "Hamiltonian moment"[116] and a fundamental step towards an increasingly integrated Union. The 750 billion euro of the NGEU, together with the European Central Bank's liquidity injection of 1,500 billion euro (with the Pandemic Facility for the 2020-2021 period) and the temporary suspension of the SGP have enabled programs which are both aimed at supporting the EU economy and at transforming societies.

The NGEU resources represent for many countries the most relevant injection of liquidity in the economic system since the Marshall Plan which radically transformed the economic conditions of post-war Europe. The opportunity, however, was to use such a significant amount of resources with a strategy whose objective could have been to turn the weaknesses exposed by the COVID 19 emergency into a target for the NGEU programs.

In 2021, with different timings, almost all the EU members presented their National Recovery and Resilience Plans (NRRPs) to the European Commission. They also decided whether to use both the loans[117] and the grants[118] that the European Commission was making available out of the 750 BN facility which it was going to borrow in the markets. The final picture of the exact amount of the money raised by the EU and its distribution amongst countries is the following:

[115] We will refer to NGEU and the Recovery and Resilience Facility (RRF) as almost the same fund. In fact, the RRF represents 90% of NGEU money: REACT EU and additional money to the EU research program (HORIZON) are also part of the NGEU.
[116] The reference was to Alexander Hamilton's decision to replace the debt of the American colonies with a federal one, few years after the revolution which gave birth to the United States of America.
[117] The loans are to be repaid by the borrower State at an interest rate which was lower than the one prevailing in the market for government bonds and with a long-term repayment schedule.
[118] The grants are financed by the European Commission budget: this means that the contribution of the member States increased according to their GDP per capita. The mechanism was then such the entire Recovery and Resilience facility will be repaid by States (either through reimbursement of loans or through higher contributions) although some will be net gainer because poorer (like Poland) or more hardly hit by COVID19 (Italy) and others will be net payers.

GRAPH 4.1 – DISTRIBUTION OF RRF EXPENDITURE AMONGST DIFFERENT COUNTRIES (%, 2021)



If we look at the 27 NRRPs, the total amount disbursed is lower than the initial commitment of 750 BN, due to the reluctance of some member States to ask for loans (which may have been crowded out by the support of the European Central Banks making it cheaper for EU States to issue public debt in the markets).

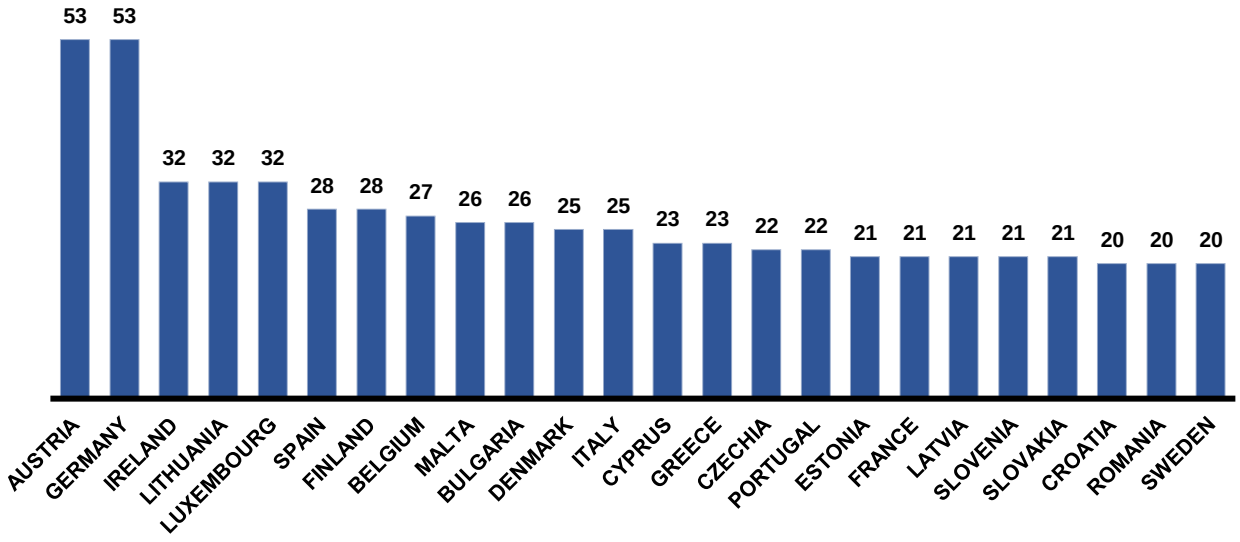
The figure also shows that half of the funds have been allocated to Italy and Spain.

The "digital transition" was one of the main common objectives of the NGEU. As stated by the President of the Commission, Von Der Leyen, the EU's main objective is to lead the transition to a healthy planet and to a new digital world, whereas there is a strong link between the two priorities: most of the innovations required to consume less energy (sharing, pooling, cutting waste) imply a more pervasive use of technologies.

The mechanism to ensure that all member states where investing enough in digital[119], was a minimum threshold (20%) meant as a minimum share of the funds of each NRRP had to be spent in digital. This requirement was met by all countries with some differentiations as for the following chart.

[119] According to the EC's communication "Shaping Europe's digital future" (19th February 2020) "Digital transition is the integration of digital technologies by companies and the impact of the technologies on societies"

GRAPH 4.2 - SHARE OF NATIONAL RESILIENCE AND RECOVERY PLANS' EXPENDITURE TOWARDS DIGITAL OBJECTIVES (%, 2021)



SOURCE: VISION FROM EUROPEAN COMMISSION[120]

The five countries which are spending more than 30%, are already advanced in terms of digitization: according to the Eurostat's DESI (the index on Digital Economy and Society) Austria, Ireland, Luxembourg, Germany and Lithuania do all better than the EU average. This may already sound as evidence that countries which invest more on digital are the ones which are already more digitalized.

This is consistent with a recent study[121] by Vision which found that countries which are more digitalized are the ones which tend to spend more NGEU's money on digital objectives: this evidence is confirmed even when it comes to invest into digital technologies as a lever to provide better access to public services – healthcare and education – whose fragility was exposed by the Covid19.

Vision's research does, in fact, also provide a further insight: healthcare and education are the areas where the application of technologies can create the opportunity of an entirely new approach to the Internet, one where digital can make public goods of better quality or more accessible. This is an area where new interfaces (for instance for the elderly or the kids), new always-on devices (like in the evolution of wearables) may help to perform vital functions: to constantly monitor health conditions or to bring education to remote areas. This may also have been a reasonable response to the pandemic which triggered a huge emergency crisis (to which the NGEU is supposed to be an answer), and which, at the same time made digital infrastructures to become part of our daily life.

The analysis of the national Recovery and Resilience Plans demonstrated that many member states did not fully benefited from this opportunity. A recent Vision's study did,

[120] https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/

[121] Vision, 2023 "The Digital Transition: A Lever for Cohesion? Or a Luxury that only the rich can afford?? The contribution of the Recovery and Resilience Facility to use technologies as a lever to improve access to public services (with a focus on healthcare and education)", FEPS – Recovery WATCH.

indeed, show that countries which suffered the most during Covid19-pandemic and which have more problems to guarantee universal coverage, did not use digital technologies to make education and healthcare more accessible.

As a matter of fact, the NGEU is not the first large investment program that the EU and the European Commission are conducting. Horizon Europe (whose timeframe is between 2021 – 2027) is the successor of the former Horizon 2020 (and previous Framework Programs) which is the current, largest EU research program dedicates "digital, industry & space" one of its clusters, whereas "climate neutral and smart cities" is one of its most prominent missions.

It is an ambitious program and yet recent evaluations[122] found that it had some limits:

1. Too much fragmentation on too many fronts which result into relatively small initiatives;
2. Small capability of the program managers to use experimentations, to engage researchers and innovators who are not part of the usual inner circle and to learn from mistakes;
3. Too much focus on cooperation amongst universities with little capability to generate business relevant outputs[123].

Such features seem to make the bulk of Horizon Europe not really functional to generate knowledge for the benefit of the entire EU's research area.

It is also worthwhile to mention "Startup Europe", an initiative of the European Commission aimed at creating a start-up ecosystem across the EU. The initiative wants to connect high tech startups, scaleups, investors, accelerators, corporate networks, universities and the media, so to strengthen network opportunities for deep tech scaleups and ecosystem builders to accelerate the growth of the EU startup scene[124]. The measure is consistent with the small and medium-sized enterprise (SME) strategy of the European Commission.

Last but not least, regional cohesion policies are also worthy to be mentioned. Structural funds[125] have the objective to reduce the gap in terms of GDP per capita amongst developed and less developed regions. Recently the role of digital technologies and infrastructure grew significantly in the regional plans and in the EU guidelines and this tendency was even enhanced by the concept of "smart specialization".

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[122] H. Matthews, The 7th EU research framework programme. *Nanotechnol. Perceptions* **1** (2005) 99–105.

[123] *"From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding"*' . Austrian Research Promotion Agency (FFG), Vienna. May 2011.

[124] Startup Europe empowered the seven winner projects of the Startup Europe for Growth Horizon 2020. The projects connect deep tech startup ecosystem and support cross-border activities for startups and scaleups, such as connecting tech entrepreneurs with investors and business partners, accessing skills, and services helping startups soft land in new international markets. The projects are: Scaleup4Europe, B-HUB FOR EUROPE, X-Europe, STARTUP3, INNODEC, MediaMotorEurope. For more information: https://digital-strategy.ec.europa.eu/en/news/startup-europe-growth-h2020-projects

[125] We refer here to European Regional Development Fund (ERDF), the European Social Fund Plus (ESF+), the Cohesion Fund (CF), the Just Transition Fund (JF) and the European Maritime, Fisheries and Aquaculture Fund (EMFAF) and financial rules for those and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Instrument for Financial Support for Border Management and Visa Policy,

By smart specialization, the European Commission meant the idea that each Region should have found its own specific niches where to develop a competitive advantage to be supported by the smart use of technologies. These intentions were, however, not always coherent with results with especially poorer regions having problems to both conceive and execute plans where digital could have been used as a lever to accelerate economic growth and increase cohesion.

After all, it is the regulation of the structural funds which seems to convey the idea that digital is a sort of luxury that Regions and States can only afford when they reach a certain development: in fact, the minimum threshold that Regions need to invest to develop their endogenous knowledge (made of research, innovation, digital infrastructures) is lower in less developed Regions vis-à-vis developed ones[126].

4.4 SUCCESSES IN EUROPE: FRANCE, GERMANY, ESTONIA, SWEDEN

Whereas EU digital policies seem to be significantly skewed towards regulation and much less towards plans to develop EU digital industries (this is the evidence that we accounted for considering both the money spent and the presence of proper EU strategies), governments of some EU countries are increasing their role at a national level.

National governments of some Member States are the main actors in this sense and they have recently undertaken measures to create a thriving startup ecosystem. The four EU countries we are considering are France, Germany Estonia and Sweden which are the EU ones in the index of the ten most innovative according to Global Start-up Ecosystem Index. They are also amongst the top five EU countries for the number of unicorns they host (together with Ireland and The Netherlands) and they are all in the top 20 of the Global Innovation Index in 2022.

In addition, according to Startup Genome[127], the best start-up ecosystems in 2022 were Silicon Valley (1st), London and New York City, both in the 2nd position. We have to get to the 14th position to find an EU ecosystem (Amsterdam), followed by Paris (15th) and Berlin (16th).

We are thus considering Germany, France, Sweden and Estonia which has been topping the world as the country with the highest number of unicorns in relation to its population and which is the very advanced in terms of using Internet to provide public services.

For each country, we will provide an overview of the degree of innovation and digitization, referring to the main indices, the Global Innovation Index Global Start-up Ecosystem Index and the DESI – Digital Economy and Society Index. Furthermore, the main national programs and initiatives to develop and boost innovation and digitization will be taken into account, as enabling conditions to create start-up ecosystem.

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[126] The regulation of European Regional Development Fund for the 2021 – 2027 period envisages (article 4) that the most developed regions must allocate 85% of their funds to the specific objectives of enhancing their digital base and of realizing the green transition; these thresholds becomes 55% for the less developed ones.
[127] The world-leading innovation policy advisory and research firm. For the entire report https://startupgenome.com/report/gser2022

Lastly, in the section about Sweden, the priorities of the Sweden Presidency of the Council of the EU are considered.

As a matter of fact, this section highlights the importance of using internet as a lever to solve problems which are relevant for a large share of the population and to improve the production/ delivery of private and public goods: we believe that the possibility to make not only public but also private services more efficient and capable to cover a larger share of citizens (especially those in segments – like elderly - which appear vulnerable and to suffer digital divides) can be an opportunity for Europe to develop its own approach to digital policies[128].

France

France ranks 12th in the Global Innovation Index in 2022[129] and it holds the 12th place as well in the DESI ranking of the 27 EU Member States in the 2022 edition[130], with a score of 53.3 (the EU average is 52.3).

Specifically, France is the 5th country for the dimension "Connectivity" (64.5, while the EU average is 59.9), the 12th for the "Human Capital" area (49.9 against the EU average 45.7) and the 15th for the "digital public services" dimension (67.4). France has not a good performance for the dimension "Integration of digital technologies" (20th place) with a score of 31.9 against the EU average of 36.1.

In addition, France ranks 9th on the Global Start-up Ecosystem Index[131], third in the EU after Sweden (5th) and Germany (6th). The country in 2022 entered the global top 10, as it held the 12th position in 2021.

The *Plan de Relance* (Recovery Plan) is boosting the digital transformation of the French economy and society: the country benefits from a Recovery and Resilience Facility contribution of around EUR 40 billion and *France 2030*, a strategic plan to strengthen technological sovereignty, ensure the greening of the economy and boosting innovation. France 2030 dedicates nearly €15 billion to start-ups, including 5 for *DeepTech* start-ups (whose business model is based on high tech innovation in engineering, or significant scientific advance) and 1 for digital job training.

When we talk about France, in this matter, we are mostly referring to the Paris Hub which is the only EU city ranked amongst the first 10 most innovative cities globally. In fact, there are 35 French cities ranked in the top 1,000. Paris is followed by Toulouse at 155 and Lyon at 156. According to Startup Genome, Paris' greater metro area includes 12.000 startups, more than London and Berlin.

The overall data shows the importance of the French ecosystem in Europe: the country counts 2582 startups, 63 accelerators and 119 coworking spaces. France is considered an

[128] As for the VISION report produced for the Foundation for European Progressive Studies "Internet for everybody: is there a third way to the data revolution? - The contribution of the Recovery and Resilience Facility to use technologies as a lever to solve high priority problems and create social value (with a focus on healthcare and education)", 2022.
[129] https://www.globalinnovationindex.org/analysis-indicator
[130] Available at: https://digital-strategy.ec.europa.eu/en/policies/desi-france
[131] https://www.startupblink.com/startupecosystemreport

ideal place for Foodtech, Education and Transportation startups. There are 846 Foodtech startups, 286 Education startups and 278 Transportation startups in the country.

Among the French unicorn there are Deezer (a digital music streaming service), BlablaCar (the world's leading long-distance carpooling service) and Veepee, an international e-commerce company.

According to the ranking the most notable French startups are Qwant (a search engine), Convertio (a tool to convert files online) and Betaseries (a reference application for series fans who watch streaming platforms).

We could say that the French ecosystem in Europe started developing in 2013 with the foundation of the *La French Tech* (LFT), a program that was inspired by the goal of making France the best country to launch and grow innovative tech companies. LFT is an inter-ministerial initiative that encourages the creations of new start-ups, it ensures finance support and "tax credits" as reimbursement of part of their expenses, it allows special French Tech Visa for international talents to allow them to develop new business in France. This last initiative sets a very important setting to attract investors.

Overall is easy to assess the importance of the public sector in creating an environment in which these enterprises are rising and growing.

Paris hosts the world's largest start up campus founded in 2017, called *Station F*[132] which also hosts mentorship programs from world's leading tech companies such as Apple, Amazon and Google. Station F hosts 1,000 startups, more than 30 programs and a full range of services. The programs aim to support growing startups and entrepreneurs who plan to launch. An important accelerator is 50 Partners[133], created to develop solutions for entrepreneurs. The 50 partners are the 50 founders of the most successful French companies (Blablacar[134], LeBonCoin[135], Talentsoft[136] etc) which work to select 6 to 8 promising start-ups each year, to whom they offer personalized support to develop their business.

Every year the Next40 ranking, made by the French government and by LFT, shows the top performing start-ups based in France. To be a part of the Next40, companies have to be a unicorn or have raised more than 100 million in the past three years, alternatively companies have to generated more than 5 million in revenue and have a year growth rate of 30%[137]

Successful start-ups examples listed in the Next40 are: Vestiaire Collective - the leading online marketplace for luxury clothes and accessories - BlaBlaCar and BackMarket, the marketplace for refurbished devices. Also, in the wider rank of French Tech 120 there are startups chosen on the basis of economic performance (fundraising or hypergrowth of

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[132] https://stationf.co/
[133] https://en.50partners.fr/programmes/digital#financement
[134] BlaBlaCar is the biggest community-based travel network enabling over 100 million members to share a ride across 22 markets. It leverages technology to fill empty seats on the road, connecting members looking to carpool or to travel by bus.
135 The leading online marketplace for selling new and second hand good.
[136] The leader in cloud-based Talent Management and Learning software.
[137] https://techcrunch.com/2022/02/01/these-are-the-biggest-french-startups-according-to-the-french-government/

revenues), with names such as JobTeaser (specialized in the recruitment and guidance of young talents, and Skello (the first online scheduling and personnel management software)-

2021 especially was the best performing year for France tech companies, mainly for startups, however "*its start-up scene is only third in Europe in terms of Venture Capital activity behind the United Kingdom and Germany*"[138].

Germany

Germany is 8th in the Global Innovation Index in 2022, rising by two positions compared to the previous edition.

The country ranks 13th of 27 EU Member States in the 2022 DESI edition[139]. Germany had one of the highest performances on the dimension "Connectivity" (4th out of 27), with a score of 67.3 against the EU average of 59.9. In the Human Capital area (16th place), its score was slightly under the EU average on "Internet Users skills", while a slightly above the EU average on the dimension "Advanced skills and development". Germany's score is nearly equal to the EU average on "Integration of digital technology, while the result on "Digital public services" dimension (63.4) is under the EU average (67.3).

Digitization is a key priority for the new government and the main focus for Recovery and Resilience Plan adopted by the previous German government. The total budget is 26,5 billion of euro and more than the half is dedicated to Digitization.

Germany ranks 6th on the Global Startup Ecosystem Index, third in the EU, registering a slight decrease of 1 spot compared to the 2021 edition. TGermany tech ecosystem counts 28 unicorns and more than 2.000 start-ups which are concentrated mainly in Marketing & Sales, Software and Data and Transportation sectors. There are 44 German cities ranked in the top 1,000 and Berlin is the main German start up Hub, ranking 12th in the global standing. The capital is followed by Munich at 39 and Hamburg at 75. In 2021, 10.5 billion of euros flowed into Berlin start-ups and the capital's ecosystem was worth 60% of the total capital invested in the country[140]. On the StartupBlink Global Startup Ecosystem Map there is a sample of 2645 startups in Germany and 35 accelerators.

At the beginning of 2022, Germany boasted 25 unicorns. Germany's successful tech companies, known worldwide, are N26, an online bank based in Berlin worth 9 billion in 2021, and FlixMobility, based in Munich, worth 3 billion. Another German unicorn is Personio (developer of an HR management and recruiting platform for SMEs and startups), based in Munich, and TIER Mobility, an electric scooter company that aims to provide sustainable, ride-sharing solutions to its customers.

[138]https://www.euronews.com/next/2021/09/23/record-year-for-french-start-ups-despite-covid-but-but-not-enough-women-at-the-top.
[139]https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2022
[140] https://startupgenome.com/ecosystems/berlin

Other notable startups are Ecosia (a search engine based in Berlin), ResearchGate (a professional network for researchers) and Justwatch (streaming guide for movies and TV shows). The German startup ecosystem is valued 384 billion of dollars[141].

In the last years the German Federal Government has approved plenty of strategies to implement the digital transformation[142]. The most recent one is the "Digital Strategy of Germany[143]", released in August 2022. It intends to advance the country from a digital point of view formulating objectives by which the government wants to be measured. The strategy sets the general framework for digital policies until 2025.

The main German program to support start-ups is the *Startup Strategy of the Federal Government*[144]. It represents the first national comprehensive strategy for startups. The strategy plans to unlock €30 Billion of funding by 2030.

The document identifies ten fields of action that collectively aim to strengthen Germany and Europe's position as start-up locations. They are the following:

1. Strengthening financing for start-ups
2. Simplify process to attract talent, by making employee – shared ownership more attractive;
3. Igniting the start-up spirit;
4. Strengthening female start-up founders and making space for diversity in start-up ecosystem;
5. Facilitating start-up spin-offs from academia;
6. Improving framework conditions for start-ups oriented toward public benefit;
7. Mobilizing start-up competencies for public contracts;
8. Facilitating access to data fort start-ups;
9. Facilitating access to laboratories for start-ups;
10. Putting start-up at the center.

The main goal is to improve the availability of venture capital for young companies.

Estonia

Estonia is a global leader in digitization and it holds the 18th place in the Global Innovation Index in 2022.

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[141] https://startupstash.com/german-startups/

[142] The main ones, issued over the past years, are collected here: https://germandigitaltechnologies.de/national-strategies/#:~:text=Hightech%20Strategy%202025,-hightech%2Dstrategy%2D2025&text=Major%20funding%20is%20allocated%20for,develop%20an%20open%2C%20innovative%20culture.

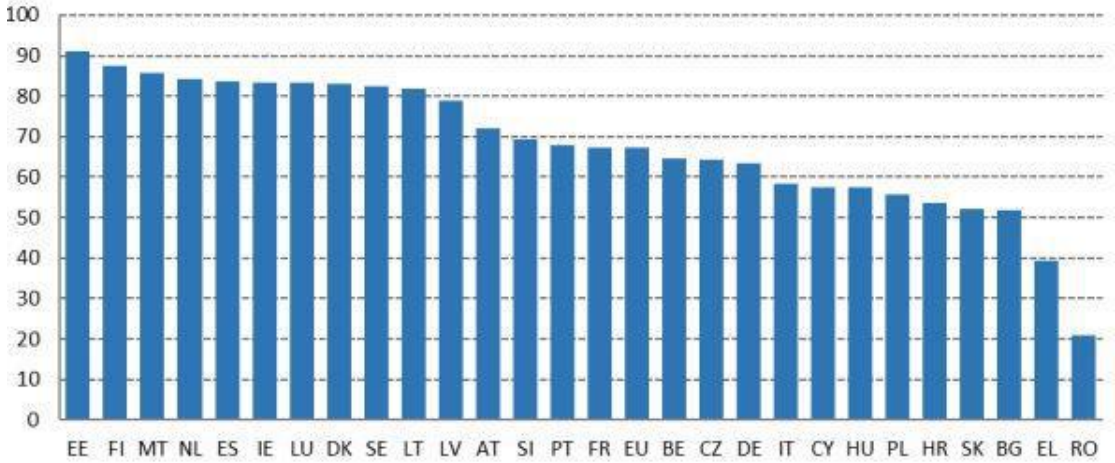
[143] https://digitalstrategie-deutschland.de/static/eb25ff71f36b8cf2d01418ded8ae3dc2/Digitalstrategie_EN.pdf

[144] https://www.bmwk.de/Redaktion/EN/Publikationen/Wirtschaft/2022-startup-strategy-of-the-federal-government.pdf?__blob=publicationFile&v=3

The country is 3rd worldwide in Market sophistication and scores a global leading performance for several indicators: E-participation (1st), Venture capital deals (1st), ICT services imports (1st), New businesses (1st), Government's online service (2nd), Entrepreneurship policies and culture (3rd), Mobile app creation (6th), Finance for startups and scaleups (7th) and Environmental performance (14th).

It is 9th in the DESI ranking with a score of 56.5 against a EU average of 52.3. More interestingly the country is a benchmark as far as digital public services and has got the most advanced e-government practices.

GRAPH 4.3 – PERFOMANCE ON DIGITAL PUBLIC SERVICES (COMPOSITE INDEX, 2021, FROM 0 to 100)



SOURCE: VISION ON EUROSTAT (DESI) DATA

Estonia scores above the EU average in Integration of digital technology and Human Capital, but it does not have a good performance on Connectivity, where it ranks 26th.

In 2021, the country presented the Estonian Digital Agenda 2030, which includes a vision and an action plan to develop the Estonian economy, state and society through the digital technology. The priorities of the plan are:

- Further fostering the digital public services;
- Focusing on cybersecurity;
- Improving connectivity.

The Estonian Recovery and Resilience Plan allocates 208 million euro to digital objectives (the 21,5% of the total amount).

Despite a thriving start-up ecosystem in the country, with some innovative companies which drive the Estonian economy, local SMEs do not take full advantage of digital technology and lag behind. According to DESI report, only 54% of SMEs have at least a basic level of digital intensity – far from the EU target of 90% - and only 10% of companies use big data and 3% use Artificial Intelligence solutions.

Nevertheless, Estonia ranks 13th in the Global Start-up Ecosystem Index and its capital, Tallin is the 62nd cities globally. Despite its small population, Estonian start-up ecosystem outranks most of its Nordic neighbours. One of the most important milestones in the history of the Estonian ecosystem was the success of Skype, largely developed in the country, and Revolut, one of the most successful online banks.

Estonia boasts 141 Transportation startups, 90 Software and Data startups and 34 Fintech startups. In the country there are 13 accelerators.

The three main Estonian unicorns are Veriff (an online identity verification company), Bolt (the UBER rival) and Montonio (an e-commerce check out solution).

Among the most notable startups there are Coolbet (an online gambling platform), 3Commas (a cryptocurrency trading platform) and Pipedrive (sales customer relationship management tool).

Among various programs, the most effective ones are *Startup Estonia* and the *Digital Testbed Framework*, both government initiatives with the purpose of helping develop new start-ups and to improve new e-government services. Estonia is one of the most digitally advanced country in terms of e-government and these initiatives will implement e-services throughout investing in tech start-ups based in the Estonian territory.

Specifically, *Startup Estonia* is the national program for the development of the local startup ecosystem by facilitating their establishment and it is focused on four building blocks:

- A strong ecosystem: uniting, building and representing the local startup community and supporting regional development and science-based decision making;
- Smart people: promoting diversity and co-organizing impactful startup events with the community;
- Smart money: educating and attracting investors, helping resources and know-how reach startups;
- Friendly Regulations: making it easier to operate a startup, invest or raise funding in Estonia.

In 2020, Startup Estonia launched the "Estonian Startup Database"[145], the most extensive source for the local startups. It ranks and filters the startups by sectors, technology, stage, employee count and turnover. Moreover, among the best results of Startup Estonia, there is the "*White paper for the 2021-2027 period*" [146] which highlights the potential future development and a collective vision for its startup community. Successful cases of start-ups that benefited the Start-up Estonia program are the above-mentioned Pipedrive, worth 1.5 billion, and Bolt, the Uber rival, worth 8.4 billion.

The *Digital Testbed Framework*[147] is a method of collaboration between the Government and interested stakeholders to cooperate in IT development without the complex set of

[145] https://startupestonia.ee/startup-database
[146] https://startupestonia.ee/blog/startup-estonia-launches-a-white-paper-for-2021-2027
[147] https://e-estonia.com/testbed/

procurement rules. It enables anyone to build solutions for the digital state as well as get a proof of concept for their own commercial solutions. Through this model, users have access to the government tech stack to build innovative products or services. The *Digital Testbed Framework* is open to any business regardless to the sector.

Finally, an innovative program to encourage the establishment of new Estonian companies is the 2014 *e-Residency*[148]: a digital identity provided by the government to access the Estonian business environment and the EU single market from anywhere in the world. This initiative helps raise the number of tech companies by attracting international talents.

Sweden

Sweden is considered to be one of the most innovative countries worldwide, holding the 3th place in the Global Innovation Index in 2022 and the 4th in the DESI index[149]. In particular the country is 3rd on the Integration of digital economy dimension, 4th on Human Capital and 9th both in Connectivity and Digital Public Services.

The Sweden's Recovery and Resilience Plan allocates to digitization 673.6 million of euro (20.5% of the total contribution). The measures in the plan are fully aligned with those in the Sweden's Digital Strategy, adopted in 2017, that establishes goals in the area of digital skills, digital security, digital innovation, digital infrastructure and digital leadership. The overall objective is for Sweden to become world leader in the digital transformation. For this reason, the government established the Swedish national digitization council in 2017, which is committed to promote the implementation of the national digitization strategy.

According to the DESI report, Sweden has the highest proportions of SMEs with at least basic level of digital intensity (86 %) and enterprises using cloud services (69%). Sweden is among the leaders in the EU for SMEs' selling online (33%) and total turnover from e-commerce (19%).

The country ranks 5th in the Global Start-up Ecosystem Index and is first among EU countries, displacing Germany. In Sweden there are 313 Social & Leisure startups, 151 Health startups and 132 Ecommerce & Retail startups. The country counts 1128 startups, 8 accelerators, 38 coworking space, 3 organizations and 4 leaders. According to Startup Blink, the most notable Swedish startups are Playpilot (a streaming guide), Trucaller (a caller-identification, call-blocking, flash-messaging, call-recording Chat & Voice) and Kognity (curriculum-aligned teaching and learning platform with interactive content, analytics and assessment support)

More specifically, the country and its capital host many unicorns known worldwide, such as Skype (born from Estonians and based in Sweden), Spotify (arguably the European global digital platform which did become a household name within the same category of the large American ones); King (whose most famous project is Candy Crush) and Klarna. These companies, especially Skype and Spotify, paved the way for investor and entrepreneurs.

[148] https://e-resident.gov.ee
[149] https://digital-strategy.ec.europa.eu/en/policies/desi-sweden

The most notable start-ups and ecosystem champions are the three unicorns KRY (healthcare), Voi (micro mobility) and Enride (freight mobility).

To understand Sweden fertile ground for startups it makes sense to look at different factors, for example the structure of Swedish internal market: it is a relatively small market and this aspect has forced to look at the international demands and to anticipate future needs.

Another factor is government actions to make Sweden leader in innovation, especially in tech companies: since the 90s the government has implemented a series of policies to encourage technological progress and digitization of the population: there have been strong investments to provide PCs to all families, the education system has created the basis for the formation of an international working class within the country. From a fiscal point of view the government provides tax reduction for private capital investments in startups, and taxes are very high in Sweden. Worth mentioning is the fact that the Swedish government invests more than 3% of their GDP in Research and Development every year.

Sweden is a hub of innovation thanks to its government policies during the last decades that aims at developing an ecosystem where tech companies could thrive. The regulatory framework makes Sweden an accessible place to start a company: it is possible to register a new company online with a 5-minute procedure[150].

4.5 LOOKING FOR A EUROPEAN INNOVATION STRATEGY: THE EUROPEAN PRIORITIES ACCORDING TO THE SWEDISH PRESIDENCY OF EU COUNCIL, THE IRA AND THE STATE AID DOSSIER

The theme of innovation and digitization in the Program of the Sweden Presidency of the Council of the European Union deserves a deepening. Sweden took over the Presidency in the first half of 2023, at a time of historic challenges for the entire Union and for Member States. European economies are severely affected by Russia's invasion in Ukraine: rising inflation levels, interest rates and energy prices have led to a dramatic situation for both companies and citizens. In order to face this terrible scenario, on 14 December Prime Minister Ulf Kristersson presented the priorities[151] of the Swedish Presidency of the Council of the EU[152]: security - unity, competitiveness, green and energy transitions, democratic values and the rule of law. In particular, the second priority "competitiveness" deserves a closer look for the purposes of the present research.

Strengthening the European competitiveness is necessary to create a sustainable growth, speed up the green and digital transitions, increase economic resilience as well as strengthen the EU's geopolitical importance. Openness, freedom of movement, effective competition, uniform and growth promoting regulatory frameworks and innovation are the fundamental values and the basis of the EU measures that must be undertaken.

[150] https://www.eu-startups.com/2022/02/10-skyrocketing-swedish-startups-to-watch-in-2022-and-beyond/
[151] https://swedish-presidency.consilium.europa.eu/en/programme/priorities/
[152] The entire program https://swedish-presidency.consilium.europa.eu/media/lltm2xh3/the-swedish-presidency-programme.pdf

As far as the internal market and industry are concerned, the Presidency will ensure that the importance of competition is highlighted in EU work on the green and digital transitions in the business sector. The Presidency will work towards long-term and predictable rules that boost effective competition and reduce the regulatory burden, allowing the EU to be a leader in digital innovation.

Research and innovation are crucial to promote competitiveness and prerequisites for facing crises and societal challenges, ensuring security and prosperity for the EU citizens and implementing the green and digital transitions. In this field, the Presidency will work to support measures that promote open exchange of knowledge and data within the European Research Area, increase knowledge valorisation in EU societies, accelerate the transition to open science and allow increased access to research infrastructures.

However, it is worth noting that the approach of the EU seems to be going towards another direction: the EU State aid regulations – usually very restrictive – have been loosened in conjunction with the COVID-19 pandemic and the war in Ukraine. On the 9 March 2023, the Commission published the Temporary Crisis and Transition Framework (TCTF) which regulates how States can subsidize sustainable technologies.

5. FINDINGS AND A PROPOSAL FOR THE EU DIGITAL DECADE

The Internet revolution is often compared to the Industrial ones that produced – in the 18th, 19th and 20th centuries – the most spectacular growth in the wellbeing of humans in history. This is a mistake, which has led us to wrong expectations and wrong policy and business decisions. The Internet is – instead – more akin to a biological mutation, which is profoundly modifying the very mechanisms through which we transform data into knowledge and, thus, the nature of our species. It is also a technology-triggered social phenomena that – as for the invention of the printing machine – is producing a huge reallocation of information and, thus, power.

This premise is rather useful to understand the nature of the challenge that technologies are bringing about. It is much more than just a concentration of market share or of media power, it is a transformation of the way human beings think and this sort of explains why the European Union is so keen to try to govern a change where it is currently exclusively on the receiving/ consumer side.

The European Union's principles are indeed even unique: it was the EU to remind that technological progress should be human-centric (in a context where humans risk to lose control of their very machines) and that technologies should be used so that nobody is left behind.

These principles do point to even a sort of "third way" (between the venture capital dominated US model and the State led Chinese one) to the Internet revolution. A "third way" that seems to have great business and social value if we consider that healthcare or education may be the industries that will be mostly affected by digital technologies in the future.

The implementation of the Eu digital decade seems, however, to have been potentially flawed by a number of sub-optimal choices:

A) The European Commission has produced a remarkable and, indeed, mighty attempt to make sense of and govern complex processes that are even challenging traditional policy instruments (like Antitrust). However, the output of this effort (we counted ten major piece of legislations) risks redundancies and even to create contradictions and uncertainties amongst different provisions.

B) This may result into both a significant compliance cost for small and medium enterprises and an implementation challenge for the European Commission that still has got not unlimited managerial and analytical resources. We also do not know how regulation will impact businesses' incentive to innovate, and the ultimate impact on consumers which have so far greatly benefitted from the digital revolution.

C) Regulation of digital is made difficult by few conceptual problems we still do not know how to solve. We are, for instance, still missing a definition of artificial intelligence that can be precise enough for a legislation to be based upon it. As a matter of fact, even the definition of "digital markets" is still vague: it puts together firms that pursue

totally different business models (as for our first report[153]), whereas the process we are trying to "regulate" is more definable as the "impact of digital technologies on (all) markets".

D) EU digital regulation has some merits. For instance, the acknowledgment that personal data belongs to the individuals to whom they refer, is creating the premise for developing new market opportunities and a new approach to the Internet. However, overall regulation is still meant as a lever to react to specific distortions (from foreign influence through social media into election campaign to fake news) that attracted public opinion's attention. This approach risk to make strategies less systemic and to miss opportunities. In fact, regulations could only work not only as a ban on harmful actions but also as incentives to promote socially responsible behaviors that would need technologies to be enacted. For instance, schemes for making consumers to pay as much as they pollute, may encourage cities to adopt technologies that measure how much waste or congestion or foot print are families and firms generating.

E) The report proposes five specific recommendations for improving the five largest pieces of digital regulation: digital markets; digital services; data act; artificial intelligence; protection of personal data;
On GDPR we believe that the citizens whose rights we want protect, need to be considered the most important asset of law enforcement. Regulations need to be improved so that their effects are more actionable. One specific suggestion would be to replace endless requests to make privacy choices with the drafting of a personal privacy profile (similar to the one that banks need to define with their clients before proposing investment products) that applies by default to all sites (unless the individual decides that the default choice does not apply to a certain service provider).
On the DMA, we see a major problem of definition: what do we mean by digital markets[154]? One radically different approach is to reconsider the very idea of "concentration" and "dominant position" applying it to each of the industry as they are being transformed by digital technologies - publicity; books; clothing; tourism; electronic goods, In some cases, this will have to be referred some key parts of the value chain -delivery of foods for instance.
On the DSA, we see an example of regulation skewed much more on the "not-dos" than on the "positive choices" that rules can make more convenient. The DSA should not only be concerned for hate speech to be cancelled, but also about encouraging, for instance, contents that qualified once the "public broadcasters" (divulgation of

[153] Digital Infrastructures: definitions, effects on consumers and industries, strategic options to maximize their value", 2022, Vision & Value.

[154] Similarly in the Vision & VALUE report above mentioned, we discussed how difficult to apply is the notion of "digital platform".

science, for instance). Political interference in elections is worthwhile to be explored, but not less important is to nudge other forms of political participation.

The Gordian knot of the DSA is, however, who is going to decide what contents are to be avoided and what are to be facilitated, considering that these choices would have to be continuously adjusted in time: artificial intelligence can be very useful to analyze enormous amount of data; the criteria, however, should be established in a transparent way by an EU wide agency operating with enough democratic legitimacy.

As far as treating fairly (as DATA ACT is trying to do) the huge value that data holds, we believe that the milestone EU decision to establish that the ownership of data belongs to the person they refer to, can create the condition of a proper market where data can be aggregated and traded by infomediaries acting on behalf of the individuals trusting their info: this would have the important implication that people will start to attach economic value to data.

Last but not least: Artificial Intelligence. Here the problem of definition becomes so big that any student of law would appreciate that we may miss the fundamental rationale for drafting regulations. As for “digital markets” (where again there may be a flaw in specifying the perimeter to which the law applies), our suggestion is to review all sector specific regulation (for instance, the ones relative to health, mobility, insurance, law enforcement) by reconsidering them when taking in account how machine learning may change the mix of opportunities and risks.

F) Investments in the creation of European digital champions, eco-systems and supply are much less prominent than regulation. Or at least it is so if we try to consider the ones at an EU level (whereas single countries like France, Estonia or Sweden appear to be implementing a proper “industrial strategy” on digital). Indeed, there are significant investments (like it has been the case for the satellite communication) and yet this does not sum to a proper comprehensive strategy.

An European “third way” (different from the US and the Chinese) approach to digital revolution that may reflect the ambition and the values that the European institutions want to protect, is one that uses the technologies so that “no body is left behind”. Technological development may, for instance, be steered towards improving the access to public services and new interfaces/ applications may be conceived to reduce digital divides (the one suffered by the elderly should be a main concern in Europe).

This human centric aspiration is, however, far from becoming a concrete industrial policy. An example of this are the concrete choices made within the Next Generation EU: a program meant to be the EU response to the pandemic and to have one of its main two focuses on “digital transition”, does not seem to see digital technologies as

an instrument to improve access to healthcare and education and it seems to ignore lessons coming from the pandemic period itself.

G) Digital policies require an extensive and smart use of experimentations. Since that we still do not know how societies react to the adoption of new technologies, many different countries are developing digitalization strategies made up of “families of social experiments”. This means that against each objective/ problem, governments are launching different possible response; each of them is measured; the ones that seem to work better are scaled up. Horizon Europe (especially as far as the pillars dealing with cities) should be redesigned by creating the knowledge management systems that can generate knowledge from projects.

These recommendations do move from an overall approach to digital that is characterized by a number of epistemological choices:

A) Any digital strategy needs to be “open”; we are dealing with “moving targets” due to rapid and unpredictable technological disruptions; this require not just new solutions, but new intellectual instruments;

B) These new lenses will most likely require interdisciplinary approaches; in this sense the abuse of “experts” – they, by definition, see only a portion of a complex problem may be part of the problem;

C) Rigorous and not biased evaluations of the impacts of regulations and industrial strategies will be of paramount importance; public administrations, European institutions, cities and businesses will need to change the way they see evaluation: these are not any longer an assessment of performance, but the instrument to transform experiments into indispensable knowledge.

We are “navigating in un chartered water” and it is time to start drafting these new maps to better make sense of a century that is already 23 years old. EU is at a crossroad, and it still has got the possibility to transform its coming from behind in some of the most important technological innovation trends into the opportunity to find a more socially sustainable, market valuable approach to the Internet. Its flexibility can still be turned into a strength.

The aim of Vision & Value work is to activate an exchange of contents between worlds that are often divided by different languages. The intuition is that interests can converge on a problem-solving exercise which will be key to make so that – as Ursula Von Der Leyen said – “everybody and every firm fully exploit in Europe the possibilities of a digitalized world”.

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