



**Platform business model:
a specific focus on network effect
in relation to the property rights
and the regulation of the ecosystem**

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PREFACE

“Uber, the world’s largest taxi company, owns no vehicles. Facebook, the world’s most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world’s largest accommodation provider, owns no real estate. Something interesting is happening.”

Tom Goodwin, *Digital Darwinism: Survival of the Fittest in the Age of Business Disruption*, 2018

The subject matter under the analysis is very challenging and now inevitably part of our modern life.

Our work aims at deeping dive all the aspects related to business platforms, not just stopping at the boundaries of the energy field, but starting from the definition, analyzing different types of platforms, going through the network effects, the regulation, the contractual aspects and the related intellectual property rights, eventually detecting also the sustainability issues related to this new way of conceiving and structuring “digital business”.

The name of the team is “**Plat4Energy**” and it is composed by different people with different experiences and backgrounds, coming from Australia, Austria and Italy and different perimeters, both at Country and Global level.

All the authors contributed to write the paper within the context of the e-Legal game 2020/2021, meeting on a weekly basis and feeling the sense of a whole team.

At the end, e-Legal game was and is an important occasion for sharing professional and life experiences and to meet new colleagues, in an environment of very skilled lawyers.

Please do not forget that we used a platform to meet each other and exchange our ideas in this complicated period of pandemic emergency that the entire world is facing.

The Plat4Energy team

ABSTRACT

A platform **is a business model and not just a piece of software** that creates value by facilitating exchanges between two or more interdependent groups, usually consumers and producers.

In order to make these exchanges happen, platforms harness and create large, scalable networks of users and resources that can be accessed on demand.

Platforms **create communities and markets with network effects** that allow users to interact and transact.

At the same time, their meteoric growth is profoundly challenging the legal framework: these challenges often culminate in the **call for more “platform regulation”**.

This tendency goes beyond the realm of **intellectual property** and includes **consumer law**, **antitrust**, **sustainability** and **competition law**.

The aim of this paper is to shed light on these challenges and the European debate on platform regulation. In particular, it seeks to: **1.)** Provide an overview of the different types of platform and how they operate; **2.)** Examine how to establish a digital platform from a legal and contractual point of view; **3.)** Examine the intellectual property rights that are relevant to the platforms; **4.)** Provide an overview of existing regulation of online platforms in the EU Single Market and the current regulatory challenges for the platform economy in the EU; **5.)** Examine how network effects create value in a platform ecosystem; and **6.)** Analyze one of the most important future goals within the debate on platform regulation: sustainability.

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INTRODUCTORY EXECUTIVE SUMMARY

1. What platforms are and how they work

We encounter platforms every day in our professional and private lives. But what are platforms, why is everyone raving about them and how do they work?

Platforms connect individuals and organizations for a common purpose or to share a common resource, enabling them to innovate or interact in ways not otherwise possible, with the potential for nonlinear increases in utility and value. We encounter and use Transaction Platforms which act as facilitator of a business transaction – they bring the service provider/seller and the customer together. They are an asset free business model with often extreme success, especially when operated as a hybrid platform (see below). Innovation Platforms are focused on communication and exchange of innovative solutions and enable third parties to add value to the original product by creating complementary solutions. Hybrid Platforms are the most valuable (platform) companies in the world – combining the transaction and innovation approach. From a legal perspective platform are interesting and challenging, because a “triangle” business approach is taken with diverse parties engaging on different levels. This makes especially the question of liability an interesting one (who is liable the platform operator or the business using the platform?). For almost every platform data (of its users) is a valuable asset; legal provisions must cover the protection, storage and management of such data in a global context.

2. The contract: Terms and Conditions

Most digital business platforms are operated on a cloud supported basis. Cloud services can be differentiated from professional services because they are provided via a computer opposed through human resources. For the establishment of a cloud-based platform the owner/operator of the platform will enter into a so-called SaaS - Software as a Service Contract (*Platform as a Service* or *Infrastructure as a Service* Contracts are similar alternatives with slightly different scope). Such SaaS contracts deal with digital or software related issues, but most clauses in such contracts are quite standard (e.g. liability, term, indemnities).

Key points, especially in an international context, is the choice of law and jurisdiction must be considered carefully. Another item of relevance is data protection: as data is the new currency these days, the data protection laws of different countries and states (and not to forget the European Union) must be considered, and their compliance ensured. Basically,

the data protection laws of every country from which the platform is used must be complied with.

A legal “bonbon” is certainly the question how Civil Law and Common Law jurisdictions deal with SaaS contracts and if there are major differences. The Common Law approach allows to appreciate this new type of contract as it is without further classification (is it a service contract or not?), whereas Civil Law countries such as Germany struggle to define the type of contract and its place within the Civil Code.

The digital age highlights also complications of the most standard legal actions: How can the action of clicking a certain button on a digital platform be classified? Does a “click” have any legal relevance? The courts have developed certain standards re the execution of online contracts (clickwrap, browse wrap, web wrap) to further online business activity with a focus to protect customers and businesses.

In conclusions, one can say that the brave new world of business platforms leads to adjustments of the law to capture this new approach, but at the same time – and that is the beauty of the law and legal considerations – with a focus on known legal principles even this brave new world can be conquered.

3. Intellectual property rights for the platform and intersection between IP rights and network effects

Platform owners can exchange intellectual property with other market players. As a result, these platforms are composed by intangible rights that they have an important value too: the intellectual property rights that are at the foundation of the software industry.

These intellectual property rights are copyrights, patents, trade secrets and trademarks, but also design could be considered under certain conditions. Each of these rights receives a different type of legal protection at national and international level.

At European level there is no law that expressly provides that a software invention can be patented, but patents are increasingly granted that relate to computer programs. An important role on the evolution of the patentability of the software has been made by the American case law with effects also in Europe in order to consider also the software a patentable invention.

Other fundamental intellectual property rights relevant for platforms are trademark - in the top 10, there are brands from different sectors, such as Amazon Alibaba and Facebook – and trade secret - that protects against the misappropriation of confidential information that is subject to reasonable efforts to maintain secrecy -.

However, since the principal forms of intellectual property protections developed long before the advent of digital technology which made network effects so important, the intellectual property statutes do not expressly reflect the description of the several players that can arrogate the intellectual property rights behind these technological platforms with all the difficulties to understand who the real owner of them is.

In another word it is complicate the balance between all the interests and the rights behind technological platforms and for sure an evaluation also of the discipline of the intellectual property rights shall be evaluated from a regulatory and legislative point of view, considering that should not favor or discriminate against specific platform technologies.

4. To regulate or not regulate the platforms

The rapid rise of online marketplaces, social networks and other forms of online platforms has characterized the digital transformation of the last decade. These online platforms now play a key role in today's economy and the functioning and governance of the internet. They have brought real benefits for consumers and businesses in the EU by giving them easier access to products and services and facilitating transactions between them. At the same time, their growth has caused concerns about market dominance and the widening information and power asymmetry between platforms and citizens, businesses and regulators alike.

In particular, the growing economic power of such intermediaries is profoundly challenging the legal framework established twenty years ago with the Directive 2000/31/EC ("e-Commerce Directive").

European courts first, and legislatures more recently, have taken a position regarding the need for further regulation of online intermediaries. The concerns over the power of online platforms raised in the ongoing political debate pertain the competition and market power as platforms generate regulatory concerns because of their expanding market power and the way in which platforms are able to leverage their exclusive access to vast amounts of consumer, business and transactional data.

The forthcoming EU Digital Services Act and Digital Markets Act aim to revise the regulation of online intermediaries by means of new rules framing the responsibilities of digital services and online platforms' market behavior.

5. Network effects: co-creation of value in a platform ecosystem

It is analyzed how the business model has profoundly changed from a linear structure to a synergized interconnected network (the so called “*network effect*”). Successful networks are bilateral, in other words, users and suppliers interact and reinforce each other. This means that it is created a “*magical fatal attraction*” among all the players: everyone feeds the other and is fed by others, balancing digital behaviors, providing content/data, and receiving back outputs that consequently have an impact on the role played by all. The combination of all these factors creates a whole ecosystem, where every player can contribute co-creating value (like open innovation systems). It is finally analyzed the side effect according to which the pandemic related to COVID-19 has caused an enormous boost of digital business platforms, both in its users and developers. Therefore, at this point ecosystem platforms should at a major level take into account the following proposals of implementation:

- the definition of an adequate regulatory framework for data governance, access and reuse of data;
- providing support for the development of technological systems and infrastructures of the next generation, including investments in projects that have a high impact and building data space and reliable cloud infrastructures that could make the ecosystem sustainable;
- the launch of sectoral initiatives, in order to build specific data, like in the mobility sector or with the green deal.

This always implies that digital ecosystems are data-based, meaning that they are formed on the basis of the complementarities linked to the production and exchange of different types of data. And data in this phase can be more precious (and dangerous) of the technology itself. As a consequence, in order to be really innovative, a company who wants to create a business platform must be aware that it is not sufficient to develop technologies and compete with such technologies on the market. Instead, it takes a long-term vision, strategic planning, and training of human resources, sustainability and most of all a structured corporate social responsibility.

6. Sustainability in the age of platforms

Platform business models have an important role in achieving the economic, environmental, and social sustainability goals, but their impact on a sustainable future will essentially depend on the engagement of their management, stakeholders and customers. Global

regulation of platform business models including harmonized sustainability reporting standards and global tax rules as well as the promotion of sustainable consumer behavior will be milestones for a sustainable development of platform business models.

Platform based sharing mobility will certainly gain an increasing role in the development of sustainable mobility concepts and already plays an important role in urban mobility. The sustainability of the development of urban mobility will essentially depend on the use of environmentally friendly fuel for the shared transport devices.

7. Plat4Energy Team – New Project

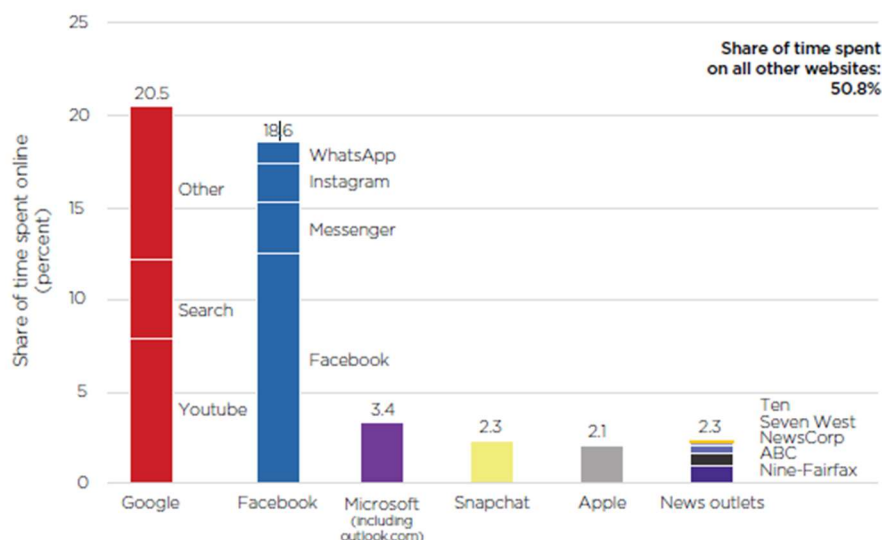
The sustainable idea of a platform based on sharing mobility lead the Plat4Energy team to develop the idea of a mobility platform. Through this platform the companies we work for could partner up to enable users to be mobile, flexible but at the same time act sustainable and save money. **SustainableMobilityApp** is a concept that combines E-mobility, renewable energy and incentives smart user behavior for a better sustainable future.

CHAPTER 1 – WHAT PLATFORMS ARE AND HOW THEY WORK

1. What is a platform?

A platform is a business model to improve processes and quality on the one hand and to save money and time on the other. Throughout the years the meaning of “platform” has been extended and the platform (business) model has changed in course of the digital revolution.

Platforms business models have become extremely successful – the most valuable companies of our time are operated as platforms. Business platforms have further infiltrated every aspect of life – privately and professionally. Business Platforms have not only found a way into our lives, but changed how we approach things, how we spent time. This has a lasting effect on each of us individually but also on society as such.



Source: Nielsen Digital Panel, February 2019, All demographics, PC, Smartphone and Tablet, Time Spent Share.

The following explores the different platform types and their business models. This allows us to understand the regulatory and legal challenges as well as the network effects and sustainable concepts connected with the platform business.

1.1. The *Old School* Platform

An early and quite successful platform model was used in the manufacturing and industrial design sector, by automotive companies in particular.

Car models were developed with a platform approach: the main component(s) of a car – firstly the chassis – was developed to serve for different types of automobiles. Not only within

one brand, but also across brands. Volkswagen, for example, did this quite successfully via their *Modularer Querbaukasten* (a transversal toolkit). By using a series of hard points (common design of production line) for a huge range of cars (within the Volkswagen brand itself but also group wide including Audi, Skoda, SEAT) – products could be delivered to a high-quality standard while saving time and costs. Add-ons allowed to customize products and drive innovation, while working with a reusable design. These manufacturing and industrial design platforms are internal platform (cross company or cross group).

The platform approach in the non-digital world served to enhance innovation while delivering quality in a very competitive (time and funds) way.

1.2 The Digital Platform

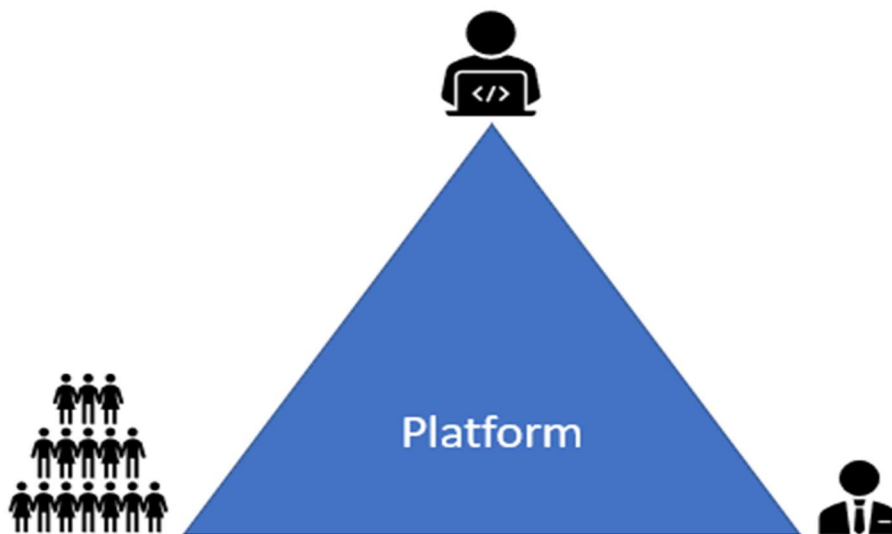
Digital platforms took this a step further and the platform approach blossomed in the digital age: Digital platforms can be defined as *the sum of a place for exchanges of information, goods, or services to occur between producers and consumers as well as the community that interacts with said platform.*¹

Platforms connect individuals and organizations for a common purpose or to share a common resource, enabling them to innovate or interact in ways not otherwise possible, with the potential for nonlinear increases in utility and value.²

Digital platform exists for over 30 years – the Windows Operation System is one of the earliest digital platforms. A main characteristic of digital platforms is a triangle business model – the platform facilitator creates an end to end business process to connect two types of customers:

¹ Watts S., *Digital Platforms: A Brief Introduction*, <https://www.bmc.com/blogs/digital-platforms/>.

² Cusumano M.A., *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*, New York, 2019.



The digital platform approach improves not only the services (offered/provided) for the parties involved but connects the parties in the first place and allows them to run the transaction/business effectively. Increasing delivery speed and efficiency are the main drivers of digital platforms.

In the year 2021 we face digital platform every day, sometimes without even realising it. To explore the different types of digital platforms, it is of value to look at the most prominent market participants per platform group:

1.2.1 The IT or Innovation Platform

Innovation Platforms are focused on communication and exchange of innovative solutions. They are bundling the creativity and innovation of colleagues, partners, and clients to create a better “product”. Further, innovation platforms enable third parties to add value to the original product by creating complementary solutions. Prominent examples of Innovation/IT platforms are Apple IOS and Google android.

1.2.2 The Transaction Platform

The transaction platform is certainly one of the platforms we encounter most often in our daily lives: we order books and other products via Amazon; we *uber* to the airport or to the next party, holidays are spent in an Airbnb. The infiltration of the names of the platforms in our language shows, how strong the market presence of these platforms already is:

Transaction platforms such as Amazon, Uber or Airbnb connect a service provider/supplier with a customer. The platform acts as facilitator of the transaction.

1.3 Hybrid Platforms

Hybrid platforms are the most valuable (platform) companies in the world – combining the transaction and innovation approach. Usually the two platform types are linked with each other - creating more market power and influence. The most prominent and successful hybrid platforms are Amazon, Google, and Apple.

2. How does a platform work?

2.1 Business must be “platform-izable”

Not every business is *platform-izable*. According to the platform specialist – MIT professor Michael Cusumano a business must evaluate the following to decide if its business is platform-sizable:³

The use of a platform must create more value:

- This means for
 - a product business - it must create more value from opening the product to third party complementary innovation (innovation platform); and
 - a service business – it generates more business by connecting the market sides instead of purely owning assets (transaction platform).
- The platform must then be established in a way to be run successfully; according to Michael Cusumano this means the platform must be open and easily accessible, it must be expandable and must have a large and vibrant ecosystem.

2.2 Chicken Egg Problematic

A problem platform a founder will come across is the so called “*chicken -egg*” problem: it must be evaluated which part of the market is going to attract the other side? With a clear view on this the business platform model can be designed successfully.

To attract members to the platform, companies can either:⁴

³ Cusumano M.A., *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*, New York, 2019, cit.

⁴ Enel presentation: *Platformization – Pre-reading material*- 22.10.2020, page 16.

- | |
|---|
| - pick one side and build it up and once it is sufficiently populated bring on the other side; or |
| - bring on both sides at once, little by little, in a «zigzag» fashion |

2.3 Network Effects

Further, a business platform model will only thrive if it benefits from the so-called network effects: new users are attracted by existing users to generate more business (through reviews, postings, #-tacking – the digital *word of mouth*). Further, a broad user base will also attract the business side – more business is attracted to advertise on the platform or use the platform to get in touch with potential customers.

There are two types of network effects:⁵

Same side/direct network effects	Cross side/indirect network effects
When one side of the market attracts other users from the same side.	When one side of the market attracts another side of the market.

3. Legal Aspects of Digital Platforms

The rise of digital platforms is accompanied by legal novation and challenges. The law must follow or at least try to keep up with this fast moving, cross border environment. Where *classic* transactions are pursued (e.g. online purchase, renting a car online, book a hotel) one can rely on contract law or an applicable civil code in the light of the digital age. Other legal actions require new legal approaches and where necessary also protection.

The following examples highlight legal issues that are reoccurring in the world of digital (transaction) platforms (especially when one participating party is a consumer). These examples showcase that “*platforms*” may facilitate business, but create new challenges for the legal world.

3.1 Multi Party Relationships - Example “Amazon”

As set out above digital platform often function as a facilitator or bridge between a business and a customer. In the case of the platform Amazon, Amazon sometimes acts as facilitator sometimes as the seller itself.

⁵ Enel presentation: *Platformization – Pre-reading material*- 22.10.2020, page 10.

For example, on the transaction platform “*Amazon*” a book is offered for sale (*invitation ad offerendum*). The customer offers to buy the book for the advertised price by clicking the “buy” button (“*clickwrap*” – see Chapter 2). Usually the offer is accepted through an email or a confirmation shown to the customer on the transaction platform webpage (acceptance).

Amazon’s role in this transaction could be one of the following:

1. Amazon is seller of the book and ships it to the customer.
2. A third part is the seller of the book and uses the amazon.com platform for the sale, but stores, packages, and ships the book itself.
3. A third party is seller of the book and uses the amazon.com platform for the sale and uses Amazon to fulfil the order by storing packaging and shipping the book on the vendor’s behalf.

The first method represents a classic vendor – buyer situation – where the parties act under a sales contract. For the second method, the third-party vendor enters into the sales contract with the buyer but must also enter into an Amazon Services Business Solutions Agreement (**BSA**), under which the third party controls the products listed and the price, but Amazon processes all payments and requires all communications between the vendor and its buyer to occur through its communications platform.⁶

For the third method the vendor must not only agree to a BSA but also a separate fulfilment by Amazon Agreement (**FBA**) under which Amazon “fulfils” the orders by storing, packaging, and shipping the products on the vendor’s behalf.⁷

For the customer the BSA and FBA remain in the background – until there is a problem with the purchased item. So, in the case of *Oberdorf v. Amazon*:⁸

The Facts
Heather Oberdorf purchased a dog collar on Amazon.com from a third-party vendor identified as “The Furry Gang.” Amazon did not design, manufacture, have title to, or possess the dog collar. While Oberdorf was walking her dog on a retractable leash, the D-ring on the collar broke, causing the leash to recoil, hitting her in the eye and resulting in permanent blindness. Neither Amazon nor Oberdorf could locate The Furry Gang, so Oberdorf sued Amazon, asserting strict liability

⁶ *Oberdorf v. Amazon.Com Inc.*, 2020 WL 3023064 (3rd Cir. 6/2/20).

⁷ *Oberdorf v. Amazon.Com Inc.*, 2020 WL 3023064 (3rd Cir. 6/2/20), cit.

⁸ *Oberdorf v. Amazon.Com Inc.*, 2020 WL 3023064 (3rd Cir. 6/2/20), cit.

under § 402A because it “facilitated and participated in the sale and distribution of the subject dog collar.”

Pennsylvania Supreme Court came to the view that Amazon was strictly liable, even though it was not the seller but provided the platform for the sale. However, in different states courts came to a different decision in similar cases. This illustrates that transaction platforms blur the lines of the traditional transactions and how we legally deal with them. How different jurisdictions and law will deal with Amazon (civil law, tort, contract, equity) remains open.

3.2 Personal Data - Example “Google” or “Facebook”

In the world of the hybrid platforms the currency for services is data.

The customer who uses the services of Google, enters the search request in the search machine on the Google platform and receives the requested search results. No payment is made, but still the customer received the services. The same applies to platforms like Facebook.

So, what consideration does the customer “*bring to the table*” to receive the services of Google, Facebook etc?

It is something that is almost as valuable as money in the digital world – data. By entering the search request, the customer provides information that one is looking for *a new car, a hotel in Paris or an online supermarket*. The platform – in our example – Google uses the data to match the customer with businesses offering the services requested. These businesses have entered marketing contracts with Google.

On the Facebook platform the customer provides detailed information to the platform such as age, location, profession, family status, etc. and receives matching advertising. Again, the platform does not provide free services but receives data as consideration in return for the offered services.

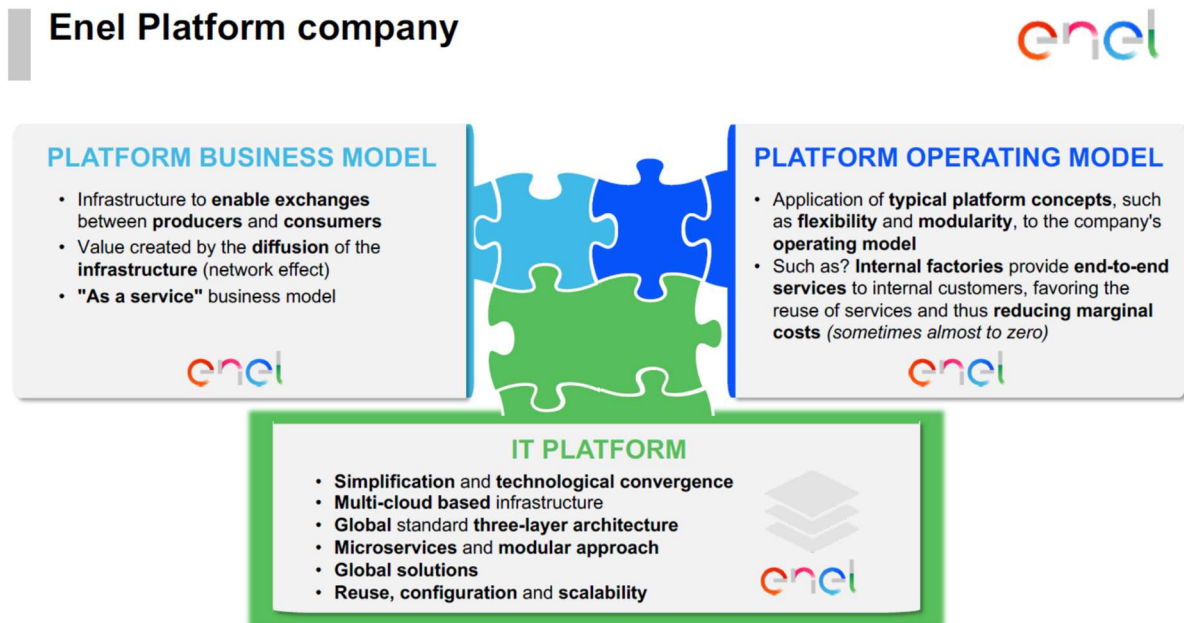
The collection, use, and storage of data is something every platform operator must consider carefully and establish the legal framework to act in accordance with the law. If the platform operates internationally, the legal requirements of diverse jurisdictions must be adhered to.

4. Internal Platforms

When speaking of platforms, we are commonly referring to business models and not just to a piece of technology. There are also internal platforms (no business models) which fulfil the “*Cusumano*” definition of a platform as they *connect individuals and organizations for a*

common purpose or to share a common resource, enabling them to innovate or interact in ways not otherwise possible, with the potential for nonlinear increases in utility and value.⁹

Enel is a platform company which encompasses not only one but three platform approaches (including two internal platform models):



Source: Enel presentation: Platformization – Pre-reading material- 22.10.2020, page 24.

Internal platforms may not generate business but provide employees with tools, simplify processes and/or connect people. Nonetheless they use a similar digital infrastructure as a business platform and accordingly must consider equivalent operational and legal aspects as open business platform models.

In Enel, platforms have quickly become part of the operating and digital model, above all in this stage of energy transition, due to the increasing use of renewables and the rising electrification of consumption, as we move towards a sustainable future.

All this requires resilient and reliable grids, as well as a very advanced system to digitalize them. All this is the basis of **Grid Blue Sky** platform, the new project for the transition created by Enel Global Infrastructure & Networks.

Grid Blue Sky is the new idea which aims to create coordination, efficiency, interactions with stakeholders, the definition of modular processes, promptness in responding to change and barrier-free digital infrastructure.

⁹ Cusumano M.A., *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*, New York, 2019, cit

Typically, a grid is created in accordance with local needs. The ambition of Grid Blue Sky is to overcome this situation by imagining unified management of all Enel grids. Thanks to Grid Blue Sky, Enel is trying to harmonize management processes. To do this, Enel will use an innovative platform-based model which will let not only standardize Enel current distribution companies, but also apply the same model to future acquisitions, considerably simplifying the integration process.

5. Platforms in legal field

The technologies of the legal platform have proved invaluable in helping corporate and legal departments. Indeed, thanks to the flexibility and customization they offer, the platforms have provided the legal departments with the tools they need to innovate and adapt to accommodate change after change.

The legal platforms incorporate the power of automation and artificial intelligence to eliminate time-consuming and costly manual legal processes. An example is using a Chabot based on AI capabilities to provide fast replies to basic redundant legal queries coming from the business departments.

Furthermore, in the legal sphere, digitalization helps to have a global understanding of the phenomena which give rise to disputes. In fact, with the implementation of new platforms in the legal area, it was possible to find the presence of disputes of a similar nature in the judicial systems of different countries. The digital tools support the sustainable management of disputes, which requires us to question ourselves critically about the causes that generate them with the aim of identifying areas of improvement of company processes, instead of limiting ourselves to dealing with the consequences.

Some examples of these platforms helping lawyers to be more efficient and fast in the day-by-day activities are better following described.

5.1 Enel Suite Next

Enel aims to approach new areas of competence and achieve new views and innovative legal solutions that are extremely valuable. For this reason, the legal department has undergone a digitalization program with the idea to drive the digital growth of legal activities, to simplify and improve legal processes and to give a homogeneous overview of judicial phenomena at global level.

Therefore, the 'Suite software' was first successfully implemented in Italy and, then, extended at global level. Suite is a unique platform for legal activities management that is

integrated with legal automatic workflows and financial systems in order to support the in-house legal team and the top management in planning and budgeting monitoring and in strategic decision making.

5.2 Enel Online Dispute Resolutions Project

Compared to the Enel experience, in Latin America, a software inserted in an ODR platform was successfully tested, for the online resolution, by way of settlement, of legal disputes for material damage suffered by customers due to distribution network disservices.

From the point of view of Enel's customer, the platform is very easy to use. He or his legal representative receives a link through which he can register by entering personal data and simultaneously review the summary of the judgment. Once this phase has been completed, the party receives, again through the platform, a first settlement proposal that it can accept or negotiate within certain limits.

After accepting the proposal, he receives the settlement agreement and the reimbursement or proceeds with the payment in case of debt.

CHAPTER 2 – THE CONTRACT: TERMS AND CONDITIONS

The creation of a digital platform is an innovative process. However, the establishment of a digital platform – as with any other project – is based on various contracts and legal relationships.

1. Establishment and Operation of a Digital Platform – legal considerations

Any IT or software related contractual relationships can be intimidating for legal counsels/lawyers who have not been exposed to this legal field so far. Terms and concepts may sound unfamiliar and without being an expert in digital technology it may be hard to understand the technical facts of the relationship we seek to put in legal terms.

Notwithstanding, IT contracts are not dissimilar to other contracts dealing with the design, development and delivery of a certain “*product*” or “*service*”. There are indeed similarities to construction contracts, lease, or service contracts, all depending on the nature of the relationship we seek to describe.

Another factor that contributes to confusion and uncertainty from a legal point of view is the involvement of various parties.

The following sets out at a high level the contractual relationships of a fictional cloud-based consumer platform (as most platforms will be operated on a cloud basis) and the legal concepts and clauses currently seen in the market. The following tries to give a general overview without a focus on a certain jurisdiction, however where suitable a brief exploration of common law or civil law is included.

2. The Cloud Platform

The main legal relationship to be considered is the legal relationship between the platform operator (*the Vendor*) and the user of the platform services (*the Consumer*).

2.1 Cloud Service Subscription

The Consumer seeks to receive cloud services via the platform operated by the Vendor. Cloud services can be differentiated from professional services, which the Vendor provides through human resources, whereas cloud services are provided via a computer.¹⁰

There are currently three different types of offerings in the market:

- Software as a Service (**SaaS**)
- Platform as a Service (**PaaS**)
- Infrastructure as a Service (**IaaS**)

Common examples of SaaS, PaaS, & IaaS¹¹

Platform Type		Common Examples
SaaS		Google Workspace, Dropbox, Salesforce, Cisco WebEx, Concur, GoToMeeting
PaaS		AWS Elastic Beanstalk, Windows Azure, Heroku, Force.com, Google App Engine, Apache Stratos, OpenShift
IaaS		DigitalOcean, Linode, Rackspace, Amazon Web Services (AWS), Cisco Metapod, Microsoft Azure, Google Compute Engine (GCE)

2.1.1 SaaS - Software as a Service

Software as a service is the classic cloud application service and is mostly used by businesses in the cloud market.¹² The Customer is entitled to access and use of the Vendor's services online, whereby the vendor retains all right, title and interest in and to the services, including all software and trademarks reproduced through the services provided. No IP rights are granted to the Customer.¹³

From a technical point of view SaaS services are provided directly through the web browser and the Customer does not need to download or install software. It is a flexible solution with advantages and disadvantages:

Advantages	Disadvantages
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¹⁰ Tollen D. W, *The Tech Contracts Handbook*, American bar association US, 2nd ed, 2015, p. 44.

¹¹ Watts S., Raza M.: *SaaS vs PaaS vs IaaS: What's the difference & how to Choose*, 14.06.21: <https://www.bmc.com/blogs/saas-vs-paas-vs-iaas-whats-the-difference-and-how-to-choose/>

¹² Watts S., Raza M.: *SaaS vs PaaS vs IaaS: What's the difference & how to Choose*, 14.06.21: <https://www.bmc.com/blogs/saas-vs-paas-vs-iaas-whats-the-difference-and-how-to-choose/>, cit.

¹³ Tollen D. W, *The Tech Contracts Handbook*, American bar association US, 2nd ed, 2015, cit. p.44 f.

Eliminates the need to have IT staff	Server usually overseas – Data Security and compliance issues
Cost efficient	Long term contracts
Time efficient	Integration with inhouse systems difficult
Easily accessible and available	Dependability
	Limitation on customization

2.1.2 PaaS - Platform as a Service

PaaS describes a bigger, more complicated cloud-based infrastructure¹⁴. PaaS delivers a framework for the Customer, who can work within that framework and use it to create customized applications. The service, storage and networking is managed by the Vendor, so that the Customer can concentrate on the creation of software. As opposed to SaaS, PaaS does not deliver the software but provides the infrastructure to do so.

Advantages	Disadvantages
Cost effective development of apps	Server usually overseas – Data Security and compliance issues
Scalable and available	Long term contracts
Customer can concentrate on the content rather than the infrastructure	Integration with in-house systems difficult
Speed and flexibility	Operational limitation

2.1.3 IaaS - Infrastructure as a Service

IaaS includes a collection of physical and virtual (cloud) computing services – such as servers, network, operating systems, and storage, through virtualization technology. The Customer can access these services and has effective control over the infrastructure. The Customer is, inter alia, responsible for runtime, OSes, middleware, and data. However, providers of the IaaS manage the servers, hard drives, networking, virtualization, and storage.¹⁵

Advantages	Disadvantages
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¹⁴ Tollen D. W, *The Tech Contracts Handbook*, American bar association US, 2nd ed, 2015, cit. p. 45 f.

¹⁵ Watts S., Raza M.: *SaaS vs PaaS vs IaaS: What's the difference & how to Choose*, 14.06.21: <https://www.bmc.com/blogs/saas-vs-paas-vs-iaas-whats-the-difference-and-how-to-choose/>

Most flexible cloud computing model	Server usually overseas – Data Security and compliance issues
Clients retain complete control of their infrastructure	Long term contracts
Resources can be purchased as-needed	Internal resources and training
Highly scalable	Operational limitation
Cost varies depending on consumption	Re security depended on Vendor

2.2 The main contract terms

SaaS, PaaS and IaaS follow – from a legal perspective – the same principles as regards the main contract terms. Hence the following applies for all three structures unless specified otherwise.

2.2.1 Subscription

The subscription agreement describes the obligations of the parties and differentiates between the responsibilities. Generally, the parties agree that the Customer may access the described services (usually described in detail in an annexure). Rights, especially IP rights, remain with the Vendor.

A detailed description of the services is essential and protects Customer and Vendor. Cloud subscription agreements and other IT contracts all have in common that the standard legal terms can be limited in length and complexity, however the comprehensive and precise description of the services (in an annexure technical specification) are key for a good contract.

2.2.2 Service Level Agreement

Service level agreement describes not a separate contract but a clause or a set of clauses regarding the performance of the services.¹⁶ The service level agreement clause stipulates a minimum performance standard for the services and usually addresses key issues like uptime (amount of time that a service is online for customer's use), support options, speed of communication and performance and escalation paths, penalties, exclusions and reporting.¹⁷ As one of the key clause of an IT contract, the service level clause is often *heavily* negotiated. The service level clause may also include maintenance obligations,

¹⁶ Tollen D. W, *The Tech Contracts Handbook, American bar association US, 2nd ed, 2015*, p. 69.

¹⁷ Tollen D. W, *The Tech Contracts Handbook, American bar association US, 2nd ed, 2015*, cit

including a right to update or upgrade for new versions of software. However, these Vendor obligations may also be addressed in separate clauses, especially in PaaS and IaaS contracts,¹⁸ as the functionality of the provided infrastructure is key for the Customer.

2.2.3 Delivery and Acceptance

As cloud services are simply the provision of a service (or a product), the parties have to agree on how and when the Vendor must deliver and which procedure the parties choose for the acceptance of the services (products). The Customer should ensure the services are tested to determine the software/hardware works and fulfills the purpose.

2.2.4 Payment

For cloud subscription services the Customer generally pays monthly fees. The payment process must comply with applicable legal rules. Different services may, however, require a different approach in terms of invoicing and payment, e.g. if there is a payment process conducted by Vendor with an end-customer on behalf of the Customer.

The due date for payment can be controversial where the parties agree that payment is due when the work is done. This could be either when the services were conducted or when a certain final product has been accomplished. A detailed description of the acceptance procedure helps to clarify the due date.

2.2.5 Term and Termination

Term, renewal, and termination as key features of SaaS agreements should be considered carefully. Generally, the standard contractual rules apply. The parties should agree on a finite term, potentially with an automatic renewal clause and termination rights (for convenience, breach, or other specified cases such as bankruptcy). The parties should also pay attention to the effect of termination - which rights will survive the termination and which will not.

2.2.6 Confidentiality

The exchange of sensitive information requires protection. The inclusion of non-disclosure or confidentiality clauses help to protect the Parties' need to exchange such information.

¹⁸ Tollen D. W, *The Tech Contracts Handbook, American bar association US, 2nd ed, 2015,cit.* p. 75.

Unlike data protection a non-disclosure clause foresees the protection of information accessible and shared between humans (not computers).

2.2.7 Data Management and Security

Different to confidentiality or non-disclosure clauses, data management and security clauses address information stored and processed by computers.¹⁹

Data collection, processing, and privacy issues are issues that must be carefully assessed in relation to a SaaS, IaaS or PaaS. As most of these services are globally rolled out or at least rolled out in more than one country, each market's privacy and data protection system must be assessed and evaluated individually. From a legal perspective the relevant clauses must be carefully drafted and tailored to each respective market. In jurisdictions where there is federal and state law to be considered (e.g. Australia or the US) – further complexity is added to the task. Further, if data from an EU citizen is collected, the General Data Protection Regulation (**GDPR**)²⁰ must be complied with.

2.2.7.1 Customer Data - Definition

Customer Data Defined²¹

Customer Data means all information processed or stored on computers or other electronic media by Customer or on Customer's behalf, or provided to Vendor for such processing or storage, as well as any information derived from such information. Customer Data includes, without limitation:

- (a) information on paper or other non-electronic media provided to the vendor for computer processing or storage, or information formerly on electronic media;
- (b) information provided to Vendor by Customer's customer or other users or by other third parties; and
- (c) personally identifiable information from such customers, users, or third parties.

The definition captures any customer or personal information beginning with the name, address, payment information and encompasses allergies, preferences or user gender if this may be extracted from the data collected.²² Data is often described as the new currency of the digital age.

¹⁹ Tollen D. W, *The Tech Contracts Handbook, American bar association US, 2nd ed, 2015, cit.* p. 97.

²⁰ General Data Protection Regulation 2016/679.

²¹ Tollen D. W, *The Tech Contracts Handbook, American bar association US, 2nd ed, 2015, cit.* p. 98.

²² Carina Boos, *Verbraucher – und Datenschutz bei Online-Versanddiensten*, ITeG, p. 116.

2.2.7.2 Data Management and Collection

The heart of any data management or data collection clause is the Customer's right to know (i) which information (data) is collected (provided by the Customer or collected automatically); (ii) how it can be accessed and copied; and (iii) how the vendor can be asked to retain it or have it deleted. Also important is to describe how data is collected, be it through online forms or automated procedures (e.g through cookies).

For example, per the GDPR, data subjects (people whose data is collected and processed) must be allowed to give explicit, unambiguous consent before the collection of personal data. SaaS providers operating in the EU must include this consent requirement in their SaaS agreements.

The data management clause should also clearly address that the Customer continues to possess and retain all rights, title and interest in and to Customer Data. By providing data, the Customer does not waive any of these rights, but allows the Vendor to use the data on its behalf. Also, the use of data by third parties such as subcontractors must be dealt with – any subcontractor must comply with the same data protection standard as agreed with the “main” contractor.

2.2.7.3. Data Security

The agreement should also set out the security procedures and practices to protect the data provided by the Customer. The parties should agree on mechanisms and procedures for protecting customer's data. Often such clauses are highly technical laying down the technical and physical aspects of data protection.²³ Further the Data security clause should contain a stress test clause, describing the implemented program in case of a data breach (worst case scenario). The obligations of both parties in the light of a data breach should be described (such as information, providing access to data, perform investigations etc.) as well as a firm timeline for each action should be set. This allows both parties to react appropriately to the data breach and comply with any applicable legal or compliance requirements. Warranty or indemnity clauses may also address data security issues.²⁴

²³ Carina Boos, *Verbraucher – und Datenschutz bei Online-Versanddiensten*, ITeG p. 110.

²⁴ Carina Boos, *Verbraucher – und Datenschutz bei Online-Versanddiensten*, ITeG. cit.

2.2.7.4. Cookies

A commonly used approach to collect data from consumers are so called cookies. Cookies help to reidentify users for different reasons.

What is a Cookie?

A cookie is a small data file stored on your device's browser. Its purpose is to help a website keep track of your visits and activity.

Some cookies support the functioning of a webpage by remembering the language used by the user, what has been saved in the virtual shopping basket, others „spy“ on the browsing activities of the user.

In general cookies support the functionality of a webpage and therefore provide a better browsing experience for the user, but they may also provide the webpage operator a tool to collect data from the user. This data then allows for e.g. for so called “*Online Behavioural Advertising*” or “*Targeted Advertising*” – meaning customizing ads which appear while the user is browsing.²⁵

As soon as “*personal information*” is collected, consent is mandatory in many jurisdictions²⁶ to protect the privacy of the user.

Definitions	
Australia	Germany
Personal Information	<i>Personenbezogene Daten</i>
Section 6(1) Privacy Act	§46 Abs.1 Bundesdatenschutzgesetz (BDSG)
Information or an opinion about an identified individual, or an individual who is reasonably identifiable: (a) whether the information or opinion is true or not; and (b) whether the information or opinion is	Alle Informationen, die sich auf eine identifizierte oder identifizierbare natürliche Person (betroffene Person) beziehen. <i>All information related to an identifiable or identified natural person (meaning human being).</i>

²⁵ <https://www.oaic.gov.au/privacy/your-privacy-rights/advertising-and-marketing/targeted-advertising/>.

²⁶ E.g. in Australia through the *Privacy Act 1988*, in Germany through § 13 Abs. 1 Satz 2 *Telemediengesetz*.

recorded in a material form or not.	
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2.2.8 Intellectual Property

Please refer to Chapter 3 for a detailed consideration IP rights.

2.2.9 Representation and Warranties/ Caps on Liability

In civil law countries both parties are usually able to rely on the representation and warranties given through the respective applicable local civil code. In common law countries more attention must be paid to drafting the respective representation and warranty clauses. However, note also in Civil law countries more and more attention is being paid to the drafting of representation and warranties. The reasons for doing so that may range from individual tailored warranties for a certain service or product to mistrust that the often century old civil code may not be able to handle the modern times service or product.

Representation	Warranty
A representation is a statement or assertion made by one party to the other, before or at the time of the contract, of some matter or circumstance relating to it. ²⁷	Warranty is a promise made by one party to the other that something will be true in the future. ²⁸

In SaaS the following warranties may be included:

- Warranty of function – promise regarding the efficiency of the service/product
- IP warranty – warranty re ownership/use of IP rights
- Warranty regarding the quality of services and personnel
- Warranty regarding the compliance with applicable laws

In conjunction with warranties and representation, the Vendor often limits its liability (as far as permitted under law). Depending on how it is drafted, the clause can limit losses to certain types of specified “direct” losses, with a cap on liability based on the total fees paid by the Customer (for example, 100% of the total amount paid for services but maximum A\$1 million).

²⁷ *Behn v Burness* (1863) 122 ER 281 at 282.

²⁸ Tollen D. W, *The Tech Contracts Handbook, American bar association US*, 2nd ed, 2015, cit. p 97.

Further certain indemnification may be agreed, especially in relation to data breaches, breaches of security protocols. In these cases, the Vendor usually promises to protect the Customer from costs arising from third party claims or lawsuits.

2.2.10 Audit

The SaaS agreement should also require the Vendor to provide audit reports prepared by third-party auditors. These audit reports inform about the Vendor's compliance with security and/or privacy processes and standards. This allows the Customer to evaluate the Vendor's security standards and to determine if the Provider's security and/or standards align with the standards of the Customer. These audit reports will also benefit quality management standards and procedures.

2.2.11 Boiler Plates

SaaS, IaaS and PaaS contracts will usually contain the usual boilerplate clauses such as notices, assignments, definitions, interpretation, force majeure, amendments, execution and counterparts.

2.2.12 Choice of Law and Jurisdiction

Often considered a boilerplate, but in contracts with international connection, the choice of law and courts clauses can be essential. Ideally the parties should choose the law and courts closest to them. However, for cross border transactions/contracts the parties could either agree on a neutral forum (so called "*Forum Shopping*") or settle on one of the parties' "home" jurisdiction/courts. In light of some of the novelty of digital legal relationships, ecommerce etc. the parties should also focus if the chosen law is prepared to deal with these new kinds of legal relationships. In case the parties have not agreed on the applicable law and jurisdiction, at least under European international private law the laws of the state are applicable in which one of the parties must perform the characteristic obligation of the contract; usually it is the obligation to deliver the product or the services and not the obligation to pay. Hence the state in which the product or service will be delivered provides for the applicable law, not the state where the Customer based.

2.3 Wet Ink/Clickwrap/Browsewrap/Shrinkwrap

The execution of written contracts is performed through signing a document (usually at the end). By the *wet ink execution*, the parties produce an enforceable contract as they clearly

represent that the clauses and terms above their signature were read and ideally understood and most importantly consented to. In the digital age, wet ink signatures are no longer the norm, especially for contracts executed online. The enforceability of “online” executed contracts or contracts in relation to digital products such as software differs from country to country/state to state. As a general principle one can agree to enforceability if the contractual partner took notice of the terms and consented to them. The following principles are having been developed to describe consent to (online) terms and conditions:

Shrinkwrap ²⁹	Printed form of contract on the outside of container starting with: <i>“by opening this box you agree to the contract terms below.”</i> Customer gives consent by opening the box.
Clickwrap	Electronic form posted online – by clicking an <i>“I agree”</i> button the customer agrees to the terms and conditions.
Browsewrap	Online contract form without an <i>“I agree”</i> button. The contract can be found on the through a link – usually at the bottom of a page.
Webwrap	Customer accepts the terms of a software licence by downloading or installing the software.

US case law approaches generously the enforceability of clickwrap contracts³⁰, even if the Customer could agree (by clickwrap) before scrolling through the whole contractual document. Further US courts have applied the principles of ‘*ticket cases*’: in the so called “*ticket cases*” the automated process of accepting a ticket from a parking machine was considered enough to establish a contract between the parties. This concept can also be applied to a clickwrap contract. In Australia the classic ticket case of *Thornton v Shoe Lane Parking Ltd*³¹ sets out that terms and conditions (one can expect as standard for this type of contract) can be incorporated in a contract even without notice. These principles can be

²⁹ According to Tollen D. W, *The Tech Contracts Handbook*, American bar association US, 2nd ed, 2015, cit. p. 254ff.

³⁰ E.g. *DeJohn v TV Corp International*, *Forrest v Verizon Communications Inc.*

³¹ *Thornton v Shoe Lane Parking Ltd*, 1971 2 QB 163; *Surfstone Pty Ltd v Morgan Consulting Engineers Pty Ltd*, 2016, 2 Qd R 194.

applied to clickwrap (or even browsewrap) cases to argue for an enforceability also in Australia.

Civil Law countries may – if the laws do not foresee the option to accept terms and conditions through clickwrap or browsewrap etc.- struggle to classify these principles and their legal consequences. German Courts (backed up through a European Court of Justice decision³²) accept clickwrap acceptance of terms and conditions. A case by case evaluation in the light of the requirements for standard terms and condition (*allgemeine Geschaeftbedingungen*) must be conducted in accordance with the German Civil Code (*Deutsches Buergerliches Gesetzbuch*). This topic contains much legal content and invites for legal arguments – but in brief: clickwrap agreements seem to be enforceable in most jurisdiction, if certain principles are considered:

- draw attention to the terms and conditions and highlight any that are unusual or not standard;
- terms should be easily accessible and not hidden or hard to find; and
- where possible, require customers to perform an action (like scrolling through terms and conditions and ticking a box).

In the light of the above, it is recommendable to use clickwrap (or webwrap) and not browsewrap where possible.

3. Type of contract

Another interesting legal discussion relates to the classification of the type of contract a SaaS, IaaS or PaaS.

From a legal perspective, common law countries seem to be more flexible to approach this question, as the judge made law drives the legal evolution. Civil law countries such as Italy, France or Germany seem to have more difficulties to classify these new types of contracts. From a German legal perspective, the German Civil Code provides the framework in which a SaaS contract must be categorized. The German law knows so called *Werkvertraege* – by which the production or completion of a certain product is agreed. For example, a contractor is obliged to build a house. Not the hours working on the constructing the house are owed, but the completed house. A *Dienstleistungsvertrag* (service contract or service agreement) differs from that in so far as the contractor is only obliged to provide the

³² *Jaouad El Majdoub v. CarsOnTheWeb.Deutschland GmbH*, Case No. C-322/14, May 21, 2015, European Court of Justice (interpreting clickwrap agreement in light of Article 23(2) of Council Regulation (EC) No 44/2001 of 22 December 2000).

construction works, but not the house as a result. Then there are hybrid forms of both contract types (e.g. the so called *Werkliefervertrag*), but all these contracts have in common that their characteristic are laid down in the German legal code. Hence German law struggles to categorize a SaaS, IaaS or PaaS agreement as these contracts cannot easily be categorized as they often combine different types of contract types as described by the civil code. The common law allows a more creative approach: a strict classification regarding the type of contract the SaaS agreement resembles is not necessary to legally ‘tackle’ it. A good common law contract will contain all necessary clauses.

4. Conclusion

A SaaS, IaaS or PaaS agreement will form the backbone of the establishment of a cloud-based platform. In many aspects the agreement will not so much differ from agreements from the non-digital world. However, some clauses must be considered carefully – especially those in relation to the choice of law and jurisdiction as well as anything related to data security.

CHAPTER 3 – INTELLECTUAL PROPERTY RIGHTS FOR THE PLATFORM AND INTERSECTION BETWEEN IP RIGHTS AND NETWORK EFFECTS

1. Intellectual property rights in the platform: what they are and how to protect them

As already discussed above the revolution of the platform has having a disruptive effect in the economy and in the business as well as in the society at large.

Important companies such as Google, Facebook, Apple, Amazon and many others are creating technological structures and platforms that enable a wide range of business and human activities creating, as a consequence, a new way of communicating, socialize, create value in the economy and compete for the resulting profits.

The platform opening strategy can manifest at many points of interaction in the business ecosystem. Platform owners can exchange intellectual property with other market players, for instance supporting the open innovation strategy, sponsor other platform providers, or open platform access to complementors and users.

But these platforms are not only able to create value and profits, but they are composed by intangible rights that they have an important value too, the intellectual property rights that are at the foundation of the software industry.

Has discussed platforms are based on different software programs and the intellectual property rights are different intangible rights of ownership in an asset including a software program and each intellectual property right is itself an asset.

But which are those intellectual property rights relevant for the platforms?

Considering that platforms are an eco-system themselves where different technologies coexist all the types of intellectual property rights for the platforms: copyrights, patents, trade secrets and trademarks but also design could be considered under certain conditions. Each of these rights a different type of legal protection at national and international level.

2. Copyright

Around the Seventies a legal debate began on the nature of the software, the “*soul*” of the technological platforms, and on its form of legal protection. Some part of the doctrine argued that it had a technical nature and could be protected as an invention, others that it was a particular form of writing.

This second solution prevailed, more for political than for substantive reasons considering that it was feared that the protection offered by the patent was too strong and could also have some negative impacts on the competition.

Thus, with the computer software Amendment Act of 1980 the United States Copyright Act was amended and included the software as a protected work.

Some European states such as Great Britain and France subsequently adhered to this orientation, up to the European Directive 91/250 / EEC that introduced software at a community level among the assets that can be protected by copyright.

Copyright is the right that the creators have over their literary and artistic works including software, more specifically is a set of rights that belong to the author of a work, allowing him to use his creation through its reproduction, distribution and diffusion also for economical uses.

More specifically what is protected by copyright are the source and the object codes of the software. For source code we refer to a set of instructions placed in sequence and expressed in a language understandable to human being while object code is a set of instructions translated by a program called a compiler into a binary language, or in an ordered sequence of 0 and 1, understandable only by the computer.

Copyright protects the expression of an idea not the idea itself and in a software the expression contains in its codes therefore copyright protects source and object codes but not their functions³³. The copyright has not an international protection but is a territorial right: the law of the place where the work is intended to be used is the one that establishes whether and how the work must be protected. Therefore, there are as many disciplines as there are countries in which the work is disclosed.

³³ *Johnson Controls, Inc. v. Phoenix Controls Systems Inc., 1989m* the Court has determinates that the structure, sequence, and organization of a computer program may be eligible for copyright protection where it qualifies as an expression of an idea, rather than merely an idea itself. Therefore, although a computer program may be a set of instructions or statements which may be the result of an idea, the manner in which the instructions or statements are expressed can ultimately determine that the source code is eligible for copyright protection.

According to Berna Convention³⁴ in the majority of countries copyright protection arises automatically upon the creation of an original work of authorship. There is no need to “apply” for a copyright or register the copyrighted work in order for protection to exist but most countries nonetheless have a system in place to allow for the voluntary registration of works such the United States.

Such voluntary registration systems can help solve disputes over ownership or creation, as well as facilitate financial transactions, sales, and the assignment and/or transfer of rights. An additional way to create a protection of the copyright that is now developing is the use of “*blockchain*” that constitutes an additional element to protect the original work in case of litigation provided that the author does it since the creation of the work. Through a computer network of nodes, blockchain allows to manage and update, in an immutable and secure way, a register containing data and information in an open, shared and distributed manner without the need for a central control entity. A blockchain is a tool that is proving to be very useful in the traceability and management of authorial works considering that it is true that copyright arises with the creation of the work and no deposits of any kind are required but at the same time, it is equally true that the questions of “who” created a certain thing, of “when” created it and of its content are among the main problems that arise in the hypothesis of litigation and that the failure to prove in order these circumstances may make it impossible to provide concrete protection, even in the presence of the law. In order to overcome these difficulties, the new tool of the blockchain assists the author in identifying the documents to be deposited; this in order to allow him to pre-establish a sure and indisputable proof of the certain date of creation, as well as to pre-establish a strong presumption regarding the authorship of the work, all elements that can be asserted in court in the event of future disputes.

3. Patents

Even if during the last years the protection of software with a copyright prevailed several national offices have faced the problem of software patentability with different outcomes. At European level there is no law that expressly provides that a software invention can be patented, but patents are increasingly granted that relate to computer programs. More specifically art. 52 of the European Patent Convention of 1973 exclude the patentability of

³⁴ Berne Convention for the protection of the literary and artistic works dated 1986.

software only if considered "as such" but not absolutely. Therefore, if software, as well as other inventions, has some characteristics it can be patented. First of all, software, like any other invention, to be patented must have a "*technical character*" aiming to solve a technical problem and to offer a solution that has technical elements that make it possible to obtain a technical effect.

The software can therefore represent a concrete technical element, in the form of a programmed processor, which interacts with other components of a machine to control certain functions, thus becoming a technical means that solves a technical problem and as such can be patented. The European Patent Office³⁵ during the years has developed a wide interpretation of the patentable software affirming *«if a software has additional technical effects or that go beyond the normal software-hardware interaction» that program must not be excluded from patentability*.³⁶ Also article 27 of the Agreement of Trade Related Aspects of Intellectual Property Rights (Trips) provides that *«patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application»*.

In the American legislation a mutual regulatory provision with regard to the above mentioned article 52 is article 101 of the Patent Act of 1952 that provides that *«Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title»* without any particular exclusion for software.

The mentioned provision indicates also an important condition for the patentability of an invention that is the utility of it. The other criteria for the patentability are the novelty and the non-obviousness which specifies how the invention, considered in its entirety, should not be obvious to the light of the knowledge possessed by a person competent in that certain technical environment.³⁷ Section 112³⁸ of the US Patent Act contains the last condition for the patentability that is the "disclosure" providing that it shall contain a detailed description

³⁵ The Guidelines for Examination updated in 2021 the European Patent Office indicates that there are four basic requirements for patentability *«(i) there must be an "invention", belonging to any field of technology; (ii) the invention must be "susceptible of industrial application"; (iii) the invention must be "new"; and (iv) the invention must involve an "inventive step". In addition to these four requirements, an invention must fulfil the following: (i) the invention must be such that it can be carried out by a person skilled in the art (after proper instruction by the application);[...] and (ii) the invention must be of "technical character" to the extent that it must relate to a technical field (Rule 42(1)(a) – see F-II, 4.2), must be concerned with a technical problem (Rule 42(1)(c) – see F-II, 4.5) and must have technical features in terms of which the matter for which protection is sought can be defined in the claim»*.

³⁶ Cfr. EPO T 1173/97 (Computer program product/IBM) of 1.7.1998

³⁷ V. 35 U.S. Code § 102 and § 103 - Conditions for patentability.

³⁸ V. 35 U.S. Code § 112 –Specifications.

of the object of the patent as to be able to adequately inform about a discovery person skilled in the relevant area.

An important role on the evolution of the patentability of the software has been made by the American case law³⁹ with effects also in Europe in order to consider also the software a patentable invention.

With regard to the current most important internet platforms some interesting patent has been filed and/or granted in the last years. For instance, an interesting patent recently granted in 2021 to Spotify, is the one that would allow the streaming giant to "*make observations*" about a user's environment and emotions using speech recognition technology. The patented technology that will allow it to analyze the user's voice and suggest songs based on your "emotional state, gender, age, or accent".

An innovative patent has been filed in 2017 by Airbnb regarding the "*Beam Device Architecture*" that describes a system to compress cellular data, allowing people to more easily go online in areas of limited internet connectivity. The device has been realized with regard to less developed areas of the world in Asia and Latin America where Airbnb is active. But which are the main features of a patent? A patent is an exclusive right, guaranteed by the state, under which it comes granted a temporary monopoly of exploitation in relation to an invention new susceptible of industrial application, in which an activity is revealed inventiveness. In Italy article 45 of the Legislative Decree n. 30/ 2005 (the Industrial Property Code) indicates that "*they can be the subject of the patent for invention new inventions that involve an inventive step and are suitable for have an industrial application*". The patent gives the owner an exclusive right in order to prevent or inhibit the use, production, marketing or import of a product or the implementation of a process object of the invention patented, without the prior consent of the owner of the patent. The patent is an important commercial tool for businesses, which allows to obtainment of the exclusivity in relation to a product or innovative process allowing at the same time to develop a dominant position on the market and acquire additional economic resources through the granting of use licenses and the consequent payment of the royalties by the licensees.

³⁹Cfr. Gottschalk v. Benson, 409 U.S. 63 (1972), In <https://supreme.justia.com/cases/federal/us/409/63/case.html>; Diamond v. Diehr, 450 U.S. 175 (1981). In: <https://supreme.justia.com/cases/federal/us/450/175/case.html>; In re Alappat, 33 F.3d 1526, U.S. Court of Appeals Federal Circuit (CAFC), 1994. In Rete: 368 <http://digital-law-online.info/cases/31PQ2D1545.htm>; State Street Bank & Trust Co. v. Signature Financial Group, 149 F.3d 1368 (Fed. Cir. Jul. 23, 1998). In Rete: <http://digital-law-online.info/cases/47PQ2D1596.htm>.

Differently from the copyright that do not need any kind of registration, patents are granted by a national office (in Italy, the Italian Patent Office and Trademarks - UIBM) or by a regional office that belongs to a group of States (for example the European Patent Office - EPO). The patent is valid for a period 20 years, starting from the filing date, provided they are regularly paid the fees relating to the filing and maintenance of the patent. The patent is a right limited territorially by geographical boundaries of a given State or more States (regional areas). As compensation deriving from the exclusive right on the patent, to the owner of the same it is required to disclose the invention to the public through a detailed, accurate and complete written description of the invention contained in the patent application. The patent is published in the Official Bulletin.

Furthermore, even if a technological invention complies with the requirements for the patentability not always is recommended to file the application for patent. Indeed, even if an invention is patentable, it does not necessarily follow that it will produce a product or technology that is valid from the commercial point of view. Before applying for the granting of a patent it is therefore essential that proceed to a careful evaluation of the positive and negative factors together with an analysis of possible alternatives even taking into account that a patent can be difficult and expensive to obtain, administer and protect. Granting a patent is a decision strictly strategic, which should be based primarily on the probabilities of obtain commercially useful protection for the invention and, consequently, on the possibility of obtaining significant profits through its possible commercial use.

It is also possible to file a request of an international patent ruled by the Patent Cooperation Treaty that is valid in all the states adhering to the treaty that are more or less all the states of the world and the procedure shall be file before the WIPO⁴⁰.

Furthermore, in some countries, such Italy, there is also another intellectual property right applicable to invention and to software as well that is the utility model.

It is applicable to minor improvements of existing products, which does not fulfill the patentability requirements but that may have an important role in a local innovation system. Utility models protect such inventions through granting an exclusive right, which allows the right holder to prevent others from commercially using the protected invention, without his authorization, for a limited period of time. Compared with patents, utility model systems require compliance with less stringent requirements (for example, lower level of inventive step), have simpler procedures and offer shorter term of protection vary from one country to another, for example in Italy this term is ten years.

⁴⁰ World Intellectual Property Organization.

4. Trademark

Considering the most important platforms that we use every day we have to mentioned another fundamental intellectual property right relevant for them that is trademark.

Trademark is a distinctive sign, a necessary tool so that a company, in carrying out its activities, is not confused with other competing companies in the market.

Distinctiveness is the "heart" of the brand. To be able to register, the trademark must be original, and therefore not limited to the mere generic name or description of the products and/or services to which it refers and it shall be lawful therefore to be registered, it must not contain elements contrary to public order and morality, suitable to deceive the public about the characteristics relating to the services or/and products to which it refers, and that they are signs of ownership of others (e.g. pursuant to copyright law or the industrial property code).

The trademark to be registered is new when is not identical or similar to other trademarks already registered (or filed for this purpose) and it is not identical or similar to *de facto* trademarks or other signs already known with relevance that is not merely local.

In addition to the above mentioned roles of trademark national and European case law has recognized various functions of it such as its role in the communication activities with reference to any other information that may be expressed by the distinctive sign used as well as in the advertising, attracting consumers to certain products or services and last but not least in the investment when it comes to a sign used with the function of increasing the reputation and attractiveness of an entrepreneur.

As the patent and the utility model also trademark to be recognized is an intellectual property right that shall be registered before the competent authorities taking into account the type of registration (national, European or international trademark).

Depending on the elements that make up the brand, it is possible to identify the following types of trademarks: i) verbal trademark, consisting only of words; ii) figurative trademark, containing the reproduction of a figure (real or fictional) alone or together with a verbal component (mixed mark); iii) shape or three-dimensional trademark, which protects a three-dimensional shape, when suitable to make the product recognizable without the affixing of another sign; iv) sound trademark, consisting exclusively of a sound or a combination of sounds; v) color trademark, which protects a certain color tone; movement branding, characterized by a change in the position of the branding elements; vi) multimedia trademark consists of the combination of image and sound; vii) trademark with repeated motifs, i.e. a

sign characterized by the regular succession of a series of elements (for example a particular texture or graphic motif); viii) position trademark, which tends to protect the position in which the mark is affixed and ix) holographic trademark, consisting of elements with holographic characteristics.

Having analyzed the briefly the main features of trademark now the normal question would be how is important and how much is platform trademark worth?

In the top 10 of the report called “*2020 BrandZ Top 100 Most Valuable Global Brands*”, there are variety of brands from different sectors and industries and within this list there are a lot of the most popular platforms we used every day: Amazon with a trademark values equal to 416 Billion Dollars, Apple with a trademark value equal to 352 Billion Dollars 327, Google with a trademark value equal to 324 Billion Dollars, Alibaba with a trademark value equal to 153 Billion Dollars and Facebook with a trademark value equal to 147 Billion Dollars.

5. Design

The design of a platform is fundamental in order to reach three key platform components: a mechanism to pull producers and consumers, an infrastructure and governance model that facilitates their interactions, and a matchmaking facility and learning capability that matches producers and consumers in value-creating interactions and learns from their activity on the platform. The goal of the platform is to facilitate these value-creating interactions and constantly scale its ability to perform all three functions above.

On a platform business, value is created through the activity of the ecosystem. Hence, the best technological components can prove insufficient if users don't come on board the platform and the approach to attract the users is also the design of the platform above all in the aggregator platforms such as Airbnb, Facebook, Google and Amazon Marketplace.

Aggregator platforms work as ecosystem orchestrators and perform four key functions: provisioning of consumer services, managing consumer data insights, on boarding and curation of producers, and matchmaking between producers and consumers.

Design refers to the aesthetic aspects of a products, platforms included and more specifically with the design the design is protected, with the model the shape.

It is possible registered as design two-dimensional or three-dimensional industrial or craft products and their visible components, packaging, presentations, graphic symbols and typefaces that are new and have individual character.

It is important distinguish a registered design from a not-registered one and in all states of the European Union, the author of the design product has the right to prevent any imitation.

However, where the design has been registered, this right also extends to unintentional imitations, and has a duration of 25 years. On the other hand, the design that has not been registered can only be protected against intentional copies, but not against imitations created by those who plausibly did not know the original design. Furthermore, the protection of unregistered design lasts only three years from the date on which the design product was disclosed to the public for the first time within the European Union.

The registration of a design has territorial value. It can be requested: i) a national registration, with effects limited to the state in which the registration is made, ii) a European registration valid in the current member countries, iii) an international registration for the countries that adhere to the Aja Agreement relating to the international deposit of industrial designs and models.

For the Italian and European design, it can be registered within a period of 12 months from the first disclosure within the European Union. Following this term, the design can only enjoy the protection recognized, to unregistered designs or models.

6. Trade secrets

Another important intellectual property right relevant for the technological platforms is the trade secret that protects against the misappropriation of confidential information that is subject to reasonable efforts to maintain secrecy. Trade secret mean any kind of technical knowledge and firm's information including the commercial one, which is secret in the sense that it is not as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question and it is eligible for legal protection when it has been obtained in an independent manner. Trade secret protection can last indefinitely, but once trade secrets become public, they lose protection.

We distinguish from technical and commercial trade secrets. The first type is any kind of knowledge that is patentable but not yet publicly disclosed or not patentable but innovative from a technical point of view because it is not generally known or readily accessible to technically skilled persons. Very relevant for the platform is that a technical trade secret could also include a source code of any kind of software innovative algorithms and formulas new processes and methods of production new methodologies for testing plants equipment machines and products. On the other hand commercial trade secret is any kind of secret knowledge or other secret information that is not innovative from a technical point of view as for instance databases containing confidential information about clients and their

technical and/or commercial profile or about suppliers documentation regarding offers in public and private tenders, innovative business methods and ideas of advertising, if not yet implemented new trademarks and their layout etc.

Trade secret protection does not provide absolute protection for information. It only protects against misappropriation through improper means and unauthorized disclosure. Therefore, competitors do not violate trade secrecy protection through reverse engineering of publicly available products and websites⁴¹.

7. Conclusion

In the light of the above we founded how important and valuable are the intellectual property rights for these platforms.

However, since the principal forms of intellectual property protections developed long before the advent of digital technology which made network effects so important, the intellectual property statutes do not expressly reflect the description of the several players that can arrogate the intellectual property rights behind these technological platforms with all the difficulties to understand who the real owner of them is.

In another word it is complicate the balance between all the interests⁴² and the rights behind technological platforms and for sure an evaluation also of the discipline of the intellectual property rights shall be evaluated from a regulatory and legislative point of view.

⁴¹ Mennel P., "Economic analysis of network effects and intellectual property"- Berkeley Technology Law Journal Vol. 34, 2019. «Reverse engineering limitation on trade secret protection thus exposes the trade secret owner to free riding by others. This limitation, however, strikes a salutary balance between protection on the one hand and competition and the dissemination of knowledge on the other. The trade secret owner can "purchase" greater protection against this risk by investing in higher levels of security (e.g., more effective encryption for software-encoded technology). The inventor can also pursue patent protection, which proscribes reverse engineering, although only for the limited duration of the patent, and mandates disclosure of the invention to the public. By declining to pursue patent protection (or failing to satisfy the requirements thereof), however, inventors should not be able to secure potentially perpetual rights in technologies merely by encrypting them or otherwise obscuring how they function. To do so would undermine the larger balance of the federal intellectual property system».

⁴² Cao Y., *Intellectual property policy for internet platforms*, WIPO-WTO Colloquium papers 2017, p.27 «[...]the question of how to reconcile intellectual property rights and the two sided nature of internet platforms has become a pivotal point of consideration for all internet governance discussion; new rules are needed for the good and sound development of internet platforms.[...] Technology neutrality is also a key principle for internet policy. Importantly, intellectual property rules should not favor or discriminate against specific platform technologies».

CHAPTER 4 – TO REGULATE OR NOT REGULATE THE PLATFORMS

1. Introduction

The debate on the European digital economy and the digital single market increasingly centers on the activities, business models and market power of online platforms. In particular, the growing economic power of such intermediaries is profoundly challenging the legal framework established twenty years ago with the Directive 2000/31/EC (*“e-Commerce Directive”*).

European heads of states recently warned *“social networks and other digital platforms”* that they *“need to guarantee transparent practices and full protection of citizens’ privacy and personal data”*⁴³. Yet, calls for regulation from a variety of stakeholders reach much further. Labor relations, consumer protection, data protection, taxation, copyright or competition are just a few of the regulatory fields where politicians and civil society actors have called for European “platform regulation” in the last few years.

European courts first, and legislatures more recently, have taken a position regarding the need for further regulation of online intermediaries. The new liability rules for copyright infringement are just an example of a more general tendency to charge intermediaries with responsibility. This tendency goes beyond the realm of intellectual property and includes consumer law, antitrust and competition law.

The concerns over the power of online platforms raised in the ongoing political debate pertain the competition and market power as platforms generate regulatory concerns because of their expanding market power. Many platform markets tend towards domination by one or very few players, thanks to, among other things, strong network effects and economies of scale advantages. Another concern is the way in which platforms are able to leverage their exclusive access to vast amounts of consumer, business and transactional data. These data troves give them a constantly self-reinforcing knowledge edge concerning market dynamics over competitors and regulators alike.

⁴³ European Council, *European Council Meeting (22 March 2018) Conclusions*, 22.03.2018.

The forthcoming EU Digital Services Act aims to revise the regulation of online intermediaries by means of new rules framing the responsibilities of digital services and online platforms' market behavior.

In this context, there is no doubt that the current scenario requires modern rules. However, it is licit to ask whether the basic principles underpinning the e-Commerce Directive – and, in particular, freedom of expression and free movements of goods – will be assured in a new legal framework where online intermediaries may not enjoy the safe harbors originally laid down in the e-Commerce Directive.

2. How platforms are regulated in the Single Market

Amidst the many political and economic debates around future regulation, it is important to first recall the regulation and governance set-up to which online platforms are already subject. Just like those of other market participants in the Single Market, platform activities are subject to the EU regulation in areas such as consumer protection, copyright, competition and data protection. Platforms have, for example, to abide by the Consumer Rights Directive⁴⁴. They are also bound by various Directives directly regulating market behaviors. The most relevant here is the e-Commerce Directive.

Precisely twenty years ago in the European Union, the e-Commerce Directive introduced a conditional liability regime that has so far shielded online intermediaries – or, more accurately “*information society service providers*” performing mere conduit, caching and hosting – from liability for the unlawful conduct of third parties acting online through their services. For the last two decades, the “*safe harbor*” regime set forth by the e-commerce Directive has been a foundational cornerstone for the free circulation of information and the expansion of digital markets. However, over the years the scenario has changed significantly. The rapid development of online intermediaries has allowed new opportunities for information to be freely and massively shared online and made e-commerce a new standard of doing business. At the same time, new issues have arisen. The online dissemination of illegal content is only one of the problems deriving from large use of services offered by online intermediaries. According to the European Commission, online sales of counterfeit or dangerous products, as well as of other illegally traded goods, are constantly increasing. In addition, the biggest share of the value stemming from digital

⁴⁴ Directive 2011/83/EU

markets appears to be captured by just a few online intermediaries, which take advantage of their role as gatekeepers and benefit from strong network effects.

2.1. The 2000 Directive on electronic commerce

The e-Commerce Directive provides “*for a technologically neutral framework and the liability regime strikes a balance between the several interests at stake, in particular between the development of intermediary services, the societal interest that illegal information is taken down quickly, and the protection of fundamental rights*” and applies to the providers of all types of information society service which is defined as “*any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services*”. This is a broad category but not unlimited, as the Court of Justice decided in the different Uber cases⁴⁵.

The liability rules of e-commerce aim to achieve three main purposes:

- it provides that the users should notify to the hosting providers any infringement they observe so the intermediaries should remove or block access to any illegal material of which they are aware. The consequence is the sharing of responsibility between all the private actors of the eco-system in ensuring the minimization of illegal material and a good cooperation with public authorities;
- it ensures that the hosting intermediaries do not have an obligation to monitor the legality of all material they store in order to stimulate the development of e-commerce;
- achieves a fair balance between conflicting fundamental rights: (i) respect for privacy and the protection of personal data guaranteed by Articles 7 and 8 of the Charter of Fundamental rights of the EU; (ii) freedom of expression and information protected by Article 11 of the Charter; (iii) freedom to conduct business guaranteed by Article

⁴⁵ Case C-434-15 Uber Spain, ECLI:EU:C:2017:981 and Case C-320/16 Uber France, ECLI:EU:C:2018:221. The Court declared that an intermediation service such as Uber POP must be classified as “*a service in the field of transport*” within the meaning of EU law. In particular, the advocate general points out that there are some composite services that include elements which are not transmitted electronically. In his view, where a service has both electronic and non-electronic elements, its ultimate character is determined by whether these elements are “*economically independent*.” But if these elements form “*an inseparable whole*,” he asserts that “*it is necessary to identify the main component of the supply envisaged, that is to say, the component which gives it meaning in economic terms*”. With respect to Uber, the advocate general stresses that Uber drivers offer passengers a transport service “*for which they are paid an amount which far exceeds the mere reimbursement of expenses incurred*” and thus it cannot be regarded as a ride-sharing platform in the sense of the “*sharing economy*”. Uber matches supply (which it has created) and demand on its platform, defines the fundamental features and organizes the functioning of the service. It is Uber that establishes the conditions for performance of the service and sets the price, and thus exerts control over all essential elements of the transport.

16 of the Charter; and (iv) right to property, including intellectual property, protected by Article 17 of the Charter.

The e-commerce Directive regulates the establishment of the providers of information society services, the information to be given to the users, the contracts concluded by electronic means and the liability exemptions of the providers of three types of information society services: the mere conduit, the caching and the hosting providers.

Regarding the liability of hosting providers, the e-commerce Directive contains four complementary rules: an internal market clause, harmonized conditions for liability exemption, prohibition of the imposition of general monitoring, and encouragement of co- and self-regulation.

2.1.1 The Internal market clause

Article 3 of the e-commerce Directive contains the so-called internal market clause, which establishes that a provider of information society services is only subject to the rules - including the rules on liability - of the Member State where it is established. It may then provide the services across the twenty-seven other Member States without being subject to the rules of those other States. Unless there are exceptional circumstances related to public policy, health, security or protection of consumers and investors, Member States may not restrict the freedom to provide information society services from another Member State.

2.1.2. Harmonized conditions for liability exemption

Article 14 applies to the provider of a specific type of information society service, the hosting service that consists in the storage of information provided by a recipient of the service.

Article 14 harmonizes the conditions under which the provider of such hosting service may escape the national liability rule of the country where it is established for the illegal material it hosts. According to Article 14:

“1. Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that:

- a) the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or*

b) the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.

2. Paragraph 1 shall not apply when the recipient of the service is acting under the authority or the control of the provider.

3. This Article shall not affect the possibility for a court or administrative authority, in accordance with Member States' legal systems, of requiring the service provider to terminate or prevent an infringement, nor does it affect the possibility for Member States of establishing procedures governing the removal or disabling of access to information".

Thus, an online intermediary hosting illegal material escapes national liability rules if it does not know the illegality or, when it knows, it acts expeditiously to remove or block access to the material⁴⁶. The procedure for the intermediary to be informed and to act, the so-called notice-and-takedown process, is not described in the directive but can be defined at the national level. Moreover, the hosting providers should cooperate with administrative and judicial authorities requiring the removal of illegal material.

2.1.3. The prohibition of the imposition of general monitoring and injunction

Article 15 states that national administrative or judicial authorities may not impose, with injunction or otherwise, a general monitoring obligation. In addition, as for Article 14, Article 15 foresees cooperation between the providers of hosting services and the administrative and judicial authorities.

In fact, according to Article 15:

⁴⁶ Article 14 raises a series of difficult interpretative legal questions in relation to the concepts of actual knowledge and expeditious removal/blocking. Case C-324/09, L'Oreal et al. v. eBay, ECLI:EU:C:2011:474: with respect to legal liabilities of eBay, the Court discussed whether the operator of an online marketplace may rely on the exemption from liability provided under e-commerce Directive. It first ruled that the information society services regulated by the e-commerce Directive encompass online marketplaces. Applicable to marketplaces, Article 14 of the e-commerce Directive prohibits EU States from imposing liability against service providers that store information obtained by their recipients, *"on condition that:*

(a) the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or
(b) the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information."

The Court ruled that such exemption from liability only applies when the information society service merely acts as an intermediary and not when it *"plays an active role of such a kind as to give it knowledge of, or control over, those data [entered by recipients]."* The Court in the present case found that eBay generally processes data entered by its customer-sellers; in some cases, it provides assistance to optimize or promote certain offers for sale. Therefore, the company may not rely on the exemption from liability offered in Article 14 of the e-commerce Directive. The Court concluded that it was for the High Court of Justice to examine whether eBay played a role in processing the data related to the sale of L'Oréal's products. Additionally, where the operator of the online marketplace does not play an active role in processing data and optimizing the presentation of the offers for sale, it escapes liability for damages *"if it was aware of the facts or circumstances on the basis of which a diligent economic operator should have realized that the offers for sale in question were unlawful"*.

*“1. Member States shall **not impose a general obligation** on providers, when providing the services covered by Articles 12, 13 and 14, to **monitor** the information which they transmit or store, nor a general obligation actively to seek facts or circumstances indicating illegal activity.*

*2. Member States **may establish obligations** for information society service providers **promptly to inform the competent public authorities of alleged illegal activities** undertaken or information provided by recipients of their service or obligations to communicate to the competent authorities, at their request, information enabling the identification of recipients of their service with whom they have storage agreements”.*

2.1.4. The encouragement of co and self-regulation

Finally, Article 16 of the e-commerce Directive encourages the establishment and the monitoring of codes of conduct at the EU and national levels to contribute to the proper implementation of the rules of the e-commerce Directive.

Article 16 mentions the importance of involving consumers in the drafting of these codes of conduct to ensure that the rules remain balanced. It also mentions the necessity to monitor, in cooperation with Member States and the Commission, the implementation of the codes to ensure the effectiveness of the rules.

2.2. Evolution of the EU regulatory framework

Since the adoption of the e-commerce Directive in 2000 when the Internet intermediaries were still in their infancy, technology and markets have changed dramatically.

Firstly, online platforms - as they are now called - are offering new types of services with the development of web 2.0 relying on user-generated content or the collaborative economy involving prosumers. Hence, the users, but also the platforms, play a more active role. For these new services, it may be more difficult to apply the criteria set by the Court of Justice to define the hosting services – namely a mere technical, automatic and passive role which implies that that service provider has neither knowledge of nor control over the information which is stored.

Secondly, some online platforms have become large. This is often attributed to important direct and indirect network effects, which can be partly due to data-driven feedback loops. These extremely topical issues will be discussed in the following chapters.

3. Illegal contents. The evolution of sector regulations in the last 20 years

Since 2010, the European Union has adopted several laws to strengthen the role of online intermediaries in the fight against certain illegal materials.

In particular, the provisions of the e-commerce directive have been integrated over the years through new sector rules.

Wanting to mention some of the most significant interventions adopted by the European Union, it is certainly necessary to remember the Directive issued in 2011⁴⁷ with the aim of fighting sexual abuse of minors by providing for the prohibition against websites to contain or disseminate material relating to sexual abuse of minors, as well as the Directive issued in 2017⁴⁸, with which the European Union legislator prohibited the online publication of provocative content aimed at committing a crime of terrorism.

With these two directives, therefore, the European Union has requested the national authorities of the Member States to limit the online dissemination of particularly harmful content in order to protect the transparency of information shared on the web and the human rights at stake.

Furthermore, it is impossible not to mention the Directive issued in 2018⁴⁹ with which the European legislator updated the directive on audiovisual media services, including new obligations for video sharing platforms in order to combat hate speech and violence.

Underlying these three interventions by the European legislator was the desire to introduce measures proportionate on the one hand to the damage that could be caused to users and, on the other, to the platform's ability to prevent such damage. These measures are based, in particular, on the removal of such illegal materials, ensuring a fair balance between the fundamental rights at stake.

A second element that has characterized the strategy adopted by the European Commission in the last twenty years consisted in the adoption of guidelines aimed at better clarifying the provisions of the directive on electronic commerce.

In particular, the Commission adopted a Communication in September 2017 to provide guidelines and principles, in line with the e-commerce directive, to online platforms to step up the fight against illegal content online. The communication deals with the detection, removal and prevention of illegal content. In particular, illegal content can be detected thanks to the work of public authorities and courts, as well as by users or by the platforms

⁴⁷ Directive 2011/92 of the European Parliament and of the Council of 13 December 2011 on combating the sexual abuse and sexual exploitation of children and child pornography

⁴⁸ Directive 2017/541/EU issued on 15 March 2017 on combating terrorism.

⁴⁹ Directive 2018/1808/EU

themselves. Therefore, the Communication encourages platforms to cooperate with public authorities and courts, and the same time to facilitate contributions from users, while making it clear that the use of such voluntary proactive measures do not imply that the online platform plays an active role thus leading it to lose the benefit of the exemption from liability provided for by the e-commerce directive.

Once illegal content is identified, platforms should remove it, taking action quickly and at the same time according to this Commission Communication, they should also improve transparency on their content policy and on their notification and takedown procedures. Finally, on preventing the reappearance of content illegal (so-called stay-down), the communication encourages platforms to take measures that dissuade users from repeatedly uploading illegal content of the same nature developing automated systems that are able to intercept such behaviors.

Another important cornerstone of the Commission's strategy has been to stimulate self-regulation of platforms in the fight against the dissemination of illegal materials particularly harmful. This has led, over the last few years, to various initiatives in subject to terrorist content, hate speech and child sexual abuse. These experiences show that self-regulation can be effective when the rules they are agreed upon by a wide variety of stakeholders representing key interests divergent and at the same time when the implementation of these rules is closely monitored in collaboration with public authorities.

Among the various interventions in this sense, the “*European Strategy for to Better Internet for Children*”⁵⁰, with which the Commission invited the EU institutions, Member States and companies to speed up the identification of material relating to child sexual abuse spread through various online channels, through notification and the removal of this material and has, therefore, encouraged the strengthening of international cooperation in this regard. This has led to important initiatives, such as, for example, the creation of the “*ICT Coalition for Children Online*”⁵¹ whose members commit themselves to work closely with law enforcement and ensure timely removal of any content deemed illegal as well as the birth of the “*Alliance to Better Protect Minors Online*”⁵² a forum set up by the Commission to address emerging risks that minors face online, such as harmful content (e.g. violent content or sexual exploitation), harmful behaviors (e.g. cyberbullying) and harmful contacts (e.g. sexual extortion). The forum is attended by stakeholders from the entire chain of value as

⁵⁰ Communication from the Commission of 2 May 2012, European Strategy for a Better Internet for Children.

⁵¹ <http://www.ictcoalition.eu>

⁵² <https://ec.europa.eu/digital-single-market/en/alliance-better-protect-minors-online>

device manufacturers, as well as major telecommunications platforms, of media and online services used by children⁵³.

Also in the fight against online content relating to terrorism, important steps have been taken, just think of the creation in December 2015 of the forum to combat terrorist content online, in which EU interior ministers, high-level representatives participate major Internet companies (such as Facebook, Google, Microsoft and Twitter), Europol and the EU Counter-Terrorism Coordinator. The forum meets every year and its main objective is to reduce the accessibility of terrorist content online.

Finally, we also recall that on 31 May 2016 the Commission, in application of the framework decision 2008/913 / JHA and art. 16 of the same e-commerce directive, then promoted a Code of Conduct to combat illicit incitement to hate online, signed by the main private operators of online services, which includes the commitment of the companies that have joined it to prepare procedures for the rapid examination of reports relating to hate speech that are clear and effective and that may lead to the timely removal of illegitimate content, to have guidelines that clearly prohibit the promotion and incitement to violence and hateful conduct, to examine the removal requests in compliance with both the guidelines thus adopted and the relevant national legislation transposing the aforementioned framework decision, through specifically appointed working groups, and to do so within twenty-four hours of knowledge of the offense.

4. The use of *big data*

Recent developments in digital markets show the emergence of business models that revolve around the collection and commercial use of big data, often of a personal nature.

With the expression of "*data driven innovation*" we refer to the role that big data play in modern economies: a growing number of companies are dedicated to collecting, storing, analyzing and using information, often of a personal nature, produced by numerous sources, managed automatically or semi-automatically through processors and algorithms and filtered through a process of extraction using specific software.

For this reason, there are fears related to the possibility that the exploitation of this information baggage could have anticompetitive effects, creating a barrier to entry capable

⁵³ The firms signatories are: ASKfm, BT Group, Deutsche Telekom, Disney, Facebook, Google, KPN, The LEGO Group, Liberty Global, Microsoft, Orange, Rovio, Samsung Electronics, Sky, Spotify, Sulake, Super RTL, TIM (Telecom Italia), Telefónica, Telenor, Telia Company, Twitter, Vivendi, Vodafone.

of conferring market power and strengthening dominant positions and, at the same time, there is a growing demand for antitrust intervention aimed at neutralizing the risks associated with the collection and use of big data.

The collection, production, and commercial value deriving from the use of such information are particularly significant in the context of digital platforms since they are functional to user profiling, allowing an analysis of their behaviors, habits, interests and preferences. Such information represents an essential production input for the digital platform providers to adapt the functionalities and improve the quality of the services offered, as well as providing advertisers with more suitable advertising spaces to convey messages tailored to the profile of the target user (behavioral targeting).

Indeed, users have free access to the services offered by search engines, social networks and e-commerce platforms by providing their providers with a whole range of information that becomes, therefore, the currency of exchange for a good which, on the other hand, is perceived as free and the growing diffusion of products and services at zero prices is stimulated the low weight attributed by many consumers to privacy.

In this regard, there are fears related to the possibility that the exploitation of this information baggage could have anti-competitive effects: in this perspective, big data would represent a barrier to entry capable of conferring market power and strengthening dominant positions, or could facilitate agreements collusive. On this basis, there is a growing demand for antitrust intervention aimed at neutralizing the risks associated with the collection and use, in particular, of big data relating to personal information.

In light of the above, therefore, it is necessary to understand to whether big data can represent a threat to competition.

It is not surprising then that the different positions expressed in the literature regarding the economic characteristics of the data are then reflected in a different approach regarding the advisability of antitrust intervention.

Those in the literature denounce the inconsistency of a significant antitrust risk believe that that big data does not in itself determine a barrier to entry since is not a scarce, inimitable, irreplaceable resource and in itself decisive for achieving a competitive advantage on the market.

First of all, companies aren't able to control the entire production and dissemination of big data. Furthermore, big data are everywhere: this means that they are simple and cheap to collect and they can be purchased on the market or collected from various sources. In outlining the competitive scenario of the Facebook / WhatsApp merger, the European

Commission has expressly recognized the presence of numerous operators that collect user data (in addition to Facebook, among others, Google, Apple, Amazon, eBay, Microsoft, AOL, Yahoo, Twitter, laC, LinkedIn, Adobe, Yelp) and that, regardless of whether the merged company decides to use WhatsApp user data to improve targeted advertising on Facebook, *"there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook's exclusive control"*⁵⁴. Among the effects of the concentration, we note the change in the contractual conditions for the supply of WhatsApp services published on 25 August 2016, where a clause has been inserted that legitimizes the sharing by WhatsApp with Facebook of user data for commercial and relational profiling purposes. By virtue of this contractual change, Facebook will be able to freely process the data of WhatsApp users in order to offer its customers even more targeted advertising campaigns. In any case, users are granted the right not to accept the new conditions, in which case Facebook may use the information on users only for technical purposes of managing its services and not for promotional purposes. The modification of the contractual conditions did not go unnoticed by the European Commission, which asked Facebook for information, recalling how the fact that the data were not combined with the others was a decisive factor in the green light for the acquisition of WhatsApp. Similarly, previously, in assessing the Google / DoubleClick merger, both the European Commission and the American FTC⁵⁵ have expressed their opinion; and again, the European Commission as part of the Telefonica UK / Vodafone UK / Everything Everywhere joint venture⁵⁶.

Secondly, the value of big data significantly decreases with the passage of time. This means that data are contingent assets, strongly conditioned by timeliness and accuracy and their value depends on the ability to extract the information that the company needs from them. In the light of the above it is important to have non-obsolete data and adequate technologies to filter the huge amount of data accumulated from various sources: is the quality and not the size to be relevant.

⁵⁴ European Commission, 3 October 2014, case CoMP / M.7217, paragraphs 188 and 189.

⁵⁵ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016. Federal Trade Commission, 20 December 2007, case 071-0170, pp. 12-13: *"A number of Google's competitors have at their disposal valuable stores of data not available to Google. For instance, Google's most significant competitors in the ad intermediation market, Microsoft, Yahoo!, and Time Warner have access to their own unique data stores. These firms own popular search engines and will have access to consumer information from their internal ad servers, ad intermediation services, other web properties, and software. The entry and expansion of these well-financed competitors has transformed the ad intermediation marketplace over the last six months. All of these firms are vertically integrated, and all appear to be well-positioned to compete vigorously against Google in this new marketplace"*.

⁵⁶ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016. European Commission, 4 September 2012, case Comp/M.6314.

Other part of the experts believe that the big data have particular relevance with reference to business models that affect multi-sided markets, since they have the ability to aggregate data, creating information asymmetry. In other words, big data constitute an element that unites most digital operators and whose peculiarities compared to traditional markets feed the weight of information controlled by companies.

Such information asymmetry depends on the so-called feedback loops: an increase in the number of users allows the platform to acquire more information, the latter relate to the positive spill-overs that are generated between the different sides of the platform, where the accumulation of data on a side is functional to improve the quality of the service on the different sides of the platform⁵⁷.

For example, the US Department of Justice in the Bazaarvoice case articulated its allegations on the anticompetitive implications of the merger project with rival Power Reviews starting from the assumption that, in the market for product ratings and reviews platforms, the data and effects of network constitute a significant barrier to entry capable of ensuring a competitive advantage⁵⁸.

Furthermore, this part of the expert believe that the big data have a rival nature, as well as high costs required for their collection and analysis. According to them big data have a strategic value considering that companies make a lot of efforts to accumulate them as much as possible through a growing number of big data related acquisitions. Furthermore, companies accumulate big data by offering services to users at zero prices so that users do not abandon the provider to turn to a competitor who offers a higher quality service but for a fee.

Moreover, big data are not accessible to everyone or, more precisely, that all companies are equally able to collect such information.

Although the presence of brokers may represent an alternative to direct data collection, it is still a solution that has some limitations: the data thus obtained could still be insufficient (in terms of both quantity and variety) for compete with operators with large datasets; there may

⁵⁷ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016

⁵⁸ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016. Us Department of Justice, *Us v. Bazaarvoice*, complaint, 10 January 2013, paragraph 56: “*Bazaarvoice’s syndication network is a formidable barrier to entry in the market for Prr platforms. As more manufacturers purchase Bazaarvoice’s Prr platform, the Bazaarvoice network becomes more valuable to retailers because it will allow them to gain access to a greater volume of ratings and reviews. Similarly, as more retailers purchase Bazaarvoice’s Prr platform, the Bazaarvoice network becomes more valuable for manufacturers because it will allow them to syndicate content to a greater number of retail outlets. The feedback between manufacturers and retailers creates a network effect that is a significant and durable competitive advantage for Bazaarvoice*”.

be legal or contractual impediments (in the first place, the discipline of privacy) capable of limiting the sharing of data by brokers.

Given the particular importance that the accumulation of data plays in the antitrust analysis of multi-sided digital platforms, it is appropriate to dedicate an in-depth study to such multi-sided digital platforms, as detailed in the next paragraph.

At the same time we have to recall that the serious competitive implications in the control of big data invite a case-by-case analysis of the various business models involved, the characteristics of the markets involved, the different types of data involved and, therefore, the role that these can play in the context under consideration. Whether the accumulation of data represents a barrier to entry depends on the specific characteristics of the market concerned as the relevance of the data varies significantly in relation to the different business models. For them, in fact, there is no single-product market as the information that can be relevant and easily accessible to provide a service can easily be useless or difficult to find for other services⁵⁹.

4.1 Network effects

Multi-sided platforms, also defined as matchmakers, are technologies, products or services that create value primarily by enabling direct interactions between two or more customer or participant groups. They solve a problem of transaction costs that makes it difficult, if not impossible, the meeting between the agents of the different interested groups, thus generating value for at least one of the groups.

In other words, if we take an electronic commerce platform as a reference, the presence of a growing number of buyers using the platform attracts a growing number of sellers and vice versa; when buyers have access to a sufficiently wide selection of products and services at an advantageous price and sellers obtain equally interesting profits, none of the groups have an incentive to move to another platform.

These feedback effects could determine significant economies of scale and range and strengthen the direct and indirect network effects, helping to erect a barrier to entry.

Let's have a look to the business model of these platforms.

The business model is based on the externalities that, through the platform, are generated between the different groups of users whose contact is facilitated: in particular, those deriving from the circumstance that two or more groups of economic agents need to use to interact the platform (usage externalities) and that the value achieved by the group of agents

⁵⁹ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016.

present on one side of the platform depends on the number of agents participating on the other side of the platform (membership externalities or indirect network effects). The greatest challenge for a platform that wants to establish itself on the market is to intercept a sufficient number of economic agents on each of the sides involved in order to ensure an adequate critical mass to feed these indirect network effects⁶⁰.

Due to the interrelationships and interdependence between the sides, the platform can influence the volume of transactions by applying asymmetrical prices to the groups present on both sides (skewed pricing): in the case, for example, of platforms that provide research or social networking services, in facilitating the meeting between users and advertisers, following the traditional model of advertising-supported media, while the former services are offered free of charge, the latter are charged a fee for the advertising spaces made available for behavioral targeting. This is a peculiar and particularly relevant aspect for the antitrust analysis of pricing behavior on multi-sided markets: *“the presence of indirect network effects often makes it necessary for the platform to charge asymmetrical prices which do not reflect the actual cost of the service offered to a particular group of users. In this scenario, in order to increase the success of the brokerage activity, the platforms collect in real time all the possible information on the preferences of the agents of the different groups involved (volunteered, observed and inferred data), which in turn serve to feed algorithms that allow an efficient match of the needs of the stakeholders”*⁶¹. The more information on the characteristics of supply and demand, the more efficient the service offered by the matchmaker will be and, therefore, the more users will be attracted to the platform and, in turn, the greater the overall volume of information that the latter will release to the platform and, consequently, the higher the quality of the services offered by the providers (feedback loop).

All this happens at zero prices since the improvement of the services offered to users comes from the growing number of information that the users themselves provide to the platform. Furthermore, massive data collection, fueled as seen from the improvement of the quality of the services offered to users, it will in fact allow platforms to attract a growing number of advertisers to whom they can offer advertising spaces.

Such advertising spaces will be increasingly in line with the preferences and purchasing habits of users and, therefore, more functional to the behavior targeting. In this way the providers will earn the proceeds necessary to support the investments in technological

⁶⁰ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016.

⁶¹ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016

updates and in advancements of the platform. At the end they will preserve their customer portfolio and attract new ones. Furthermore an intermediary in a monopolistic position has a strong incentive to economically exploit its privileged information position by strategically manipulating the information in its possession (for example, not disclosing to buyers all the information relating to the products and services offered by the sellers) in exchange for a fee.

It is important to investigate whether the toolbox traditionally used by the antitrust is adequate to manage the peculiarities of big data. To do this, we have to analyze the criteria for defining: (i) the relevant market; (ii) the possible anticompetitive behaviors implemented through big data.

The definition of the market, from an antitrust point of view, needs the existence of a demand and an offer for a product or a service with respect to which to evaluate the substitutability: in the absence of a commercialization, the simple use of the personal data collected as a input for the services offered to users and advertisers does not allow for the identification of a relevant market as there is a lack of supply and demand. In this sense, we have to recall that the European Commission, in examining the Facebook / WhatsApp merger⁶², has expressly renounced to evaluate the definition of a relevant market relating to the supply of data or data analytics services since none of the parties involved is active in the aforementioned markets. Moreover, the interaction between users and platform providers cannot be considered an economic exchange: the information provided by users seems to be a natural consequence of using the platforms, rather than an offer of a product to benefit from the services of a search engine or a social network.

In the contrary, the Bundeskartellamt stated that it is possible to consider the information provided by a user in exchange for a service similar to the payment of a fee and, therefore, sufficient to integrate a commercial exchange.

The identification of possible anticompetitive conduct is also difficult. At the moment, the antitrust cases involving big data are quite limited and mainly limited to concentration cases. A merger project represents a significant barrier to entry. With this in mind, attention will be directed to the possibility of a market foreclosure resulting from greater and better access to information, which cannot be replicated by competitors.

The antitrust check will be conducted with reference to both the quantitative and qualitative profile of the additional information checked and having the same regard for both horizontal and conglomerate concentrations. The latter, in fact, although traditionally benefiting from a

⁶² *European Commission, case Comp/M.7217, cit., paragraphs 70-72.*

preferential treatment, in the context of the data market would be re-evaluated due to the strategic importance of the economies of range that could arise from the combination of different datasets, in line with a sort of renewed portfolio effect. This does not mean, however, that at the same time the same economies generated by the merger, suspected of representing a barrier to entry, and must also be evaluated from an efficiency defense perspective.

In addition to concentrative cases, the competitive foreclosure is mainly examined in the exclusionary conducts implemented by a company hegemonic on the market. A first hypothesis that may affect the data is represented by the signing of exclusive contracts with other providers, thus preventing competitors from accessing the information in their possession. This strategy is being investigated in one of the proceedings in Europe against Google: the European Commission accused the latter of having entered into agreements that oblige websites owned by third parties (publishers) to obtain all or most of their advertisements relating to online searches through Google Search⁶³. Google inserts search-related advertisements directly on the Google search site through the "AdSense for Search" platform. Internet sites provide users with a search function, typically a box from which the user launches the search: in addition to the results, the user also receives advertisements related to searches and, if you click on an advertisement, both Google and the third company receives a commission. In order to protect its dominant position in search engine advertising, according to the Commission, Google has placed a whole series of anticompetitive limitations on the ability of the aforementioned third party sites to display competitors' advertising: these are, in particular, conditions relating to exclusivity (prohibition for third parties to obtain search-related advertisements from competitors), the right to authorize competing advertisements (third parties must obtain Google's approval before modifying the display of competing advertisements linked to searches), the privileged positioning of a minimum amount of advertising (Google binds third parties to a minimum number of their search-related advertisements, with the obligation to reserve the most favorable space on the results pages; third parties may not place competitors' advertisements either above or alongside the advertisements of Google)⁶⁴. In addition, Google would carry on some practices against mobile device manufacturers and mobile network operators to further consolidate Google Search's dominant position on the market for digital search services⁶⁵.

⁶³ *European Commission, case n. 39740, Google Search.*

⁶⁴ Colangelo, G., *Big data, piattaforme digitali e antitrust*, Il Mulino – Rivisteweb, 2016

⁶⁵ *European Commission, case n. 40099, Google Android.*

Specifically, Google would have relied on the fact that most mobile devices use the Android operating system to make sure that Google Search is pre-installed and set as the default search engine on most mobile devices, placing this result as a condition for giving licensing some applications and providing financial incentives for the hypothesis that exclusively Google Search is pre-installed.

In the context of practices that exclude a dedicated reflection, the refusal to grant access deserves. For such conduct the relevant legal literature extends the controversial doctrine of the essential facility (EFD) to big data⁶⁶. As is known, the EFD is based on the idea according to which a monopolist, by the simple fact of being such, is required to provide reasonable use of that facility to anyone who requests it, including competitors:.

the EFD has always been a source of heated controversy as it requires a balance between the necessity of: (i) breaking down barriers to entry; and (ii) protecting the private autonomy, ownership and freedom of enterprise.

In *Facebook v. Power Ventures*, a Californian court has stated that Facebook has the right to prevent a rival from accessing its platform, violating the terms and conditions of use of the same, to steal user data (scraping)⁶⁷. On its website Power Ventures allowed users to integrate all their social networking activities into a single profile: Power thus used the data of the accounts provided by Facebook users to access the latter's site and acquire other personal information of the Facebook users to show on their platform. The court specified that, having Facebook the right to manage the access and use of its website, the enforcement of the aforementioned right cannot configure anti-competitive conduct: the refusal to allow data portability does not constitute an antitrust violation. Nor can Facebook be considered obliged to grant access to rivals for the simple fact that other platforms have granted it this privilege⁶⁸.

Another conduct that could be favored by the use of big data (and always provided that it is a dominant company) is that of discriminatory prices. Since, as mentioned, the information collected is functional to customer profiling, the analysis of customer behaviors, habits, interests and preferences could open the doors of price discrimination between different groups of users, if not even make the mirage of perfect discrimination plausible through the adoption of personalized prices for individuals. Major concerns are raised by some authors who see the potential of big data and big analytics as dangers deriving from an advanced

⁶⁶ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016

⁶⁷ *2010 Us Dist. Lexis 93517*.

⁶⁸ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016

form of behavioral discrimination: “*an economy governed by algorithms will see the latter control the different ecosystems and influence the choices of individuals, enclosing them in a sort of The Truman Show*”⁶⁹. Compared to the price discrimination policies implemented in traditional market scenarios, this behavioral discrimination practiced in the digital environment would be characterized because it would be able to achieve almost perfect price discrimination as well as to determine an overall increase in consumption, and would be durable and sustainable over time.

4.2 Protection of privacy

The relationship between antitrust and the protection of privacy deserves a separate discussion. The novelty brought by digital markets lies in the fact that the requests for privacy protection, have risen to the point of invoking a union between the rules for the protection of competition and that for the protection of the consumer to ensure that any violations of privacy are also analyzed from the point of view and with antitrust tools.

In this regard, it is important to underline that users are very often not fully aware of the exchange in progress between information provided and free (or reduced-priced) services and that such business models can transform privacy into a luxury item causing an unfair disadvantage for the less affluent classes and therefore less willing to pay higher rates for less invasive privacy services. In this regard, several parties highlighted the need for providers to acquire the explicit consent of users in advance before sharing user information with third parties or using them for purposes other than those relating to the service offered (and, therefore, to example for targeted advertising). The issue is certainly relevant from the perspective of adequate privacy protection. Less immediate is the possible role that competition law should play in this regard.

The need to strengthen consumer protection safeguards in the digital sphere is recalled by several parties due to an asymmetrical distribution of information between providers and users: for the latter, often unaware of the commercial value of their personal data, it is difficult to understand which and how much data is collected online, how it is managed and used. The forerunner in this direction must be identified in the former Ftc Commissioner Harbor, which, in its dissenting statement in Google / DoubleClick and in a subsequent scientific publication, highlights the interconnection between antitrust and privacy due to the network and other peculiarity of digital markets, and invites the use of antitrust tools to intervene where the achievement of a dominant position changes the incentives of a company with

⁶⁹ Colangelo, G., Big data, piattaforme digitali e antitrust, Il Mulino – Rivisteweb, 2016

respect to privacy profiles⁷⁰. Among those who are in favor of antitrust intervention there are also those who highlight how the best way to analyze privacy with an antitrust lens is to consider it as a component of the quality of a product or service, so that a reduction of protection of privacy corresponds to a degradation of quality. Finally, a further line of action advanced is that relating to cases in which the violation of the privacy legislation and the use of conducts that result in the collection of personal data by misleading users are functional to the acquisition or defense of a position of hegemony on the market.

If, therefore, the importance of greater and effective control of the user over their personal data is recognized, the options in the field and the solutions already tested would be different. Almost all of them go in the direction of introducing prior consent mechanisms (opt-in). A different user protection tool, with unquestionable competitive repercussions, is that of data portability, whose right in Europe has been enshrined in the aforementioned Regulation 2016/67991. Pursuant to art. 20 of the aforementioned Regulation, the user will have the right not only to receive personal data concerning him provided to a data controller, but also to obtain the direct transmission of personal data from one data controller to the other. To this remedy is added the further provision (previously referred to in the note) referred to in art. 22 of the same Regulation, soothing potential antitrust concerns in terms of personalized prices: those wishing to practice personalized prices online should obtain free and express prior consent from consumers to process, even by crossing them with others, personal data to be profiled.

5. Digital Service Act and Digital Markets Act: between supplier liability and *bis in idem* risks

On 15 December 2020, the European Commission presented a package of measures to update the EU regulation of the digital sector, divided into two proposals for the adoption of secondary legislation: (i) the Digital Services Act ("DSA") regulation aims to regulate the security, transparency and conditions of access to online services, while the Digital Markets Act ("DMA") regulation deals with commercial and competition aspects.

⁷⁰ Harbour P. J., *Dissenting Statement, in the Matter of Google/DoubleClick*, December 2007, p. 4: "The transaction will combine not only the two firms' products and services, but also their vast troves of data about consumer behavior on the Internet. Thus, the transaction reflects an interplay between traditional competition and consumer protection issues. The Commission is uniquely situated to evaluate the implications of this kind of data merger, from a competition as well as a consumer protection perspective. The Commission should maximize its opportunity to do so, especially where the merged firm will be capable of dominating the "Database of Intentions".

Both are added to the proposal of 25 November 2020 for a Data Governance Act ("DGA"), which aims to promote the availability of data and to strengthen trust in the so-called intermediaries, as well as to strengthen data sharing tools and mechanisms, in particular with regard to the reuse of the same by the public sector and their sharing between companies.

All these proposals are part of the broad framework prepared by the Commission Communication of 19 February 2020 "*Shaping the digital future*" and, therefore, to the policies for the promotion of the so-called "*sovereignty digital of the Union*".

The expression "*digital sovereignty*", sometimes also rendered with "*technological sovereignty*", refers to the ability of the Union (and its member states) to act independently in the digital world with tools that are both defensive and offensive, to promote innovation and protect oneself, at the same time, from the economic and social influence of non-EU technological companies which, according to some, would be endangering not only the control of European citizens over their personal data, but above all, would be limiting growth of European hi-tech companies and even the ability of national and EU legislators to ensure compliance with regulations relating to digital issues.

5.1. The Digital Service Act⁷¹

As extensively analyzed in the previous paragraphs, the directive on electronic commerce, in articles 14 and 15, with reference to the content uploaded by users on online sharing platforms, provides that the provider is not responsible for the information stored in this way, clarifying that the exemption in word does not apply only if the supplier himself, not limiting himself to the mere technical and automatic processing of the data provided by the customer, has played an active and "merit" role on them, providing the user with assistance, for example to optimize the presentation of the contents or, again, if the same, even limiting itself to the neutral provision of the service, should in any case be aware of facts and circumstances such as to make manifest the illegality of the shared activity or information. It was also underlined that the Court of Justice has ruled on several occasions on the conditions of application of this exemption from liability, clarifying how it must be applied to the hosting service provider that has not played an active role that has allowed it to know the material content or to take control of the stored data; in this case the supplier cannot therefore be held responsible for the data it has stored at the request of a user, except in

⁷¹ <http://www.sidiblog.org/2021/03/29/digital-services-act-e-digital-markets-act-tra-responsabilita-dei-fornitori-e-rischi-di-bis-in-idem/>

the case in which, having become aware of the illicit nature of such data or of the advertiser's activity, it has not omitted to promptly remove them or disable access to them. The Court, affirming the non-existence of a generalized obligation to control the contents, then clarified that the exemption in question also applies to managers who do not play any "*active role*" that allows them to have knowledge or control over the stored data; the case of the "*active role*", which results in the inapplicability of the exemption, it is integrated when the manager provides users with assistance aimed at optimizing the presentation. Moreover, again according to the Court, even in the absence of such an active role, the service provider could not in any case avail himself of the exemption from liability if he was aware of facts or circumstances on the basis of which a moderately diligent economic operator could have ascertained the illegality of the advertisements of its customers and, in the event that it has been aware of it, has not promptly acted to remedy them.

Finally, it should be remembered that, with regard to the liability of suppliers for illegitimate contents uploaded by third parties, the ECHR also ruled, which, in the case of *Delphi v. Estonia*, has drawn up a sort of common European line of conduct, and has held that a manager can legitimately be sanctioned for the dissemination and failure to remove content that damages the reputation of others if he has not carried out a neutral and purely technical activity, as the sole holder of control over the published content.

As mentioned in recent years, hosting services - also due to the advent of social networks which, by allowing their users to upload multimedia content, now perform often similar functions - have radically changed their characteristics, and the related suppliers have the services they offer have increased exponentially, which today go far beyond the mere provision of space to upload content, which is instead organized by the suppliers themselves to improve their use. In this regard, we talked about hosting services 2.0.

It is in this context that the proposed regulation contained in the DSA should be read, which, as far as we are concerned, aims to review the rules governing user generated content and the relative responsibility of suppliers: to this end, the DSA creates "categories" of digital service providers and consequently grades their responsibility, also on the basis of their ability to know the content uploaded by users.

The proposal seems to develop, without innovating in a revolutionary way, the concepts already contemplated by the EU law (and in fact the Commission explicitly declares that "*the proposal preserves the rules relating to the liability of intermediary service providers established by the directive on electronic, which now represent a foundation of the digital economy and are essential for the protection of fundamental rights online. These rules have*

been interpreted by the Court of Justice of the European Union, which has provided valuable clarifications and guidance”), to which the typical effects of the rules contained in a regulation (direct effects and prevalence over the law internal incompatible), with the consequence of eliminating application distortions in the various countries and, therefore, strengthening their certainty.

The proposal, while repealing articles 12 to 15 of the e-commerce directive, reproduces them, maintaining the exemptions from liability for providers, in accordance with the interpretation already given by the Court of Justice, and thus continues to distinguish between mere providers for so to speak traditional, which that is, which provide only connectivity and storage services and which therefore have little or no ability to moderate the content disseminated by their customers, by 2.0 suppliers of which we have said that, on the other hand, they have the ability to know - and therefore to moderation - far more insightful, and aggravates the responsibility of the latter.

The DSA, then, imposes only on the suppliers of the latter group a series of penetrating obligations of rapid removal of illegal content - thus making binding what many of them have already voluntarily accepted with a series of codes of conduct, in particular that relating to the fight against hate speech we have mentioned, whose obligations are also applied to different cases - and adds new responsibilities, including that of guaranteeing public institutions the possibility of subjecting their internal data to an in-depth examination, as well as the obligation to produce an annual report on the risk status of their services and to appoint an external and independent manager to verify their compliance with all these rules. The graduation of charges according to the capabilities of individual suppliers, in addition to representing an incorporation of consolidated jurisprudential guidelines, however, represents an application of the principle of proportionality.

Another passage in the draft proposed by the Commission imposes an obligation on online service providers to provide their users with "*meaningful information*" (although it is unclear what this means) about the mechanisms that regulate online advertising and, in particular, on the profiling algorithms that decide in real time which specific advertisement to show them. In short, from what we read, the DSA regulation does not seem to overturn the EU regulation of the liability of online service providers for the content uploaded by their users, but, more simply, to rationalize it in compliance with previous criteria and principles, of first jurisprudential processing and then included in regulatory measures already in force, such as, for example, the aforementioned directive on electronic commerce.

However, we must highlight how the brief considerations developed here must necessarily be re-weighted in the light of the final text of the DSA, whose approval is expected by 2023. The proposal, in fact, during the ordinary legislative procedure could undergo even significant changes (as is already the case occurred in the past, for example with regard to the directive on copyright and related rights in the digital single market), as a result of a very heated debate, both at the institutional level and in public opinion: think, for example, of the interests that could move EU Members such as Luxembourg or Ireland, where many of the "Over the Top" reside, or the impact the proposed measures could have on freedom of expression.

5.2 The Digital Markets Act⁷²

The DMA aims to revive the competitiveness of European companies in a sector largely dominated by US companies and, therefore, identifies the so-called companies gatekeeper: with this expression the regulation refers to those companies that enjoy a particular position of relevance and that, for this reason, can raise barriers to the entry of new companies on a specific market (think of the distinct markets of social networking, cloud computing, messaging, streaming, and so on).

According to the Commission's project, companies will therefore be considered as such, on the basis of a quantitative criterion, which in a year invoice at least 6.5 billion euros in the EU or which have at least 45 million users among EU citizens, as well as, on the other hand, with a qualitative criterion, those, even if of smaller dimensions, that hold positions of particular importance on specific markets.

All will be subject to "preventive" rules, aimed at preventing them from adopting anti-competitive behavior: these rules - and this seems to be one of the innovations of the proposed package, which, however, can only be fully evaluated after its final approval - are aimed, even before that to sanction *ex-post* violations (which are in any case possible and can be sanctioned autonomously in accordance with the relative rules provided for by the Treaties), to prevent anticompetitive behavior in advance. The gatekeepers, in fact, will not be able to exclusively promote their own services or favor them to the detriment of those of others, which, on the other hand, is currently the case: the companies that manage the app stores will, for example, be obliged to guarantee equal treatment to competitors' products, also allowing the use of payment and subscription systems other than their own.

⁷² <http://www.sidiblog.org/2021/03/29/digital-services-act-e-digital-markets-act-tra-responsabilita-dei-fornitori-e-rischi-di-bis-in-idem/>

The punitive system proposed for the violation of these obligations appears to be rather severe, contemplating penalties of up to 10% of the global turnover of the responsible company and periodic penalties of up to 5% of the global daily turnover, with their aggravation in the event of recidivism. The discipline in question, however, risks adding to the possibility that the same behaviors are also sanctioned *ex-post* pursuant to antitrust law: this could pose problems of compatibility with the prohibition of *bis in idem*. Although, in fact, the Court of Justice has ruled out that the double penalty - for violation of national and EU antitrust rules - does not violate this principle, in the present case there would instead be one - at least potential - application of two separate sanctions, both adopted in application of EU law, and in the presence of the requirements established by the Court itself for the application of the *bis in idem* principle in the context of competition law.

6. Conclusion

Online platforms are among the main drivers of digital transformation in the single market. However, their innovative potential creates new challenges for lawmakers and for society at large. The reform of the sector now appears necessary and the new rules should on the one hand guarantee the integrity and functioning of the market and on the other hand increase its potential, fueling innovation and allowing new competitors to enter the market (in this sense those who have more power in the market should have greater burdens).

It is argued by many that the new package of rules has targeted Amazon, Google (with its thousands of increasingly stringent services) and social media, starting with Facebook. It is undeniable that this is the case. After all, the e-commerce Directive did not take them into consideration for the simple fact that these realities either did not exist, or did something else (Google limited itself to being a search engine, Amazon to selling books online), resulting far more modest than they are today⁷³.

Today, however, the Commission certifies that these subjects are highly dangerous and the general rules on competition are not enough to prevent unfair commercial practices, so they become "special supervised"⁷⁴.

With the Digital Service Act and the Digital Markets Act, therefore, Europe has applied for the role of standard setting on a global level and, while the "war" is announced, which could be defined as the bloodiest in the history of antitrust, it is questionable whether the Digital

⁷³ <https://www.startmag.it/innovazione/cosa-cambia-per-google-facebook-e-non-solo-con-digital-market-act-e-digital-service-act/>

⁷⁴ <https://www.startmag.it/innovazione/cosa-cambia-per-google-facebook-e-non-solo-con-digital-market-act-e-digital-service-act/>

Markets Act and the Digital Service Act, which will only come into force in two years, will actually be effective tools, since the package risks being finalized when, in the meantime, the market is changed again⁷⁵.

⁷⁵ <https://www.startmag.it/innovazione/cosa-cambia-per-google-facebook-e-non-solo-con-digital-market-act-e-digital-service-act/>

CHAPTER 5 – NETWORK EFFECTS: CO-CREATION OF VALUE IN A PLATFORM ECOSYSTEM

1. Introduction

Nowadays, it is pretty obvious for anyone that digital transformation has not invested in the previous years and does not currently invest only the production systems, but it affects mostly the entire economic and social system, being - as it was defined over seventeen years ago - of *“a set of mainly technological, cultural, organizational changes, social, creative and managerial, associated with applications of digital technology, in all aspects of human society”*.⁷⁶

Having a look at the impacts that such phenomenon had on the economy, it is evident that digital technologies have acted and currently act both on production processes and on the market, transforming national economic systems and the relationships between them and their operators. This phenomenon concerns both the producers on the supply side (continuous process of innovation of products, new business models, birth and consequent affirmation of internet platforms), as well as the consumers on the demand side (change of styles of consumption and use, the tendency of users to become also content producers and at the same time paying the services they use with the highest price on the market: their data). The digital transformation process is not recent, and it is also in constant evolution, with an acceleration in recent years. Now, these "new" technologies, after a few decades of development, they express their full power on the market, but we are still assisting to a continuous process of changing and adapting to the market's evolutions and to individual behaviors by every involved subject. So, it is clearly a phenomenon that still needs to further grow and that possibly change his dynamics in the very next future.

This has led to the fact that the business model has profoundly changed from a linear structure to a synergized interconnected network, where every player acts a key-role and affects all the others balancing digital behaviors, providing content/data, and receiving back outputs that consequently have an impact on the role played by all.

It looks like the ecosystem that we observe in nature: every tiny instrument in this whole orchestra can be considered at the same time the main player.

⁷⁶ Stolterman E., Croon Fors A. *Information Technology and the Good Life*, in Information Systems Research: Relevant Theory and Informed Practice, 2004.

In such context, in this chapter it will be analyzed how the combination of all these factors actually work together in the whole ecosystem and how all this dynamic end never-ending evolving structure can be effectively matched with the so-called “network effect”, co-creating value with the contribution of each player and at the same time being balanced by the regulation constraints (and above-all by the self-regulated constraints that have been analyzed in the previous chapter 4).

2. The evolution of convergence process

The first season of digital technologies is generally described with the phenomenon of the convergence of information and communication technologies and markets (ICT, Information and Communication Technology). Almost thirty years ago, the Organization for Economic Cooperation and Development (OECD) produced an analysis of this process, i.e. the ability of digital technologies to bring back to a unique language and transmission mode that before were considered to be different⁷⁷. For many years, the analysis of convergence processes has essentially taken into consideration the IT, telecommunications and audiovisual industries, which – as we assisted - have been progressively affected by digital transformation.

However, the progressive extension of digital technologies to all production sectors has seemed increasingly evident, so - currently - there is no production activity that can be said to be excluded from the impact of digital technologies, which have constantly evolved, with regard to the different levels: transmission media, networks, and software.

This awareness of such context requires going beyond the approach of convergence between ICT sectors, to affirm instead a broader vision, in the direction of a digital ecosystem, in which countless subjects operate, no longer limited to ICT and contiguous and not-communicating sectors (cinema, web, music, for example). In addition to all the legal, anthropological and scientific researches produced in the last years on this matter, the concept of ecosystem has characterized important projects that have been launched at the beginning of the last decade, above all in industrialized countries.

While the concept of ecosystem spreads in economic analysis, replicating itself in different joints (internet ecosystem, ecosystem 5G, IT ecosystem, and so on), there are studies that show that the so-called digital platforms have assumed a dominant role, particularly to the

⁷⁷ OECD (1992), *Convergence between Communications Technologies*, Paris, e OECD (1992), *Telecommunications and Broadcasting: Convergence or Collision?*, Paris.

detriment of traditional telecommunications and audiovisual companies. However, the troubled conclusions reached by many of these studies have failed, at least until recently, to convince the national and international institutions of the need to tackle the problem of growth impetuous of the market power of Big Tech companies..

On the contrary, at least until the Cambridge Analytica scandal, prevalent opinion - among the scientific world and even more so among users - tended to acknowledge these significant merits in terms of range, innovation, prices of services offered, counterbalancing such merits with their limitations in terms of privacy and competition, as well as the associated risks in terms of information manipulation and freedom and correct information of opinions and even choices taken by democratic communities.

In any case, the central role of internet platforms within of the digital ecosystem has become increasingly evident and undisputed. At the same time, the affirmation of "new" digital technologies, such as big data, artificial intelligence, algorithms, the blockchain has made the digital ecosystem evolve towards what we can define like a digital ecosystem 2.0 or a new era of digital ecosystem: an environment in which several subjects operate, both on the supply side (TLC companies, platforms internet, audiovisual operators, software companies), and on the demand side (users, public administrations, user companies operating in increasingly broad and diversified market sectors), as well as the institutions in the various sections (Government, Parliament, independent administrative authorities, administrative justice).

In this digital ecosystem, internet platforms - more capable of handling "new" digital technologies - have increased and continue to increase their dominant position, raising several antitrust cases as it has been analyzed in the previous chapter: so that it now becomes inevitable to wonder how their power in the market could be limitless or, as we have seen, some sort of regulation (and not only self-regulation) is needed. Indeed, news in the last years have shown how that the rules that some platforms impose to themselves, almost acting the roles of Government, could be sufficient or even necessary (a clear example is the Donald Trump case occurred at the beginning of 2021 and the consequent ban of his account by Twitter). On the other hand, such worrying cases demonstrate that maybe an *ex-ante* regulation that has the characteristics of trans-nationality (like business platform have) could be effective to assess the potentiality and address the related risks with uniformity and clarity of rules.

Considering the above, it is not a surprise to acknowledge that the digital platforms that have *de facto* established private mechanisms, which represent a much more efficient and reliable

alternative to not mature and ineffective public institutions in the online world. Having said that, the ineffectiveness of a public law enforcement– that should act like an offline world that confers public actors a new authority to respect an “online legislation” – has led to a scenario in which who manages a business platform decides autonomously its rules and replace that public authority with contractual rules and the use of terms of service that establish what behaviors are allowed in the offline world.

3. Who is doing what in this platform ecosystem?

Before having a deep dive of the main topics that will be analyzed in this chapter, it is important to firstly point out all the actors playing a specific role in a platform ecosystem, in order to see at a later stage how each of them could interact with the others, in order to create the so-called “*network effect*”.

The main categories of players that operate in the digital ecosystem are five:

- 1) **Internet Service Provider (ISP) or Internet Access Provider (IAP):** they allow users to interact with other users online, to access digital content, to take advantage of innovative services.
- 2) **Content Provider:** Content providers play a crucial role in the mechanisms of the digital ecosystem. Information and entertainment content constitute the raw material of the services provided to individuals and businesses.
- 3) **Service and application provider:** they provide services and applications that people or businesses benefit from in the production of other goods and services.
- 4) **Device provider:** they produce hardware devices but also software systems that allow access to the network. Typical devices are, for example, personal computers, tablets, smartphones, smart-TVs.
- 5) **Platform provider:** also called gatekeepers, they provide services of intermediation, aggregation and management of information collected from users who use digital services.

These five players interact by producing digital goods and services. The platforms are the center of the activities related to networks, services, contents and devices.

The main key-aspects of an ecosystem platform can be summarized as follows:

- 1) **Customer centricity:** when we look at the most successful digital ecosystems, it is impossible not to notice the focus on creating value. Sometimes these ecosystems did not even have a monetization model at the very the beginning, as they were focused on their customers and in understanding their needs before they even start

pricing services or offerings. Being customer-centric does not only refer to the customer service or personalized advertisements/marketing services that the company offers, but it is rather a full spectrum of customer-centricity that is only possible due to the scale of the business. This means holistic operations and collaboration between departments and products/services to integrate the customer journey as well as possible.

- 2) **Data driven:** one of the main benefits of using a digital ecosystem is the ability to gather more information about processes, customers, transactions, and much more. This makes data one of the main drivers of any digital ecosystem. The more you can know about your customer, the better you can offer services, software, technology and tools to improve the customer journey throughout the customer journey.
- 3) **Global:** it is an essential starting point to have a global footprint. Digital ecosystems are -by definition- spread globally and limiting them primarily to countries or regions it will never create benefits on using a platform and an ecosystem. This means that digital ecosystems also need to be built to enable collaboration between countries, geographies, and even languages. Sometimes it is even necessary to address cultural barriers.
- 4) **Dynamic:** it is also worth mentioning that the mindset must be very dynamic. Ecosystems must adapt quickly and react quickly to changing market dynamics, otherwise the user base will move forward and the platform will change. Business intelligence, fast decision making and also the use of new technologies and business models must be at the center of every decision.
- 5) **Automated:** due to the enormous insights that digital ecosystems take from customers, suppliers, and third parties, it is also possible to make these insights actionable. Automation is one of the key elements to reduce price, improve customer satisfaction, but also offer new services/products to increase the flow of value. In just one word: algorithms.

4. How an ecosystem interacts in a business platform: the network effect

In order to understand such huge phenomenon, first let's have a look at the Amazon case. This practical case can give some input to better understand the main items that will be further analyzed.

Since around 2000, Amazon keeps on constantly building its digital ecosystem. Firstly, the retail giant needed to build a gigantic server infrastructure around the world in order to serve its e-commerce platform to customers. But soon Amazon began leasing the server capacity to other companies. This step led to Amazon Web Services (AWS) and this was an important milestone for the company to create this huge ecosystem that they have right now.

Amazon used its own AWS infrastructure not only to supply other companies with infrastructure services, but used it as a launch pad for all other services such as Amazon Prime Video, Prime Music, Studio, etc. This led to a rapid accumulation of services around the Amazon's universe. Users mainly had the advantages of being privileged customers and receiving packages faster, they had access to music from amazon and they could even watch series and movies from the main library.

Amazon then involved many outside companies to participate in this ecosystem. So, the e-commerce part was the first to open-up and even allow competitors to use this infrastructure of services and tools that Amazon offered. This made them a great success when looking at their entire Amazon ecosystem. Today, there are more than forty Amazon subsidiaries today, just to give a quick example of the boost of a platform.

The above-said description of the "Amazon's evolution" leads to an easy consideration: platform companies can achieve remarkable speed in creating value, and it also appears that they need considerable fewer staff to do so.

This necessarily leads to a general premise: a platform underlies a technological element that forms the basis on which a series of independent companies can form an "*industry ecosystem*", developing a series of related products, technologies and services.

The technology used within a platform is always linked to obtaining results, solving certain problems, completing specific tasks using particular skills, using knowledge and exploiting resources (let's think to the main existing platforms like Google, Netflix, Facebook, etc.).

The concept of technology does not only refer to the product itself but is also associated with the knowledge and information related to its use, application and development process. A platform is a business model that creates value by facilitating exchanges between two or more interdependent groups, usually consumers and producers. To accomplish these exchanges, platforms leverage and create large, scalable networks of users and resources that can be accessed on demand.

The "*ecosystems of platforms*" are therefore companies that build online networks, which allow them to grow and prosper beyond the narrow confines of the company itself. These systems have transformed the way we think about business models and many of our basic assumptions about what creates a successful business.

Indeed, the business models of the platforms always beat the business models of the products. On this regard, it is important to remember that today most valuable global brands are platform companies. Let's see how they gained all this success all over the last years. Successful networks are bilateral, in other words, users and suppliers interact and reinforce each other. This means that it is created a "*magical fatal attraction*" among all the players: everyone feeds the other and is fed by others.

Let's give some practical examples, in order to understand who are the main characters of these interactions: for example, car providers and car drivers, music producers and listeners, video producers and viewers, .

In this context, the so called "*gatekeepers*" (as we have seen in the previous chapters, this is a term used in digital platform and referred to the power that different subjects exercise on information flows such as rating agencies), thanks to the control they exercise over information flows, including related ones to personal data, configure the relationships between users/consumers and platforms. Indeed, the more the platform will be able to accumulate data on users through collection and profiling processes, the more its power will grow, even more the market, thanks to a constant dimensional growth and a growing inertia of the consumers who will receive increasingly personalized offers of goods and services. Without any doubt, this can have negative effects from a competitive point of view, as it reduces the propensity to search for alternatives.

Another key-role in this process is obviously played by algorithms, their functioning and the way of making decisions. In particular, the algorithms seem to encompass two related but different automatisms: on the one hand, "*they automate the process of subjecting data to analysis, undertaking tasks that would be impossible to perform manually*"; on the other

hand, *"the results of these analyzes help to automate second and very different set of operations: decision-making"*.⁷⁸

Another important key-role is played by the ecosystem strategy that each company decides to define. An interest study made by McKinsey between 2019 and 2020 individuates three main archetype of ecosystem strategies that business companies can adopt⁷⁹:

- 1) **The first archetype of strategy** is that one in which the company strategically make its core business grow through partnership or building a new ecosystem from scratch. In this sense, companies derive value from earning revenues from core products and services. This should imply that in this sense the ecosystem enables the company to sell more existing products to many more customers. Once the ecosystem is fully operative, the company can provide more extensive service offerings.
- 2) **The second archetype of strategy** foresees that a company should decide to expand the network and portfolio on the platform, generating revenues from new products. In this sense, companies' strategies should be translated in deriving value from mining higher customer lifetime value. In this way, a company can decide for example to capture value from many sources including customer-funded new products and services, merchant-funded platform usage and third party-funded data monetization.
- 3) **The third archetype of strategy** is made by building an end-to-end solution to serve business customers and improve operational efficiency. In this archetype, maybe the easiest one, companies decide to optimize efficiently the already existing technologies and infrastructures and then offering them to other companies. Of course, this implies lower operational costs in comparison to the other two archetypes. This is for example the strategy adopted by Amazon in the case described at the beginning of this paragraph.

Let's have a look at these archetypes on a table published by McKinsey in 2019.

Such table shows with a very schematic method how these three archetypes match with the key value levers of improved revenues from core products and service, customer paid new products and services, merchant paid platform usage, third party paid date monetization and increased operational efficiency. Such value levers, matching with the one or more

⁷⁸ Barocas S., Hood S., Ziewitz.M., *Governing Algorithms: A Provocation Piece* (Paper prepared for the "Governing Algorithms" conference, May 16-17, 2013, at New York University, 5 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2245322))

⁷⁹ <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/how-do-companies-create-value-from-digital-ecosystems>

archetypes, give birth to some practical examples that put a spotlight on how an efficient strategy can be built when a company decided to operate through a business platform.

Different archetypes elevate top-line and bottom-line from different sources.

Key value levers	Archetype 1: Growing the core business	Archetype 2: Expanding the network and portfolio	Archetype 3: Building an end-to-end solution	Examples
Improved revenues from core products and services	✓			New customers, improved loyalty Maximized potential of an existing revenue pool
Customer-paid new products and services		✓		Sales of back-end solutions Sales of new products and services
Merchant-paid platform usage	✓	✓	✓	Registration/listing fee Commission fee
Third-party-paid data monetization		✓		Advertisements Access to data
Increased operational efficiency			✓	Decreased costs per unit Synergies among assets and resources

Source: McKinsey analysis – *How the best companies create value from their ecosystems*, McKinsey & Company, November 2019.

Having defined a strategy, now it should be valuable to understand how making the whole ecosystem fully performed and the network effect wholly operative.

But how? When there is a network effect, the value of a product or service increases according to the number of other users who use it: this has been the mantra for many social networks that quickly increased their value for each member gradually every time more users were added.

The effects of the platform economy become significant only after a certain critical mass has been reached.

An added benefit for digital markets is that they are free from geographic constraints, which means network value is essential for those looking to expand into new markets. China and the United States are leading the charge in this sector, followed by Europe, while United Kingdom still has the leadership of the *Fintech* platforms.

5. Co-creating value.

Firstly, it is necessary to think about the change of the paradigm and the related logic of the industrial era: on one hand, big multinational companies in the past decades had achieved economies of scale on the supply side. They have grown, unit costs have decreased, they have reduced prices and challenged the competition market.

On the other hand, now platform companies with network ecosystems achieve economies of scale on the demand side: larger networks create more value, which attracts users, who in turn increase the value of the network. The value grows more than proportionally with respect to the size of the company, also in terms of employees

However, we are assisting to this phenomenon in which many companies are trying to replicate the ecosystem successes of many companies and they are struggling in being a successful platform. In a very simplified explanations, this is because basically ecosystems are complex, and it is pretty a winning lottery strategy to point out in due advance the right approach to capture maximum value from them. So, it becomes fundamental for companies to firstly determine their ecosystem strategy by assessing market characteristics and trends as well as their fit within specific ecosystems. What is also crucial at this stage for companies is to assess their value-creation agenda, taking into consideration a list of focused priorities, such as to grow the core business, create new products and services, build an end-to-end solution for a new segment, or improve operational efficiency.

In this very challenging scenario, companies are trying to innovate faster because their open systems attract ideas from users to serve other users.⁸⁰

This demonstrates that collaboration is critical for success within an ecosystem. Success of early ecosystem plays proved that ecosystem strategies could generate real value, motivating new startups and incumbents to follow. While a few years ago ecosystems were thought to be relevant for only a few industries and regions, in the last two years we have seen dominant ecosystem players, startups and incumbents, accelerate their activities, all over the world.

And these approaches can be winning on all marketplaces. The payoff for success can be huge. For example, a closed innovation model can be extremely different from a new open innovation model, where the inputs come from different levels, directions and players, creating values and fostering a continuous improvement process:

⁸⁰ A clear example of successful open innovation methodology was made up by the Enel Group: <https://openinnovability.enel.com/>

For business leaders wishing to create such networks, the focus is most of the times outside the company itself. On an ever-increasing scale, big tech companies are exploiting their online marketplaces (let's think about Facebook Marketplace), that are in a few words platforms that aggregate technological goods and services as a kind of one-stop shop for customers.

These marketplaces include technology solutions ranging from standard products to cloud applications and services. Google's Marketplace, for example, gives you access to hundreds of cloud-based applications from independent software vendors, ranging from categories such as enterprise resource planning, logistics, HR applications and customer relationship management solutions. Furthermore, with a simple click, customers can install and customize these solutions and apply them in their businesses.

In 2021, these IT shopping centers are growing in influence precisely as they will be directly the business lines that will take charge of the decision-making and purchasing processes related to IT. And this has been influenced, without any doubt, by the side effects caused starting from 2020 from the COVID-19 pandemic, that lockdown people at their homes and basically forced the business platform to an unpredictable boost. But this point will be faced more precisely in the next paragraph.

6. Side effect of COVID-19: huge increase in using business platforms

It is beyond question that the large digital platforms - with the competition of other protagonists of the digital ecosystem - have improved the living conditions of consumers and users. Between other things, guaranteeing them the possibility of doing everything remotely, such as a number of functions (purchases, payments, meetings etc.) to take on interactions both at personal/business level and with public sector administration.

Similarly, digital platform services have imprinted a strong drive towards innovation and efficiency of production processes e distributive⁸¹.

Lastly, the role of online platforms, and more generally of digital technologies, is turning out to be deciding to support the economy and to society in the dramatic situation of Covid-19: it is hardly necessary to mention the contribution given to remote teaching and smart working (or better said "remote working") from the different video platforms conference (Meet,

⁸¹ <https://unctad.org/news/how-covid-19-triggered-digital-and-e-commerce-turning-point>

Teams, Zoom etc.), but also this guaranteed the possibility to citizens to keep in touch with relatives and friends, even in the conditions of social distancing.

It will be for these merits of digital platforms that, for too long time, Europe underestimated the process that led to the hegemony of huge digital platforms, both in terms of a regulation capable of guaranteeing an effective level playing field between these entities and European companies operating in digital markets, as regards the adoption of measures - on a European scale - to support research & development and investments in the field of infrastructures and digital services and artificial intelligence.

Only in 2020, a new awareness has matured for the impact that the pandemic is currently producing and will continue to produce on economic and social systems, imposing radical and profound changes.

It will therefore be necessary to rethink this strategy. This is due to the fundamental role that digital technologies cover for the response to the crisis today, in the emergency management phase; but in the coming months and years, even more, for the definition of a resilient development model compared to pandemics and compatible with the unavoidable needs of environmental and social sustainability.

In this sense, public policies for digital platforms, and specifically the regulation and protection of competition in the digital market, need to be accelerated or rapidly reformed and not postponed from time to time.

7. Conclusion

After all the topics faced so far, a preliminary conclusion is crystal clear: most of the companies today are completely absorbed by digital ecosystems. There are networks of suppliers, distributors and outsourcers, manufacturers of related products or services, technology providers and other organizations that influence and are influenced by the creation and delivery of a company's offer.

Despite being increasingly central to modern business, ecosystems are still little known and still poorly managed. The analogy between corporate networks and biological ecosystems can help this understanding by vividly highlighting some key concepts.

On a sustainability level, it is important to pinpoint that the moves that a company makes will affect, at various levels, the health of its corporate network, which in turn will ultimately affect the performance of the organization, both for better and for worse. Since a company, like a single species in a biological ecosystem, ultimately shares its destiny with the network as a whole, smart companies pursue strategies that will benefit everyone.

The real sustainable challenge of the whole network is therefore to promote the health and stability of one's ecosystem, and, at the same time, determine one's place in it and to develop a strategy that matches one's own role, thus helping to ensure the well-being of the company.

On a regulation level, digital platforms are increasingly undertaking regulatory and police functions, which are usually under the umbrella of the public law. We have seen so far how these functions have been from time to time delegated to platforms by public authorities, while at the same time platforms - in order to avoid any kind of liability - are attributing by default such functions to themselves (without any kind of delegation of powers) and *de facto* becoming a private cyber-regulators and cyber-police.

Hence, at this point ecosystem platforms should at a major lever take into account the above addressed issues, in terms of the following proposals of implementation:

- i) the definition of an adequate regulatory framework for data governance, access and reuse of data: between businesses, between businesses and governments, and including of course public administrations.
- ii) providing support for the development of technological systems and infrastructures of the next generation, including investments in projects that have a high impact and that can build data space and reliable cloud infrastructures that could make the ecosystem sustainable;
- iii) the launch of sectoral initiatives, in order to build specific data spaces, for example with regard to the mobility sector and the green deal.

Similarly, Artificial Intelligence should play a regulated role in the whole functioning of the ecosystem platform: on this regard, the intervention also by EU should not be based only on regulation, but it should include measures to accelerate investment in research and innovation, enhance the development of skill, support its adoption by SMEs. On this regard, first steps are being moved by EU Commission in April 2021 with the *“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”*⁸² All the above implies one unique direction: digital ecosystems are data-based, they are formed on the basis of the complementarities linked to the production and exchange of different types of data. And data in this phase can be more precious (and dangerous) of the technology itself.

⁸² <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021PC0206&from=EN>

Therefore today, if a company really strives for being innovative, it must be aware that it is not sufficient to develop technologies and compete with such technologies on the market. Instead, it takes a long-term vision, strategic planning, and training of human resources, sustainability and most of all a structured corporate social responsibility.

CHAPTER 6 – SUSTAINABILITY IN THE AGE OF PLATFORMS

1. Introduction

Shopping online, jumping from one meeting via Teams to Meet to Zoom, instant messaging via Messenger, WhatsApp, Signal or Telegram, attending professional training or gymnastic courses online, booking a hotel or a flat via Booking or Airbnb, is such conduct sustainable? More and more interactions, acquisitions of products and services are nowadays exclusively handled through platforms and this comes not without far-reaching consequences: due to network and economies of scale, data, capital and power are increasingly concentrated in the hands of a few platform companies. Small and medium-sized enterprises even from remote areas and emerging markets gain access to global markets enhancing global competition, while contemporaneously non-commercial platform providers are being squeezed out or bought up by the big ones and traditional shops face competition of global marketplaces. This dynamic has become the source of major social, political and economic conflicts in recent years. Increasingly, actors from different social sectors have begun to examine the market practices of the dominant platforms, questioning sustainability of platform business models.

Platform business models certainly have the potential to increase efficiency, saving resources and protecting the environment but since platform business models are able to complete transactions without a physical presence in a country, it needs to be ensured that platform-based enterprises meet sustainability goals and pay the correct amount of taxes where value is created.

In various segments of our everyday lives platforms like Amazon, Booking or Uber have a disruptive impact on the respective industry and have changed our consumer behavior.

2. Definition of “sustainability” within the world of platforms

A sustainable business model in rapidly changing marketplaces must acknowledge that we have limited availability of resources and that resources must be used conservatively and wisely with a view to long-term priorities and consequences of the way in which resources are used. Sustainable practices support economic, ecological and human health and vitality. A frequently quoted definition of sustainability is the one of the UN World Commission on Environment and Development: *Sustainable development is development that meets the*

needs of the present without compromising the ability of future generations to meet their own needs.

The concept of sustainability is fundamentally based on three pillars: economic, environmental, and social sustainability often quoted also as profits, planet, and people.

3. Are Data Centers sustainable?

Huge data centers used by platforms are a real scourge for the environment due to their energy and water consumption. In the United States alone, it is estimated that data centers consumed about 73 billion kWh in 2020. And this consumption continues to double every 4 years. By 2030, data centers around the world could consume up to 10% of the world's electricity production compared to 3% at present.

On top of that it is necessary to set up cooling systems to prevent overheating of data centers and it is the cooling of the system that consumes energy and a huge amount of water: a medium-sized data center (15 megawatts (MW)) uses as much water as three average-sized hospitals, or more than two 18-hole golf courses.

The cooling of data centers accounts for about 40% of the energy they consume. Some progress has been made with using recycled and non-potable water, but some data center operators are drawing more than half of their water from potable sources.

Today, Data Centers alone account for 17% of the IT technology's carbon footprint. With 2% of total greenhouse gas emissions, their carbon footprint is similar to that of the industry's aviation. And by 2040, data storage could account for 14% of emissions, which is as much as the United States does today.

4. Potential impact of platform business models on “Sustainable Development Goals”

We will assess in the following the correlation between the 17 Sustainable Development Goals (SDGs)⁸³ defined by the UN in 2015 and platform business models.

Among the 17 SDGs, platforms already play a crucial role in achieving a large number of goals and their increasing importance, and the behavior of their stakeholders are likely to be a game changer in the achievement of such goals.

⁸³ The 17 Sustainable Development Goals defined by the UN in 2015, the heart of the 2030 Agenda for Sustainable Development.

For the assessment of sustainability of platform business models it is necessary to distinguish between various categories of platforms which are often classified in Transaction Platforms (e.g. Amazon, eBay, Alibaba, Airbnb), Social media platforms (e.g. Instagram, Facebook, Twitter), IT platforms, (e.g. Windows), Innovation Platforms and Hybrid or Integrated platforms (e.g. Mobility Platforms, Smart Cities) which combine features of transaction and innovation platforms.

All these types of platform business models can potentially facilitate the achievement of all the SDGs but their impact cannot be generalized. The assessment of sustainability essentially depends on the scope of the platform, its stakeholders and fundamentally the consumer behavior. The management of platforms does have the power to encourage the sustainable use of platforms, but the question is if stakeholders and above all the management of major platforms are incentivized to promote sustainability.

Global regulation of platform business models on one hand and the promotion and incentivization of sustainable consumer behavior is indispensable for a sustainable development of platform business models.

We will further assess in the following two types of platform businesses, which seem extremely challenging in terms of sustainability:

- Transaction Platforms; and
- Mobility platforms.

4.1 Transaction Platforms

4.1.1 Are transaction platform businesses sustainable?

Increasingly, companies like Amazon are making public commitments to sustainability through actions like investing in renewable energy, favorable working conditions, ecological packaging and delivery services, in response to massive criticism and substantial negative media attention regarding unsustainable working conditions, environmental impact of its packaging and shipping system.

However their impact on sustainability essentially depends on its scope and finally on our consumer behavior. There are a great variety virtuous small-scale platform business models used for example by social or environmental oriented joint purchaser groups. Such groups often engage in virtuous business models which could not exist without platforms for matching offer and demand. Joint purchaser groups may simply have the purpose to get value for money but many of them have a consistent engagement towards social and environmental goals: suppliers are often chosen on the basis of specific criteria such as

encouraging local trade, providing products directly from the producer to the user, favoring ecological agriculture, reducing their carbon footprint, disintermediating traditional distribution chains and offering social inclusion and decent work conditions. Apart from being platform business models such groups have little in common with the sustainability impact of huge well known commercial transaction platforms.

4.1.2 Economic sustainability of Transaction Platforms

Transaction platforms can potentially contribute to:

- promoting global trade by reducing distances, connecting rural merchants and sellers in remote areas to the global marketplace through the online marketplaces providing them additional income channels;
- enabling small merchants to reach consumers and to operate their business more efficiently through software tools without physical presence;
- promoting financial inclusion, by increasing the availability and reducing the cost of financial services.

4.1.3 Environmental sustainability of Transaction Platforms

Transaction platforms can be organized environmentally friendly fostering local trade but especially large commercial transaction platforms are to be viewed critically in relation to their:

- choice of packaging materials and huge production of waste, which is typically not priced into the goods,
- unsustainable delivery services and related environmental impact of transport and shipping; in particular prime delivery services are deleterious in terms of carbon footprint,
- energy and water consumption of their data centers.

4.1.4 Social sustainability of Transaction Platforms

Transaction platforms may play a crucial role in achieving the SDGs by:

- empowering women, encouraging gender diversity, and supporting women's entrepreneurship prioritizing continuous learning through a comprehensive training system,
- helping people in rural areas to emerge out of poverty without forcing them to move to densely populated areas,

- fostering an open and transparent work environment through an emphasis on communication and participation, and operating an inclusive work environment without discrimination,
- fostering entrepreneurship and creating job opportunities also in underdeveloped areas,
- supporting charitable contributions and public services.

Except for small size transaction platforms with social and environmental engagement, customers are often not incentivized to think about the impact their consumer behavior and often get blinded by aggressive pricing policy, the convenience of speedy and comfortable delivery.

Well known commercial transaction platforms nowadays loudly trumpet their investment in energy-efficient data centers and services, their “green packaging” and sustainable transport and logistic services.

In paragraph 5 we will further analyze how to get them to turn around in several fields of sustainability using their huge potential to become a positive game changer leaving a positive legacy towards a sustainable future. Global solutions will be necessary.

4.2 Mobility Platforms

4.2.1 How can Mobility Platforms contribute to sustainable development?

In the 2030 Agenda for Sustainable Development, sustainable transport is mainstreamed across several SDGs and targets, especially those related to energy, health, economic growth, infrastructure, and cities and human settlements. The global attention to transport has continued in recent years. World leaders recognized unanimously at the 2012 United Nations Conference on Sustainable Development (Rio +20) that transportation and mobility are central to sustainable development given the fact that close to a quarter of energy-related global greenhouse gas emissions come from transport and that these emissions are projected to grow substantially in the years to come.

The aim of sustainable traffic management must be characterized by low greenhouse gas emissions, low noise and low pollution as well as low land and resource consumption. This could be achieved by offering a perfect mix of integrated user-friendly mobility of all kinds of sustainable public transport and shared individual transport devices.

Intelligent mobility platforms can combine a wide variety of mobility offers from all modes of transport and employing intelligent technology ensuring the perfect mobility mix. Such platforms may contribute to user-friendly arrangement of logistics and travel chains, using

tailor-made means of transport and suggesting the most sustainable transport for each trip in real time. Unnecessary journeys can thus be limited and the shift to environmentally friendly transport can be promoted. Modern mobility Apps can bundle mobility requests and encourage the use of tailor make pooling service which may supplement public transport where appropriate.

4.2.2 Economic sustainability of Mobility Platforms

Mobility platforms can be a milestone in sustainable transport, furthering:

- economic growth and sustainable infrastructure, better integration of the economy,
- urban-rural linkages and productivity of rural areas and resilience of cities,
- efficient networks of public and private transport systems,
- sustainable cities and communities.

4.2.3 Environmental sustainability of Mobility Platforms

Intelligent Mobility Platforms will be the turning point in environmental sustainability by:

- reducing greenhouse gas emissions,
- incentivizing the use of green energy and sustainable technology for public and private transport and logistics,
- improving urban air quality and reducing noise exposure.

4.2.4 Social sustainability of Mobility Platforms

Mobility platforms may contribute to achievement of social sustainability by:

- enhancing social equity and wellbeing,
- improving health and work-life balance in urban areas,
- combating poverty of rural areas.

Intelligent mobility management platforms can contribute to efficient traffic control in cities promoting environmentally friendly means of transport instead of the use of individual transport devices. An integrated smart city concept employing intelligent mobility management systems will be the major driving force behind the logistic management of densely populated areas and may be an upgrade in our work live balance.

5. Conclusion and recommendations

Platform business models have an important role in achieving the economic, environmental, and social sustainability goals, but their impact on a sustainable future will essentially

depend on the engagement of their management, stakeholders and customers. Global regulation of platform business models and the promotion of sustainable consumer behavior are indispensable for a sustainable development of platform business models. If value for money is the only driver of a customer's decision, sustainability will suffer.

Global regulation of online marketplaces will be needed to force the big ones to turn in the right direction, and such regulation shall include the following:

- Harmonized minimum standard of sustainability reporting, and global tax rules
- Incentivization of the sustainability of platform's business partners: they should encourage reporting on merchants' social and environmental commitments.
- Platform business must enhance sustainable consumer behavior.
- Customers must be made aware of the impact of their click when purchasing online and choice of sustainable sellers must be available.
- Sustainable packaging and shipping must be granted, and the pricing of goods must take into account the environmental impact of shipping and packaging.
- Data centers must minimize their carbon footprint, reducing energy and reduce water consumption to cool the data centers; potable water must not be used for cooling data centers.
- Online markets are global marketplaces, hence the seat of the platform business model shall not offer "discounts" in terms of sustainability.

Finally, the creation of minimum standards of global tax rules such as the global minimum corporate tax rate of at least 15% formally endorsed by the G-20 in Rome on 30 October 2021 and its effects on the giants of the web on short term and on long term basis will be extremely challenging also in terms of sustainability.

PLAT4ENERGY TEAM – NEW PROJECT

1. The Idea – our SustainableMobilityApp

Our idea was to create an online platform that focuses on renewable energy and mobility. We were able to discuss existing mobility ideas and business models with our colleagues from Enel X and developed the idea of a mobility platform which allows customers/users to connect via a digital business platform with E-Car/E-Bike/E-Scooter providers/owners to enhance sustainable mobility powered by renewable energy.⁸⁴

2. The Project in detail

2.1 Project Name

SustainableMobilityApp

2.2. Scope of collaboration

- E-mobility sharing experience including electric or hybrid cars (together **E-cars**), electric bikes (**E-bikes**) and electric scooters (**E-scooters**) through a sustainable platform;⁸⁵
- Milan and Rome as the prime locations to become flagships of sustainable cities in Europe.
- The following companies of the Enel group, together with an industrial partner collaborate in the following project:

Enel X to further increases the number of charging stations and develops new charging stations for E-bikes and E-scooters.

⁸⁴ *Antitrust notification for potential concentration to be considered:* for the year 2021 the threshold above which it is foreseen the obligation to communicate to the Antitrust authority a concentration is 511 million euros for the revenues achieved in the Italian territory by all the companies involved and 31 million euros for the total revenue achieved individually at a national level.

⁸⁵ DIRECTIVE 2014/94/EU on the deployment of alternative fuels infrastructure provides for standardized plug-in devices for electric cars but such standardization does not extend to e-scooters and e-bikes; Eni and Enel could collaborate on regulatory level to foster standardization of plug-in devices. Such standardization would be pro-competitive.

an industrial partner / Enel makes available a fleet of E-cars, E-bikes and E-scooters.

the partners, including **Enel Green Power**, to provide **green energy** to charge E-fleet.

2.3 How does the platform work?

- The SustainableMobilityApp shall include a smart booking tool with an integrated navigator. Through an app application the customer/user can access the platform on the “go”.
- The customer may book any available device (E-car, E-bike or E-scooter) with the option to book contemporaneously the charging station at destination.
- The customer also has the option to book a trip with stopovers for example at a shopping mall, to charge the device while shopping and continue the trip with the same device.
- The SustainableMobilityApp navigator indicates the recommended route to the destination and any available charging stations along the route and at the final destination.
- In a second step an e-mobility option re private vehicle owners is included: private vehicle owners can register their E-cars (or E-scooters/E-bikes) and customers/users may hire these private e-vehicles through the SustainableMobilityApp at available time slots. At this stage the SustainableMobility platform would serve mainly as a transaction platform connecting the vehicle owner and the vehicle user.
- A further step could be the addition of a car-pooling option. This would allow customers/users to offer a ride and choose fellow riders who travel along the same route. In addition to being a more affordable way to commute, it would reduce the number of cars on the road and bringing down the pollution for a cleaner environment.

2.4 Sustainability as an incentive

- Special tariffs/costs incentives for the customer, if the customer refuels the vehicle at any Enel X charging station. This would allow the platform to be run more cost efficient and to ensure that the recharge would always occur with green energy.
- The payment by the customer directly through the Sustainable Mobiltiy App. The platform would take into account sustainable behavior of the customer such as

charging the device during the trip at Enel X charging stations and ending a trip at a Enel X charging station.

- Carpooling or using private owned vehicle through the platform would be honored with benefits such as free rides, vouchers etc.

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After graduating in law at Luiss University in Rome, she started her professional experience joining an international law firm in the department of European and Competition law. Following another experience in another important international law firm in the department of energy law she passed the bar exam and she joined as in house lawyer the legal department of an international energy company for almost 4 years. Following this experience Eleonora moved as legal responsible for the Italian branch of an international energy company and after 4 years in October 2019 she joined Enel.

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