Dipartimento di Impresa e Management Cattedra Markets and strategies

FROM PIPELINES TO PLATFORM:

How platforms' innovation creates a new business model and how they bring companies to success

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To my parents, thanks to them

I become who I am.

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Introduction

"*Learn the new rules of strategy for a platform world, or begin planning your exit.*"[1]

Maybe this statement is too strong but it lets us understand that the economy rules are changing and that we have to understand and to keep up with this change to survive. One of the most important consequences of what some economists call the "the fourth economy revolution" is the development of the Platform business model. This new model can replace or put beside the pipelines business model. It is important to understand the main reasons that bring us to a platform world, which forces make it possible to create it and how it affects the demand and supply market and dynamics. We have to ask ourselves how some companies, that were strong giants just about 10 years ago, have disappeared and how others have been able to gain the largest market share in few years. The aim of this work is answering these questions, starting from the analysis of technology, strategies, models and forces which have kept changing during these last years and how they have transformed competition.

To understand how the rise of platforms is transforming competition, we need to examine how platforms differ from the conventional "pipeline" businesses that have dominated industry for decades. Pipeline businesses create value by controlling a linear series of activities, the classic value-chain model. Inputs at one end of the chain undergo a series of steps that transform them into an output. Some of pure pipeline businesses are still highly competitive, but when platforms enter the same marketplace, the platforms always win virtually. For this reason, pipeline giants are all scrambling to incorporate platforms into their models. Nevertheless, it is not possible to build a platform model with a "pipeline thinking" so I am going to present some shift to keep in mind to move from one model to the other one.

A platform provides the infrastructure and rules for a marketplace, that brings together producers and consumers. The players in the ecosystem fill four main rules: producers, consumers, providers and owners. As we are going to see, they may shift easily from one

[1] "Pipelines, Platforms, and the New Rules of Strategy", M.W. Van Alstyne, G. Parker, S.P. Choudary , April 2016.

role to another. Understanding the relationship both within and outside the ecosystem is central to platform strategy. Platform businesses bring together producers and consumers in high-value exchanges. Their chief assets are information and interactions, which together are also the source of the value they create and their competitive advantage. In this two-sided market, as the number of participants on each side grew, that value increased—a phenomenon called "network effects". Firms that fail to create platforms and do not learn the new rules of strategy will be unable to compete for long.

Competition is more complicated and dynamic in a platform world. The competitive forces described by Michael Porter in his five forces model (the threat of new entrants and substitute products or services, the bargaining power of customers and suppliers, and the intensity of competitive rivalry) still apply. However, on platforms, these forces behave differently, and new factors come into play. To manage them, executives must pay close attention to the interactions on the platform, participants' access, and new performance metrics.

New technology spread by the internet economy enable the world to connect faster. It enables firms that use platforms model to achieve higher volume than competitors and higher average value per transaction. That is because the larger network, the better the matches between supply and demand and the richer the data that can be used to find matches. Network effects are the main cause of demand-side economies of scale.

I am going to introduce technically what Platforms are, when they first appeared and what we mean now when we talk about platform. The analysis of their architecture would help us understand how platforms work and how their structure is helpful to fit quickly the market changes, which some economists call "*evolvability*", the ability to evolve.

In order to understand the difference between Platforms and Pipelines, I will do an overview of what pipelines are. I will consider what they have in common too. The principle of economy are always the same, even if the way we use to achieve them is different.

We are in the digital era, all the information around us can be digitalized and we have to face all the new opportunities and problems that information technology brings. Managers are not worried about making products or service anymore but about creating *contents*. Digital economy no longer relies on fixed assets, but on intangible assets such as knowledge

and information. It is essential to know how to manage this information and, of course, how to manage innovation in every form. Businesses, which are able to manage innovation, can create “added value” and I am going to explain how network effects and externalities create value.

On the contrary of what I have said until now, companies that adopt the platform business model are not infallible. There are some negative network effects we have to consider, such as congestion, or verticalization problems. Platforms create huge business but sometimes doing too much is not synonym of doing well.

Another important aspect to consider is how platforms compete with other platforms. Platform businesses’ economic rational and strategic behaviour are completely different from non-platform ones so also competition rules are different. Analysing platform’s main features will help us understand the reason why one is more successful than another one.

Finally, I will focus my attention on the Uber Business case is a practical explanation of how a platform works. Uber is a company that offer a ridesharing service. Its success is due to the huge net of users and to the simplicity of the service: you just need an app on your mobile phone to use it. Uber owns no car but is one of the biggest company of transportation. How is it possible? You can be both a user and a driver. It was founded in 2009 and in only in seven years it has reached 507 cities all around the world.

Chapter 1

1.1 What Platforms are and how they work

1.1.1 Definition of Platform

According to the Oxford English Dictionary, the word **platform** has been used since the six-teenth century to denote "a raised level surface on which people or things can stand, usually a discrete structure intended for a particular activity or operation".

Somewhat surprisingly, the word has been used in an abstract sense for nearly as long. More recently, the concept of a platform has been developed by management scholars in the overlapping waves of research, respectively focused on products, technological systems and transactions.

Product development researchers first used the term *platform* to describe projects that created a new generation or family of products for a particular firm. Wheelwright and Clark[2] introduced the term *platform product* to describe new products to "meet the needs of a core group of costumers but that can be easily modified through the addiction, substitution or removal of features".

Technology strategists identified platforms as valuable point of control in an industry. Competition between platforms can determine both the success and failure of firms and the evolution of product design.

Industrial economists adopted the term *platform* to characterize product, services, firm or institutions that mediate transaction between two or more group of agents[3].This literature explains the presence of network externalities between these groups.

[2] Creating Project Plans to Focus Product Development, S.C. Wheelwright and K.B. Clark, HBR, 1992.

[3] Platform Competition in two-sided markets, J.C. Rochet and J. Tirole, 2003.

In the latest literature, platforms can be defined as a set of stable components that support variety and evolvability in a system by constraining the linkages among the other components. The fundamental architecture behind all platforms is essentially the same: the system is partitioned in a set of "core" competence with low variety and a complementary set of "peripheral" components with high variety[4].

The most important characteristic of a platform is the ability to create new and more value by facilitating exchanges between more parties. This added value is the success key of platforms and it is the reason why a lot of companies are trying to abandon the "pipelines model" to become platforms.

Moreover, it is necessary to stress the importance of exchange itself. Civilization started when human beings started living together and exchanging their goods and service. The basic idea of platform is not new, it is exactly the same of the first marketplace, like bazaars and auction houses. Actually if we imagine a bazaar in ancient Rome, we can see that they work in the same way (with different technology of course). The bazaar owner rents stands to merchants. The merchants sell products in their stands. The bazaar owner then attracts customers to enter the bazaar. The customers consume the goods that the merchants, the producers, are offering to sell. As we can see, platforms and bazaars enable trades by putting together consumers and producers. Shopping Malls are another example of a platform business model.

Nowadays the evolution of the Internet, connecting technologies and globalization allow the development of platforms as we know it, facilitating the exchanges of value produced by decentralized networks of individuals.

[4] Managing in the modular age: architectures, networks, and organizations, M. L. Tushman, J. P. Murmann,1998.

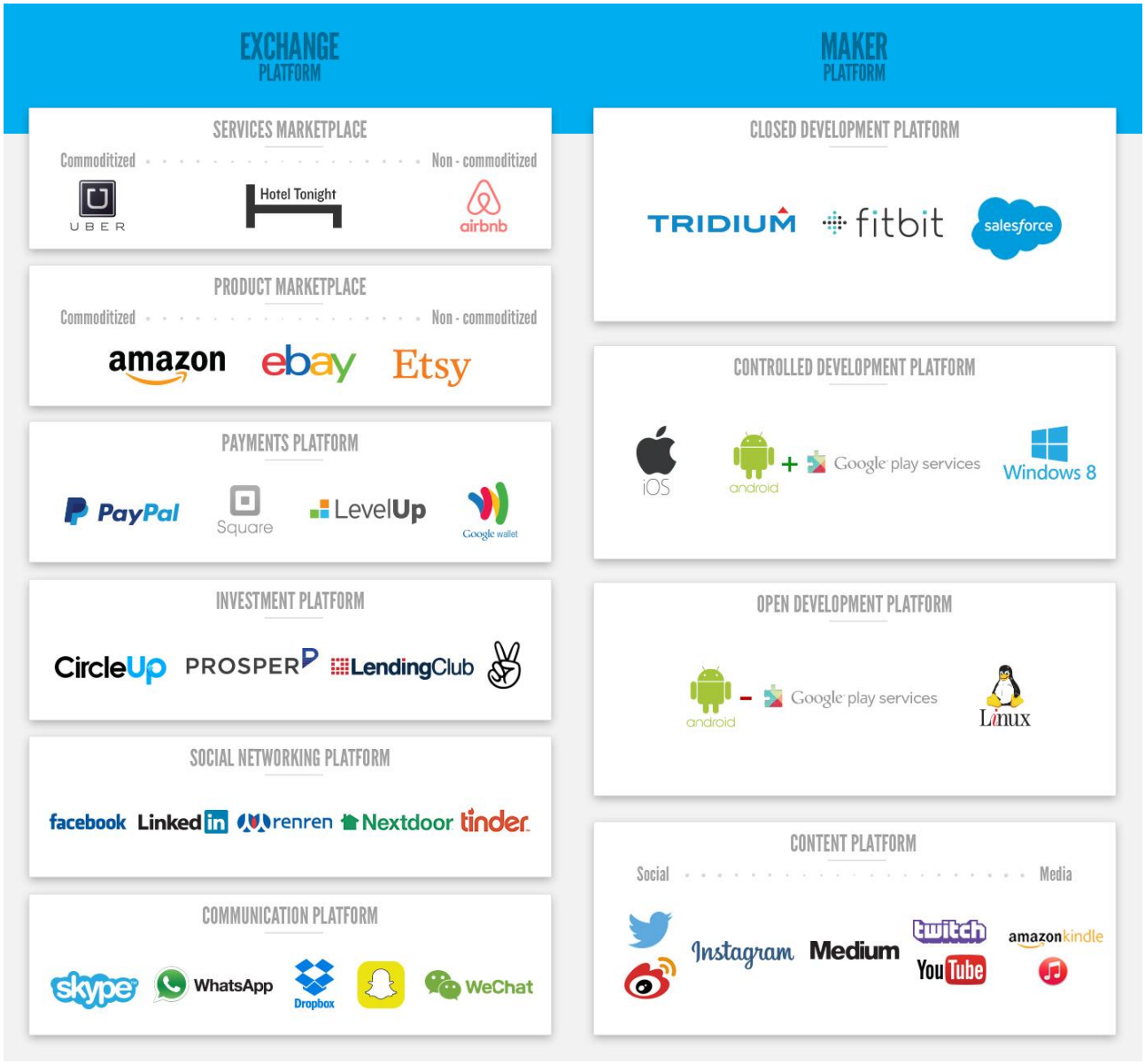


Figura 1 www.applicoinc.com/blog

Successful platforms make easy exchanges by reducing transaction costs, what we call economy of scale, and by allowing externalized innovation and positive network effects that a traditional business cannot.

It is important to make clear that a platform is a business model, not only a piece of technology. More over platform business model and technology together will create the most value.

1.1.2 Architecture and design rules

All complex systems have their own architecture. An architecture is "a scheme by which the function of a product is allocated to physical components, including the specification of interfaces between interacting components"[5]. So an architecture has to include[6]:

- A list of function;
- The physical components needed to perform the functions;
- The detailed arrangement and interfaces between the components;
- A description of how the system will operate through time and under different condition.

Platform's structure is based on the reuse or sharing of common elements for more products or more systems of production. Therefore, a platform can be defined as the collection of assets used for a set of products. Assets can be people, know-how, processes and components.

This is not enough to express how architecture is important, in fact "*it is the architecture of the system that enables other features to be added or existing features to be removed*"[7].

All platform are made of some main components that stay on for a lifetime while others vary in cross-section or change over time. The design rules control the relationships and links among these components.

A basic formula for every platform is:

PARTICIPANTS+VALUE UNIT+FILTER=CORE INTERACTION[8]

Participants are the people involved in the exchange: producers and consumers. The Value Unit is the product offered from one side of the platform to the other one. The Filter is how users find the Value Unit (e.g. a search interface or location).The core interaction is both the final aim and the point of departure. It is when the consumer gets the service and the

[5] The role of product architecture in the manufacturing firm, K. Ulrich, 1995
[6] in the engineering system literature,Whitney et al. 2004
[7] Wheelwright, Steven C. and Kim B. Clark , 'Creating project plans to focus product development,' HBR, 1992.

[8] P. S. Choudary, M. W. Van Alstyne, and G.G. Parker. Platform Revolution: how networked markets are transforming the economy and how to make them work for you. W.W. Norton & Company, 2016.

provider get the money. It is the last step but it is also the first thing you decide and just then, you can define the participants, the Unit Value and the Filter to make the Core Interaction possible.

1.1.2 Evolvability

A particular attention is needed on the concept of evolvability. Evolvability means the ability to evolve, id est to adapt to unexpected changes in the environment. Darwin, in his evolution theory, explained how, not the strongest, but the ones who can adapt to the environment survive; meanwhile all the other ones disappear.

A successful platform has to be evolvable. The architecture is divided in main components and variable peripheral components for this reason. The main components are important for the strength of the platform and as a stable support for the other components. The variable components enable the platform to react easily to the environmental changes. In that way the whole system does not need to be invented or rebuilt from zero to create a new item, accommodate different tastes or respond to changes in the external environment. The whole platform system adjust itself at low cost prices without losing its identity or continuity of design.

The term evolvability was firstly used in the biology field. Economists were inspired by our DNA ability to change and adapt to the external environment to create a business model able to do the same. A practical example of evolvability is Amazon software. Amazon managers know that they have to build evolvable system in order to adapt quickly. Marvin Theimer, Amazon Distinguished Engineer, once stated "*almost from day one, we knew that the software we were building would not be the software that would be running a year later. The expectation was that with each order or two of magnitude, we would need to revisit and revise the architecture to make sure we could address the issues of scale. But we couldn't adopt the old style approach of upgrading systems through a maintenance outage, as many businesses around the world are relying on our platform for 24/7 availability. We needed to*

build such an architecture that we could introduce new software components without taking the service down"[9].

Therefore, Amazon built a software made of a fixed part, which stay stable in the time, and a variable part that can be delated or at which they can add more codes when they want to change.

1.2 From pipelines to platform: technology changes, economy laws do not.

"*...durable economic principles can guide you in today's frenetic business environment. Technology changes. Economic laws do not*"[10].

The economic laws that were essential during the industrial era one century ago are the same relevant in the today's information based economy. So companies need to remind "old economy" principles rather than looking for new strategy for the "new economy". The aim that producers used to reach in the past, as product differentiation or leadership cost, are identical now.

What changes during the years are technologies, processes and knowledge, for that reason the way we reach those goals evolve to adapt to the progress and to accomplish new needs. The Internet totally restructures the mechanics by which business create and deliver value. This has important implication among industries and give rise to a whole new design for business.

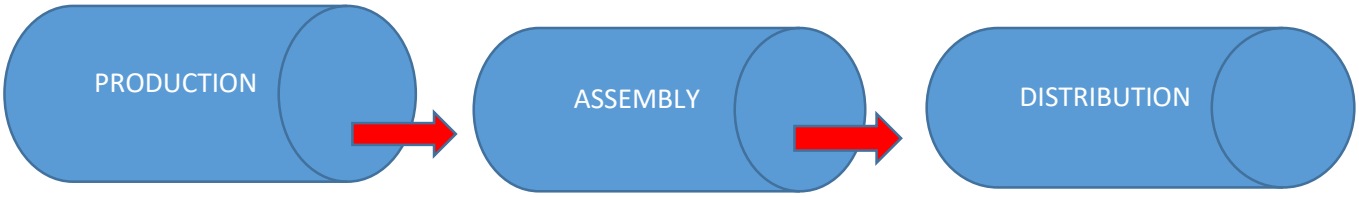
Pipes and platforms are the two main business models you can use if you want to run a business, but they are very different. Depending on your strategy you can choose one or the other but never both at the same time. We are in the middle of a transformative shift in business design as business models move from pipes to platforms.

[9] "10 lessons from 10 years of Amazon web service", Werner Vogels, All things distributed: Werner Vogels' weblog, 11 march 2016.
[10] Information rules: a strategic guide to the Network economy, K. Shapiro and H. R. Varian, 1999.

A pipeline is the traditional model that companies have used since industry was born. Producers make goods and consumers buy them. In the latest years all the companies which moved to a platform model, reached such a huge success that everyone wants to adopt it. Google, Amazon, Facebook and Uber are famous example of business that were founded less than a decade ago and have rapidly grown to gain global adoption and built multi-billion dollar business empires, becoming some of the highest-valued companies in the world. However, it is not that easy. Pipes and Platforms rely on two different way of thinking and one of the main difference between these two models is how they achieve scale. Firstly, we need to analyse what pipelines are and how they work and just then we can investigate their difference.

1.2.1 Pipelines

For long time pipes have been the dominant business design in the industrial economy. Firms create or add value to products or services, push them out and sell them to costumers. Value is produced upstream and consumed downstream, creating a linear flow of value, much like water flowing through a pipe, hence the name.



"*Pipeline businesses create value by controlling a linear series of activities—the classic value-chain model. Inputs at one end of the chain (say, materials from suppliers) undergo a series of steps that transform them into an output that's worth more: the finished product.*" according to Van Alstyne, Parker and Choudary[11].

The traditional manufacturing supply chain relies on a pipeline model. Most of the products or services we consume come down a pipe. Traditional media, such as television, radio and

[11] Platform revolution: how networked markets are transforming the economy and how to make them work for you, G.G. Parker, M.W. Van Alstyne, S.P. Choudary, 2016.

newspapers, push contents to us. Our education system is a pipe where teachers give "knowledge" to students. Also Amazon's e-commerce store began as a pipe.

1.2.2 Pipe Scale vs Platform Scale

First, we have to mention that the ability to scale is the ability to collect inputs – labour and resources – and coordinate efficiently them toward value creation and delivery.

Pipe scale (n): *Business scale powered by the ability to coordinate internal labor and resources toward efficient value creation and toward delivery of the created value to an aggregated consumer base. The management of pipe scale involves the design and optimization of this linear flow of value from the business to the consumer*.

Platform scale (n): *Business scale powered by the ability to leverage and orchestrate a global connected ecosystem of producers and consumers toward efficient value creation and exchange. The management of platform scale involves the design and optimization of value-exchange interactions between producers and consumers.*[12]

As businesses move from pipe scale to platform scale, the main focus moves from the ownership of resources to the ability to interact easily between producers and consumers.

"*...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 hotelier owns no real estate*." Cit. Tom Goodwin.[13]

[12] Platform Scale, Sangeet Paul Choudary, 2015.

[13] Hamish Mc Rae, "Facebook, Airbnb, Uber and the unstoppable rise of the content non-generator". The Indipendent @theIndyBusiness, 5 May 2015. In his article H. Mc Rae reported the words of Tom Goodwin, senior vice president of strategy and innovation for Havas Media Us.

1.2.3 Three shift to move from pipes to platforms

To sum up how a business can adopt a platform model we can define three main shifts based on how a business works.

1- Shift in Markets: from consumer to producers

In the traditional view of the market, the consumer was located at the end of the pipe. The relationship between the consumer and the business was linear. The business made what the consumer wanted and the consumer paid for it. On platform, the business does not create the final product or service but enable producers and consumers to interact. Platforms need to focus on producers as well as consumers.

2- Shift in Competitive Advantage: from resources to ecosystems

Pipes competed through internal resource ownership, intellectual property and control. This traditional view of competitive advantages based on the main idea that "bigger is better and the more you own, the more you win". Platform, on the contrary, succeeded thanks to the ecosystem of producers and consumers that they are able to attract. Platforms successfully manage value-exchanging interactions in this ecosystem using data about the various ecosystem participants. Therefore, ecosystems create competitive advantage.

3- Shift in Value Creation: from processes to interactions

In linear pipelines, value creation is centred on an end-to-end process that shift value down the pipe, from producer to consumer. On platforms, the interaction between producers and consumers, facilitated by the platform itself, determines value creation and exchange. Value is no longer created and scaled merely through processes that organize internal labour and resources, but through interaction that orchestrate users and resources in the ecosystem.

PIPES

-Value is created upstream

-Customers are acquired

-Products are designed to meet specifications

-Value is given by consumption

PLATFORM

-Value is co-created on the spot

-Users can become customers

-Products emerge through interaction

-Value is appreciated by interaction

1.3 Information rules: adapt and survive in a new environment

The world has changed rapidly since the new information era has begun. As we said, managers have to keep in mind the principles of "old economy" in order to avoid failing, but now we have to add that they must also understand the fundamental economics of information technology. Shapiro and Varian firstly developed a sort of field guide to survive at the trench warfare of competition in the information age. In their book "*Information rules: a strategy guide to network economy*"[14], they articulate practical strategies, tactics and rules of engagement for surviving and winning standards wars, analysing both the new opportunities and problems that information technology brings.

What does economic information means? Managers are not worried about making products or service anymore but about creating *contents*. Digital economy no longer relies on fixed assets, but on intangible assets such as knowledge and information.

"The most important resource is not currently derived from natural resources or capital again, but it is in knowledge".[15]

1.3.1 Information

Information is everything that can be digitalized. Magazines, books, music, films, football scores, stock quotes are all information goods.

Each consumer considers how important information is for himself in a different way, according to his interests, his purpose or his tastes, moreover some information has business value and some has entertainment value. So how can we evaluate information?

We consider people's willing to pay. But information is an "*experience good",* what economists define as a good that have to be experienced from consumers to be valued. A reader cannot know if he would like an article or found it interesting before he rode it so, how can he be sure that it is worth the price? That is why marketers have developed few

[14] Information rules: a strategic guide to the network economy, C. Shapiro and H. R. Varian, Harvard Business School Press, Boston, 1999.
[15] Post-capitalist society, P. F. Drucker, 1994.

strategies such as free samples, promotional pricing and testimonials to help consumers learn about new goods. In addition, most media producers overcome the experience good problem, through branding and reputation. Marketing managers have to focus on building a powerful brand. Branding means building a connection between customers and a company, establishing a brand that costumers trust. Consumer behaviour is influenced by the previous experience they had with a brand or by the experience made by other people in their community. Another important feature is brand loyalty: feel to belong to a company community or group of users. If a brand has a strong reputation, consumers know that they will offer a quality product, and if the product meets their expectation, they will become loyal users.

1.3.1 Cost and problems of information

Information is expensive to produce but cheap to reproduce. Economists would better say that the production of an "*information good*" involves high fixed costs but low marginal costs. Consequently, a cost-based pricing is useless, a producer must price an information good according to consumer value, not according his production cost. Value-based pricing leads to differential pricing. Information goods and modern technology allow producers to differentiate prices on the type of costumer, quantity ordered, delivery time, payment terms or also products' quality. Due to Big Data analytics, companies knows everything about their client and so they can offer different version – versioning - of the same products according to their tastes and necessities, saturating the market.

If the creators of an information good can reproduce it cheaply, others can copy it cheaply. Unfortunately, the legal grant of exclusive right to intellectual property via patents, copyrights and trademarks does not confer full power to control information. There is still a problem of enforcement, which, with the spreading of digital technology and the Internet, has come to be even more relevant. Digital data can be easily duplicate and instantaneously transferred around the world, conveying many contents developers to see the Internet as one huge, out-of-control copying machine. If copies are sold legitimately, the producers might not be able to recover their production costs. To avoid this problem companies should find

the terms and conditions that maximize the value of their intellectual property, not the terms and conditions that maximize the protection.

Another negative consequence of this spread of information is an information overload. We have too much information. A wealth of information creates a poverty of attention. Nowadays the problem is not how to access to information but that we have too much of that. The real value created by an information provider comes in locating, filtering and communicating what is useful to the consumer. This is why the most famous Web sites belong to the search engines, those devices that allow people to find out information they value and to avoid the rest. Google uses AdSense and AdWords to help its users find what they are looking for. Amazon advises its customers of what they may like according to what they have bought before and what other people with the same tastes use to buy. Internet is free and accessible to everyone but that means also that everyone can write what they want and people have to be aware of this.

The Net allows information vendors to move from the conventional broadcast form of advertising to one-to-one marketing. This new, one-to-one marketing benefits both parties in the transaction: the advertiser reaches exactly the market he wants to target, and consumers pay attention only to ads that they may be interested in. Furthermore, by gathering better information about what a particular costumer wants, the information provider can design products and services that are more highly customized and hence more valuable.

Brands that master this sort of marketing will survive, while those that carry on conducting unfocused and excessively broad advertising campaigns will be at a competitive disadvantage.

1.3.3 Big Data

Big data are one of the intelligent technologies that allow platforms to be created. Platforms use the collection of personal information to select, filter and offer a personalized service to their customers, that would not be possible without the advent of Big Data.

The passage from a simple collection of information to a smart use of information finds its peak with the advent of Big Data. Big Data is the term used to define a large and complex data set that traditional data processing application are not adequate to deal with them. Big Data represent the interaction of information from heterogeneous sources such as databases or images, emails, GPS data, social networks, radio recordings, etc.

Big Data includes data sets with sizes beyond the ability of commonly used software tools to capture, curate, manage and process data in a tolerable amount of time. Accuracy in Big Data leads company to make better and more confident decisions, reducing their costs and their risks.[16]

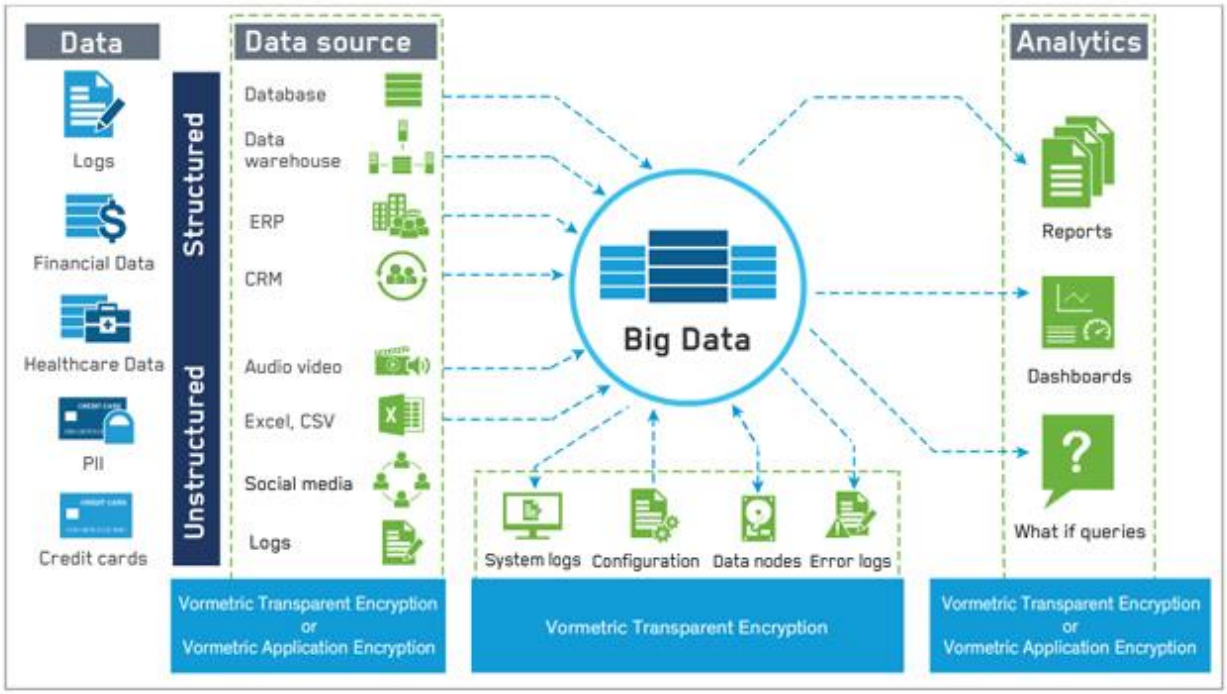


Figure 2 https://www.vormetric.com/data-security-solutions/use-cases/big-data-security

[16]" Big Data: the next frontier for innovation, competition and productivity", J. Maniyka et al. , McKinsey Global Institute report, May 2011.

1.4 Managing innovation Networks

Innovation management is the management of innovation processes. It includes both product, process and organizational innovation. Innovation management enables companies to react to external and internal opportunities, using creativity to develop new ideas, processes or products. It includes every level of a product lifecycle from development to manufacturing and marketing.

The Austrian economist Joseph Schumpeter, in his book "**Capitalism, Socialism and Democracy**"[17], firstly identified innovation as a significant factor in economic growth and introduced the concept of creative destruction. This concept, also known as Schumpeter's gale, describes the "*process of industrial mutation that incessantly revolutionize the economic structure from within, incessantly destroying the old one, incessantly creating a new one*".

Creativity is the basis of the creation process, started with the main aim to change a service or a business process. Innovative ideas can be the result of two consecutive steps: imitation and invention. An innovation can both improve an existing product or process and create completely new ones. Economists say that innovation processes can either be pushed or pulled through development:

- Pushed process, based on existing or newly invented technology that the organization has access to. The goal is to find profitable application for the already technology.
- Pulled process, based on finding areas where customers' needs are not met and finding solution to those needs.

Innovation, although not sufficient, is a necessary prerequisite for the continued survival and development of businesses.

[17] Capitalism, Socialism and democracy, J. Shumpeter, Harper & Row, New York, 1942.

1.4.1 Innovation networks

In a world of increasing connectivity, specialization and knowledge-dense products, it is evident that being a part of a larger system becomes not merely a competitive advantage, but a necessity for participating in value creation. Businesses increasingly rely on external partners when starting their innovation initiatives. Emergent innovation ecosystem of heterogeneous actors proved to be successful in leveraging combined competence for the creating of the new venture. Companies have shown interest in organizing themselves in complex ecosystem, working simultaneously in cooperation and competitiveness. This network-centric strategy enables companies to combine their competencies to create products that would not exist otherwise and compete with them on the global market. International companies, but also little companies, cannot afford the high costs of Research and development on their own. Since the market become global and technology change too fast, to survive and not become obsolete, companies decide to create strategic alliance also with their competitors. Due to this union between cooperation and competition, economists forged a new word: ***coopetition***.

The new product development literature used to focus on the firm, but now it is aware of the importance of inter-firm cooperation. Since Platforms have showed up, networks have grown in relevance due to science and technology involved.

The main network actors are businesses, universities, research organizations and government agencies. Networks offer many advantages, such as shared R&D risks and costs and access to specialised skills.[18]

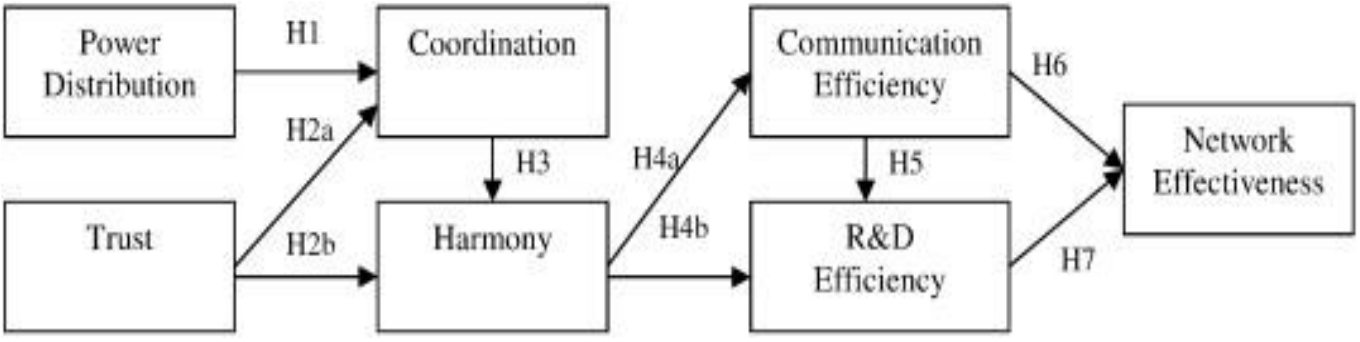


Figure 3 conceptual model for managing innovation networks

[18] Barringer &Harrison, 2000

Coordination is the degree to which different parties in a relationship work well together in accomplishing a collective set of tasks. Hieratical management settings have been replaced by inter-organizational contexts. Rigid controls of government are not required anymore, but they are obliged to use adequate mechanisms to ensure that network outcomes are achieved.

Another important feature we find in this model is harmony. The term harmony includes both conflict and cooperation. A certain level of conflict might be required for innovation while at the same time cooperation is needed for efficiency. Harmony is defined as the development of mutual interests among network actors. Different actors involved in the same business have to try to understand each other's perspective, resolve their conflict at lowest level possible and debate about problems rather than simply accept them.

1.4.2 Google's innovation machine

Google is one of the most successful and innovative company ever. It has spent billions of dollars to create its internet-based operating platform and developing proprietary technology. Google excels at IT and business architecture, experimentation, improvisation, analytical decision making, participative product development and other unusual form of innovation. Indeed, it creates or can be considered a leading exponent of new approaches to business and management innovation.

It prompts his employees to innovation, budgeting for it in their time. New ideas at Google are often generate by employees in a prescribed system of time allocation. Technical employees are required to spend 80% of their time on the core search and advertising businesses, and 20% on technical projects of their own choosing. Moreover, employees are not scared to fail in trying to invent something new thanks to a very open-to-risk company culture. Lawrence Page, Google's co-founder, once told Fortune what he had told an executive: "*I am so glad you made this mistake because I want to run a company where we are moving too quickly and doing too much, not being too cautious and doing too little. If we don't have any of these mistakes, we're just not taking enough risk.*"

In addition to this, Google has shown an amazing ability in creating mush-ups and alliance with third parties, keeping architectural control. The dynamic interplay of Google, its third-party innovators, users and advertisers creates a virtuous circle with benefits for all, and especially itself. This is a perfect example of how managing innovation networks creates added value for the system. [19]

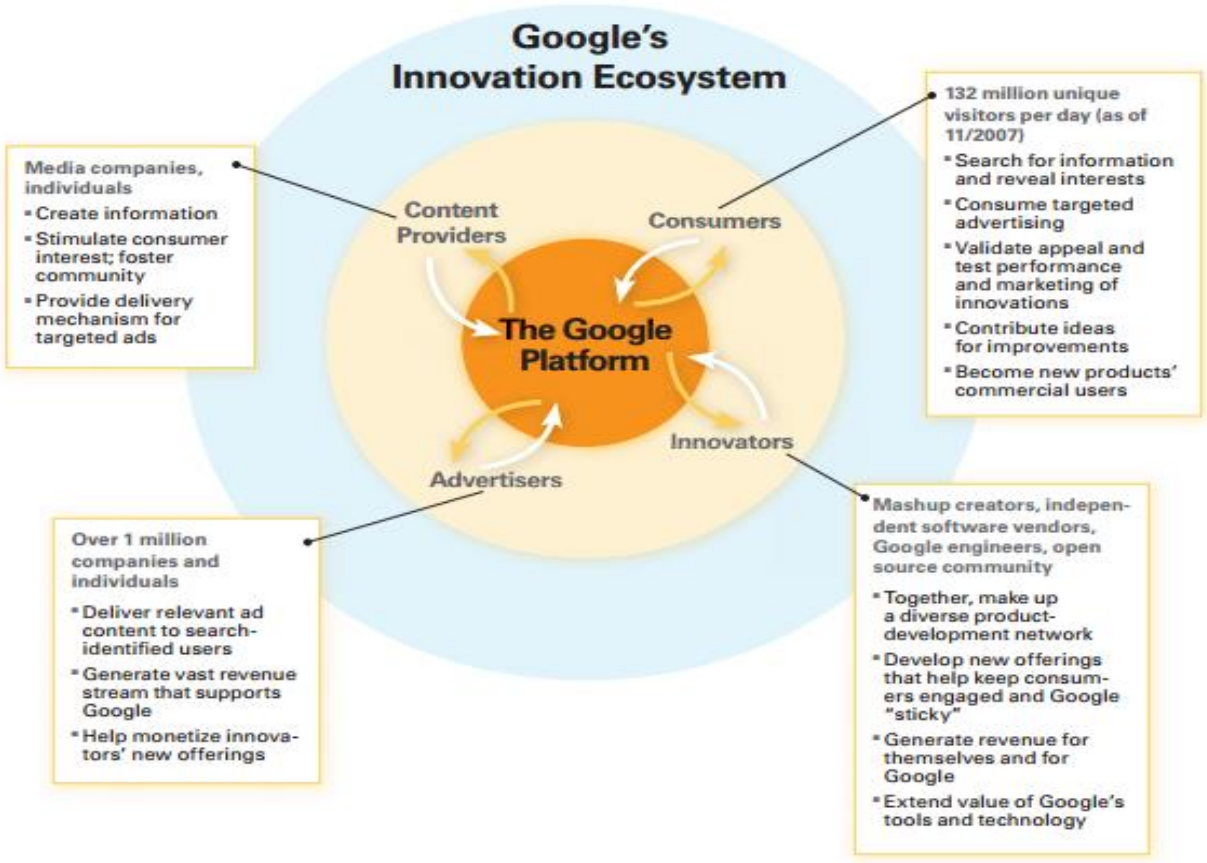


Figure 4 taken from "Reverse engineering google's innovation machine", Bala Iyer and Thomas H. Davenport, Harvard Business Report (april 2008).

1.5 How Platforms create added value through innovation

Some economists think that we are living the "fourth industrial revolution". This is a revolution of networks, platforms and digital technology, which is destroying the boundaries between physical, digital and biological spheres. Digital networks are the main character of this revolution because they are able to tie these spheres in a way that enables new forms of sharing, distributed intelligence and value creation.

[19] Reverse engineering google's innovation machine, Bala Iyer and Thomas H. Davenport, Harvard Business Report, April 2008.

We are at a critical inflection point. Physical moved to digital, closed-source turned into open-source and linear growth became exponential. Only a few leaders and inventors saw this shift coming and have benefited greatly of it.

All companies that set up a Platform business model experienced high incomes and an increasing success.

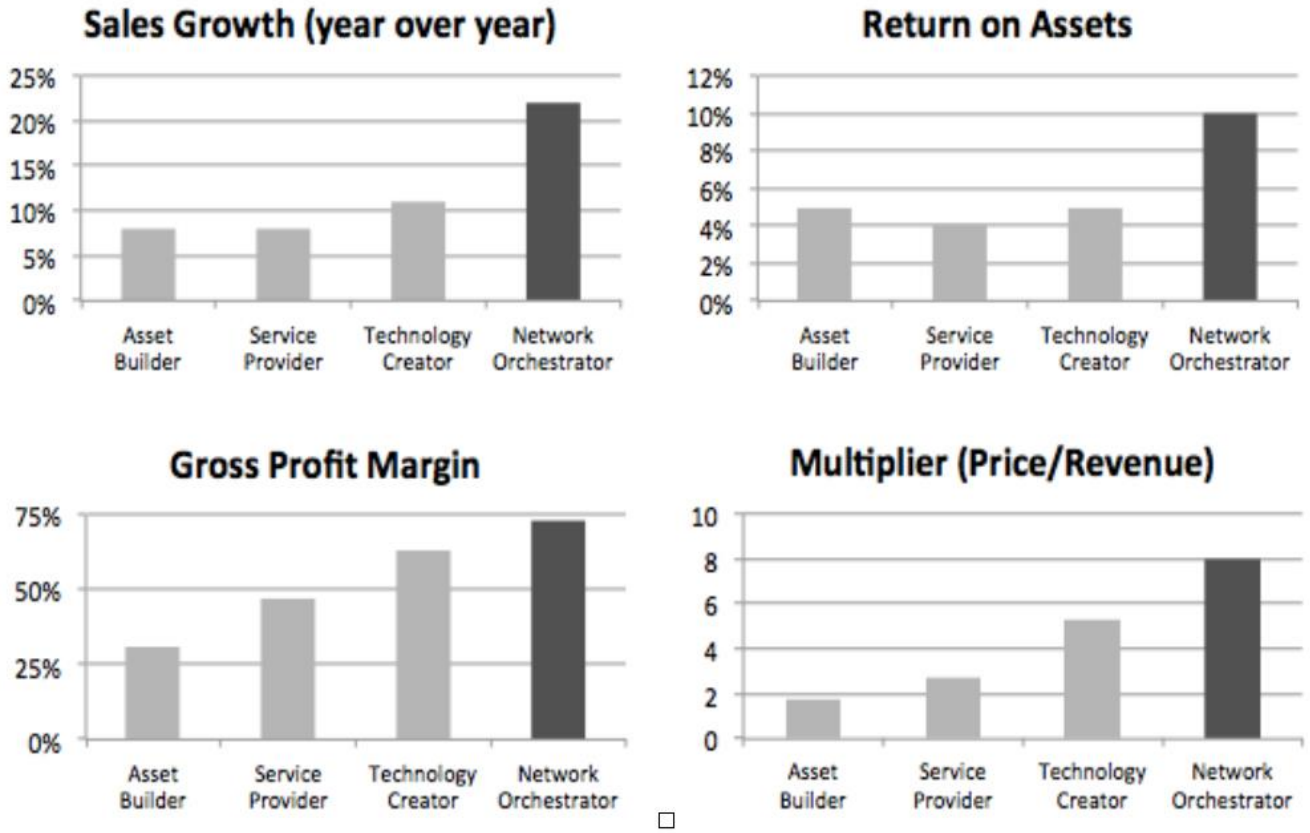


Figure 5 Knowledge@Warthon, University of Pennsylvania, april 2016.

As we can see, network orchestrators, on average, grew revenues faster, generated higher profit margins and used assets more efficiently than others. Reasons are intuitive. Physical things do not scale quickly, easily or cost effectively. Digital technology and networks make all the difference.

The most valuable goods in the market, like ideas, intellectual capital and access, can be digitalized. Moreover, digital networks enable them to proliferate with great ease. The cost of scale is close to zero. If you add the network effect, where each participant in the network increases the value for every other participant, the network drives its own growth.

Even if sometime it is difficult to change, all the companies have the assets, as people and data, to move from traditional business model to platform business model and improve

exponentially their businesses. These ten principles give us an overview, identifying main differences between these models.

	Firm-Centric Thinking	Network-Centric Thinking
Technology	Physical	Digital
Assets	Tangible	Intangible
Strategy	Operator	Allocator
Leadership	Commander	Co-creator
Customers	Customer	Contributor
Revenues	Transaction	Subscription
Employees	Employee	Partner
Measurement	Accounting	Big Data
Boards	Governance	Representation
Mindset	Closed	Open

Figure 6 Knowledge@Warthon, University of Pennsylvania, april 2016.

Chapter 2

2.1 Network effects: the holy grail of online business

Network effect is the effect produced when a single person using a good or service changes the perceived value of that for others. The more people use a product, the more it becomes valuable. You do not need a telephone if nobody else has one. The Internet and social networks are examples even more evident of this phenomenon. The more people join a social network, the more valuable the site becomes for the people who belong to it.

The value perceived by users can be divided into two separate parts. One component is the "autarky value", so the value generated by the good or service even if nobody else uses it. The other one is the "synchronization value", id est the additional value resulted from the interaction with other users of the product. This one is the core of network effects.

Network effect is also known as "Metcalfe Law". In 1993, Robert Metcalfe[20] noticed that the value of a telecommunication network is proportional to the square of the number of users of the system. For example, two people with telephones can only make one connection. Five telephones can make 10 connections, and twelve telephones can make 66 connections.

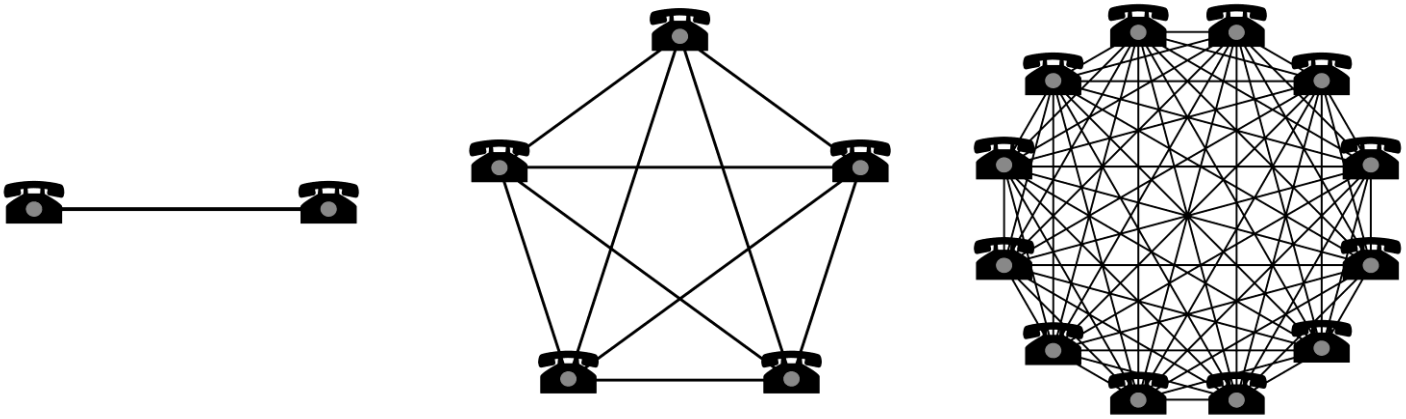


Figura 7 www.switchboardhq.com "Metcalfe's Law"

[20] R. Metcalfe is the creator of the EtherNet, his law explains the effects of the communication technology and of networks such as the Internet and the World Wide Web.

Nowadays, we would better express this exponential growth as a geometrical progression.

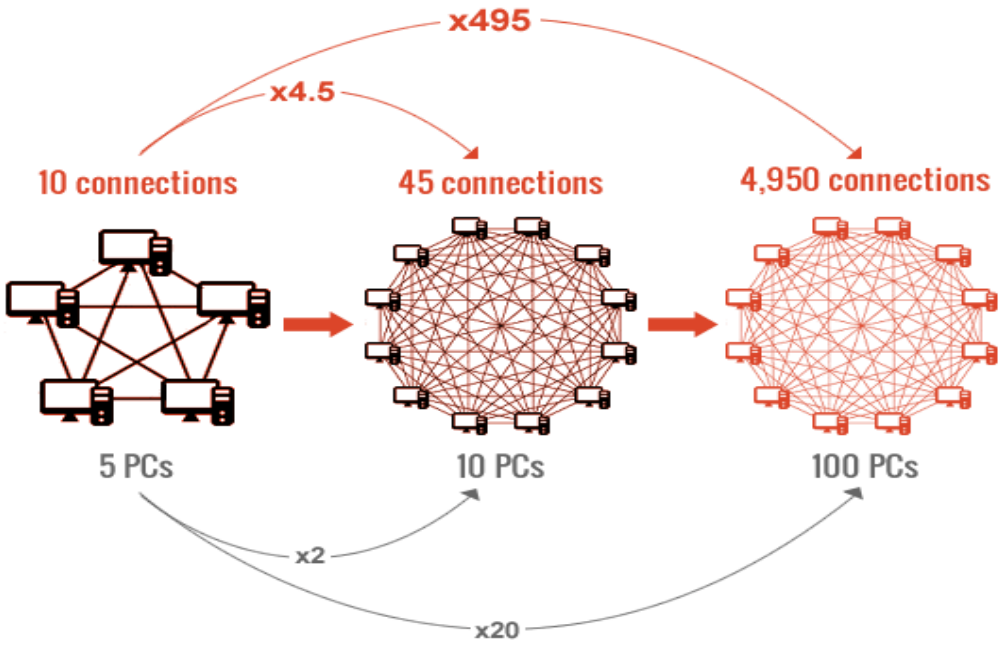


Figura 8 https://www.bigtime.net/category/accounting/

The biggest barrier for any good or service that uses the network effect is to pull in enough users at the beginning so that the network effects take hold. Once a company obtains the "critical mass", the good or service should be able to get many new users.

There is a strong connection between scale and value in businesses with network effects. Greater scale leads to greater value for users, which in turn attracts other users and further increases scale. This rich-becomes-richer dynamic allow networks to scale rapidly once networks set in.

Network effects are defined as "*the holy grail of online business*" because the Internet, new digital technologies and Big Data, as the possibility to record and collect information about consumers, producers and data, make easier to connect the world easily and to spread exponentially the incidence of network effects.

Network-based businesses are usually pretty durable thanks to the competitive advantage given by network effects. To see why, we can analyse a business that is barely a decade old, but which is already the canonical example of the network effect: **eBay**.

EBay rules the U.S. online auction market with an 85% share of Internet auction traffic. It is proved that eBay's visitors spend more on each transaction and tend to buy more than visitors on others rival websites. Due to network effects buyers are on eBay because sellers are on there, and vice versa.

Network effects – and in particular, indirect network effects – played a crucial role in eBay establishing itself as the dominant player in the new world of online auctions in the late 1990's.[21]

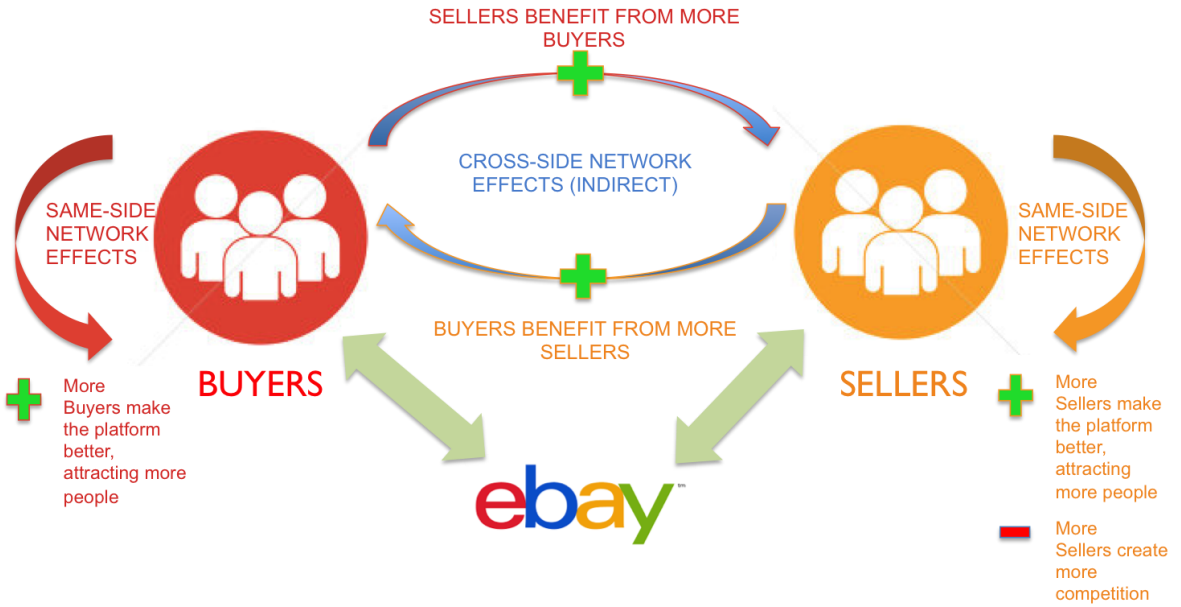


Figure 9 YSH, Harvard business school, October 2015

Even if another site tries to launch its own auction business with lower fees and competitive prices, it would be difficult or even impossible to get the same traffic because of eBay solid network's alliances and loyal client. Users would be reluctant to use a new site, not knowing if they can trust it or not. EBay has on its side the strength of the benefit of its feedback ratings, assuring consumers to get other users they can trust to fulfil a transaction. Moreover, they would not be sure if they were getting the best price, given the lack of other users.

2.1.1 Network externalities

Network effects and network externalities sometimes can be confused. In the literature these term are often used as the same thing, but there are some slight differences.

The common point is that the value of a product or service is dependent on the number of other people using it. We can have positive or negative externalities. Positive externalities exist when the marginal utility is an increasing function of the number of other users.

[21] "E-bay: the perfect store(y) of network effects", YSH, Digital Innovation and transformation, Harvard Business School, October 2015.

Negative externalities exists if marginal utility is a decreasing function of the number of users (e.g. the snob effect).

The main difference emerges when the owner of a network is able to internalize the network effects created. In that case, those are no longer externalities.

Liebowitz and Margolis differentiate network externalities from network effects. A network effect exists when "*the net value of an action ... is affected by the number of agents taking equivalent actions*"[22]. Network effects, so defined, are omnipresent in the economy. Purchases of a good by one group of consumers might increase its price, thereby affect other consumers of that good as well as consumers of complementary, and substitute products. They also point out that economists at one time misundestand these interactions as inefficiencies, but now recognize them to be pecuniary external economies and diseconomies, which the price system internalizes as wealth transfers between purchasers and suppliers. Liebowitz and Margolis would limit the term network externality to those specific network effects in which "*the equilibrium exhibits unexploited gains from trade regarding network participation*". Network externalities, so defined, do cause market failure, but are far less common than network effects generally. The two authors accept the distinction between direct and indirect network effects, but argue that they are fundamentally different in their consequences for efficiency. They recognize that direct network effects in physical networks may sometimes be true externalities. However, they challenge the notion that indirect network externalities arise whenever complementary goods become more plentiful and cheaper as the number of users of the related product increases. They contend that much of what the literature calls indirect network externalities are merely positive pecuniary externalities that result in wealth transfers. These theoretical points lead to very different policy conclusions. If the price of complementary goods decreases as a network grows because rents are transferred from input suppliers or producers to consumers, the market does not fail, and no state-sponsored remediation is necessary. If instead price falls due to positive technological externalities, remediation may

[22] Liebowitz, S. J. and Stephen E. Margolis. "Network Externality: An Uncommon Tragedy." *Journal of Economic Perspectives*, vol. 8, no 2, 1994.

be required, but only because of a conventional market failure in an upstream or downstream market, not network externalities.[23]

2.2 Reverse network effects: can Platform fail?

As we say, all the companies that want to reach success by gaining a competitive advantage, through venture-scale returns are focusing their attention on everything on network effects. But what if these businesses are as not invincible as we think?

Given the durable success of companies as Facebook, Twitter, Skype, Snapchat and so on, we are brought to believe that their multi-billion revenues will carry on growing. On the contrary, some economists start wondering if their growth is sustainable or they are becoming too big to be useful. The common belief is that the bigger the network is, the more value users bring from it.

There are several reasons to believe that it is not always true. Network effects power relies on tree main features: connection, content and clout.[24]

1) Connection: Networks allow users to discover and/or connect with other users. As more users join the network, there is greater value for every individual user.

2) Contents: Users discover and consume content created by other users on the network. As more users come on board, the amount of content scales, leading to greater value for the user base.

3) Clout: Some networks have power users, who enjoy influence and clout on the network.

Just as network effects can create a positive cycle bringing to rapid growth of the network, reverse network effects can establish a negative one. Considering the same three features that bring to success, let's see how they can bring to failure.

1) Connection: too much users subscribing the online community might lower the quality of interactions and increase noise through undesired connection requests. On

[23] Abstract taken from Network Externalities, William H. Page and John E. Lopakta, copyright 1999.
[24] Reverse Network Effects: Why today's social networks can fail as they grow larger, Sangeet Paul Choudary, Wired.

social networks, the uncontrolled registration of every possible kind of people makes them vulnerable to the presence of fake profiles and annoying spams. In order to prevent this, an appropriate level of friction should be created at the access, building solid barriers.

2) Content: the network might fail to organize the huge amount of contents created on it. A larger network is likely to have more content's creators, which means more content for the user to consume. Nevertheless, if that means offering irrelevant or false content, it negatively affects the network reputation. To ensure that the content is relevant and valuable, managers need to manage strong content curation and personalization of users' experience. Content networks create a curation mechanism through a combination of moderation, algorithms and community-driven tools (voting, rating, reporting etc.). Curation mechanisms often break down as the volume of content increases. When curation algorithms and moderation processes do not scale, noise on the system increases. This leads to reverse network effects and users abandoning the system. Moreover, content needs to be personalized to give each user only what they are interested in.

3) Clout: Network of clout may focus on early users, promoting them, forgetting about new users. Clout divides power users from the rest. Users who join later find it more difficult to develop a following and might decide to stop using the network. These networks need a mechanism to enable new users to have equal access and exposure to the community to develop network clout.

2.2.1 Congestion

If too many people use the good or service, negative network effects can occur, such as congestion. In the internet analogy, having too many users on the internet can hypothetically cause the speed to deteriorate, decreasing utility for users. Thus, providers of goods and services, which use a network effect, must ensure that capacity can be increased sufficiently to accommodate all users.

Congestion is a market situation where the demand of contract holders wishing to exit the existing position exceeds the supply of willing participants aiming to enter into the offsetting position.

2.2.2 Verticalization : Craiglist and Facebook cases.

It's taken as a given that network effects online are a magical barrier to entry, but are they?

One reason Facebook is so valuable, we're told, is because of its huge network effects which make it unstoppable and undefeatable.

But Friendster had network effects and so did MySpace. One way that network effects can be defeated is through what can be defined "*verticalization*."

Verticalization is building smaller businesses on specific verticals, id est on specific lines of product. Vertical integration enables managers to create a better and meliorated product or service, thanks to the smallest dimension of their business.

Craigslist is perhaps one of the best network effects businesses: the reason why everyone goes there is because everyone is already there. Plenty of people have pointed out how awful Craigslist's design can be, how many things are wrong with it, and yet plenty of well-funded start-ups that have tried to take Craigslist on frontally with simpler offerings have failed.[25]

While no service has been able to defeat Craigslist head-on, plenty have built "*niches*" in specific verticals, with a more tailored offering, and now Craigslist seems to be stalling.

Some of these niches are big: Etsy, AirBnB and Ashley Madison are huge businesses.

Could the same thing happen to Facebook? Maybe it is already happening. Many apps are taking specific single functions of Facebook and turning them into full-blown services.

The best example might be Twitter, which really takes the "status update" feature on Facebook and turns it into its own service, with its own identity and use case. Now most of the people we are interested in are on Twitter, and we use Facebook every day less.

One of the other main characteristic of Facebook is sharing and looking at photos, and there are many start-ups trying to settle in this field or that already did, the most famous was Instagram, actually, Facebook bought it. With cameras and internet connections in our phones, it is easy to make apps for photo sharing that are much more personalized of Facebook ones.

If you can see your friends' pictures on Instagram and your friends' status updates on Twitter, why would you visit Facebook?

Facebook is not going to crash tomorrow or, nevertheless, Twitter will "*kill Facebook*". The point is to say that online network effects are probably overrated.

Why did Facebook win and not Friendster and MySpace? Gross incompetence on the part of the incumbents, Sean Parker says. Which brings to this question: if Facebook won thanks to better execution, how is that different from any non-network effects business?

The answer is that it is not black or white. Superior execution and network effects in highly dense and active social networks helped Facebook.

However, this shows the limits of network effects. What the story of Craigslist and Facebook shows is that online network effects are strong barriers to entry to **frontal**

[25] "How strong are network effects online, REALLY?", Pascal-Emmauel Gobry, Business Insider, May 2011.

competition but not to **lateral** competition**.** The latter one can be just as dangerous, perhaps even more, because it is easier for the incumbent not to see it coming.

If Facebook had focused on bands and Los Angeles partygoers in 2005, they would have hit a brick wall because MySpace had them locked up with strong network effects. Instead, Facebook targeted a population that was less into MySpace, attacking laterally, and won.

The target-population they chose just used Facebook more because they liked it better; in other words, Facebook won through superior execution and lateral attack at least as much as network effects.

This overblown faith in network effects can lead investors and analysts to make mistakes. Again, the point here is not to say that there is no such thing as network effects or that they're not great. There is, and they are. But maybe they are overrated.

2.3 Diversification

Diversification is a management or marketing strategy that managers undertake when they decide to expand their business. Diversification might be achieved when there is the possibility to enter a new potential market or introduce a new line of products in the brand portfolio. The product may be improved, altered or changed, or also new marketing activities may be developed. It is important to mention diversification because, as network effects and network externalities, it is another way to gain competitive advantage in the market.

Thanks to diversification, a firm can enter other markets exploiting the strengths of its brand, such as brand awareness. In a platform business model, the advantages of diversification are even bigger than the ones of a traditional business model. Thanks to the net that a platform involves, businesses can take advantage from the huge number of users, and take advantage from all the personal information they get from their users. They can use their database to figure out what people needs are and which market to enter to satisfy these needs. Then, after they entered the new market, firms can exploit the big users' field they already have.

Another similar strategy that managers can undertake is "*versioning*". Versioning is the creation and management of multiple releases of a product, all of which have the same general function but are improved, upgraded or customized.

Ansoff's matrix gives a simple explanation of diversification.

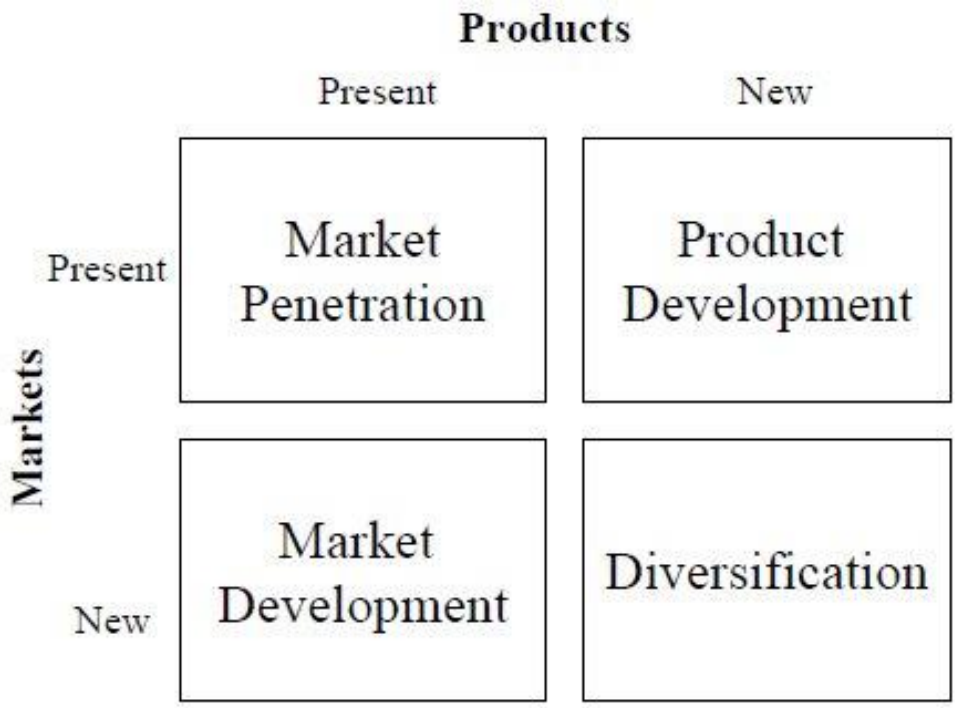


Figure 10 Ansoff's matrix

Diversification means introducing a new product in a new market.

Diversification helps company to grow but, as we said before, becoming too big is not always positive. Potential source of economic benefits for diversification are economy of scope. One important negative point is that doing too much sometimes might turn into doing nothing good.

Concentration is the opposite of diversification. Warren Buffett, one of the most important entrepreneurs and value investors ever, said "*diversification may preserve wealth but concentration builds wealth"*[26].

A scholastic example of how to diversify well your business is Google. Let us see how google take advantage from its platform business model.

Google is the fastest and largest search engine in the world. It has grown exponentially since it has been founded in 1998. Its strategy is built on a broad diversification. It develops thousands of products in house and acquires hundreds of companies and start-ups. This strategy brings Google to enter new and unrelated areas.

Google Maps, Google Earth, Gmail, YouTube and Picasa are just few of the many examples we can make.

[26] Warren E. Buffett is an American business magnate, investor and philanthropist. In 2012, the Times named him one of the world's most influential people. He is the chairman, CEO and larger shareholder of Berkshire Hathaway, and he is ranked among the world's wealthiest people.

Google increase brand awareness by keeping its name near all its products. The more people use google complementary product, the more they use other google services. Most of its services are offered free but it is able to cover all the costs with ads. So the more uses a person has for Google, the more opportunities there will be to show them ads.

Another way to increase their earnings is to encourage people to use the Internet. If people uses the Internet, the market grows and it will bring more users to Google. For that reason it encourages free internet access with citywide Wi-Fi and always for the same reason it entered the mobile phone market. It introduced its own smartphone, the T-mobile G1, and developed its accompanying operation system, Android.

Google's mission is to organize world's information. Their goal is not making money with their products, but to get all the information about their product's users. The more information they gather, the more they can improve their services and know what their users are looking for. In this way, they can personalize the ads for each user. Google's advertisements are personalized according to hobbies, interests and tendencies.

2.4 Competitiveness among Platforms

How do the platforms-based ecosystems behave? This branch of study is pretty new. Economists still do not completely understand how Platforms work. All we know about them is due to the evidence observed and to the study and the analysis of cases.

The emergence of platform-based ecosystems is one of the most significant force shaping the Digital Economy. Enterprises developing new value proposition relied on platform principles attract the attention of venture capital firms, and multi-billion dollar companies have adopted platform principles as part of their competitive strategies. So understanding how they behave has become an essential point.

Platform businesses' economic rational and strategic behaviour are completely different from non-platform ones. We can divide platforms in two main categories: multi-sided market platforms and industry platforms. The first ones are also the most frequent; they make possible the exchange of products and services between two or more groups of people. The second ones represent innovation ecosystem where customers and suppliers firms co-create new products and services around a core technology infrastructure with modular architecture.

2.4.1 Platforms main features

To understand how platforms compete against each other, we have to figure out which features we have to compare. The hallmarks that define the strengths and weaknesses of a platform and, so, that will help us understand which business is going to succeed "**eat the market**" and which one is going to stay in second place, are the following:

1. *Structural conditions*

Structural conditions can influence a platform as a whole and to the individual supplier's firms within the platform ecosystem. From the perspective of the whole platform, structural conditions such as the market position of a particular platform relative to competitor platforms can shape the value creation and capture logic[27]. For instance, if a particular platform has managed to secure a dominant position by tipping the market in their favour, it could, in theory, command higher prices, increasing its potential revenue.

Similarly, the topology of the network of suppliers could shape the way different suppliers firms create and capture value. The type and mix of suppliers will shape the set of collaborative games. In addition, the exact nature of the exchange and the position within network of suppliers will also shape who captures most of the value from the collaboration.

2. *Strategic orientation*

Strategic orientation is an indication of the direction in which a business wants to or should go in the future, and how well it is set up to do so. An example of strategic orientation is promoting economies of scale and scope or deciding timing and positioning. When and where to position the platform within the wider competitive marketplace are key decisions. A company should establish a goal or vision for future development and create a course of action to achieve it. That plan is the strategy for the company, indicating the types of procedures or changes that need to take place for the goal to be accomplished.

3. *Organizational design*

Organizational design is a step-by-step methodology which identifies dysfunctional aspects of work flow, procedures, structures and systems, realigns them to fit current business realities/goals and then develops plans to implement the new changes. The process focuses on improving both the technical and people side of the business

4. *Value creation mechanisms*

Value creation is how a company creates added value for its products and services. This is one of the important features of a company because it affects customers' consideration of the product and explains why they would chose a particular product. So, the mechanisms of creation of value are the main producers of difference among brands.

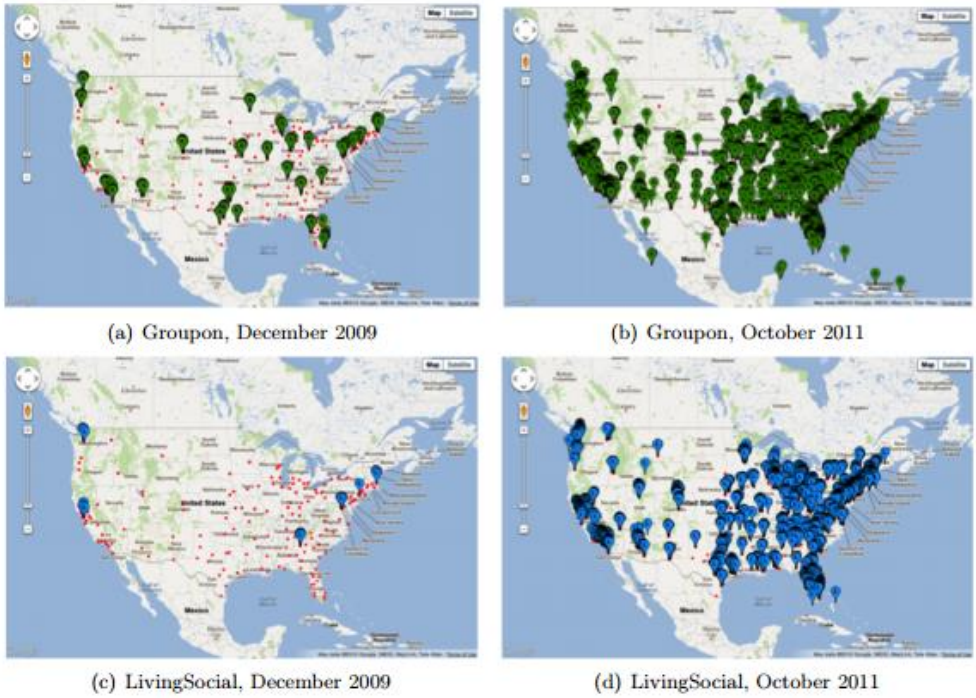
[27] Network Neutrality on the internet: a two-sided market analysis, N. Economides, Information Economics and Policy, North Hollande, 2012.

How do platforms compete dynamically? How does a new platform overcome initial disadvantages associated with a smaller network size in either side of the platform? How does an incumbent platform respond to the challenges by the entrant?

Byung–Cheol Kim, Jeongsik Lee, Hyunwoo Park believe that answering this question is important to understand the two-sided platform competition. So in their work "Dynamic Platform Competition in a Two-Sided Market: Evidence from the Online Daily Deals Promotion Industry"[28] they try to give an answer to these question through an example: the competition between Groupon and LivingSocial.

Groupon is the current market leader with more than 11,000 employees as of June 2012. Only after three years of its first-ever deal, Groupon went public in November 2011, instantly raising $700 million that valued the company at close to $13 billion. The first mover's phenomenal success and the almost non-existent entry barriers prompted numerous followers who entered the market with similar services. At the beginning of 2011, there were more than 500 online sites that offered discounted daily deals in the U.S. Among these, LivingSocial is considered to be the only serious competitor of Groupon in terms of size and coverage of deal offers. LivingSocial sold its first discounted coupons in the U.S. in July 2009. Since then, LivingSocial has rapidly expanded to reach 330 cities in North America by August 2011. With a sequence of investments including Amazon's $175 million, LivingSocial was valued at more than $3 billion as of early April 2011, less than two years after its start-up.

In the image below we can see the geographic distributions of the two sites' business operation in the U.S. over time. The comparison between Panel (a) and Panel (c) illustrates Groupon's initial dominance, stemming from its first-mover status. The contrast between Panel (a) and Panel (b), and that between Panel (c) and Panel (d) show the rapid growth of both platforms that have penetrated numerous cities and states in less than two years. Lastly, Panel (b) and Panel (d) together illustrate the two platforms' head-to-head competition.



(a) Groupon, December 2009 (b) Groupon, October 2011

(c) LivingSocial, December 2009 (d) LivingSocial, October 2011

Figure 11 Dynamic Platform Competition in a Two-Sided Market: Evidence from the Online Daily Deals Promotion Industry∗ Byung–Cheol Kim, Jeongsik Lee, Hyunwoo Park, February 12, 2013

[28] Dynamic Platform Competition in a Two-Sided Market: Evidence from the Online Daily Deals Promotion Industry∗ Byung–Cheol Kim, Jeongsik Lee, Hyunwoo Park, February 12, 2013

Kim, Lee and Park constructed a comprehensive dataset from the websites and studied the dynamic competition between the two promotion sites on the sides of consumers and merchants. They found that, on average, the incumbent Groupon enjoys a significant advantage in deal performance over the rival platform LivingSocial. Moreover, this incumbent advantage is primarily attributable to the greater network size on the consumer side. On the consumer side, however, they do not find the evidence of aggressive actions by LivingSocial, the most successful entrant to this industry; both platforms offer similar deal terms to the consumers, though there is some evidence that Groupon responds with more favourable terms, at least in early stages of the entry. More salient, and perhaps more interesting, strategic actions seem to be occurring on the side of merchant in the form of merchant poaching. Since its entry, LivingSocial actively solicits merchants that previously promoted through Groupon, thereby quickly increasing penetration into the regional markets. These poached deals also positively contribute to the overall performance through higher coupon sales and lower variability in sales. Groupon, however, follows suit to counter the entrant threat, while improving its own performance through poached deals.

Chapter 3

THE UBER CASE

Uber was founded in California in 2009 by Travis Kalanick and Garrett Camp. The two founders had the idea the year before when a night in Paris, during a snowfall, they had problems in hailing a taxi.

An innovation is a way to get everyday life easier, so they think how they can get a ride just tapping a button on your smartphone and the car will arrive to pick you up. Uber's mission is to let "Transportation be as reliable as running water, everywhere, for everyone".

With Uber, everyone can have his private driver. When they started in 2009 they offered just premium black cars in few metropolitan areas, now they serve 507 cities all around the world, about 3 million trips per day, with 1 million of drivers and offering different kind of services for different pricing. Just in 2015 they earned 10 billion dollars from bookings.

From the latest private valuation in August 2015, Uber is valuated 51 billion dollars[29]. It is the first start-up that reaches those numbers in few years. Now, in 2016, it is valuated 68 billion dollars.

Uber is the smartest way to get around. One clic and a car comes directly to you. Your driver knows exactly where to go. It is easy to use. You just need to download the app on your mobile phone; it uses your location to show you the nearest car available; you pick your destination and what type of service you need. The service is available 24h/24.

You know before the ride how much you are going to spend; you pay through the app so no more cash is needed and the payment is completely secured. The service is simple and transparent.

Uber's success comes from people. Its users, of course, but also its drivers. Actually, Uber owns just the platform where users and drivers are matched. And it develops the app for your smartphone.

Uber is one of the largest transportation company but it owns no cars. Its platform business model enables people to use it to get a ride and to pick up other people, earning from it.

Owning no cars means no costs for the company and new job opportunities for the ones who have a car, a driving licence and some time: a win-win situation.

Becoming Uber driver is easy, as we have just said, you need a car and a driving licence. It does not need to be a full-time job, but you can also do it as a part-time job to get extra

[29] "The start-up stock tracker", Scott Austin et al., The Wall Street Journal, 2016.

moneys. You do not have a boss and not time scheduled. The people chosen to drive are checked and rated to keep the service safe. After each trip, the user would give 1 to 5 stars to its driver.

3.1 Car sharing industry

The ride-sharing industry grew as a part of the sharing economy, in which companies serve as intermediaries between buyers and sellers. A particular characteristic of the sharing economy is that the seller is not a company, but a person who owns a service or product and who enables the buyer to make use of it during a given period of time. The ride-sharing industry has been presenting strong growth over time. However, the companies in this industry have been facing legal issues and protests in several countries. Taxi drivers and firms need to deal with a large amount of regulation, and they are demanding equal treatment to the ride-sharing industry.

3.2 Uber's Network effects and reverse network effects

As stressed Network effects are the first source of competitive advantage for a platform. Uber take advantage from its visibility. More people use their service, more people would like to became a driver. Consequentially, the service improves because there are more cars available and the waiting time are reduced. Moreover, also the costs of rides decrease because during the "rush hour" when a lot of people require a ride, the cost of a ride tends to increase (according to the demand and supply Law), but if there are more cars there is also more supply and the costs reduce. So, thanks to this positive cycle of effects, the service gets better continuously.

Another consequence is the expansion of the service covered area. On the contrary of taxicabs that cannot give a ride to people that are not into the area allowed by their licence, Uber drivers can arrive where they want, so more Uber drivers are available, more areas they can cover.

The simplicity with which you can be a user or become a driver have some hidden negative aspects. You do not the people you are going to meet. If Uber do not do proper control, there is the probability to meet not recommended people, like impostors, thief or even worst. If this happens, Uber's reputation will be destroyed and no more people will use it. For this reason Uber provides a system of ratings for both users and drivers. Everyone can give from 1 to 5 stars to the service. If the service is between 4 and 5 stars, it is recommended. Otherwise, the system will throw you out.

Another problem would occur if there are a lot of cars available but they are not in your area. This would be a problem of management of resources. To fix it Uber introduced a filter that use your location thanks to the GPS and indicate you just the nearest cars available for a user and the nearest people to take for a driver. It also reduce the waiting time.

3.3 Uber's strategy

Uber's strategy is to offer the best service ever in the simplest way possible. To meet users and drivers needs, developing and improving continuously their driver-passenger matching technology. Its platform business model allows it to have reduced costs and traduces it in lower costs for its users.

One of its strategy is cost **discrimination**. It offers the possibility to choose the range of price that meets your pocket and your necessities. Giving you the possibility to select between different kind of cars and services. "There is a ride for every price" is the slogan.

The range of services includes : Economy, Premium, Accessibility and CarPool.

- ECONOMY

Everyday rides cost always less than a taxi. It is useful if you want to move at low prices with a good service. It offers:

- UberX: A low-cost option for any occasion. uberX is affordable, whether you're taking a quick trip to the grocery store or heading out for the night.
- UberXL: the most affordable Vans and SUVs. Request uberXL for the cheapest way to move your large group around the city.
- UberSELECT: Request UberSELECT for luxury at an affordable price. You'll get highly rated drivers with high-end sedans. UberSELECT is the right ride for making a good entrance at affordable prices.

- PREMIUM

It offers you luxury rides either for pleasure or business. When Uber was fouded in 2009, it started as a premium service with its iconic black car. Giving the possibility to everyone to have his own private driver.

- UberBLACK: This is where it all started. Request UberBLACK for a professional driver in a stylish ride. It is a smart option for a business meeting or date night.

- UberSUV: Request UberSUV for a premium high-capacity ride driven by a professional driver. UberSUV can get your entire party wherever you need to go—in style.
- UberLUX: luxury sedans with professional drivers. Request UberLUX for an experienced, professional chauffeur with an extremely high-end ride. UberLUX is a perfect ride for the most special occasions.

- ACCESSIBILITY

Uber wants to be close to everyone. Accessibility offers rides that are accessible for wheelchairs or come equipped with car seats for babies.

- CARPOOL

It is the cheapest Uber option. You can share your ride and your fare with other people who has to go on your same way. It is also an opportunity to meet new people and new friends. If you are in another city you can meet people from there and get some advices on where to go and what to do. UberPool is also an ecological choice to save on fuel and pollution. It can move the same number of people while reducing congestion and cars on the road. In Los Angles to prevent traffic jam they have also preferential lines for pool.

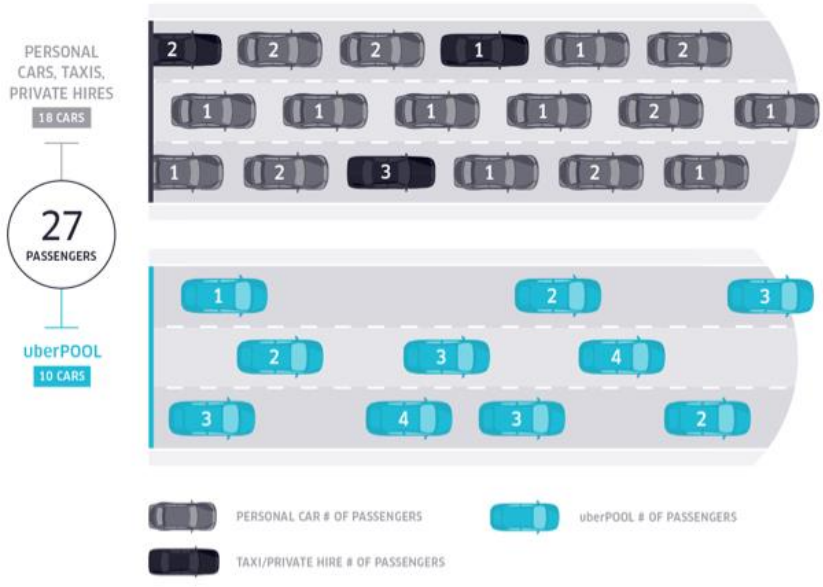


Figura 12 www.uber.com

Another strategy is **diversification**. Since its huge success in the transportation field, Uber started entering also in other businesses linked to its core activity. Thanks to its network, Uber can use its power also in other markets. Using the strength of its well-known brand

and that people have already the Uber app on their smartphone. It has already entered the food and delivery markets and has developed a new service for businesses.

- **UBER EATS**

The UberEats app debuted in cities across the US in March 2016, with the promise to make "getting great food from hundreds of restaurants as easy as requesting a ride". UberEats offers two different ways to order food. The first is ordering food from any of the dozens of restaurants on the app and Uber would facilitate the delivery, like other pony express as JustEat or Deliveroo. The second is an improved "instant delivery" menu that featured two pre-set lunches from a rotating group of restaurants that Uber would deliver in about 10 minutes.

UberEats entered the European market in June 2016 starting from the United Kingdom. More than 100 hundred people downloaded the app just in London. Thanks to this huge success Uber is going to move also in other cities, as Vienna, Brussels , Copenhagen, Berlin and Munich, Rome and Milan, Amsterdam, Madrid and Barcelona, Stockholm and Zurich. The UberEat app is easy to use, like all the other Uber services. When you're ready to place your order, you'll see a total that includes the food and delivery price. There's no need to tip. You will pay with your Uber account and track your order on the site as it comes to you.

- **UBER RUSH**

UberRush is a delivery service. Unlike what you might think, UberRush is designed to be your delivery driver, not an app where you place your order. When users open Uber app it will not pull up a list of restaurant or stores where you can order from. The UberRush function is to request a personal courier when you need one.

At the moment, it works only in three cities: San Francisco, Chicago and New York. Nevertheless, after the tests in these cities, it will expand in the cities where Uber is already present.

The real business for UberRush will be in becoming a delivery fleet for small business across the city and for enterprises.

Merchants can join UberRush free and use it when they need it. Each Uber Rush delivery will cost the merchant from $5 to $7. Uber will pay the driver 75% to 80% of that fee and keep the rest. It will be up to merchants whether they want to pay the cost of deliveries out of pocket or add it to the order total the consumer pays. Uber gets its share either way.

The ability to pick up multiple packages from multiple business add efficiency to the service. Most of the well-known delivery services do not do it.

This app offers the possibility of real-time tracking. The store which requests the delivery and the customers can always see where the delivery is on the map. Avoiding nervous phone calls from the customers. The map shows exactly when the courier will arrive at the store. After the handoff, the delivery can be tracked in real time. The business have the option to share the tracking link with its customers, giving them the ability to follow their delivery live on the map. UberRush also notifies them when the courier is arriving.

In San Francisco, packages are delivered via a mix of bike couriers and cars. For Chicago, it is cars only, whereas New York deliveries are by bicycle or on foot.

It is a great opportunity for small businesses, which wants to offer same-day delivery to their products but that otherwise cannot afford it.

When you require a delivery, you can choose the size of your pack, when you want to deliver it, if as soon as possible, later in the day or even the day after, and UberRush will think about it.

- **UBER FOR BUSINESS**

Uber for Business is a ride management platform built for big and small companies. It is a way to simplify business travel. It is possible to see how, where and when employees are riding. Company's employees will be linked to a company-provided payment source and bill each ride directly on the company account. They can attach expense codes or memos to their trip information, completely removing the hassle of saving receipts and filling expense reports.

The company policy will be enforced. Uber for Business set policies around when and where employees can ride to ensure only in-policy rides are taken on the company account

3.4 Market Competition

Uber has to compete with other platforms, such as Lyft. They have both a platform business model and they offer almost the same service. The reason why Uber is more successful relies on some of its main features.

Uber gains from the advantage of the *first-mover*. It was founded one year before Lyft and it was the first offering a ride-sharing service through an app. Being the first, It took the first customers with whom it has built a loyal relationship. Moreover, it offers lower cost than Lyft and it gives the possibility to select more services.

Uber has to face some direct and indirect competitors. Its direct competitors are the other companies which work in the car sharing industry and offer the same "personal driver" service. In the group of indirect competitors we can include all the other services that permit

to move around a city, such as taxi, mass transport and driving. In the middle, we might also consider as competitors other car sharing services like Enjoy and Car2go, that allow to share a car but you are driving the car by yourself.

DIRECT COMPETITORS

Since the big success of Uber and the big demand of the market, other companies entered the "on-demand rides" market. Lyft, Sidecar, Hailo, Curb, Didi Chuxing are some of them. Let's give a look to some of them.

- *Lyft*

Lyft is Uber's biggest competitor. Because they were both founded in San Francisco, but also they work similarly. Lyft was launched in 2012 by John Zimmer and Logan Green. It is well known for its distinctive sign: fuzzy pink mustaches on the front of cars.

Lyft seems to be the "eternal second" in the market, always behind Uber, but now it is giving hard time to it.

Like Uber, it also works within a smartphone app, users see a map with a pin at their location, animated cars moving around nearby, an estimate of how far the nearest ride is and just a button to press to request a ride.

However, Uber on average is cheaper than Lyft with $ 3.20 per mile against $ 4.20.

- *Curb*

Formerly Taxi Magic (2009) and RideCharge (2007), Curb was born in 2014. It connects people with safe, reliable rides from professional, insured and fully licensed taxi and other for-hire drivers.

Curb is app-based, opening up to a map that marks your location; it also shows available Curb drivers nearby. Users can either book rides instantly, or schedule them up to 24 hours in advance (a service convenient for travelers). There is a choice of paying fares within the app or with cash in the car, as well as vehicle options to best suit your needs.

On its website, Curb boasts that rides are always available and ready to pick you up, as well as messaging that "all rides begin and end at the curb," a motto reflected in its logo.

- *Didi Chuxing*

It was founded in 2015 after the merger of the two Chinese largest taxi-hailing firms: Didi Dache and Kuaidi Dache. It virtually owns all of China's taxi-hailing market, with 99% market share and 87% market share of hailing private vehicles.

It is in a strategic partnership with Lyft and now it concluded also a deal with Uber to buy its UberChina market.

Didi Chuxing is well-funded and backed by tech giants as Apple Inc. and Alibaba.

INDIRECT COMPETITORS

For sure, Uber first indirect competitors are taxicabs. Nevertheless, we should also consider people who chooses to drive their own car despite of getting a ride or the ones that choose to take a bus or the metro to move.

- *Taxicab*

Uber has a lot of problems with taxi companies which fight against the ridesharing app. Taxicabs have existed for years but maybe their era is going to end. Taxi drivers have to face stricter laws and require a licence. Uber does not.

When you call a taxi, you have to wait unpredicted times, you do not know how much are you going to pay and you must pay in cash or with credit cards. Not so good, though.

Taxi companies succeded in banning Uber from some countries like Spain, where the service is temporary not available, but we do not know how long this ban will last.

In the mid time, in order to bring them up to date, some taxi companies developed their own apps to require a taxi ride without callings needed. One example is the ItTaxi app by 3570.it .

- *Enjoy and Car2go*

Enjoy and Car2go are two carsharing services. You require an app to use both of them and you can book a car for a ride. You just take it, go where you want and park it. They both cost less then a taxi and sometimes less then Uber, but you have to drive and especially you have to find parking. The app is linked to your credit/debit card or PayPal so they are cashless.

Enjoy is powered by Eni (Ente Nazionale Idrocarburi) and uses the iconic red Fiat500. Car2go uses the Smart ForTwo.

3.5 Uber for the city

Uber aim is to improve everyday living. They are always looking for new ways to move, work and grow in a city.

- Strongest economy

Thanks to Uber, cities welcome new and flexible revenue opportunities for all their residents. More than half of the drivers in the US choose to work only 10 hours per week or less. So parents, students, retired people and anyone looking for extra earnings can work when they prefer. The 88% of Uber drivers declare to have more work flexibility and equilibrium with their private life and family.

Moreover, Uber helps to revive local economies. In London, almost a third of the affiliates drivers live in areas with the highest unemployment rate. Then, it arrives where taxicabs and mass transport do not. Not everyone lives close to a bus stop or a train station. Uber offers certain races affordable day and night, no matter where you live. It is safer and more comfortable. It helps if you live in a "bad" neighbour and you have to go to work in the city centre.

- Safer streets

As we have just said, Uber brings you on the front of your house door. Avoiding walking alone during the night, subjected to the danger of being robbed or worse. In addition, Uber reduces the number of drunk people driving. Since UberX arrived in California in July 2012, it was registered a monthly decrease of 6.5% of accidents due to driving under the influence of alcohol and drugs. The number of arrests for driving drunk or drugged decreased by 10% in Seattle.

- Environmental sustainability

Uber helps to create sustainable cities. Combining people going in the same direction in a single stroke, UberPOOL reduces the number of cars in the city. In Los Angeles and Chengdu, two of the cities where it is more active, more than a quarter of the rides consists of UberPOOL rides. Only in a month, the San Francisco uberPOOL users have saved 1,085,000 kilometres, about 27 world tours. Less km means less fuel consumption and less carbon dioxide emissions. It means less pollution and more breathable air, and also less traffic jam.[30]

3.6 Plans for the future

Uber is projecting to bring city transportation to a next level. Jeff Holden, product head of Uber, said that they are projecting means of flying transport during the Nantucket Conference. "We want to offer our customers how many options are possible, for this reason our researches on means of transportation are focusing also on the third dimension: height" this is what he said. They are studying small airplanes able to move nimbly through the city, thanks to a technology known as VTOL which should permit the airplanes to take off and land vertically. They are not helicopters, but vehicles very similar to small airplane on which the military agency "Darpa" is working on its project VTOL X-plane.

[30] Uber's official site: www.uber.com

This project seems science fiction, but according to J. Holden it could be possible in 10 years. If it happened, our means of transportation would change radically and the longest ride would last about 9 minutes.

Conclusions

In my thesis the attention has been focused on the importance of platforms in business nowadays. The topic has been introduced writing an overview and started the first part explaining the term "platform", going on describing what platforms are and how they work. Actually with a total market value of $4.3 trillion and an employment base of at least 1.3 million direct employees and millions of others indirectly employed, platforms have become an important economic force. Platforms companies are now clearly a global phenomenon. They are found not only in advanced industrial markets, but throughout the entire world thanks to the growing availability of mobile digital technologies. Not only are platform companies starting in all corners of the world but a growing number of platforms are expanding beyond their home countries. Indeed, many platforms are best recognized as the multinational enterprises that they have become with large global footprints. There are a lot of differences among platforms, they come in different types, including transaction, innovation, integrated and investment platforms. This research shows that the integrated platforms, while small in number, have become dominant. Indeed, this is not lost on platform executives. In the second chapter there have been considered the rapid worldly changes from the use of pipelines to platforms, following the beginning of the new information era and presenting a sort of guide, written by Shapiro and Varian, about how to survive at the trench warfare of competition in the information age. The first part has been concluded underlining the value that platforms create through innovation. There is clearly a rising platform economy shaping our global business landscape and affecting the lives of citizens worldwide. This new form of organization seems to be an important form of business enterprise in the digital economy. My study has highlighted important patterns for the global distribution of platforms, the sectors in which they appear, the geography in which they operate. It has also explained the fundamentals of the economics of platforms and has highlighted key success factors that contribute to a competitive advantage of platform firms. It has also highlighted the ways in which platforms spur innovation, and has indicated how private enterprise with the help of platforms can have a private interest in stimulating innovation. In the second part the attention has been focused on the effects of networking and on the negative points of networking, actually some economists start wondering if this growth is sustainable or it is becoming too big to be useful. I think there are Some industries which are more vulnerable to the platform revolution and in these years some types of businesses as information-intensive industries, highly fragmented industries, industries with non scalable gatekeepers will be impacted. Instead, industries like healthcare, banking and even education will resist thanks to high regulatory control, high failure costs and intensive resources.

The Uber case has been described and analysed in details, it is an example of a two-sided network effect in which both the driver and the customer gain together.

While significant challenges lie ahead, the opportunities that platforms reveal are still enormous, tapping into an unprecedented level of global Internet connectivity, and a large

supply of talent and software skills, which can be tapped to develop the platforms of tomorrow. The rise of platform will not stop in the next years considering the huge economic force it involves. Firms which want to stay in the market and grow their incomes must study the dynamics of platform and transform their business in a platform or at least include a platform in some of the services they offer.

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