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MASTER PROGRAM IN  
ECONOMIC AND BUSINESS STRATEGY  
ENTRY DECISION IN THE PLATFORM  
ECONOMY

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# Η απόφαση εισόδου στην οικονομία της πλατφόρμας

**Σημαντικοί Όροι:** επιχειρηματικό μοντέλο, πολύπλευρες πλατφόρμες, απόφαση εισόδου, δικτυακές εξωτερικότητες

## Περίληψη

Η ανάπτυξη της τεχνολογίας και των διαθέσιμων τεχνικών μέσων ήταν ανέκαθεν ένας από τους σημαντικότερους παράγοντες για την ανάπτυξη της καινοτομίας σε κοινωνίες και αγορές σε όλο τον κόσμο. Ένας από τους λόγους για τους οποίους παρατηρείται το παραπάνω φαινόμενο είναι ότι συχνά η ανάπτυξη μιας τεχνολογίας επιτρέπει την πρακτική εφαρμογή καινοτόμων και επαναστατικών ιδεών που, κατά τη σύλληψή τους και ελλείπει αυτής της τεχνολογίας, δεν μπορούσαν να εφαρμοστούν ή καθιστούν δυνατή νέους τρόπους λειτουργίας και εκμετάλλευσης παραδοσιακών συστημάτων και πρακτικών που μέχρι την ανάπτυξη αυτής της τεχνολογίας είχαν εντελώς διαφορετικό σκοπό ή πολύ περιορισμένη χρήση.

Είναι γεγονός, άλλωστε, ότι ιστορικά κάποιες από τις πιο εντυπωσιακές και σημαντικές εξελίξεις, τόσο στο βιοτικό επίπεδο του κοινωνικού συνόλου όσο και στη βελτίωση και αλλαγή του τρόπου λειτουργίας της αγοράς και των επιχειρήσεων, ήταν που πυροδοτήθηκαν από τεχνολογικά και τεχνικά επιτεύγματα, τα οποία έδωσαν την πρακτική δυνατότητα σε τέτοιες ιδέες, συστήματα και πρακτικές να εξελιχθούν. Ωστόσο, η τεχνολογία εξέλιξής της και η μεταφορά της ανθρωπότητας στην ψηφιακή εποχή μέσω των υπολογιστών, του διαδικτύου και των έξυπνων φορητών συσκευών, εξαλείφει τους γεωγραφικούς περιορισμούς και σχεδόν εξάλειψε το κόστος των πληροφοριών. Έτσι, οδηγηθήκαμε στην πραγματική καινοτομία της σύγχρονης συνεργατικής οικονομίας, δηλαδή στην επέκτασή της στο «μοίρασμα» πέρα από τα στενά όρια της γεωγραφικής περιοχής του κοινωνικού κύκλου.

Η παρούσα εργασία στοχεύει να εντοπίσει και να αναλύσει τα ζητήματα ανταγωνισμού που προκύπτουν από τη λειτουργία του οικονομικού μοντέλου της Sharing Οικονομίας στις παραδοσιακές αγορές. Ως εκ τούτου, η χρήση της τεχνολογίας από τις επιχειρήσεις και ιδιαίτερα η χρήση πλατφορμών και μέσων κοινωνικής δικτύωσης θα μελετηθεί στην παρούσα εργασία, με στόχο την είσοδο στην αγορά. Ενώ θα αναλυθούν ενέργειες που στοχεύουν στην προστασία αυτών των πλατφορμών για το κοινό που τις χρησιμοποιεί.



# **Entry decision in the platform economy**

**Keywords:** business model, multi-sided platform, entry decision, network effects

## **Abstract**

The development of technology and the available technical means has always been one of the most important factors in the development of innovation in societies and markets around the world. One of the reasons why the above phenomenon is observed is that often the development of a technology allows the practical application of innovative and revolutionary ideas which, at the time of their conception and in the absence of this technology, could not be implemented or makes possible new modes of operation and exploitation of traditional systems and practices which, until the development of this technology, had a completely different purpose or very limited use.

It is a fact, after all, that, historically, some of the most impressive and important developments, both in the standard of living of the social as a whole as well as in improving and changing the way the market operates and the businesses, were triggered by technological and technical achievements, which gave the practical possibility for such ideas, systems and practices to evolve. Its evolution technology and bringing humanity into the digital age through computers, of the internet and smart mobile devices, however, eliminated geographic one's restrictions and almost eliminated the cost of information. So, we were led to real innovation of the modern collaborative economy, i.e., its expansion of "sharing" beyond the narrow confines of one's or one's social circle geographical area.

This paper aims to identify and analyze the competition issues that arise from the operation of the economic model of the Cooperative Economy on traditional markets. Therefore, the use of technology by businesses and especially the use of platforms and social media will be studied in this paper, with the aim of entering the market. While actions aimed at protecting these platforms for the public that use them will be analyzed.





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## CHAPTER 1: Introduction

The Internet economy is essential to the daily activities of both businesses and consumers. Now it is also a channel of cultural and artistic content. Online platforms are at the heart of this ecosystem. It is key to development and social development at the local and global level. According to the European Commission, between 2001 and 2011 the information and communications sector, of which online platforms form a part, accounted for 30% of GDP in the European Union and 55% in the US.

The Commission expects the Digital Market to provide between 1% and 2.1% additional GDP in the long term. In this environment, there is increased political and regulatory interest in the role of platforms in Europe's digital economy. In May 2015 the European Commission published the Digital Market development strategy, based on three pillars:

- Better access to consumers and businesses of digital goods and services in Europe
- Creating suitable conditions and space in digital networks as well as innovative services
- Maximizing the dynamic development of the digital economy

Under the second pillar, the Commission undertook to analyze the role of online platforms. Transparency, use of information and competition practices were taken into account for this work.

Therefore, the use of technology by businesses and especially the use of platforms and social media will be studied in this paper, with the aim of entering the market. While actions aimed at protecting these platforms for the public that use them will be analyzed. In particular, the first part of the thesis presents the bibliographic review, while the second part analyzes the research part.



## CHAPTER 2: Literature Review

### 2.1 Online Platforms

#### 2.1.1 Introductory Remarks

The rapid growth of the Internet as well as the emergence of financial entities have attracted the attention of public institutions, legislators and regulators. In recent years, the OECD has published two reports on the economic and social role of online intermediaries and the digital economy. The French CNUMM published a report on net platform neutrality and more recently the European Commission published a related advisory text.

Attention is focused on two objects:

- Understanding and evaluating the benefits of the digital world
- Providing a framework for creating "an open and sustainable digital environment" which can support the economy in the long term.

To this end, it is necessary to understand the elements of online platforms that can provide benefits. This is essentially the main objective of this study. It is the first step in a broader understanding of whether there are groups of platforms that may exhibit behaviors that require intervention (regulation) and how these behaviors will affect the performance of the market and its ability to bend competition (anti-trust). But this is outside the scope of the present study. Due to the above two objects, a definition for online platforms is required. However, the more general concept of online platform is quite vague. It includes websites or applications that not only differ but work in a multitude of markets. Additionally, adopting a "usable definition" is made even more difficult by the ever-changing nature of internet usage as well as the multitude of business models used across digital platforms.

#### 2.1.2 Defining online platforms

The diversity of online platforms in terms of activity, sector, business model and size is overwhelming. Platforms range from small local websites to multi-million-dollar global companies. They provide various services such as Internet search engines (Google, Yahoo, Bing),

online shopping points (eBay, Booking.com, Asos, Allegro, Amazon), video sharing platforms (Deezer, Spotify, Netflix, Canal Play), social networks (Facebook, Twitter), collaborative financial platforms (AirBnB, Uber, BlaBlaCar, Ulule, Crowdrube), online gaming (Steam), etc.

Finding a common denominator among these Internet "players" other than that they are all part of the Internet is not obvious. Starting with the definition recently given by the European Commission, it is shown that the concept of online platforms does not need political practice. It is too vague and does not provide the necessary guidance for legal certainty.

### 2.1.3 The definition of the European Commission

In its last consultation, the Commission proposed a definition for online platforms: "an argument that operates on two (or more) fronts of markets, which uses the Internet to enable two or more distinct but interdependent groups of users to interact, with the aim of the creation of value in at least one of the groups. Some platforms also qualify as service intermediaries." First, the Commission characterizes online platforms as "arguments operating in multi-sided markets", or multi-sided platforms according to the academic literature.

It then clarifies that the Internet "enables interactions between two or more groups of users." Then, according to the Commission, the platform is a digital intermediary that balances the supply and demand for goods, services or information, as part of a monetary or non-monetary transaction / mediation. Additionally, user groups are assumed to be interdependent.

Finally, the Commission requires the online platform to create value for at least one of the user groups. At first glance, the definition is clear: a website or application that meets these criteria can be considered an online platform.

However, the Commission does not provide guidance in understanding the multifaceted platform, what makes an online business an intermediary and what interdependence means. Moreover, in the context of technological convergence, the separation between the Internet and other communication networks is less clear.

It is surprising how the Commission asks those involved in the Internet economy if they agree with the definition and, if not, how they could change it. The Commission's question reflects the difficulties one encounters in clearly defining the online platform.



In order to understand the terms of the Commission's definition, and more generally any definition of online platforms, the academic literature in economics and business is briefly listed. In this way, it is understood that the terms of the definition raise questions that remain unanswered. In general, it seems that there is not just one definition for online platforms. Any attempts to create a coherent definition do not provide the necessary guidance for regulation and competition.

#### 2.1.4 Multifaceted platforms

There are four points in the literature that aim at a general definition of multifaceted platforms. According to Rochet and Tirole (2006), who study card payment systems, in a multifaceted platform “the volume of transactions is affected by the additional charge on one side of the market and the equal reduction of the price paid on the other. The authors claim that the fundamental principle for defining the platform is to balance businesses in overall profitability by applying different access and usage taxes between user groups. Evans and Schmalensee (2007) state that the multifaceted platform a) has two or more groups of consumers, b) who are interdependent, c) do not perceive its value among interactors, d) rely on the platform to create value, which it would not exist in her absence. This definition highlights the importance of interdependence, e.g. how the involvement of one user group affects the way other groups value the goods/services provided. Moreover, Caillaud and Jullien (2003), and Armstrong (2006), who studied platform competition, agree that the most common way to define a platform is by defining whether or not there are important cross-group or indirect network effects between the two or more customer groups participating on the platform.

Finally, according to Hagiu and Wright (2015), there are two important requirements that characterize multifaceted platforms:

- a) the platform must allow two or more distinct parties to interact directly;
- b) each party must somehow have a link with the platform.

More specifically, direct interaction essentially means that the two parties who transact through the platform retain control over the terms of the transaction. The association with the platform means that all parties have invested in the use of this particular platform, without necessarily implying an investment of a financial nature (e.g. providing data).

Depending on the criteria used, some digital intermediaries can be considered online platforms in some cases and not in others. For example, Gumtree, an advertising website in the United Kingdom, does not require any kind of nexus, and therefore cannot be considered an online platform according to the third definition, but it meets the requirements of the other two.

Similarly, several platforms based on the European Commission's definition may not meet the corresponding requirements. For example, there is no interaction between content providers and users on Netflix, and no link is needed on the part of consumers on Vimeo, Dailymotion or YouTube.

### 2.1.5 Mediator

Some definitions (e.g. OECD's) require online platforms not to maintain control over the interactions they support. That is, they require digital platforms to be “pure intermediaries”. However, in practice many platforms retain some control. This can be quite limited and concern data that users enter when creating an account or when using the platform such as Facebook or Twitter.

And the control can go even further and concern the control of specific aspects of the transaction, such as the quality of the transaction and the provision of payment in Airbnb and BlaBlaCar. Finally, Amazon and Netflix retain greater control over pricing and still market their own products. If online platforms were required to be pure intermediaries, Airbnb, BlaBlaCar, Amazon, Netflix or Facebook would not be online platforms. Additionally, several platforms act as both intermediaries and resellers.

For example, Amazon provides a platform for businesses to sell their products and for consumers to find products (Amazon Marketplace), but it also appears as a sales business on its own platform. If a platform is required to function solely as a point of purchase, Amazon would be exempt because of resale. The main question is whether resellers can be considered platforms. If not, when the platform is a reseller, the overall entity can be considered as an online platform.

Finally, single organizations can operate under multiple business models as well as new (online) business models that emerge and gain publicity very quickly. Some businesses that can be described

as physical intermediaries have expanded their presence through the development of online platforms.

These include, for example, job centers, stock exchanges and retailers such as John Lewis in the UK or El Corte Ingles in Spain. In the case of the stock market, online trading has replaced physical presence. But this must mean that physical intermediaries can be characterized as online platforms as long as they have a digital face.

### 2.1.6 Interdependence

Interdependence is central to the various definitions of online platforms. However, there is disagreement on the nature of the interdependence that makes the online platform as business. This is reflected in the differences in organizations' approaches to the definition of a digital platform.

The European Commission requires that online platforms “create value for at least one of the groups”, while according to the OECD, “the value obtained by one type of user increases in proportion to the number or quality of the other types of users. As a consequence, websites or applications that are (partially) funded by advertising (such as Google Search) can be considered intermediaries by bringing advertisers and users together.

This mainly concerns businesses that advertise products or services directly to consumers (e.g. hotel ads that often appear in flight searches), or businesses that pay to have their products appear on search platforms. For some consumers, advertising may bring benefits, while for others, it may not.

### 2.1.7 Internet

Technological convergence is the idea that as technology evolves and grows, the various existing technological systems develop in such a way that they serve the same purpose. Such convergence breaks down the boundaries of the digital world and the definition of the digital platform. For example, with a mobile phone, it is possible to use communication platforms such as Lync or

WhatsApp (and thus use data) to call friends or family, or to use the conventional telephone function (via telephone networks). Both mean hands-free communications based on IP technology.

Similarly, the distinction between online messaging (e.g. via WhatsApp) and SMS messaging is becoming less clear. Apple devices combine SMS and Internet messages (iMessages) through a single interface. If stricter requirements are placed on the definition of the Internet (ADSL, VDSL, cable, fiber optics), platforms that allow SMS or calls to be sent cannot be classified as Internet platforms. However, as networks continue to converge, mobile operators such as BT, Orange or Vodafone can potentially qualify as online platforms.

### 2.1.8 Classifications of online platforms

The previous paragraph presented the difficulties that govern the definition of online platform as a clearer guidance is needed on what constitutes an online platform from a regulatory and anti-trust perspective. Based on the policy content, the first step is usually the definition of the relevant market and then the assessment of its purchasing power (through assessments) or the establishment of dominance (in case of competition). In order to set the limits of a market in the European Union, the regulatory authorities as well as the competition authorities, examine and evaluate the competitive constraints that a company encounters, both from the demand and from the market.

To do this, they assess how substitutable the products are from the point of view of the consumer or the companies that provide the goods or services. The general concept of the online platform is vague enough to provide a framework capable of ensuring legal certainty. But this does not mean that some digital platforms cannot be compared on one or more dimensions. They can be classified into platform groups that share certain characteristics.

Depending on these characteristics, there are also equal classifications. Several platform categories have already been introduced. The OECD uses six categories based on the type of services consumers can use through online platforms:

- 1) intermediaries accessible via the Internet,
- 2) data processing and uploading providers,

- 3) e-commerce intermediaries,
- 4) search engines,
- 5) websites that provide access to links of other websites,
- 6) participatory online platforms.

In the US, they categorize platforms based on their position in the value chain: manufacturing, wholesale, retail, services. These classifications are established in specific contexts: the OECD seeks to understand and calculate the benefits of online intermediaries, while the purpose of the US administration is to collect national accounts.

With regulation or anti-trust in mind, an alternative approach is to establish a categorization through the perspective of how comparable or substitutable applications and websites are. However, this criterion is relevant as comparable or substitutable platforms differ from the perspective of consumers or businesses.

- Classification based on the consumer's point of view : In a first approach, the focus is on how consumers use online platforms, describing the online services offered or distinguishing their activities. In its consultation, the European Commission chose the first of the two and defines 11 types of online service: Internet search, specialized search tools, maps, news aggregators, online marketplaces, audio-visual and music, video sharing, app stores, social networks and collaborative economy. Online gaming could also be added to the list.

- Some platforms may fall into multiple categories. For example, many social networks such as Facebook can be used either to access or share content, to communicate, to search for information or even to purchase items. Similarly, consumers can compare products and read reviews on comparison platforms such as Idealo, but also through many online marketplaces such as eBay.

- Classification by business perspective: Another approach focuses on where online platforms are used in the value chain. Such a categorization is based on

the business perspective. It focuses on recognizing the function within the business activity through the advantages that online platforms bring.

Porter's value chain offers a general framework for describing any value chain and categorizing business functions. According to Porter, business functions can be divided into primary or secondary business activities. Primary activities form the value chain and include inbound and outbound logistics, marketing and sales functions, and customer service.

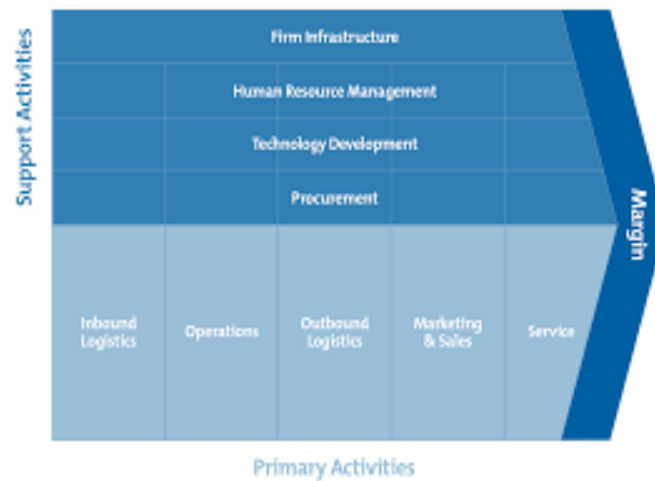


Figure 2. 1 - Porter's Value Chain: Understanding How Value Is Created Within Organizations

Secondary activities are equally important but exist to support primary activities. They include functions such as procurement, human resource management, information technology and infrastructure development.

## CHAPTER 3: The economic role of online platforms

Despite the difficulties of identifying what generally makes a website or application an online platform, the economics and business studies literature has analyzed in specific contexts the advantages that online platforms bring to consumers and businesses. Through this presentation, the role of online platforms in the economy is recognized and shown to bring consumers together with producers, enabling transactions that would not otherwise be possible.

### 3.1 The advantages for consumers and businesses

The internet has reduced various costs, such as those relating to the creation, distribution, acquisition and provision of goods and services. More specifically, platforms are characterized by positive effects of the internet, which means that as the number of platforms increases, these effects will increase on users. In the context of shopping platforms, these effects can be made on users either directly or indirectly.

As a consequence, consumers can benefit from online platforms through a variety of mechanisms that may not apply to all online platforms, but certainly to specific markets, which may result in:

- Greater convenience and reduced search costs – for example, less search completion time or simplified search processes.
- Lower prices due to increased supplier competition, driven by reduced entry barriers, especially for small suppliers, increased transparency and easier procurement.
- More choice or variety, or greater product quality due to the breadth of online platforms (such as e-commerce platforms) and their ability to bring together a large number of users who want to interact.
- More relevant products, services and content. Online platforms such as comparison websites can support greater transparency and more accurate results. Access to more information, including ratings and reviews, improves consumers' ability to find what they're looking for.

- Social benefits.
- Wider financial benefits

Accordingly, depending on the markets in which they operate, businesses can equally benefit from online platforms, such as below:

- Market expansion – the infrastructure provided by online platforms such as crowdfunding platforms allows businesses to operate across a wider range of buyers and sellers. This can evolve into overcoming geographic restrictions.
- Lower costs (production, search and transaction) – online platforms such as e-commerce or recruitment platforms can benefit from economies of scale. They provide consumers with ways to search for potential products / services more efficiently (e.g., by increasing the number of recruits), reducing the time and cost of searching for personnel and reducing transaction costs.
- Information development – online platforms, such as social media, improve a business's ability to collect and organize information, such as through consumer feedback, allowing them to observe aggregate patterns.
- Sharing the risk – for example, crowdfunding platforms allow businesses to pool small investments within a large market to have the required capital, thus expanding financing options for small and start-up businesses.
- Signaling – online platforms such as websites provide online ratings. This gives criteria for a seller and offers buyers more information about the quality of the seller / product. In this way, a better "engagement" of the consumer with the brand is achieved.

Cooperation through repeated interaction – similar to signaling, if buyers cannot ascertain the quality of the product, the experience of other buyers can help them. Comparison websites or review websites can play a central role in distributing these benefits.

Price discrimination – the structure of online platforms such as e-commerce platforms through financial transactions allow businesses to offer discounts to specific consumers who would not participate in the market under normal prices.

### 3.2 The economic functions of the platforms



Based on the aforementioned advantages, the OECD defines the economic role of online platforms as follows:

- Infrastructure provision – this is seen by consumers and businesses as an improvement in convenience and reduced transaction costs.
- Collection, organization and evaluation of information – this is found in both businesses and consumers due to the reduction of search costs.
- Support social communication and information sharing – this is seen in businesses as improved consumer feedback and in consumers as social benefits.
- Concentration of supply and demand – this comes across to consumers as a greater variety of available products but also more relevant products and to businesses as the expansion of the available market.
- Support market operations – this comes across to consumers as advanced competition between product offerings through a wider range of choices, more relevant and at lower prices.
- Delivering trust – due to the benefits of improved consumer engagement.
- It takes into account the needs of buyers / sellers / users / consumers – this is found in consumers due to a greater variety of products available, more relevant products and in businesses as an improvement and integration of information from consumer feedback. These functions reflect the importance of online platforms in the market at an aggregate level, which varies and becomes more specific depending on the relationship the group has with the platform.

As pointed out by the European Commission and the OECD, the Internet economy is central to the daily activities of consumers as well as businesses. At the heart of this ecosystem, online platforms play a key role. They bring advantages to consumers and businesses, bringing consumers and producers together, enabling transactions that would otherwise not be possible.

### 3.3 Advantages of using the platforms

The boundaries of e-commerce are not determined by geographical and national borders, but more by the coverage that computer networks have. Since most networks have global coverage, e-commerce allows even the smallest suppliers to achieve a global presence and do business worldwide. The corresponding benefit to the customer is global choice - a customer can choose

from all potential suppliers the product or service they require, regardless of where they are geographically located.

### 3.3.1 Improved competitiveness / quality of service

E-commerce allows suppliers to improve their competitiveness by "getting closer to the customer". As a simple example, many companies are using e-commerce technology to offer improved levels of support before and after the sale, with increasing levels of product information, instructions for product use, and rapid response to customer questions. The corresponding benefit for the customer is improved service quality.

### 3.3.2 Mass customization to customer requirements / Personalized products and services

With online interaction, suppliers are able to gather detailed information about each customer's individual needs and design products and services for those individual needs. This results in customized products that are comparable to those offered by specialist suppliers, but at mass market prices. A simple example is an online magazine that is "cut and sewn" to fit the reader with each access emphasizing the articles that interest him and excluding those he has already read.

### 3.3.3 Reduction or elimination of distribution networks / Rapid response to needs

E-commerce often enables the dramatic reduction of traditional supply chains. There are many well-established examples of companies in which goods are shipped directly from the manufacturer to the final consumer, bypassing traditional wholesale and retail networks (Typically the contribution of e-commerce is not that it makes such direct distribution possible—since it could be done with printed catalogs and telephone or mail orders—but that such direct distribution becomes practical in terms of cost and time delay).

The extreme example occurs in the case of products and services that can be delivered electronically, where the distribution network will disappear entirely. This has massive implications

for the entertainment industry (film, video, music, magazines, newspapers), the information and education industry (which includes all forms of publishing), and companies involved in the development and distribution of software for computers. The corresponding benefit to the customer is the ability to quickly obtain the exact product they need, without being limited to what is in stock at the local supplier.

### 3.3.4 Substantial cost reduction / Substantial price reduction

One of the main contributions of e-commerce is the reduction of transaction costs. While the cost of a business transaction that requires human interaction can be measured in euros, the cost to do a similar transaction online can be on the order of a few euro cents or even lower.

Therefore, any business process that involves routine interactions between people offers the potential for substantial cost reduction, which in turn can translate into substantial price reductions for customers.

### 3.3.5 New business opportunities / New products and services

Beyond redefining markets for existing products and services, e-commerce also offers the opportunity to develop entirely new products and services. Examples include online support and support services, directory services, service services (ie establishing initial contact between potential customers and potential suppliers) and many types of online information services.

While all of these opportunities and benefits are distinct, they are to some extent related to each other. For example, improvements in competition and quality of service can partly come from mass customization to customer requirements, while the reduction of distribution networks can contribute to cost reduction and price reduction.

## 3.4 Disadvantages of using electronic platforms

### 3.4.1 Security in the use of personal data

During the process of an order, some information is requested from the users, such as their address, their email, their credit card number, date of birth, etc. and anything else deemed necessary for the transaction. But the problem is that on the internet many specialized users, the so-called hackers, can steal and use these data for their own benefit.

So, they usually create illegal databases where they sell these data to other companies who use them mainly for advertising purposes, such as sending mass messages etc. but without the customer's permission. Many times, the same information is also used for highly illegal actions such as forgery and financial theft of the people who made the order.

### 3.4.2 Security issues in financial transactions

The amounts spent on Internet shopping are estimated to be in the billions of dollars annually. Already you can buy anything on the Internet - from a book to a car. Someday shopping over the Internet will be as common as shopping through the mail or visiting retail stores.

The most common way to pay online is by credit card. But there is a major problem with online shopping: the Internet is not a secure network! As packets of information travel across the Internet, anyone in their path could process them.

So, a skilled user could steal the card number and make a purchase. Various payment methods have been developed to solve this problem. Most use processes and protocols designed to make Internet financial transactions as confidential as possible, using encryption technologies that ensure no one can steal your credit card number.

Dozens of organizations, including Microsoft and Netscape, the major credit card companies, and Web standards bodies are developing schemes that offer secure encrypted financial transactions on the Internet. There are two secure transaction schemes available.

The first hides personal financial information, such as credit card numbers, so that it can be transmitted over the Internet without allowing others to read the data. The second method creates a system of cyber-dollars, i.e. electronic money that only authorized merchants can redeem for real money.

The Secure Electronic Transaction (SET) protocol has been adopted by VISA, MasterCard, American Express, Microsoft, Netscape, etc. It describes a way for users to shop online and charge their credit cards. The support of this method by the most important financial and IT companies gives it a very good possibility for its transformation in the future into a standard for making online purchases.

In addition to the method of secure transactions using credit cards, a number of companies rely on the use of cyber-dollars which allow consumers to purchase goods and services anonymously. With this method the user uses the digital equivalent of money to make purchases and thus does not need to send personal information to the Network. By using this electronic payment method consumers can purchase electronic coins and use them to make purchases.

Credit card and e-liquid systems have their advantages and disadvantages. Credit card hiding systems are convenient and do not require customers to change their purchasing habits. Transactions are charged to the credit card and appear on the statement sent to the cardholder just like any other purchase. Electronic money requires more actions on the part of the user since he must first acquire it before using it. Nevertheless, they better ensure privacy in online shopping.

### 3.4.3 The problem of supplier-consumer identity

A key problem in online shopping is not knowing the identity of the consumer or the supplier. Thus, the case of fraud by the supplier or by the customer is increased. Typical was the creation of a commercial store on the Internet under the name of a well-known multinational company in which customers were deceived and made purchases with their credit card, but without ever receiving the products they ordered. Customers complained to the company they thought they were buying from, but it was never discovered who was behind this particular scam.

Accordingly, there are many examples of customers who make purchases without giving their real information. This often happens from young people or from competing other companies whose goal is to create computer and bureaucratic problems for rival companies. Many times, this is also done in a computerized way.

### 3.4.4 The problem of information overload

According to research on e-commerce users, users of the network usually do not easily find what they are looking for or find an excessively large volume of similar topics. The reason is that many organizations give as keywords for their site, many words similar to it and not exact to it, with the aim of traffic only.

The result is information overload and ultimately non-functionality in the search. This problem is addressed by the continuous development of search engines and the increasingly effective use of search criteria and filters. But this creates additional problems since it increases the degree of complexity of the search method.

## CHAPTER 4: Business Models

### 4.1 Description

The development of technology has greatly affected the business both in operational day-to-day activities and at a strategic level. In particular, it has enriched the way and means available to the modern entrepreneur with options even to the level of creating a business plan.

Although there are many explanations on business plans the transaction of value leans on the basic. According to Osterwalder, A. and Pigneur, Y. (2010), the description of the ways a business creates, delivers and captures value consists a value driven business model and helps with understanding the core of businesses strategic activities. Furthermore, business models, especially digital business models, have been explained by referring to the transactions between the parties.

As shown below there are various business models that describe the basic transaction flow. In the case of production, the supplier sells inputs (raw materials) to company A which processes and results in the final product/service which it gives to the final customer (side B). A variation of this model is vertical integration where the supplier and the manufacturing company are under the same ownership and sell the final product/service to side B.

Accordingly, in the reseller business model side A sells the product or service to the reseller, who without processing and tampering with his product, sells to the final side B. In this case side A and B do not come into contact, while the reseller earns a share of money from making the transaction.

Finally, in the case of the multi-faceted platform, the value offered by the platform lies in the realization of the direct communication and transaction of the two sides A and B. The two sides find a common point at which they can come into contact while the platform is responsible for smooth conduct of transactions. In some cases the creation of a safe party as it checks the authenticity and accuracy of the data added by the two sides, or even secures the monetary transactions. For example, the nannuka company is a platform where parents and guardians of children add ads for babysitting, supportive study, etc, so professionals can be informed and have the opportunity to make an offer. The choice and the communication of the parties continues

without the further mediation of the platform. Such a business plan is commission-based, either as a subscription or as a percentage of the professionals' profits, while another platform can be paid from both sides.

A. Hagiu, J. Wright / *International Journal of Industrial Organization* 43 (2015) 162–174

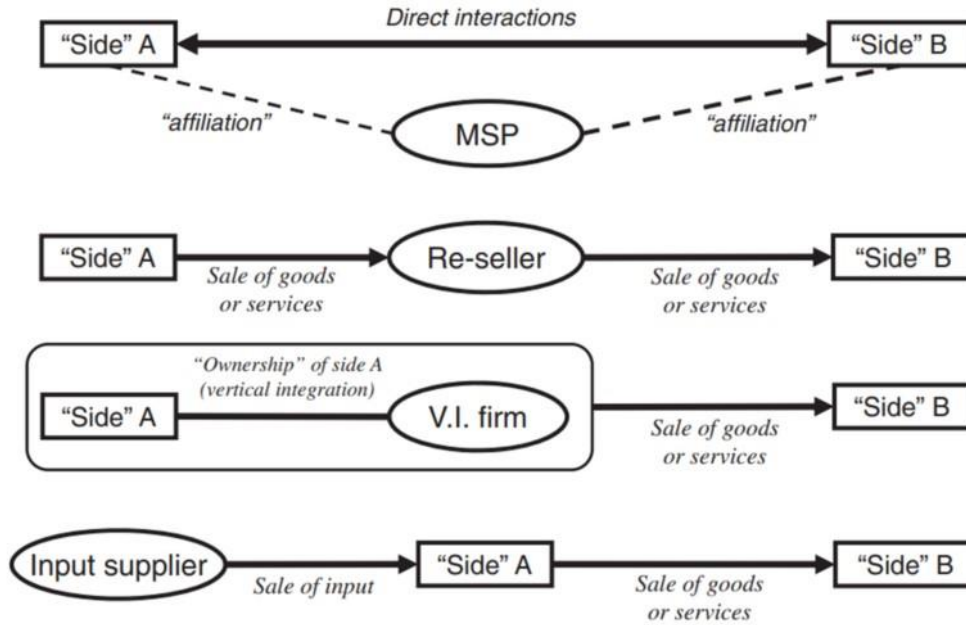


Figure 4 1 – Multi-sided Platforms- Science Direct

Clearly, over the years, a multitude of such platforms have been developed that are used in everyday life, such as efood and Wolt, companies which bring restaurants in contact with consumers, or doctoranytime, which has a database of doctors whose potentially patients can be informed about services and costs and book an appointment immediately.

What seems strange about this business model is its massive spread and the head start that some of these businesses have, that traditional businesses don't have. It is clear that Uber has the largest network of taxi services without owning a vehicle, or it seems strange that Airbnb does more property rental transactions than Hilton without owning a single property. But this is the nature of multisided platforms' business models.

Despite the above examples, the platforms may not be exclusively about communication but on the contrary do not allow the communication of the parties but purely the monetary transaction. Such companies are bank cards visa, mastercard etc but also companies such as viva, ticketmasters,



ticket services which carrying out the monetary transaction between costumers and production companies for theater and concerts performances.

## 4.2 Decision Making Dynamics

As shown above, since there are many different models in which a company can use, the choice of the business model has occupied the international literature. Especially when it comes to choosing between the platform and other more traditional versions of business models such as reseller or vertical integration.

The general methodology used in the literature is based on an exogenous factor that differentiates business models quite a bit. For example, Hagiu.A and Wright. J, (2015) isolated the Marketing processes as an exogenous variable as in the reseller business model the marketing processes are controlled by the reseller and not by the producers, in contrast to the multisided platform business model in which the producer exclusively owns the marketing processes. This difference is actually related to the structure of each business model and is an important choice for the decision of the business model to be followed.

In other words, if an entrepreneur has the option of making his products or services available in a reseller or platform model, the importance of marketing activities may play a decisive role in making his choice. The above study showed that the decision between granting control over marketing decisions is related to the level of information possessed by each side.

Specifically, in the event that the reseller has more information and can draw up better marketing strategies, the business model of the reseller is chosen. In the opposite case where the producer or professional himself possesses better information and therefore practices more efficient marketing procedures, he chooses to make his products or services available through some platform in order to control Marketing and better manage and promote his products.

Additionally, the two authors conducted another research (Hagiu.A, Wright. J, 2015) on the choice of platform business model versus vertical integration. As mentioned above in vertical integration side A and the intermediary operate under the same ownership and offer products/services to side B. The key tradeoff of choice was chosen to be the need for coordination of professionals and their motivation. More specifically, in vertical integration the professionals

work under a common ownership regime which protects the excessive number of professionals competing with each other, however in the event that the professionals take part in one platform (as side A) even though they may exceed the demand for services with result in adverse consequences (surplus supply, reduction of prices, etc.) however, it ensures the motivation of professionals to compete.

The most common for this decision to appear is in cases where professionals offer services, specifically to legal firms, consultancies, taxi companies, etc. For example, in a taxi company using vertical integration the taxi drivers are specific in number and operate under common regulations as opposed to taxi drivers entering a platform where they operate autonomously operating essentially as freelancers which offers them the motivation to work more efficiently with the motivation to achieve better reviews, upgrading their profile etc.

The decision to choose between business plans is a two-way street. On the one hand, there is the choice of starting a business as a platform or as a reseller or vertical integration company, on the other hand, there is the choice of the professional to participate in a platform or integrate into a company with a different, traditional business model. The expected financial results are clearly considered a key variable for making the decision, but the financial results (expected profits) are affected by many factors some of them are exclusively related to the platform environment such as network effects.

The network effects is such an important factor that, as the aforementioned research shows, it determines the outcome of the decision between vertical integration and platform. If the network effects are so strong as to cause increased demand for professionals, they are willing to enter the platform and compete with each other for a potentially significantly increased number of practitioners, i.e. increased competition.

### 4.3 Network effects

It is the precise description of the business model of the multisided platform and the nature of its activity (interaction between independent parties) that gives rise to network effects, i.e. the creation of an expanded network of communication and transactions that each side benefits by increasing

the number and two sides. Although network effects have been seen in earlier markets (before the digital age), the platforms are dramatically enhanced.

More specifically, there are two categories of network effects, the same-side network effects and the cross-side network effects. The former (same – sided also direct, demand – side) appear when the value of the product / service increases with the increase in the number of participants in it. Such examples are social platforms (facebook, viber, linkedin), where the participant in such a communication platform benefits by finding more users on it. The larger the base of customers - subscribers a platform has, the more popular it becomes and the more value it acquires. And the second ones, (cross – side also indirect) appear where there are two sides that interact and the increase in the value of the platform for participants on one side is positively affected by the number of participants on side B. (Ronteau, S. et al, 2022) For example a subscriber of Uber, on the demand side it benefits as the number of taxi drivers increases (side B) and correspondingly a subscriber taxi driver benefits with the increasing number of users - customers requesting taxi services.

In fact, when the results are evident, the choice of entering the platform is related to the expectations of the customers (both sides) for their positive or not effect on the requested quantity. Hagiu.A, Wright. J, (2015) stated that a different balance appears and indeed very fragile in the members' expectations. Indeed, in the event that the customers of a platform have divine expectations for the increase of members of the other side, they decide to join the platform, but this creates a supply (or demand) which attracts a large number of participants of the other side who request the product (or offer).

Continuing the example of Uber, it seems that taxi drivers having positive expectations for the participation of customers looking for taxi services, enter the platform with the result that there is a sufficient offer that attracts consumers to enter the platform knowing that it is very likely to find cab services immediately. Accordingly, consumers (those requesting taxi services) on one side of the platform, provided that they have positive expectations for the growth of the platform, enter it as they believe that the supply (taxi drivers) will increase, while at the same time the increase of their number increases the demand for taxi services, creating an emerging audience with excess demand, i.e. an attractive market field.

In the literature it has been observed that the business plan of the multisided platform is preferred for goods of low value in relation to the reseller mode which is preferred for the sale of goods of

higher value. Especially when network effects are weak. Regarding goods whose prices move in the intermediate range, hybrid models are observed, etc. Resende et al . (2018).

Furthermore, the literature has been concerned with the form of demand and whether it affects the final decision of the business model. Indeed, it appears that in the case of linear demand with multiple suppliers the platform's business model prevails in the intermediary's decision as suppliers earn more as platform members compared to if they were resellers. However, if demand is better determined by the Cobb Douglas utility function, the reseller mode is preferable (Chen, L. 2019).

#### 4.4 Competitiveness Threats

Among the topics that emerge in entrepreneurship in a platform environment is that of the platform entering the position of the seller, but also vice versa the entry of sellers in the creation of their own platform or a network of exclusive distribution of its products (e.g. eshop). Platforms have seen their entry into own-label products, which is clearly a move that brings a lot of results to both the platform and the rest of the sellers.

Although it seems paradoxical for a platform to enter the production process and make its own label products available on it, it is a strategy that is observed and a resounding example is the Amazon platform. The move of a platform owner to enter the market (on the one side, seller side) clearly upsets the other sellers, who are nevertheless its customers, as it increases the competition in an insidious way. The platform has a lot more information (Big Data) about consumer preferences, their purchasing behavior, etc., which gives the platform an edge to compete with its own customers.

On the other hand, such a tactic increases supply, lowers prices and benefits consumers. The platform, however, in order to enter the competition should have a significant benefit, much more than the loss, and for this reason a platform attempts to compete only with some specific products. In particular, the platform enters markets with products that are quite successful (increased demand, profit margin) and products that do not need significant investment for innovation to develop.

In the final result it seems that this strategy has a double influence. On the one hand, producers are discouraged and either quit the platform, or have a disincentive to design, develop and produce blockbuster products. On the other hand, for producers who have the infrastructure to do so,

competition is enhanced and greater levels of innovation are achieved to discourage the platform from entering of the market. (Zhu, F. Liu, Q. 2018).

In the example of Google, the potential threat of developing apps itself and making them available resulted in incumbent developers reducing efforts to innovate while increasing the price of apps (as a disincentive to enter the market), while it was found how they are shifting their efforts to innovative ideas in applications that will be unaffected by Google's imminent entry into the market. A possible result is a move by Google to exploit opportunities to turn against itself by putting a brake on its development. On the contrary, it is urged that the company moves to enter the complementary market in products that are not so profitable in order to increase the attractiveness of their development and reap profits. (Wen, W. Zhu, F. 2018)

In contrast to direct competition, in the case where the platform has its own products, the literature has broadened the concept of competition as a platform is free to modify its prices (either paid as a percentage of sales, or as a fixed amount , or otherwise fee) when it deems it necessary and feasible. This is also a competitive move by the platform against the supplier side. Despite all the studies on the effects of the platform's decision to compete with suppliers, no research has shown that the other side, that of consumers, makes it difficult. (Zhu, F. 2019).



## CHAPTER 5: Risk and Dangers

### 5.1 Security contracts and organization risks

The European Union Agency for Cybersecurity (ENISA) has investigated security breaches and identified the most serious security risks associated with cloud computing. They belong to the following categories:

- Security agreements and business risks such as vendor lock-in, loss of dominance, compliance issues and acquisitions of cloud service providers.
- Mitigate cloud and operating system vulnerabilities through technical risks such as data loss, loss of encryption keys, and concurrency between client operations.
- Legal risks, such as data protection and software licensing.
- Risk such as network problems, unauthorized access to information centers and natural disasters (Betcher T., 2010).

Analyzing the security risks that exist when businesses migrate to cloud computing services, a comparison should be made regarding the risk descriptions listed below:

- Risks to business opportunities must always be fully understood. Cloud services include key benefits such as convenient storage and access from multiple devices, as well as easy connectivity and multiple instant collaboration points. Therefore, the risk analysis should also be compared with the data stored in the cloud.
- Risks often differ significantly depending on the type of cloud architecture.
- This risk should be weighed against the cost of the service, as the cloud customer may transfer the risk to the cloud provider.

### 5.2 Loss of governance

With a cloud infrastructure, customers don't have to trust their vendors with certain things that could compromise security. ISPs usually include a service level agreement (SLA) in the terms of

their agreement with their customers to determine the service level (SLA) being sold. Clearly there was a security breach. It is common for cloud service providers to outsource their services. Similar to terms of service, cloud provider controls change. This can have disastrous consequences for the company.

### 5.3 Multi-cloud vendor lock-in

Moving to the cloud can bring many benefits to the company, such as increased flexibility, agility and cost savings. Despite all these positives, many companies considering moving to the cloud have concerns. And one of the primary issues is vendor lock-in. When the company's IT base is in the hands of an outside vendor, these concerns are valid.

#### 5.3.1 Reasons for fear of cloud vendor lock-in

The fear of cloud vendor lock-in has many causes. First is the loss of control over the data and infrastructure that power business applications. Not having full control over aspects like security, uptime and overall infrastructure management can be daunting. Then there is the reliance on one supplier for so many critical needs.

Servers, data, networking, user management and more are all in the hands of one company, so provider dependency is huge. And if something goes wrong, it can be very damaging to the business. Also, there may be a fear that a cloud provider cannot meet the customer's current or future needs. The cloud service provider - CSP may not meet service level agreements or cause a data breach at some point.

Even worse, the risk of the supplier leaving or going out of business is something that should always be on customers' minds. The difficulty and cost of switching to a new vendor looms large on every IT manager's mind when deciding to move to the cloud and selecting a new cloud service provider.

#### **Application transfer risk**



If an application is built on one provider that leverages many of its offerings, refactoring that application to work natively on another provider can be an extremely expensive and difficult process. For example, suppose a company has developed a business intelligence platform on Microsoft Azure. It can leverage core cloud services such as compute, storage, databases, and networking. But the app also includes Azure machine learning, data analytics, and bot services.

The changes that need to be made at this very point to switch to a new provider are dramatically numerous. One reason for this difficulty is the lack of standard interfaces and open APIs. Each CSP has its own specifications and standards, which make it very difficult to switch from one to another.

Another reason is that technology and customer needs change so quickly. Providers' customers, and partners are constantly demanding product changes and improvements. The faster an application's functions are added and processed in the 22 clouds, the longer the relationship will be with the provider and the difficulty of switching to a new one will be greater.

### **Multi-cloud strategy**

More and more enterprises are moving to a multi-cloud computing environment, where multiple CSPs can be leveraged to power applications. For example, Amazon EC2 can be used for computing power and Redshift for the data warehouse, while IBM Bluemix's Watson can be used as the AI platform.

By using multiple clouds, a business depends less on one CSP for all its needs. Another advantage is that offerings from each cloud provider can be selected so that optimal services can be applied to applications. There are also some disadvantages to the multi-cloud approach, such as increased burden on development teams, greater security risk, and more.



## CHAPTER 6: Conclusion and future research

Undoubtedly the topic of networks, business models and strategic decisions of the various parties involved is a broad topic, has been researched and continues to be interesting as it is ongoing and many different topics are emerging to explore.

The literature so far tries to cover questions concerning the operation and choices of the parties in various alternative forms of business plans, the right time to enter a platform, the different conditions of demand, control of external factors, expected profits, etc.

With regard to the entry decision of an interested party into a platform from the supplier's side, it was stated that there are alternatives, such as the reseller mode, vertical integration and others, and researches were mentioned which is the appropriate option. using each time a criterion.

What seems to be of interest is the effect of indirect network effects on the formation of suppliers' expectations. An accurate assessment of network effects will shape more realistic expectations for both suppliers wishing to enter a platform (especially when it is a newly developed one) and the stakeholder wishing to build a platform.

In addition, a multi-criteria analysis for the decision in which several parameters will be included and not exclusively one at a time, is of particular interest. While the estimation of the elasticity of each factor would be very helpful in practice. Thus, science will be able to respond with a decision model for strategy formulation which can be applied to any product with special characteristics.

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