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# **eCOMMERCE B2C: the logistic solutions adopted by multichannel players**

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## SOMMARIO

Internet non è solo la principale via di comunicazione di massa e il contenitore di numerose attività di informazione, ma è anche un enorme mercato per i prodotti e servizi. Dall'inizio degli anni '90, l'eCommerce, un'applicazione di Internet commerciale, è nato e si è stabilito diventando ormai una realtà innegabile.

Lo scopo di questo lavoro è di mappare le diverse strategie utilizzate dai venditori eCommerce B2c multicanale e di capire se e perché sfruttano le sinergie tra i canali online e offline.

Questo lavoro è stato svolto con l'obiettivo di essere un supporto a quelle aziende che si affacciano per la prima volta sul canale online alla ricerca di performance di successo e per quelle che fanno già parte di questo mercato e hanno l'ambizione di migliorare i propri risultati.

Vogliamo dare una completa analisi delle soluzioni logistiche utilizzate nel canale eCommerce ed è per questo che l'analisi è concentrata su diversi settori: Libri, Musica & Audiovisivi, Grocery, Computer & Elettronica e Abbigliamento. Questi vengono associati ai problemi di distribuzione in termini di complessità del prodotto e del mercato, creando così un modello che potrebbe essere di grande beneficio perché riassume e rende più chiara la scelta adottata da ciascun attore analizzato.

## **ABSTRACT**

Internet is not only the main way of mass communication and the container of many information activities but it is also a huge market for products and services. Since the early 90's, eCommerce, an application of commercial Internet was born and it has established becoming now an undeniable reality.

The purpose of this work is to map the different strategies used by eCommerce B2c multichannel sellers and to understand if and why they exploit synergies between the online and the offline channels.

This work was made with the aim of being a support to those companies that face for the first time to the online channel looking for successful performances and to those who are already part of this market and have the ambition to improve their results.

We want to give a complete analysis of the logistic solutions used in the eCommerce channel and that's why the analysis is focused on different sectors: Books, Music & Audiovisual, Grocery, Computer & Electronics and Clothing. We associate them with the distribution problems in terms of Product and Market Complexity, creating a model that could be of great benefit because it summarizes and makes clearer the choices made by each player analyzed.

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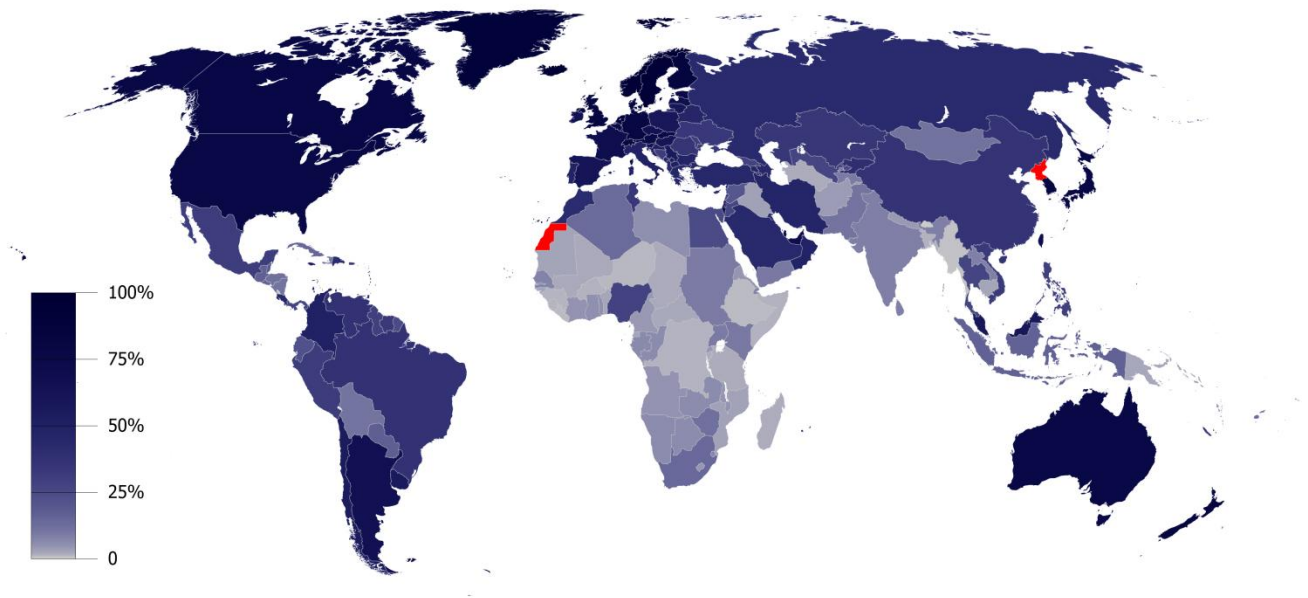
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## EXECUTIVE SUMMARY

### Introduction

Internet is not only the main way of mass communication and the container of many information activities but it is also a huge market for products and services. Since the early 90's, eCommerce, an application of commercial Internet was born and it has established becoming now an undeniable reality.

Internet usage is higher in developed regions of the world (74% in Europe and 89.8% in Australia) than in developing regions (29% in the Arab States and 30.0% in the Latin American region). In a list of countries sorted by number of internet users, the first two positions are occupied by China and United States with respectively 513,100,000 users (38.4% of the population) and 245,203,319 users (78.3% of the population), while Italy is in the 15th position with 35,800,000 users (58.7% of the population).



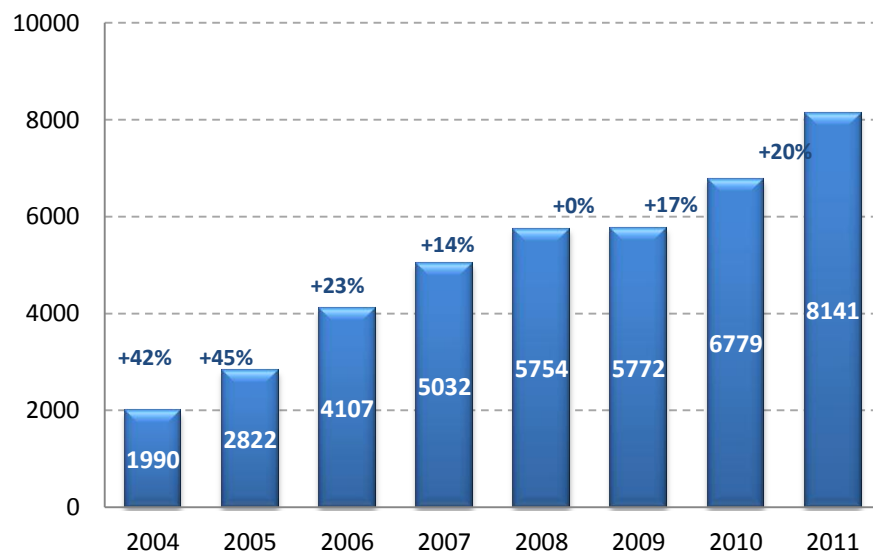
**Figure 1:** Internet users penetration map, by the percentage of users over the country's population in 2011

In the world, in 2008, there were 1.5 billion people online, potential customers who were looking for information through the network and who could make an online purchase, while, in 2013, the users are expected to be 2 billion.

Despite some problems in the early 2000 that have slowed momentarily its growth, the eCommerce phenomena in the last years has captured the market, constantly increasing its penetration.

In the last years, the eCommerce B2C in Italy, calculated as the total amount of sales made on Italian websites, has grown until 2009, when it was equal to what happened in 2008, as we can see from Graph 1. Then, in 2010 the eCommerce B2C started to grow again, having a +17%, increase, while in 2011 it was even +20%. The value of purchases online is increasing by the same percentage as before the crisis in 2007 and it has reached a value of purchases equal to more than 8 billion €.

### Value of purchases online from Italian websites (million €)



Graph 1: Value of purchases online from Italian sites

The growing of online purchases is due mainly to two factors: the first one is related to the development of channels and operators already existing that try to improve their work. The other factor is associated to new phenomena that characterize 2011; of these, the most important are the development of websites that sell Coupon and the entrance of new players.

On one hand, the eCommerce has begun to change the habits of consumers, becoming a way to buy products and services, but on the other hand, the development of the full potential that the eCommerce could have will be impossible until the penetration of total sales will remain low (less than 10% in the U.S. and in the major European countries and only 1% in Italy). In fact, numerous barriers, both infrastructural and cultural, must be overcome. There are indeed deficiencies in the spread of broadband and only few companies are on the Web but also the poor ICT culture and the lack of confidence by consumers in the methods of electronic payment by credit card do not allow the diffusion of this phenomenon. In addition, the Web businesses should correct many aspects:

their logistics vision, the management of marketing for the online channel and for the website, which is often too poor and difficult to use.

In this work we want also to underline the importance to create synergies between the online and offline channel. This aspect has yet to be recognized by most of the companies on the Web, many of which, in fact, have not been successful because they do not try to enlarge their service exploiting what they offer offline or sharing the same warehouse for the two solution in order to reduce their logistic costs.

### **Objective:** *which are the logistic solutions adopted by multichannel players?*

The purpose of this work is to map the different strategies used by eCommerce B2c multichannel sellers in terms of level of sharing of the offline channel with the online one so as to understand also if and why they exploit or not synergies between these two channels.

This with the aim of being a support to those companies that face for the first time to the online channel looking for successful performances and to those who are already part of this market and have the ambition to improve their results.

We want to give a complete analysis of the logistic solutions used in the eCommerce channel and so we focus on different sectors: Books, Music & Audiovisual, Grocery, Computer & Electronics and Clothing. We associate them with the distribution problems in terms of Product and Market Complexity, creating a model that could be of great benefit because it summarizes and makes clearer the choice adopted by each player analyzed.

To achieve the objective described above it was necessary to:

- Identify, analyze and describe the various distribution problems for the different sectors according to the characteristics of the product and the level of service required by the client
- Identify, study and describe the logistic strategies adopted by the players in each sector
- Identify and justify the relationship between distribution problems and the logistic solutions, considering as influential variables the belonging sector and the business model adopted by the various initiatives.

### **Methodology**

The methodology used to achieve the final results includes both quantitative and qualitative analysis. The first has been used in presence of numerical data, while the other was used in relation to those factors for which it was not possible to perform a measurement or a numerical interpretation.

The methodology has, at the starting point, the sectors analysis, the initial papers, the literature and the multiple case studies. These analyses allowed us to obtain quantitative and qualitative data that have been processed in order to obtain the final results.

The structured process used to obtain the results is divided into the following phases:

### **1. Sectors analysis**

This part of the work is focused on a first analysis of the online purchases in Italy and on a deeper analysis of each sector, in order to understand the size of the market, the incidence of the main players and the current trend.

### **2. Literature analysis**

In the second phase, we looked for documents that deal with the topic of the analysis (the logistics in eCommerce B2c) among those present in the literature. The sources considered include journals, books, conference reports, newspaper articles, methodological papers, while the themes are mainly methodological/descriptive articles (which have an interpretative and regulatory scope), modeling articles (which use punctual mathematical models) and case studies.

After this research, a classification of documents considered most significant was carried out in order to allow us to obtain the main drivers to be considered in the analysis.

### **3. Drivers identification**

Thanks to the previous literature analysis, we educed a list of drivers and we choose those that could help us to investigate and to classify the players.

### **4. Case studies**

The cases considered in this phase are those dealt in the report made by the B2c eCommerce Observatory of the Politecnico di Milano School of Management plus other players that have an important role in the eCommerce market. The descriptions have been drawn up looking at the information on the report and searching more information on the players web sites in order to have a little history of the companies and some quantitative and qualitative data about their logistic solution and distribution problem.

Then, each case has been classified and mapped on the basis of the drivers established in the previous phase.



## 5. Analysis and conclusions

Data emerging from the previous stages have been processed in order to be able to realize the final model and reach the proposed objectives. Data processing was carried out in different phases:

- Conversion of the drivers values, synthesizing the distribution problem, on a qualitative scale of ratings with the aim of standardizing the various data collected and making them comparable
- Mapping of logistic solutions and identification of clusters of similar solutions
- Realization of the logistic solutions synthesis model
- Realization of the final model that underlines the relationship between distribution problem and logistic solutions.

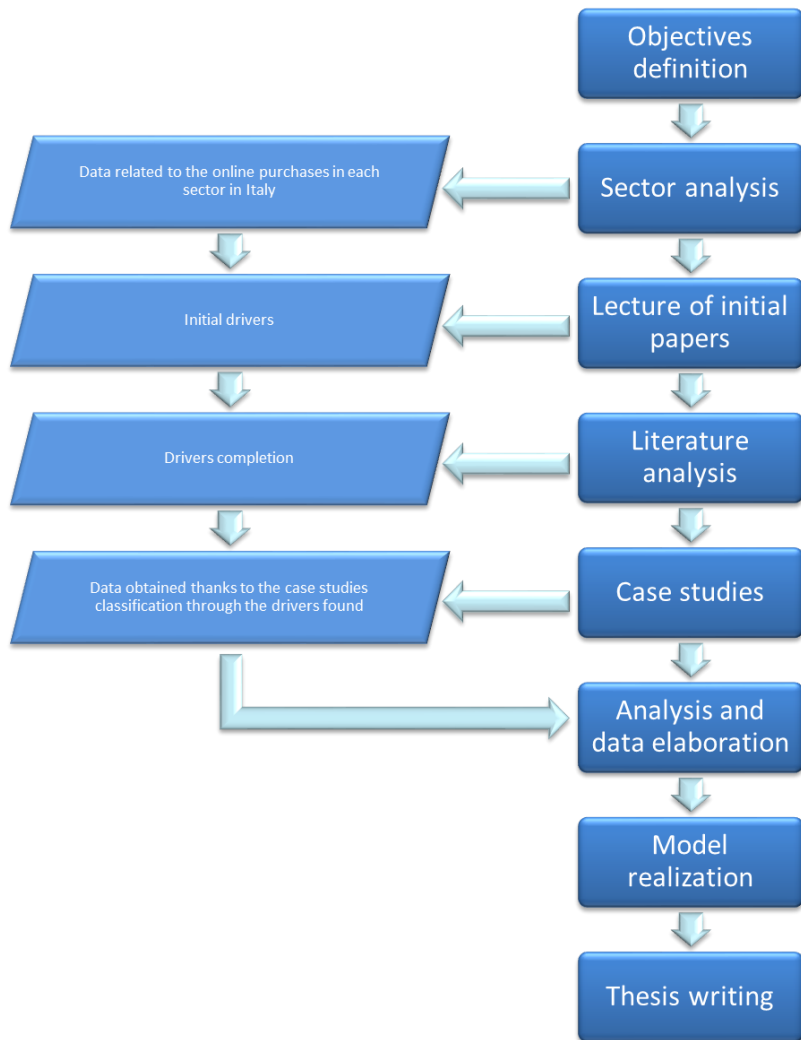


Figure 2: Methodological flowchart

## Results

The main results of the study under discussion may be summarized as follows:

- Identification of the main drivers characterizing the distribution problem and representation through a synthetic model
- Identification of the most significant elements for the characterization of logistic solutions adopted and their representation on a synthetic model
- Creation of a unique model that relates the distribution and the logistic solutions adopted.

These results have as their basis the processing of data obtained from the analysis of literature and of the case studies.

### Distribution problem

The distribution problem in eCommerce B2c can be classified on the basis of two classes of drivers: the characteristics of the product sold and the characteristics of the related market. Each of these two categories includes a set of drivers, emerged from the papers and the initial analysis of the literature, which can be considered significant for the representation of the distribution problem.

The drivers belonging to each class are the following:

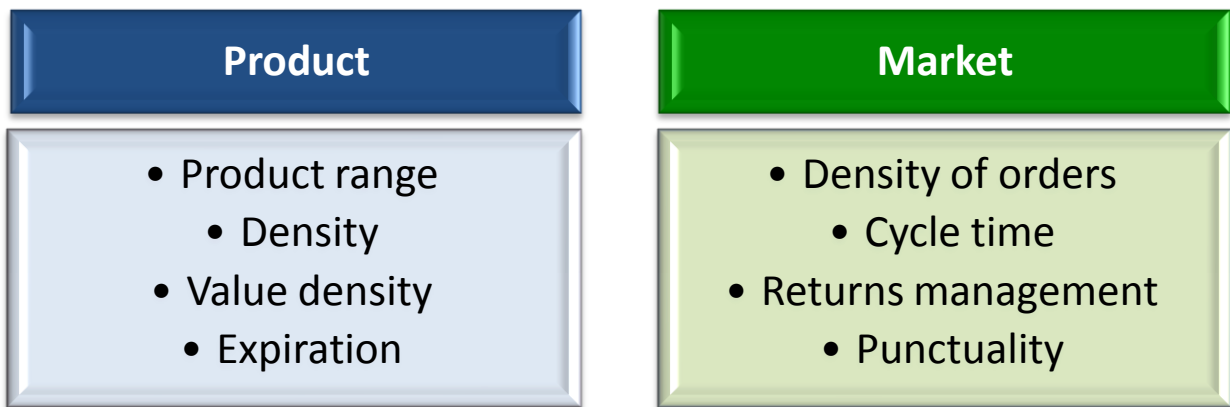
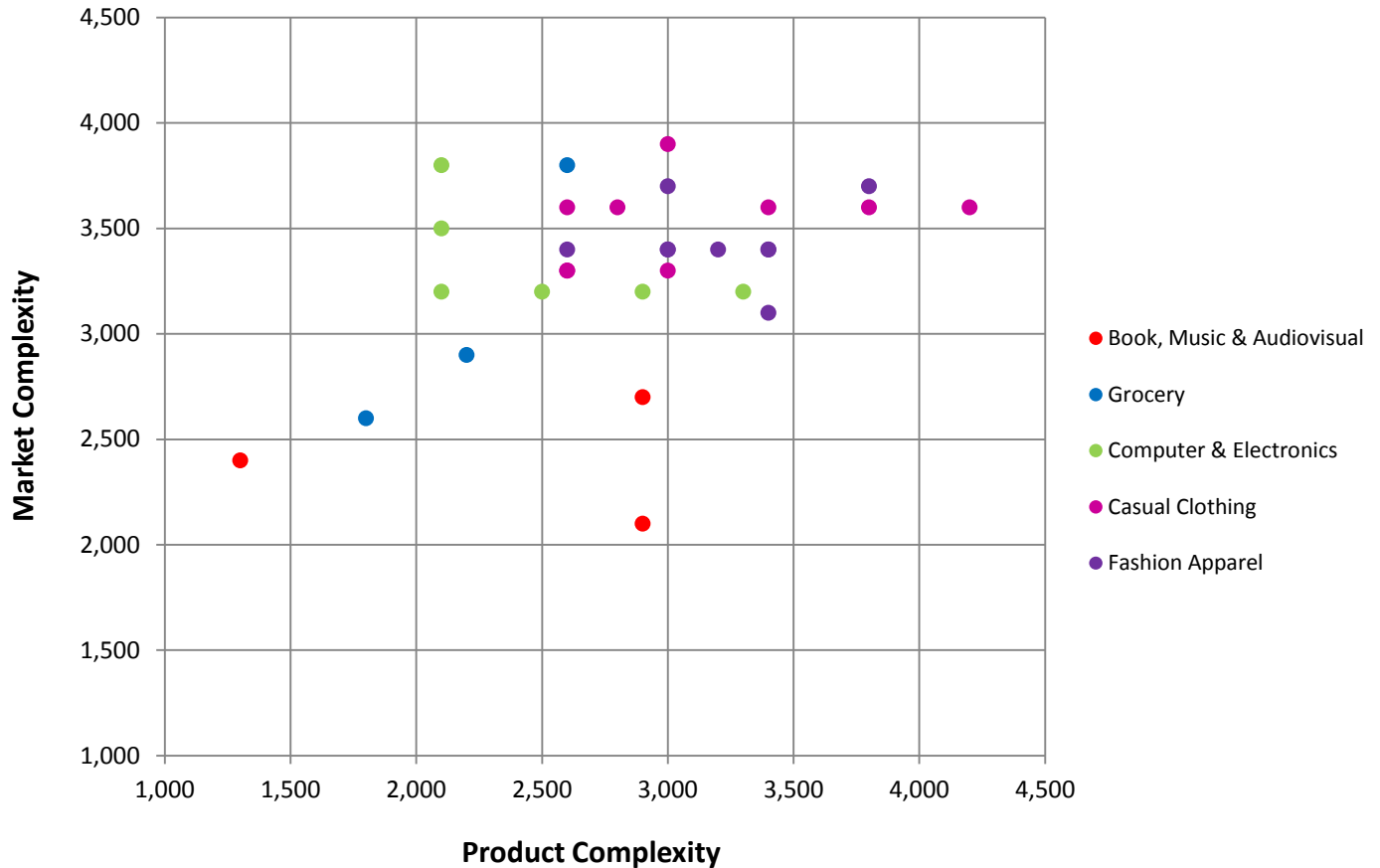


Figure 3: Drivers distribution problem

Depending on the value assumed by each driver, the different eCommerce initiatives have a determined value of Product and Market complexity and so a specific position in the Product Complexity – Market Complexity model that identifies the distribution problem.



Graph 2: Product complexity – Market complexity Model

Following we analyzed each sector in relation to the distribution problem.

### *Book, Music & Audiovisual*

The distribution problem that characterizes this sector is related to the fact that it does present neither a high Product complexity nor a high Market complexity. If we compare this cluster to the others, we can affirm that the Book, Music & Audiovisual sector is one of the easiest in the management.

### *Grocery*

The Grocery sector is characterized by a low Product complexity and a Market complexity that changes a lot depending on the player considered. This is due to the high differences of the players analyzed; in particular, what makes the results so different is the density of orders. In fact, Esselunga has a number of orders that is, on average, fifty times more than the other two players.

### *Computer & Electronics*

For what concern this sector, the distribution problem is characterized by a high Market complexity and a medium Product complexity: this is mainly related to the importance of the Returns Management driver, which varies from low to high. In particular, CHL is the one with the highest product complexity due to the wide range of the items sold.

### *Clothing*

All the players belonging to this sector, both Casual and Fashion, are concentrated in the top right zone of the graph, meaning that their value of product and market complexity vary between medium and high levels. The only exception is Giglio with higher market easiness due to the poor number of orders.

### **Logistic solutions**

The main objective of this phase is to identify the strategies used by companies in response to the logistic problems; a sub problem is related to the exploitation of synergies between the online and the offline channel.

Based on the analysis of the initial papers and the literature it was possible to select a set of characteristics that are important for the classification of the logistic solutions adopted by the player analyzed:



**Figure 4:** Drivers logistic solution

Starting from the different choices made by each player, we identified the adopted logistic solutions and we recognized their main characteristics and, with these information, we compiled a table. Aggregating the solutions that have the same features, we came to the identification of four homogeneous clusters. To each of them was given a name and a description of the main

characteristics. The result was made more understandable and comparable through the table below.

LOGISTIC SOLUTION	WAREHOUSE		PICK UP IN STORE		RETURN IN STORE	
	Shared	Dedicated	Yes	No	Yes	No
<b>Most shared solution</b>	X		X			X
<b>Shared Warehouse Only</b>	X			X		X
<b>Pick Up In Store Only</b>		X	X			X
<b>Dedicated Solution</b>		X		X		X

**Table 1:** Classification of logistic solutions

As it is shown by Table 1, there are four different choices of logistic solutions. The first characteristic that can be noticed is that the return in store is not allowed by any player. Therefore, the only differences regard the warehouse and the pick up in store possibility.

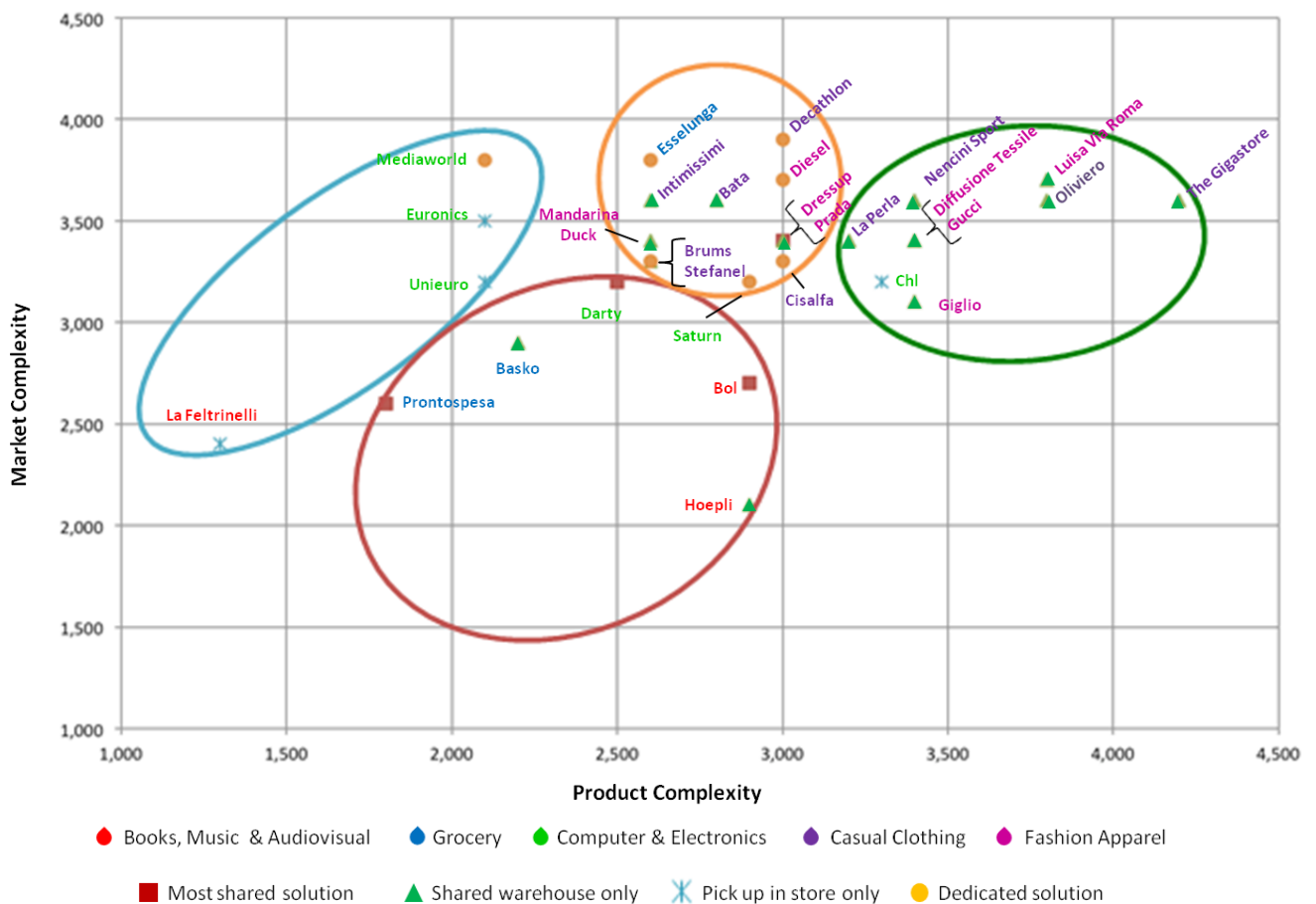
Starting from this result and analyzing deeper the tables, we tried to name and describe all the solutions adopted by the players considered:

- **MOST SHARED SOLUTION:** This solution is the one with the highest level of sharing. Players who chose this solution had to develop web sites and home pages but their previous delivery systems haven't needed changing. The warehouse is shared between online and offline and eCommerce logistics is therefore incorporated into the existing distribution chain. By becoming part of the main supply chain system, the eCommerce operation has access also to "order online/pick up in store" operations. The store is only partially shared. This solution allows exploiting economies of scale.
- **SHARED WAREHOUSE ONLY:** In this case companies put their attention only on reducing the logistic costs. In fact the central warehouse is used to fulfill the demand coming both from the physical channel and from online customers: also in this case there are advantages coming from economies of scale but, differently from the previous case, they will be only at the warehouse level.
- **PICK UP IN STORE ONLY:** In this case the customers can only order online the products and then eventually pick them up in the physical stores. The only advantage that these players can have is to exploit the existing stores network.

- DEDICATED SOLUTION:** Players belonging to this cluster had to develop a new distribution channel at the beginning of their eCommerce activity. Moreover, while they may recognize the importance of providing customers with consistent service and buying experiences, their decision has made inventory management challenging. A benefit coming from this solution is the ability to focus on a single purpose, leading to improved order fulfilment because stocks are guaranteed as available to eCommerce customers.

### Distribution problem - Logistic solution Model

At this stage, we analyzed the relationship between the distribution problems and the logistic solutions adopted by the merchants that we have investigated. These reports have been highlighted in the Distribution Problem – Logistic Solution Model, that is the objective of the study.



Graph 3: Distribution Problem – Logistic Solution Model

What emerges from this graph is that each logistic solution occupies a specific area in the chart (apart from some exceptions). Following we analyze deeper every single cluster identified and we try to relate the logistic choice with the different levels of Product - Market complexity and, if possible, with the belonging sector of the players.

The following graph summarizes the main solutions adopted with respect to the different levels of complexity:

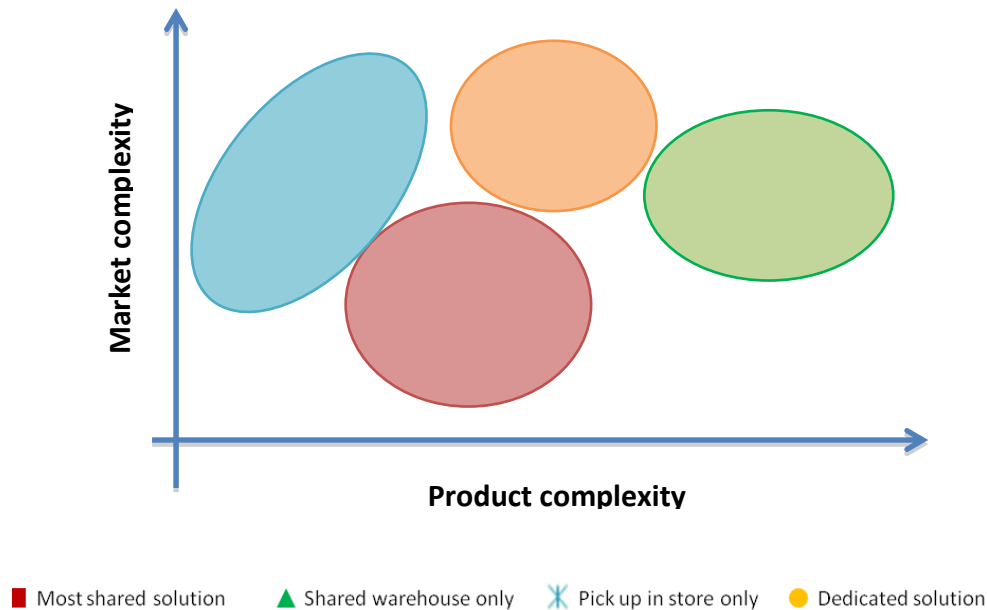


Figure 5: Logistic solutions scheme

The first result obtained is the evidence that no players allow the return of the not wanted products in the store. Therefore there isn't a company with a distribution channel completely shared between offline and online.

Analyzing how the firms' logistic choices vary with the complexity, we can notice that the cluster with the highest level of easiness is also the one with the most shared solutions. This because it is not necessary to be near to the customer with a dedicated channel. When the market complexity increases, in fact, the main choice is the store devoted only to the offline. On the other side, when the products are very complex, the duplication of inventories would cause relevant problems and costs, therefore players with this characteristic decide to use the warehouse both for the online and the offline.

# 1. INTRODUCTION

## 1.1 eCOMMERCE B2C IN ITALY

In order to better understand the analysis, object of this work, it is important to know the performances of purchases online and their trend in the last years. Therefore, first of all, we made a focus on what is happening in the eCommerce B2C in Italy.

In the last years, the eCommerce B2C in Italy, calculated as the total amount of sales made on Italian websites, has grown until 2009, when it was equal to what happened in 2008, as we can see from Graph 1.1. Then, in 2010 the eCommerce B2C started to grow again, having a +17% increase, while in 2011 it was even +20%. The value of purchases online is increasing by the same percentage as before the crisis in 2007 and it has reached a value of purchases equal to more than 8 billion €.



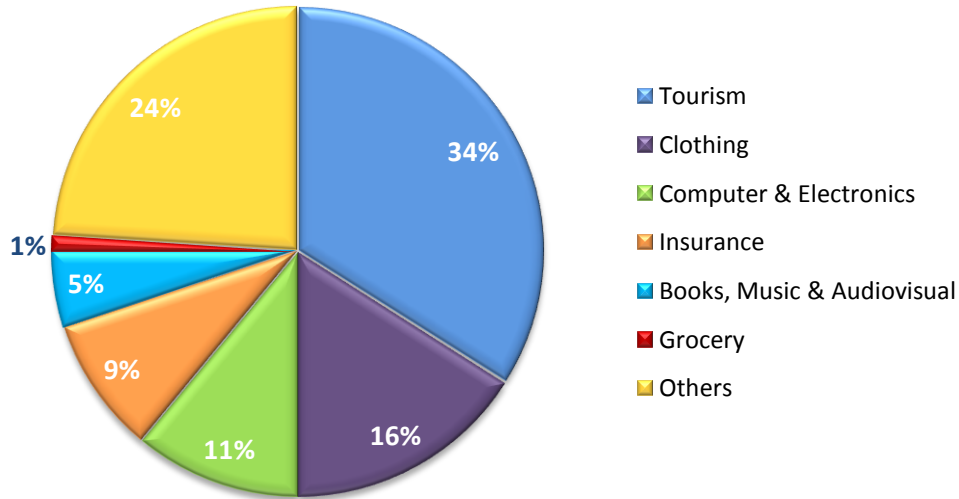
**Graph 1.1:** Value of purchases online from Italian sites

The growing of online purchases is due mainly to two factors: the first one is related to the development of channels and operators already existing that try to improve their work. The other factor is associated to new phenomena that characterize 2011; of these, the most important are the development of websites that sell Coupon and the entrance of new players.

The amount of increase is about 1,4 billion € and it is related for half part to the contribution of Tourism and Clothing sectors. Computer & Electronics sector follows with 11%, then Insurance

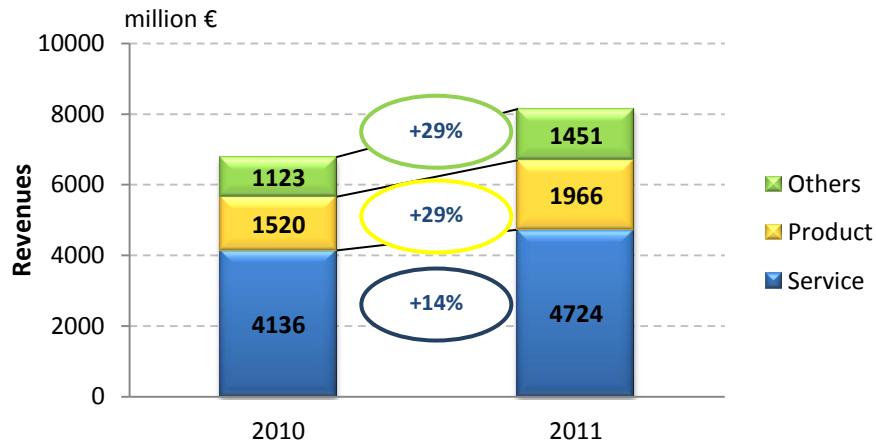


with 9%, Music, Books & Audiovisuals with 5% and, at the end, Grocery sector with only 1%. A big part of this increase is constituted by the voice “Others”, thanks to the websites of Couponing, which is about a quarter of all the increased revenues. These data are shown in Graph 1.2.



Graph 1.2: Increase of sales in 2011 by sectors

If we divide the amount of sales of eCommerce B2C, we can make a deeper analysis. We can separate them in three main groups on the basis of what they sell: Product, Service and Others. This is made in order to understand what is happening in each cluster. In the Graph 1.3 we can see how all of them have a positive growth trend but different attitudes.



Graph 1.3: Performance of eCommerce B2C in macro areas

The Product category, that includes Clothing, Books, Music & Audiovisuals, Grocery and Computer & Electronics sectors, grew of the 29% and gained about 2 billion €. The Service category, related to Insurance and Tourism, instead, increased by 14%, reaching more than 4,7 billion €. In both cases the increase is related to the number of orders that is augmented by 35% for Product category, reaching the quota of 15 million orders, and by 19% in Service category with 17 million orders. Moreover these performances are not related to the average purchase that instead is decreasing by 4% in the two categories, obtaining values equal to 131€ and 282€ respectively in Product and Service.

## **1.2 ONLINE PURCHASES IN THE SECTORS CONSIDERED**

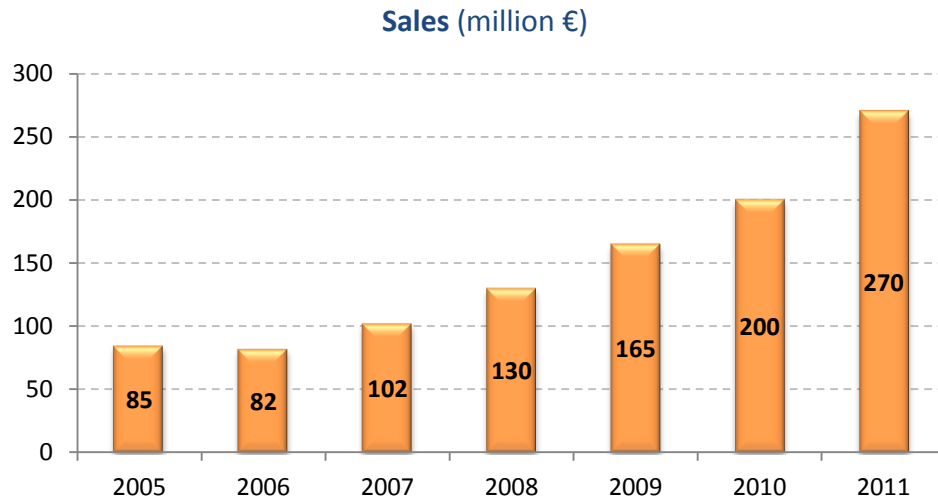
To make a clear picture of the evolution of the online sales, we made a deeper analysis on the areas considered in this work. In the chapter will be studied the companies belonging the sectors:

- Books, Music & Audiovisuals
- Grocery
- Computer & Electronics
- Clothing.

### **1.2.1 BOOKS, MUSIC & AUDIOVISUALS SECTOR**

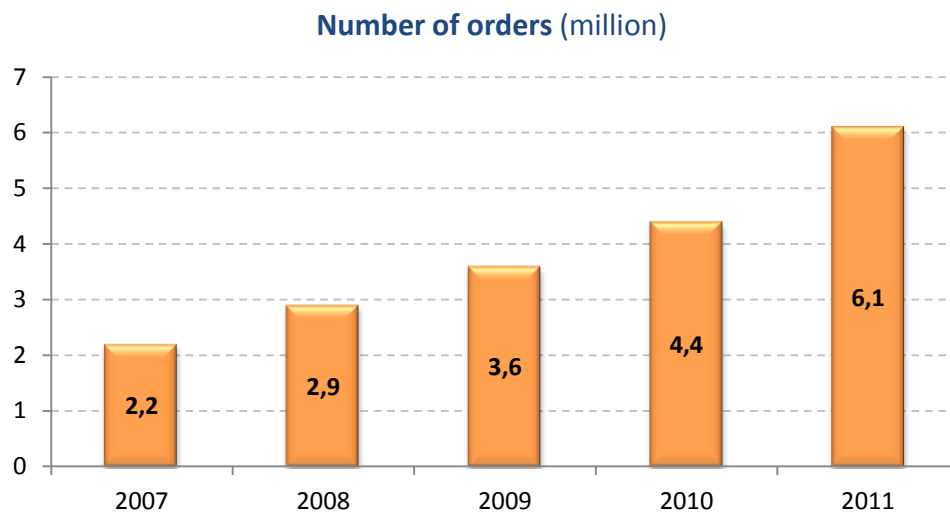
The Books, Music & Audiovisuals sector includes all the players that sell online every kind of books, CDs or DVDs on a physical support, so that need a physical channel to transport the items to the customers.

For what concern the sales trend, we can say that in 2008, their increase was very small compared to the previous year, in particular due to the reduced sales of music on physical support. In that year the sales of digital music increased, amplifying the number of sales but their low prices did not influence the trend of the sector. Also in 2009 the increase was very smooth, due to the fact that the Italian Ministry of Education stopped changing books in the primary and secondary school for respectively five and six years. In 2011, instead, the sector had a high growth reaching 270 million € (more than the 3% of the eCommerce sales). The growth is related to the entrance of a new player (Amazon) but also to the good performances of the players already online (like Bol, IBS, La Feltrinelli). It is important to underline that this sector had to face a new regulation in late August that says that these players cannot offer a discount bigger than the 15% of the price. Therefore the companies changed their strategies that now are less focused on price and more oriented to offer an excellent service.



**Graph 1.4:** Trend of sales in Books, Music & Audiovisual sector

Other two aspects related to this sector, are the increase in the number of orders by 38% in 2011 and the simultaneous reduction of the average purchase, due to the entrance of Amazon, till the value of about 44 €.



**Graph 1.5:** Number of orders in Books, Music & Audiovisual sector

## 1.2.2 GROCERY SECTOR

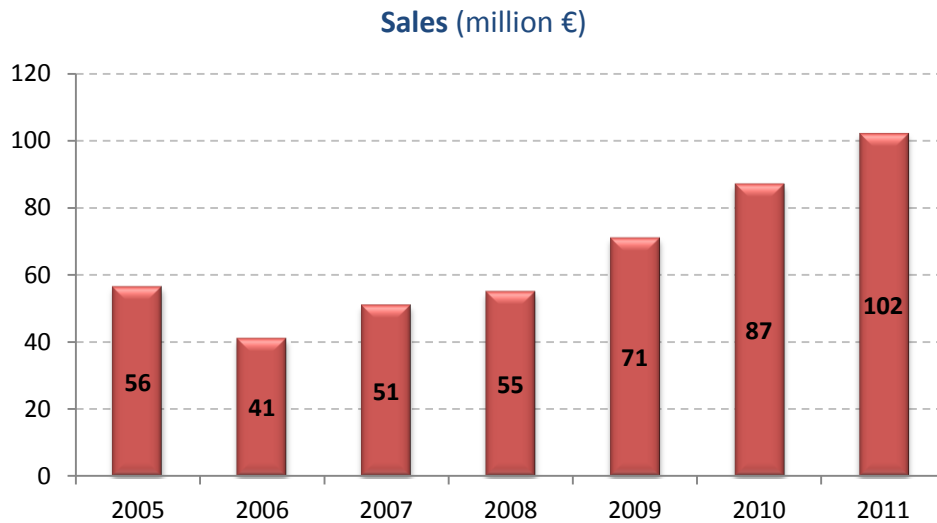
The Grocery term does not refer only to fresh and packaged products, as it happened in the past, but now it includes, apart from foodstuffs, also health & care products, that are all the goods present in a supermarket. The products classified as Grocery are all items easily identifiable, since they are of common use, present on the shelves in the supermarkets and usually consumed by people. These items can be divided in two macro-categories: the first one, related to the food products that can be fresh, canned or frozen; the other one includes health&care products, not

related to foods, but they are also sold in the same stores and can exploit the same logistic solution.

In Italy, the Grocery is one of the most important sector both for the high revenues and for the tradition that has a lot of product “Made in Italy”. However, lot of people observed that, due to the economic crisis and the uncertainty among consumers, from September 2001, there were a diminishing demand related to quality and an increase in the interest for low cost shopping that explains the diffusion of Hard Discount.

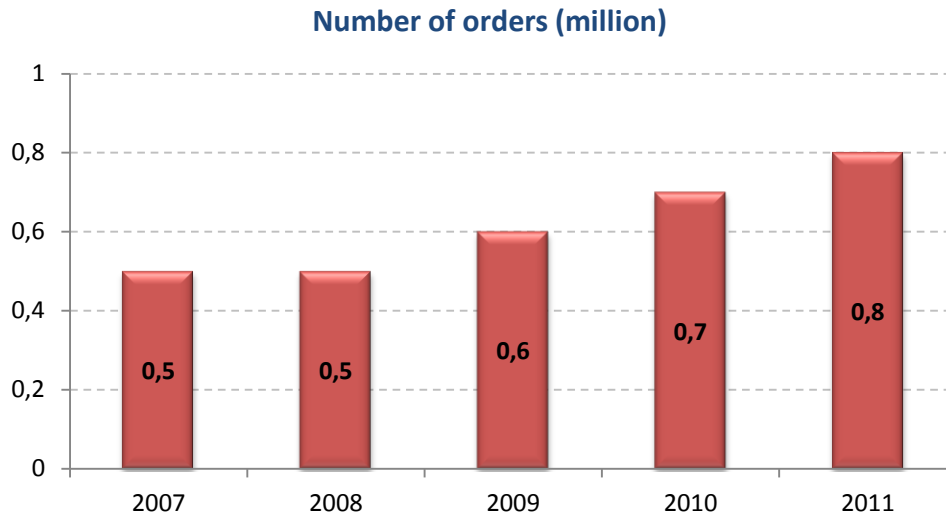
In 2007, the sales value reached quota 51 million € and from 2008 it began to increase; moreover this trend was then maintained also in 2009.

In the last year, the performances of this sector, always related to the leader of the market Esselunga, signed an increase of 17% with respect to 2010, reaching a value of sales of 102 million €. This sector hasn't a lot of players and with the only exception of the Esselunga, the other companies are small and local enterprises.



**Graph 1.6:** Trend of sales in Grocery sector

In the same period, the average purchase is passed from 125€ to 127€ and the number of orders of increased by 14%.



Graph 1.7: Number of order in Grocery sector

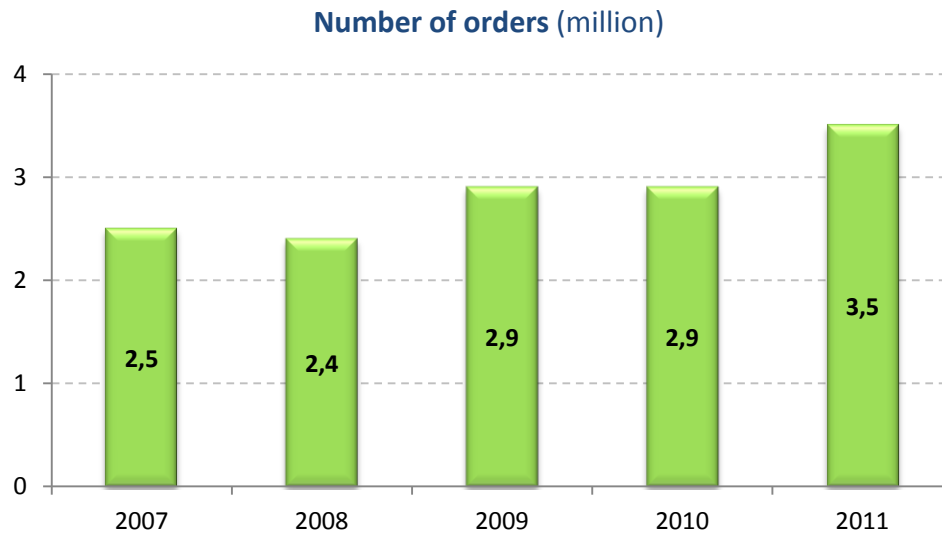
### 1.2.3 COMPUTERS & ELECTRONICS SECTOR

This sector includes the selling of computers (that consists of hardware and software), cell phones and house appliances (like fridge, television, etc.).The trend of the sales is growing year by year, underlining the good performances of this sector and the capabilities of these players to attract customers.The Computer & Electronics sector grew by 22% in 2011, reaching the amount of 814 million €, equal to the 10% of the total sales of the eCommerce B2C in Italy. The rate of growth, double than the year before 2010, is due to the good performances of the big retailers (like Darty, ePrice, Euronics, Marco Polo Shop, Mediaworld, Monclick and Mr.Price).



Graph 1.8: Trend of sales in Computers & Electronics sector

In this sector, the amount of orders, after maintaining stable in 2010, started to increase, as in the all market, while the average purchase is unchanged with respect to the year before, remaining equal to 233 €.



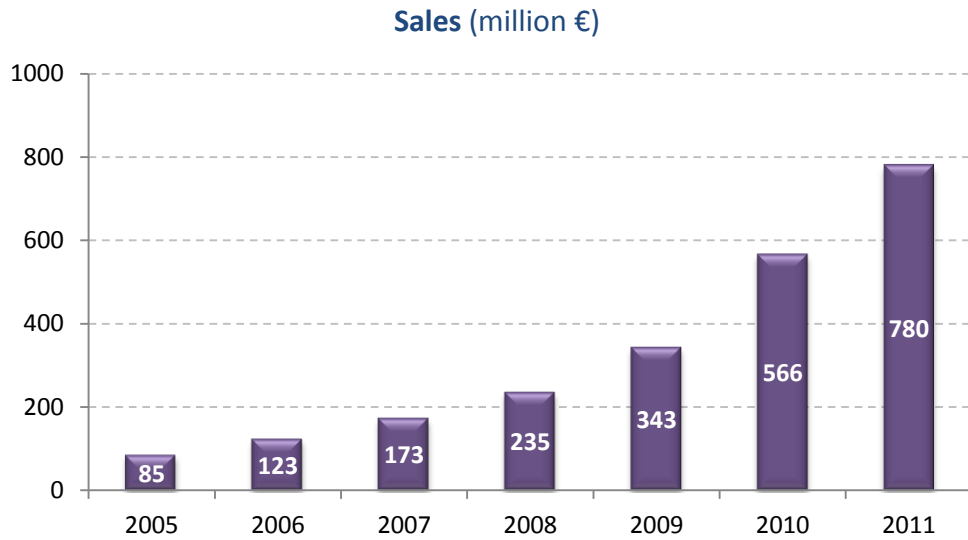
**Graph 1.9:** Number of order in Computers & Electronics sector

#### **1.2.4 CLOTHING SECTOR**

The Clothing sector includes all the players that sell clothing but also bags, belts, wallets, sunglasses, shoes and similar products.

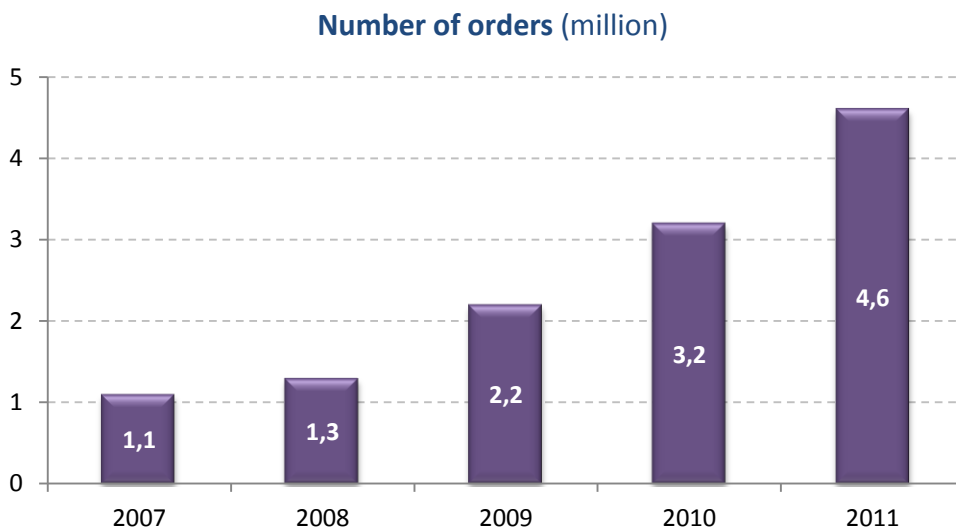
In past years, the increase in sales was related to the large impact of Yoox Group, to the entrance of new players powered by Yoox and to the growing of all the Club Online. Moreover, Zara and Decathlon entered the market increasing a lot the amount of sales and making other Italian players curious so that then they started to think about the idea of selling online. Therefore sales increased by 65%, reaching the amount of 566million € in 2010.

This sector, as in the last four years, is the one with the highest growth (+38%) in 2011 and reached sales of 780 million €, equal to the 10% of the total online sales. This growing is in part due to the entrance in the online channel of new players that, in this way, enlarged the type of products sold online.



**Graph 1.10:** Trend of sales in Clothing sector

The Clothing sector is the one that has the biggest growth in terms of number of purchases: more than 43% with respect to 2010. The value of the average purchase is instead reduced a little due to two opposite situations: the increase of selling of Fashion Apparel and the high number of transactions on websites with very low prices. Therefore the average purchase is now equal to 170€.



**Graph 1.11:** Number of orders in Clothing sector

## **1.3 LOGISTIC COSTS**

The main problems that the players in the considered sectors have to face and their logistic solution will be described and analyzed later, in this phase now we will focus only on the costs related to the items shipment in each sector.

### **1.3.1 BOOKS, MUSIC & AUDIOVISUAL**

In the Books, Music & Audiovisual sector the cost of logistics affects a lot the final price due to the low price of the items. Obviously this fact depends on the choices made by every player for what concern the level of service and the logistic solution. The logistic cost that more influences the total costs, is the one related to the shipping expenses that can reach the 30% of the price of the product making the purchase unacceptable. To face this problem, some players ship it to the consumer free if he spends more than 19€.

### **1.3.2 GROCERY**

In the Grocery sector the items sold online are the same products that can be found in supermarkets. However the number of products is very high and the cost of stocks is not so high if the players exploit synergies with the offline channel. The shipping cost is about 7€ or 8€ and it is high if the purchase is made only of few products. Moreover some players decide that, spending more than 100€, they pay part of the shipping cost and allow the customer to reduce delivery costs to 4€.

### **1.3.3 COMPUTER & ELECTRONICS**

In Computer & Electronics sector, the transport cost is a relatively small part (only 3-5%) of the total cost of the order due to the high value density of the products and, for the most of the players, it is calculated depending on the weight and the volume of the purchase.

### **1.3.4 CLOTHING**

In this sector the logistics is very important due to the fact that it influence both the costs and the level of service offered to the customer. For this reason, in the Clothing sector, the logistics is a relevant driver in terms of costs and differentiation. The costs of warehouse (stock, picking, order assembly) with the shipping costs could reach also the 10% of the expense made for the order. This cost is mainly related to the distance between the customer and the warehouse but it takes also into account the expenses related to the return of the products that for some items are very high. Some players, in order to overcome this problem, decide to send free your purchase if its value is bigger than 100 €.



## 1.4 TYPES OF PLAYER

The players that work in the eCommerce context can be classified according to two main driver: type of company and type of channel.

Type of company:

- *Dot.Com*: these companies were born in the era of Internet and their business is developed through a web site; to this category belong also those players that later started to sell also in the offline channel.
- *Reseller (Traditional commercial)*: these are the companies that, as core business, resell products of other brands and they existed before the development of Internet as the online sales channel.
- *Traditional manufacturers*: companies that produce products and sell them, trying to reach directly the customers, without intermediary. As resellers, their business started before Internet channel.

Type of channel used:

- *Pure Players*: these are the companies that do not have physical stores and that sell and advertise their products only through the online channel.
- *Multichannel Player*: these players exploit the online channel but they have also physical shops. Depending on the channel used, they can be classified in:
  - *Store*: they have points of physical sale in the country (this is the alternative considered in our thesis that will be analyzed deeper in the next chapter)
  - *Distance*: they sell products through catalogue or telephone
  - *Compound*: these players, apart from Internet, sell in physical shops and allow consumers to make the order through catalogue or phone.

In Italy we can find different types of players belonging to the different sectors and having different combinations of type of company/type of channel.

## 1.5 THE MULTICHANNEL EXPERIENCE

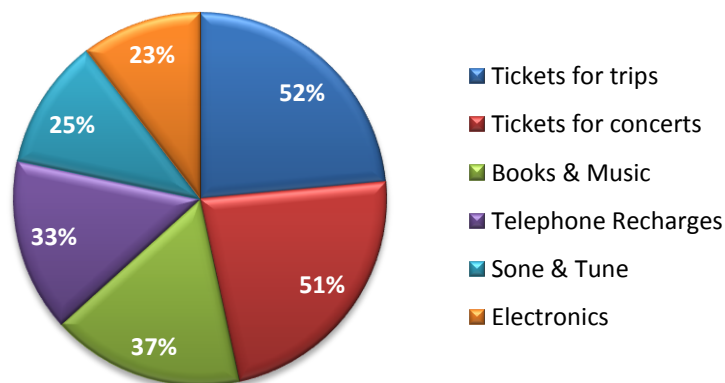
The multichannel players are traditional companies that decided to support their offline channel with an eCommerce website in order to offer more services to their consumers and also to reach a higher number of people in order to increase the number of customers. This type of initiatives can be divided in two different types:

- *Modern Distribution*: in this category we find players (like Mediaworld) that have a famous brand name and are very well known due to the numerous marketing campaigns. This cluster had a very high growth in the last years. The critical success factors that influence this group are:
  - aggressive price policy on a limited quantity of products
  - famous brand
  - synergies with the traditional channel for what concern marketing and communication
  - knowledge of the market
  - high level of service
  - development of innovative solution.
- *Commercial companies*: these are players that have very little shops and that decided to exploit the eCommerce in order to try to enlarge their market and also to give an added service to their consumers.

Multichannel experience means also offering higher information to consumers that can influence their buying process, allowing them to buy in the way they prefer. About 25 million of Italian people buy in multichannel way: most of the consumers (75%), in fact, look for information on the Website and then make the purchase in a physical shop. The 25%, instead, makes the opposite: they go to the store, look how the product is and then buy it on the Internet. The Web is still the main source of information on products and services.

In the purchasing phase, the percentage of consumers that think at the Internet as a channel in line with their expectations is increasing, and reached the 34% of all the Italian population.

The categories of products or services bought on the Internet are the traditional ones: tickets for trips or concerts, books & music, telephone recharges, songs & tune and electronics. In the Graph 1.12 it is shown how the products are spread on the total purchase.



Graph 1.12: Categories of products/services bought on Internet

In the after sales phase, the role of the point of sales and the direct contact with salesmen is fundamental and the first considered, followed by the telephone assistance, the service offered on Internet by the company and the service offered on Internet by other consumers (blog).

The more developed segments try to prefer assistance by more easy to get ways like phone and Internet.

The market seems to be faster in changing and exploiting the advantages of multichannel experience than the companies. In fact, the B2c eCommerce Observatory of the Politecnico di Milano School of Management made an investigation on 100 Italian marketers and it showed that only the 22% thinks that his company has a strategic and structured approach to the multichannel experience.

The main barriers are first of all of organizational type. In the 18% of the cases there are not internal competences while in the 17% there is not a coordination mechanism between the function involved (Marketing, IT, Customer Service, Sales and Post Sales). Other barriers are related to the lack of the necessary budget to develop this new idea (in the 16% of the companies), or to the delay in the adoption of a technological infrastructures (in the 13% of the cases).

Finally, the investigation reveals that in the 15% of the companies they have not metrics to monitor their performances, while in the 6% they are not able to identify the multichannel consumer.

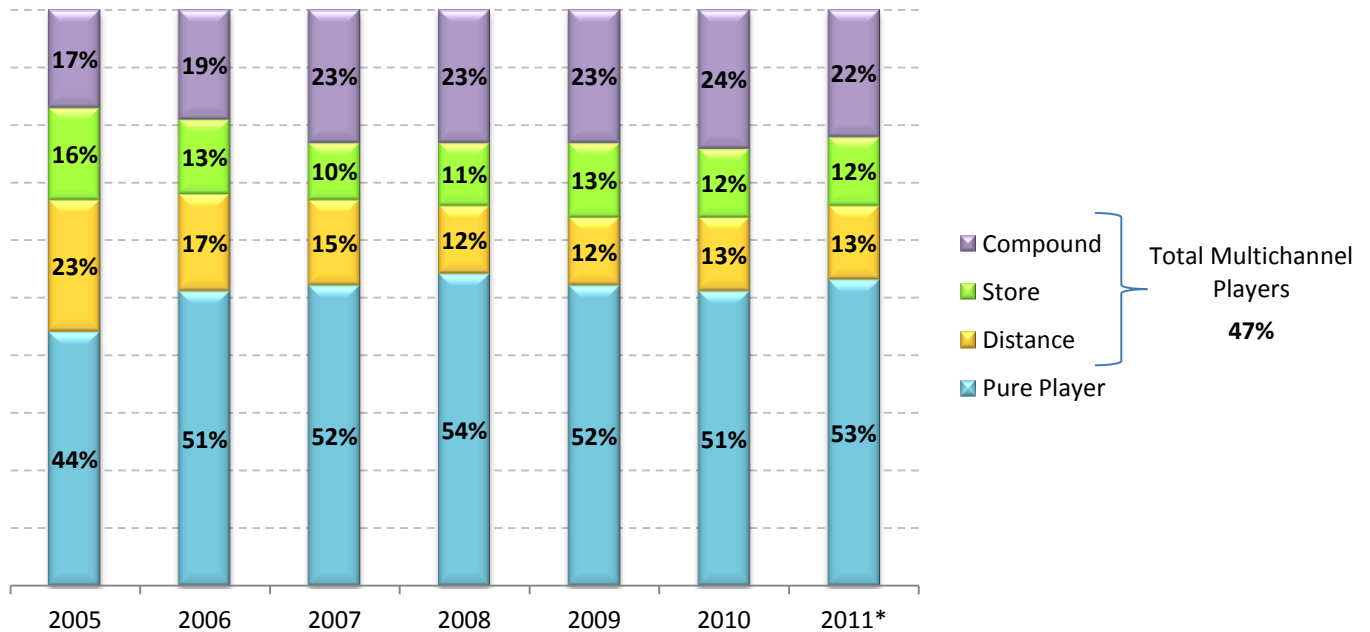
It is interesting to notice that there are neither cultural barriers between the main factors that slow down the implementation of multichannel strategies nor restrictions related to the dimension of the companies. On the contrary, the Small-Medium Enterprises have a high opportunity to react in a faster way to changes of consumers due to the a slim structure and rapid business processes. Multichannel experience offers the possibility to limit costs and budget and this fact is very important for companies with a restricted amount of money.

The big companies, instead, have the necessity to reorganize themselves to adjust their internal and external processes and their technological infrastructures in order to coordinate, with higher efficiency, content, actions, channels, targets and interactions with customers that otherwise would risk to make incoherent and inefficient actions.

### **1.5.1 SALES IN THE MULTICHANNEL CONTEXT**

It is interesting to know the trend of the sales divided between Pure Players and Multichannel Players. We can see in Graph 2.1 how the Pure Players have increased their sales of two percentage points in respect to what happened in 2010, mainly due to the entrance of new companies in the Italian eCommerce (like Amazon and Couponing sites) and also to the exceptional performances of some “old” players.

The final results of the sales in the Store Multichannel is, in particular, related to some merchants who are increasing a lot their transactions (like Decathlon, Darty, Diesel, Euronics, La Feltrinelli, Libraccio and Luisa Via Roma), while at the end of the year, some players have seen their performances under the growing expectations of the entire sector.



Graph 1.13: Trend of sales between Multichannel and Pure Player

An analysis was made in order to understand if the multichannel experience creates improvement and the answer is positive. The more developed Italian companies that have already worked in a multichannel context obtained good results both tangible, in terms of sales, revenues, market share, and intangible, in terms of as customer satisfaction, customer loyalty. They had also higher performances related to the marketing campaigns with respect to their competitors who did not invest on the multichannel experience.

## 2. ANALYSIS OF LITERATURE

In order to make the analysis, object of this work, we need to have all the necessary elements to carry on our examination. First of all we looked for documents related to the multichannel experience in the eCommerce B2c; unfortunately, in literature there are not a lot of papers about this topic so, due to this lack, we focused our attention also on case studies to create a theory.

Despite the little number of documents present in literature, we could find, after having made an attentive research, some papers about the logistics in the eCommerce B2c context. We put together all the information coming from this analysis with the drivers found in the two main papers considered (“Le scelte di assetto delle reti distributive: analisi empirica e strumenti di supporto alle decisioni” by R. Mangiaracina, M. Melacini, A. Perego, and “Logistic strategies in the B2c eCommerce: evidence from the field” by R. Mangiaracina, A. Perego). In this way, we found a list of all the elements needed to make our work and in particular we could catch all the drivers representing the distribution problem and the logistic solutions. Therefore, we used the drivers found, that are the indicators that more represent and differentiate the dissimilar cases, in order to sum up the main logistic problems and so the logistic solutions adopted.

At the end of the analysis of literature, we could identify the drivers needed to classify all the case studies (analyzed in the next chapter).

### 2.1 ANALYSIS OF PAPERS AND DRIVERS FOUND

The two documents that will be described in the next paragraphs are the main important for our research, in fact the elements coming from these two papers are the starting point to carry on our analysis regarding the logistics in the eCommerce B2c context. In these two main notes, we found possible drivers needed to classify the case studies, mainly for what concern the distribution problems.

#### 2.1.1 FIRST PAPER: *Le scelte di assetto delle reti distributive*

The first paper we took into account is “Le scelte di assetto delle reti distributive: analisi empirica e strumenti di supporto alle decisioni” by R. Mangiaracina, M. Melacini, A. Perego. Object of this work was to find a way to configure the distribution network of finished products. In fact, in the first phase of the projects of distribution network configuration, models and instruments are needed to make the right choice for what concern the decision of the level of centralization or decentralization of the network, the number of warehouses at each level and their type. The analysis, divided in different phases, makes possible to come up with the main elements (drivers) that are fundamental in the choices of a distribution network.

First of all, the authors determined the elements that influence the design of the distribution network analyzing the distribution costs and the main factors regarding the service to the customer. The main drivers are grouped in four main clusters:

- SUPPLY drivers: number of plants, exclusivity of production, average distance customer-plant, level of specialization of plants
- PRODUCT drivers: density, value density, expiration, product range, stock maintaining conditions
- SERVICE drivers: cycle time, accuracy, punctuality, stock coverage, information on the progress of the order, product differentiation
- DEMAND drivers: number of consumers, spatial density, order size, delivery frequency, temporal density, seasonal phenomena.

### 2.1.1.1 Comment

In the following table all the drivers emerged from this first paper are listed:

DISTRIBUTION PROBLEM			
SUPPLY drivers	PRODUCT drivers	SERVICE drivers	DEMAND drivers
<ul style="list-style-type: none"> <li>• Number of plants</li> <li>• Exclusivity of production</li> <li>• Average distance customer-plant</li> <li>• Level of specialization of plants</li> </ul>	<ul style="list-style-type: none"> <li>• Density</li> <li>• Value density</li> <li>• Expiration</li> <li>• Product range</li> <li>• Stock maintaining conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Cycle time</li> <li>• Accuracy</li> <li>• Punctuality</li> <li>• Stock coverage</li> <li>• Information on the progress of the order</li> <li>• Product differentiation</li> </ul>	<ul style="list-style-type: none"> <li>• Number of consumers</li> <li>• Spatial density</li> <li>• Order size</li> <li>• Delivery frequency</li> <li>• Temporal density</li> <li>• Seasonal phenomena</li> </ul>

Table 2.1: Drivers found in the first paper

As can be seen from Table 2.1, this first paper, dealing with the distribution networks in general, (not just with those related to the eCommerce channel) counts among classification drivers some factors that characterize the supply. It is evident that, in the eCommerce field, supply drivers are not relevant because production plants are not considered.

Moreover, this paper doesn't deal with logistic solutions drivers.

## 2.1.2 SECOND PAPER: Logistic strategies in B2c eCommerce

The other relevant paper analyzed is the “Logistic strategies in the B2c eCommerce: evidence from the field” by R. Mangiaracina, A. Perego. This paper aims to analyze the logistic strategies in the eCommerce channel of the product industries (e.g. Consumer electronics, Apparel, Books, Grocery, etc.). In fact, even though there are many industry-specific contributions in this field (most of all in the Grocery industry), the authors believe that an overall picture of the logistic strategies that can be adopted in relation with the different logistic problems could be beneficial. More in detail, the main research question is: “Which are the logistic strategies adopted by the eCommerce merchants, given the logistic problems they have to address?”

In order to answer this question an analysis was made following these phases:

- Identify and describe the main elements of the logistic problems in the various product industries, in terms of customer service requirements and product features
- Identify and show the main logistic strategies that have been adopted by the eCommerce merchants in each industry
- Identify the relationship between the logistic problems and the logistic strategies assuming that both the industry and the vendor business model are affecting variables.

The document was based on the analysis of multiple case studies that are a sub-set of the 100 Italian eCommerce companies that are annually studied by the eCommerce B2c Observatory of the Politecnico di Milano School of Management.

In the analysis, we can see that both drivers related to the distribution problems (also coming from the first paper) and drivers on the logistic solutions are present.

The logistic problems in the eCommerce of products can be classified on the basis of two main classes of driver:

- **Product Features:** product range, value density, obsolescence risk and need for specific logistic requirements (e.g. controlled temperature)
- **Customer service level:** order cycle time, efficiency in the return management, delivery punctuality and the item fill rate

The higher the level of these factors, the higher the complexity of the logistic problem.

The second type of drivers is related to the main logistic strategies in the B2c eCommerce on the basis of the following main dimensions:

- *Inventory ownership:* the orders can be fulfilled from the merchant inventory or from the inventory owned by the suppliers (manufacturers or distributors)
- *Order picking and preparation:* the order preparation can be made in the supplier or in the merchant warehouse. This choice is obviously related to the inventory ownership and location

- *Order assembly*: the order can be assembled in the supplier warehouse or in the merchant warehouse/ transit point
- *Order delivery*: the delivery to the customers can be outsourced to a courier or it can be done using merchant-owned vehicles.

From the found indicators, the two authors have understood the main distribution problems and the most diffuse logistic solutions and successively they built a model to create a relation between the two types of drivers.

### 2.1.2.1 Comment

In the following table all the drivers emerged from the second paper are listed:

DISTRIBUTION PROBLEM		LOGISTIC SOLUTION			
PRODUCT drivers	MARKET drivers	Inventory ownership	Order picking	Order assembly	Order delivery
<ul style="list-style-type: none"> <li>• Product range</li> <li>• Value density</li> <li>• Obsolescence risk</li> <li>• Need for specific logistic requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Order cycle time</li> <li>• Efficiency in the return management</li> <li>• Delivery punctuality</li> <li>• Item fill rate</li> </ul>	<p>These three phases can be made in the supplier or in the merchant warehouse. This choice is obviously related to the inventory ownership and location.</p>			<p>Made by a courier or using the merchant owned vehicles.</p>

Table 2.2: Drivers found in the second paper

As can be seen from the table, in this paper, dealing with eCommerce B2c, drivers related to supply are not considered.

There are, instead, drivers about logistic solutions; these factors won't be considered, as they are not coherent with the objective of our work.

### 2.1.3 DRIVERS FOUND

Following, we made the list of all the relevant drivers coming from the two papers: “Le scelte di assetto delle reti distributive: analisi empirica e strumenti di supporto alle decisioni” by R. Mangiaracina, M. Melacini, A. Perego, and “Logistic strategies in the B2c eCommerce: evidence from the field” by R. Mangiaracina, A. Perego. These drivers have been divided in two main categories, one related to product characteristics and one related to market characteristics (which summarizes both service and demand drivers).



DISTRIBUTION PROBLEM	
PRODUCT drivers	MARKET drivers
<ul style="list-style-type: none"> <li>• Density</li> <li>• Value density</li> <li>• Expiration</li> <li>• Product range</li> <li>• Stock maintaining conditions</li> <li>• Obsolescence risk</li> <li>• Need for specific logistic requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Cycle time</li> <li>• Accuracy</li> <li>• Punctuality</li> <li>• Stock coverage</li> <li>• Information on the progress of the order</li> <li>• Product differentiation</li> <li>• Number of consumers</li> <li>• Spatial density</li> <li>• Order size</li> <li>• Delivery frequency</li> <li>• Temporal density</li> <li>• Seasonal phenomena</li> <li>• Efficiency in the return management</li> <li>• Item fill rate</li> </ul>

**Table 2.3:** Drivers found in the two papers

After the analysis of the two papers, we made a bibliographic research and a literature analysis to complete the list of indicators. These researches will be described in the next paragraphs.

## 2.2 BIBLIOGRAPHIC RESEARCH, LITERATURE ANALYSIS AND NEW DRIVERS FOUND

The starting point of the analysis was the collection of the drivers emerged in the early stages of our work. Within the documents considered most significant we looked for references to these drivers and we highlighted the possible use of new drivers.

The first step in devising an effective supply chain strategy is to consider the nature of the demand for the products that one company supplies. Each category requires a distinctly different kind of supply chain. The root cause of the problems plaguing many supply chains is a mismatch between the type of product and the type of supply chain. (Fisher, 1997). Therefore the first phase to define the right strategy is to understand the characteristics of the product and of the relative market; the second phase is to find the right supply chain for each cluster. This is also the objective of our work.

The element that has been mainly discussed in literature is the value density; this metric captures the ratio of product value over its weight. It shows the importance of transportation costs in the

overall product cost: for goods with a higher value density, firms can afford to work with faster and more expensive modes of transport as transportation cost is a relatively small fraction of the total product cost, while for low value density goods, firms have to use slower modes of transport because a small increase in transportation related cost can affect the profitability of the product in a significant way. Moreover, in high value density goods (such as in electronic and high technology sectors) transportation cost is relatively less important, while in low value density goods (such as in books and grocery sectors), transportation is going to play a relatively more important role. (Shah J., 2009).

Another aspect that influences complexity is density, which refers to the weight/space ratio of the product. An item that is lightweight compared to the space it occupies has low density. This element affects transportation and warehouses. High density items can fit more weight into the vehicles. Moreover, the higher the density, the more weight can fit into an area of warehouse space (hence, the more efficient use of warehousing space). (Coyle J., Langley C., Gibson B., Novack R., Bardi E., 2009).

Assortment decisions, in terms of product range, are equally critical for Internet retailers, where low entry barriers lead to a high proliferation of players, resulting in severe competition. In this situation, rapid customer acquisition is crucial for initial survival and a continuous referral stream from Internet portals is essential for long-term growth. A deeper assortment of products is more likely to foster a positive brand image among new customers, lead to customer “stickiness” to the retailer’s website and increase the probability of referrals. Moreover, there is growing evidence that product variety is one of the main drivers of purchase behavior in electronic markets. An empirical study of the online book-selling business estimates that increased availability of hard-to-find books has a greater impact on consumer welfare than higher competition and lower prices in this market. The benefits of higher product variety are not without attendant operational costs. A firm’s assortment decisions may lead to an increase in the cost and complexity of its production processes and to deterioration in service measures like backorders and delivery lead times. Further, fragmentation of demand due to higher product variety often leads to higher aggregate safety stocks and a resultant increase in inventory costs. (Singh P., Groenevelt H., Rudi N., 2006).

Another problem for eCommerce players is expiration in terms of perishability for fresh products and obsolescence for the other goods. The challenge in this case is that product value deteriorates significantly over time. For many products, a decision about supply chain strategy involves a choice between responsiveness and efficiency. The appropriate choice depends on how the product changes in value over the time interval between production and delivery to the customer. (Blackburn J., Scudder G., 2009).

On the market complexity side, one of the main aspects is the importance of the management of the return process; in fact, this is usually the longest lasting impression that a consumer has of a company's customer service. A good return process can help to ensure that a customer will repeat purchases. A slow and painful return process can keep a customer from coming back. (Enarsson L., 2002).

Two other relevant features are related to the density of orders and the punctuality of the delivery. In fact, eCommerce requires a new logistic approach. Firms selling to businesses and consumers online must face the simple truth that they cannot send a product over the Internet. Launching e-business enterprises has forced conventional firms to become logistics companies: small order size, increased daily *order volumes*, small parcel shipments, and same-day shipments become reality and are common. Getting goods delivered to a customer's doorstep in a *timely manner* is a much more complicated task. Now, the success of firms in the eCommerce markets depends on the efficiency of their distribution networks. Thus, the effective and efficient movement of goods is critical in the eCommerce logistics supply chain. Yet for many retailers and manufacturers, distribution historically has involved large shipments to distribution centres rather than small mixed lots in overnight packages to consumers, which results, in many instances, in an entirely new distribution infrastructure to handle online business. (Ozmen J, Cho J.J.K, 2005).

The last driver is the cycle time; this factor impacts on the distribution problem increasing the market complexity in case of goods whose lead time (between order and delivery) is very short. The need for a more or less rapid order management depends on the type of product: if the product is quite cheap, the customer is willing to wait any longer (except for the Grocery sector, for which, for obvious reasons, the cycle time should be very low). (Enarsson L., 2002).

As said before, once defined the relevant drivers related to product and market, the second step is to understand what the different solutions, for what concern the supply chain, are. When we examine delivery systems in B2C, we first have to classify the companies and their situation at the commencement of their B2C sales and also the development of their delivery and return systems. The first category has developed its delivery systems previously, and in some way also its return systems. Although they had to develop web sites and home pages, their previous delivery systems haven't needed changing. They still use the same transport companies and the same structure. The second category has developed neither delivery nor return systems, but refers customers to shops where customers can return products they do not wish to keep. They have had to develop new distribution channels, with the difference compared to the other category of having a return system for the customers: one can return not wanted products to nearest shop. (Enarsson L., 2002)

In a way, that's how some retailers are adding eCommerce capabilities to their distribution systems. Their retail store distribution was already running smoothly and successfully, so they

added new, separate pieces as needed to help them compete and continue to grow in the eCommerce world. And now, as their sales channels gradually shift more and more toward on-line sales, the issue of how to manage this growth is continually being addressed. What that means in practical terms is that retailers need to carefully evaluate their supply chain strategy of having separate warehouses or distribution centres for physical stores and online stores. While they may recognize the importance of providing customers with consistent service and buying experiences, it has made inventory management increasingly challenging. By becoming part of the main supply chain system, the eCommerce operation can also gain access to “store transfer” systems (where products are shipped from retail store to retail store to fulfill demand), and “order online/pick up in store” operations are simplified as well. It may not be as efficient an operation as a pure-play online retailer, but it will be far more efficient than maintaining two separate operations. (Lasher C. and Deveikis P., 2012),.

### 2.2.1 DRIVERS FOUND

Following, the table summarizing all the drivers emerged from the literature analysis:

DISTRIBUTION PROBLEM		LOGISTIC SOLUTION	
PRODUCT drivers	MARKET drivers	SHARED	DEDICATED
<ul style="list-style-type: none"> <li>• Value density</li> <li>• Density</li> <li>• Product range</li> <li>• Expiration</li> </ul>	<ul style="list-style-type: none"> <li>• Management of the return process</li> <li>• Density of orders</li> <li>• Punctuality</li> <li>• Cycle time</li> </ul>	<ul style="list-style-type: none"> <li>• Shared warehouse</li> <li>• Pick up in store</li> <li>• Return in store</li> </ul>	<ul style="list-style-type: none"> <li>• Dedicated warehouse</li> <li>• Order online</li> <li>• Return through courier</li> </ul>

**Table 2.4:** Drivers found from the bibliographic research

In this case, we found also elements related to the logistic solutions that are also coherent with the objective of our work; therefore this aspects will be considered in the analysis.

For want concern the distribution problem, we decided to use only those drivers that were in common between the two papers and the literature. Therefore, Table 2.4 shows all those elements that have been effectively used in the study.

### 3. CASE STUDIES

After having made the literature analysis and having identified the drivers needed to classify the case studies, we focused our attention on some players. In fact, in order to classify the Italian initiatives for the eCommerce B2c, we analyzed some companies that work in this context. Some of them are already examined by the eCommerce B2c Observatory of the Politecnico di Milano School of Management. Each case study has been studied and synthesized on the basis of the drivers of product, market and logistic solution previously found with the aim to obtain:

- classes of product-market complexity
- clusters of the adopted logistic solutions.

In the next paragraphs the players considered in the analysis will be described and a possible classification will be shown; moreover, at the end of the paragraph will be highlighted the main elements coming from the investigation.

#### 3.1 PLAYERS ANALYZED

The players that we took into account belong to four different sectors and they are:

- *Book, Music & Audiovisual*: Bol, Hoepli and La Feltrinelli
- *Grocery*: Basko, Esselunga and Prontospesa
- *Computer & Electronics*: CHL, Darty, Euronics, Mediaworld, Saturn and Unieuro
- *Clothing*:
  - *Casual Clothing*: Bata, Brums, Cisalfa, Decathlon, Intimissimi, Nencini Sport, Oliviero, Stefanel and The Gigastore
  - *Fashion Apparel*: Diesel, Diffusione Tessile, Dressup, Giglio, Gucci, La Perla, Luisa Via Roma, Mandarina Duck and Prada.

### 3.1.1 BOOKS, MUSIC & AUDIOVISUAL

#### Bol

Bol is one of the largest Italian media store online. It has a catalogue with seven million products as Italian and English books, movies on DVD and Blu-Ray, music, games and gift ideas. It is part of the Mondadori Group which is the largest Italian publishing center.

In 2010 Mondadori stipulated a contract with Società Holding Industriale di Grafica S.p.A. for the acquisition of 50% of the share capital of Mondolibri S.p.A., of which Mondadori already holds 50% as part of a joint venture with Direct Group Bertelsmann.

Mondolibri, a leading player in the mail order book market and one of Italy's most important online retailers, is comprised of two divisions: Book Clubs, which is in the mail order sale of editorial and multimedia products through book clubs alongside more than 70 retail outlets and a web platform, and Bol.it, an on-line shop for editorial and multimedia products.

In 2008, Mondolibri generated total revenues of €82 million, of which €19 million deriving from e-Commerce. The operation will give the Mondadori Group complete control of Mondolibri, offering, on one hand, significant opportunities for synergies with the Mondadori bookshop chain and, on the other hand, the autonomous management of Bol.it.

The logistics solution chosen by Bol is the shared storage between online and offline. The phases of picking and construction order are controlled by staff Mondolibri. In this way it creates synergies with the traditional channel and it doesn't make potentially new risky investments.

Nowadays Bol.it introduced the option "Pick up pint" in which you can pick up your purchase in the shop Mondolibri you prefer.



Figure 3.1: Bol - Homepage and example of physical store

## Hoepli

The library Hoepli was founded in Milan in 1870 by Ulrico Hoepli. Its editorial work has developed from the outset with particular attention to the technical and scientific areas. Currently, it publishes manuals, educational publishing, university and professional, information technology, legal codes and dictionaries. Hoepli is located in the center of Milan and is spread over six floors. It is one of the largest libraries in Europe with an assortment of more than 500,000 Italian and foreign books. The 40 librarians provide advice on a variety of disciplines and of all kinds of books. In fact there are science, architecture, art graphic photography, legal books and books on economics and computer science. Then of course there are the books of literature, history books and essays, from medicine to children's books, not to mention the books of sports, cookbooks, guides, travel books and antique books.

Since 2001 there's also the online shops offering all readers the opportunity to buy books from the library Hoepli of Milan.

Hoepli is a particular player because it has only one shop, located in Milan. This shop is also considered as a warehouse in fact here stocks are stored and then send to buyers. Hoepli doesn't allow to withdraw or to return books in the library.



Figure 3.2: Hoepli - Homepage and example of physical store



## La Feltrinelli

The history of the Feltrinelli Group has its roots in the early '50s: the intent of the founder, Giangiacomo Feltrinelli, was to create a structure that would embrace the various stages of the process of publishing the edition to the intermediate distribution, until the sale of books. The current configuration is the result of a continuous evolution, which has allowed the group to keep up with the times of a market in perpetual change, and sometimes to anticipate them.

The Giangiacomo Feltrinelli Editore was founded in 1955, but already in 1957 with the opening of the library in Pisa, the chain takes the name of Feltrinelli.

In 2007 there was a new format Feltrinelli, a single large store ready to serve customers throughout Italy and also other parts of the world. The Feltrinelli.it is a "virtual" Feltrinelli with no walls, no ceilings, no boundaries, but stocked exterminated and able to reach its customers from within the walls of the house. It's a place where you can discover, explore and buy but also interact with the most advanced ways of Web 2.0 and community.

La Feltrinelli has a number of outlets, all owned, and a warehouse, dedicated to offline purchase, which are managed separately. La Feltrinelli has decided not to exploit synergies, at least for the structures, with the offline channel. The only point that the two solution, online and offline, have in common is that La Feltrinelli allows to pick up books bought online in its shops.

la Feltrinelli  
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Home Libri eBooks Musica Cinema Games Gadgets Foto Promozioni

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Book Title	Author/Artist	Price
Io sono il Libanese	Giorgio De Cataldo	€ 9,75 € 14,00
Lo spettro	Jo Nesbo	€ 14,25 € 19,00
The Iron Lady	Phyllida Lloyd	€ 11,99 € 16,00
Acab - All Cops Are Basta...	Stefano Sollima	€ 11,99 € 16,00
Living Things	Linkin Park	€ 16,49 € 21,00
Hot Party Summer 2012	Universal Strategic	€ 13,59 € 16,00

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IN SARDEGNA  
UN VIAGGIO MUSICALE



Figure 3.3: La Feltrinelli - Homepage and example of physical store



### 3.1.2 GROCERY

#### Basko

Basko Supermarkets and superstores were created in 1987 and represent the core business of the group Sogegross, born in Genoa in 1920 from a simple bar and grocery shop in the district of San Martino. Their importance is so big both in terms of turnover and of its ability to express the company's mission, based on innovative processes and attention to customer needs, by making Basko a famous private brand active in the distribution at multi-regional level.

During the '90s, Basko has launched a major development process. It has expanded its presence outside the Genoa area, in order to include 56 stores, located mainly in Liguria, but with a growing presence in the southern Piedmont and other regions of the north-west.

In 2003 Basko started to sell online through basko.it, the internet portal to make shopping online and receive it directly at home.

Nowadays, Basko is an important example of excellence for distribution to its stores, which can reduce the time of delivery from producer to consumer and guarantee the integrity and quality of products. It shares the same warehouse for its shops and online sales. In 2010 Basko had a turnover of 275 million euro.

Basko is considering the possibility to pick up the goods in the store to interested customers.



Figure 3.4: Basko - Homepage and example of physical store

## Esselunga

The first store of the Supermarkets Italian SpA was opened in November 1957 in a former factory in Viale Regina Giovanna in Milan.

In 2001 Esselunga came in the eCommerce world with the initiative "Clicca il pomodoro." The following years were characterized by a continuous growth that has allowed Esselunga to establish itself as the undisputed leader of the grocery sector in Italy with a market share well above 50% of total transacted.

The success of Esselunga depends on the high level of service offered, the coverage of a wide territory that is increasing from year to year, the high commitment towards the online channel and synergies with the physical network at all levels, from brand image to marketing, from CRM to logistics. In terms of picking, the logistic model is mixed with a dedicated warehouse in areas with high population density, as in Milan with the warehouse of San Giuliano, while Esselunga uses physical outlets in areas where the density is lower.



Figure 3.5: Esselunga - Homepage and example of physical store

## Prontospesa

The shop of Course France 263 was founded in 1958 as food and artisan pasta.

In 1985 a relationship with the distribution center Craiper Piedmont began with a continuous focus on quality and customer relations, but also on the evolving needs of the market.

It is a choice that makes Prontospesa competitive with other supermarkets due to the increase of the assortment of products, speed of supply and price competitiveness. Prontospesa has a particular that makes it very appreciated: the penchant for fresh food and crafts, the direct management of the store, that dialogue with the customers for whom shopping is a bit "go and visit."

In 1999, the adventure on the Internet begins for fun and challenge. After few time, the greatest satisfaction come: customers are good and usually come back, the database reaches a number of members who would never have guessed, the local and national press takes care of Prontospesa with flattering articles and accurate reviews.

Prontospesa continues to work with the usual professionalism and become a reference point for online shopping in Turin.

For what concern the logistic solution, Prontospesa shares its warehouse, which is adjacent to the store, between online and offline channels. It is allowed the pick up of shopping at the store with the ability to pay cash on delivery. For the returns, you can't bring products back in the shop but Prontospesa sends a courier.

In the shop online assortment and prices are the same as in store with the exception of special discounts or initiatives. In the near future the company has planned to increase the number of municipalities served in the Turin area and to implement direct marketing tool integrated with the action of flyers online with the aim of creating synergies between the two channels.

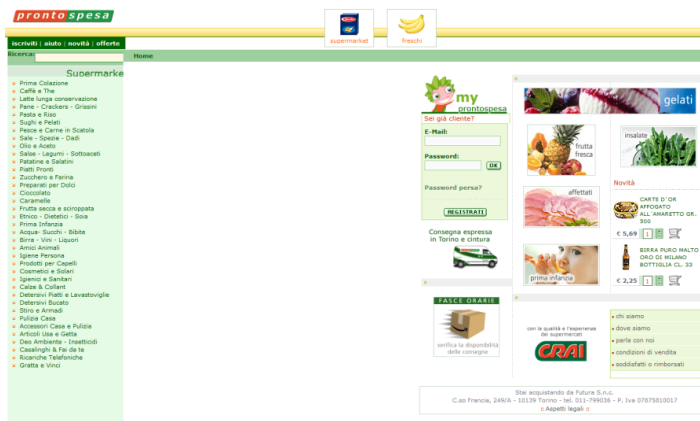


Figure 3.6: Prontospesa - Homepage and example of physical store

### 3.1.3 COMPUTER & ELECTRONICS

#### CHL

CHL SpA is one of the most important reality of Italian eCommerce. CHL was born in 1993 in Florence working in the computer industry and since 1995 it started selling online. Since 2000 CHL is listed in the Segment MTAX Standard 1 of the Italian Stock Exchange.

The group is present in the B2B and B2C segments, in traditional retail stores and mass retailers.

CHL sells approximately 23000 different products from more than 910 brands. The catalog includes very heterogeneous product categories, however, the main remain Computer Science and Electrical Appliances. The main strength of the company is offering online measure PC: even a less experienced user can assemble a PC online with assistance of Doctor Orange, a proprietary system that supports step-by-step assembly of computer with compatible products.

CHL has a central warehouse in Osmannoro (FI) which is operated by the subsidiary Frael (acquired in 2005) that keeps in stock the parts needed to measure PC. For products in other categories are used instead, suppliers' warehouses.

The success and uniqueness of CHL lies in having created a network of physical presence in the territories (the CHL Shopping) by integrating it with the online tools. This has facilitated the spread of electronic commerce in Italy and approached Internet users in the world of eCommerce, allowing them to pick and pay for the products in the "traditional way".

The CHL network today consists of an effective presence in the area for advice, order online and the withdrawal of products, consisting of over 1200 Stores CHL and several tens of points affiliates TNT for delivery and payment. The CHL network receives 35% of orders.



Figure 3.7: CHL - Homepage and example of physical store



## Darty

Darty is part of Kesa Electricals, born from the split of the Kingfisher group in July 2003 and subsequently listed on the stock exchange in London and Paris. Today it is the third largest in Europe specialized in the distribution of household appliances. The company has different operations across Europe, the original being in France and now in three other countries (in conjunction with KESA), Turkey, Italy, Switzerland and Spain.

Darty is a leading distributor of electronic, electrical, computer and telephony in France. Founded in 1957, almost by accident, from an idea of the Darty family, today it's a company with over 200 stores and more than 10,000 employees.

Currently in Italy Darty has 25 stores and the Darty eCommerce division.

All companies within the group share a common philosophy based on three main principles: price, selection, service.

Darty shares the same warehouse for the offline and online solutions and allows customers to withdrawal their products in its shops.

The screenshot shows the Darty website homepage with a navigation bar at the top. The main content area features several promotional banners and product listings. A large banner at the top center reads "MEGLIO DEI SALDI!" with various discount percentages. Below this, there are sections for "TV - VIDEO", "GRANDE ELETTRODOMESTICO", "TABLET", and "SMARTPHONE". Each section displays a product image, its name, and a discounted price. For example, a TV is listed for 329,00 € (down from 339,00 €), a washing machine for 399,00 € (down from 499,00 €), an Apple iPad for 349,00 € (down from 399,00 €), and a Sony Ericsson smartphone for 249,00 € (down from 349,00 €). The page also includes a search bar, a shopping cart icon, and a "Speciale Climatizzazione" banner.



Figure 3.8: Darty - Homepage and example of physical store

## Euronics

Euronics Italy, the leading group distributor of home appliances and consumer electronics, was founded in 1999 as the historical evolution of the get brand, established in 1972 by a group of major retail businesses. Entrepreneurs, that in their own territory, have achieved positions of leadership for sales and distribution coverage.

In over twenty years, the Group developed with the inclusion of new members, relying especially on the sign of each local. The evolution of markets, the growth of competitive dynamics and the internationalization of business make clear the need to establish a European Group. For this reason, the GET Group has promoted the Euronics International, an organization that now operates throughout Europe with over 11,500 outlets.

The online initiative of Euronics was born in 2005 but was publicized only in 2007. After Mediaworld, Euronics is one of the early giants retail to launch an eCommerce initiative.

The emphasis on customer service requires timely delivery of products to stores. Members of Euronics ensure effective management of logistics flows through distribution platforms that provide extensive coverage of the territory and a swift delivery of products in over 700 stores of the chain. Aware that an efficient supply chain is a necessary condition for dealing with the competition leaders, Euronics Italy has promoted the rationalization of logistic group based on an extensive use of information technology and logistic systems integration with suppliers.

The logistic solution adopted by Euronics is characterized by a warehouse dedicated to the online channel and stores shared with the offline only for what concern the possibility to pick up products in shop.



Figure 3.9: Euronics - Homepage and example of physical store

## Mediaworld

In 1979, MediaMarket opened the first store in Monaco of Bavaria and it was immediately successful. Its innovative concept is rapidly expanding across Europe and in 1991 arrived in Italy as Media World, opening a store in Curno near Bergamo.

In 1995 the site [www.mediaworld.it](http://www.mediaworld.it) was born. Over the years, according to the evolution of the company, also the site grew, becoming larger and growing much. Currently, it has also renewed its graphics and provides promotions, services, information, insights and everything that can be useful to consumers.

In 1999 "Media World Buy on-line" was founded and Media World becomes a pioneer in eCommerce sector. The virtual store quickly becomes the first website of consumer electronics for both number of visits per year and for sales. Year after year, even the eCommerce website has been enhanced with many new features.

B2C online activity is treated as a point of independent physical stores with dedicated warehouse and stocks. The site offers a range of 3000 articles selected from the catalog of online stores. Media World delivers also services such as printing digital photos and downloading music files, video games, movies and e-books. Another key feature is the partnership with Kasanova for the wedding list.

Media World's management wants to give a state of total independence to this channel and so it does not create synergies with the offline channel.

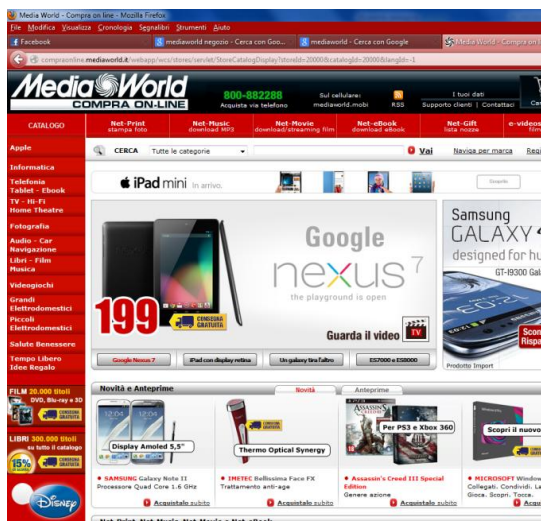


Figure 3.10: Mediaworld - Homepage and example of physical store

## Saturn

Saturn is a trademark of Media-Saturn Holding, Europe's leading distributor of consumer electronics, and this means latest technology, extensive selection, competence, professionalism, modern facilities and convenience.

In 1961 the first store opened in Germany by the founders and Friedrich Wilhelm Waffenschmidt Years in Cologne. In the years following the brand is spread throughout the rest of Europe.

In October 2001, the first store Saturn in Italy opened in Viale Certosa in Milan. This event marked the birth of a new retail concept synonymous with technological innovation, extensive selection, convenience and amenities. Simultaneously, the website [www.saturn.it](http://www.saturn.it) and the draft institutional Saturn and loyalty-club grow.

Saturn chooses to have a completely dedicated channel for what concern the online, in fact it doesn't share neither the warehouse nor the stores with the offline channel.



Figure 3.11: Saturn - Homepage and example of physical store



## Unieuro

In 1967 Unieuro was born in Alba in Piedmont with the opening of a store where various genres such as clothing, linens, housewares and even a coffee roaster were sold. The founder arranges to the store the name Unieuro thinking that Europe would soon be united to become one big market. The initial introduction of household appliances in the catalog is in the early seventies. In the second half of the nineties many stores are opened and Unieuro came to be present in the majority of the country.

Unieuro became a leading exponent in the retail distribution of electronics and appliances and it is part of DSG International Group plc since 2002. It operates throughout Italy with approximately 200 stores. Unieuro also complements the traditional sales channel with the on-line through the website.

Unieuro gives to his customers the possibility to use the option “Chose&Pick up” which combines the convenience of shopping online with the convenience of the large network of stores. You can simply book online products and pay the price listed on the website when you will pick up the products in the store of your preference. This solution is designed for those people who cannot be at home at the moment of the goods delivery, want to pay cash or prefer to pay by credit card but not online or finally consider delivery costs too high compared to the value of products purchased online.

The screenshot shows the Unieuro website homepage. At the top, there is a search bar and navigation links. A large banner for the Wii U console is featured, with the text "Wii U CAMBIA IL TUO MODO DI GIOCARE DISPONIBILE DAL 30 NOVEMBRE". Below this, there are several promotional tiles for various product categories, each with a price and a "Clicka qui" button. The categories include: "ASUS VIVO TAB RT" (€599,00), "Televisori, Home Cinema, DVD LG 42LM620S" (€599,00), "SAMSUNG GALAXY S W81 3.66\" PP-G31..." (€134,99), and "NOKIA Lumia 900 NERO" (€249,90). A sidebar on the left offers services like "GUIDA AI SERVIZI" and "SCOPRI ANCHE".



Figure 3.12: Unieuro - Homepage and example of physical store

### 3.1.4 CASUAL CLOTHING

#### Bata

Bata operates in Italy since 1931 based in Limerick (PD) and it is a leader in the footwear industry in this country.

Bata is the most important company in the world for production and marketing of footwear. In Italy there is a network of over 300 stores with City Bata, Bata Superstore and Athletes World formulas. Bata has decided to focus on a multi-channel strategy which includes the web, store and telephone. The customer who comes in the store and does not find the desired product, can order it directly in the store or via web or phone from home.

The web channel was launched in May 2008, after the positive initiatives in the Czech Republic, Slovakia and Poland, with the characteristic of having the same variety and price of products sold in the normal points of sale. The model predicts the formation of a "virtual warehouse" with all the products available in the various outlets of the Italian network from which the actual execution of the order starts or where the customer can go to make any changes.

Bata currently has a warehouse shared between online and offline channel but it is planning to build a site dedicated only to online one. Nowadays the only synergy between the two channel is that you can go to the store you want to replace the products purchased online.

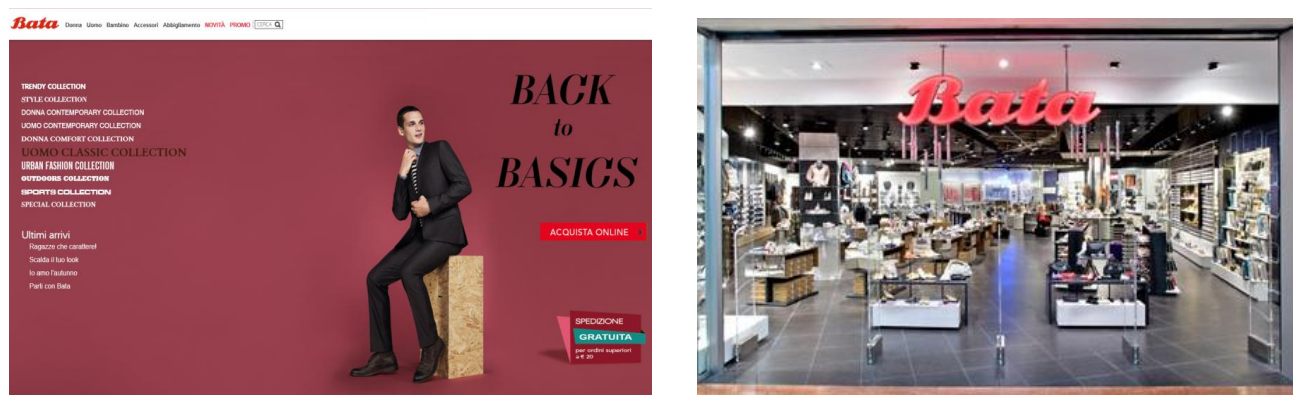


Figure 3.13: Bata - Homepage and example of physical store

## Brums

Brums, is a brand born more than fifty years ago from the need to dress the exuberant personality of children with style. A fashion made of moments, special days, that imagines every child with a dream in his eyes and a smile in his heart. The garments Brums are always designed to share the days of every child that wants to become an astronaut, or a sheriff, a ballerina or a princess.

Brums has been following moms and their habits for more than fifty years, giving importance to their different lifestyles and their thousand ways of being a mom today. For this reason Brums is careful to new worlds of communication, and looks more and more towards the crowded world of the web. Thanks to eCommerce, corporate websites, Facebook profiles and Twitter, Brums gives a hand to the mothers of today and tomorrow.

Regarding logistics, Brums has a warehouse that shares with online and offline channels, while it does not seek to create synergies between the online and the stores, in fact customers cannot pick up the goods or return them to the store.

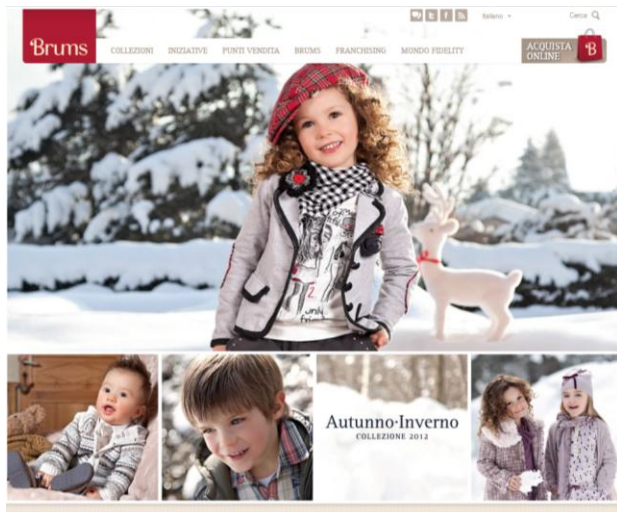


Figure 3.14: Brums - Homepage and example of physical store

## Cisalfa

In 1977 Vincent Mancini opened his first shop in Tivoli that after ten years takes the name of Cisalfa and opens 8 shops in the area of Rome. Subsequently the company expands in northern Italy reaching 150 stores in 2005.

The brands belonging to the Cisalfa group are the following:

**Longoni Sport:** The first store was born in Barzanò (Lecco) in 1960. In 2004 Longoni shops are acquired by the Cisalfa Group.

**Germani Sport:** Born in Milan in 1960 with a single window. Over the years grows in the Milan area, serving as a teaching specialist in the distribution of products for tennis, skiing and leisure.

**Este Sport:** The first store opened in 1971 in the heart of Ferrara. In the 70s and 80s the sign becomes the protagonist in the sale of sporting goods on the territory of Ferrara. In 1990 the sign Este Sport joins a new distribution formula, the mall, with the opening of a new store in the center of "Il Castello" in Ferrara.

**Cisalfa Outlet:** A parallel sign that identifies outlets with an essential lay-out, capable of offering an assortment targeted for those who consider the purchase price a priority. A strategic choice that allows a rapid depletion of residual seasonal and at the same time the possibility to propose, within all the other shops, a current and selected offer.

In Cisalfa, online and offline do not share the same channels.

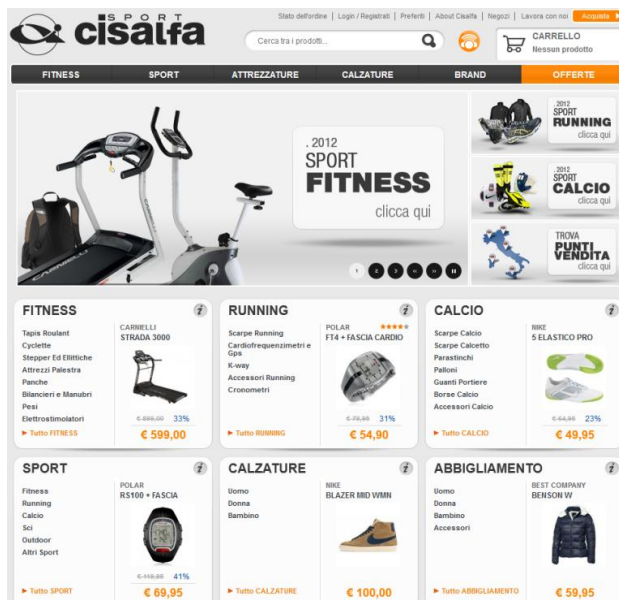


Figure 3.15: Cisalfa - Homepage and example of physical store



## Decathlon

The birth of the sign Decathlon was in 1976 which debuted with the first big store in Englos, near Lille in northern France. The idea of Michel Leclercq is to provide sporting facilities for everyone, beginners and enthusiasts, with products available under one roof and with the best value for money. The next stage is in 1986, the year in which the production of articles signed Decathlon began with the first embodiment of the Challenger bike. In 1991 the production activities on the cycling started in Italy and in 1994 Decathlon opened the footwear production in Veneto. The onset of the first Italian Decathlon store was in 1993 when it opened a shop in Baranzate (MI), followed two years later by those of Corsico (MI) and Lissone (MB). In 1996 it reached its first milestone: 10,000 employees worldwide.

In Italy, Decathlon is present with 77 stores, 3 logistic warehouses, 3 Cervix Center and 2 production offices having about 6,000 employees.

In addition to the traditional store, the sale of technologies and products online has been active since 2009 on the site [www.decathlon.it](http://www.decathlon.it).

In Decathlon online and offline have separated channels; customers cannot return products bought online in the chosen store and the formula Pick up in store is not provided.

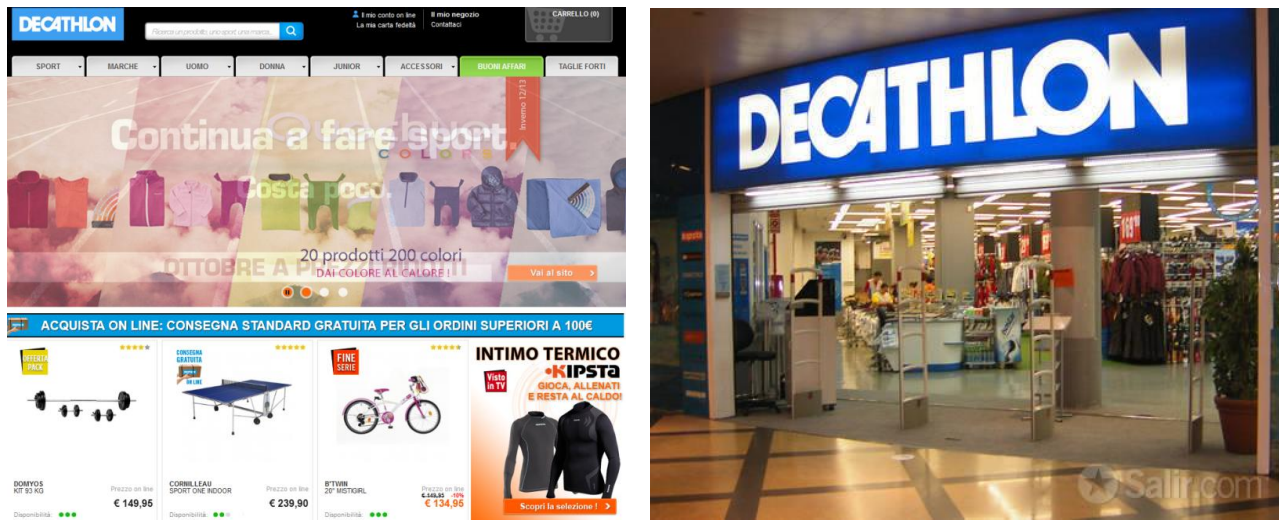


Figure 3.16: Decathlon - Homepage and example of physical store

## Intimissimi

The Intimissimi brand is a part of the successful Italian company, Calzedonia S.p.A Group. The brand boasts an extensive global franchise network whose shops set the benchmark in sensual, romantic and comfortable underwear.

In 1996 Intimissimi brand is established and the first stores open in Italy and abroad. In 1998 Intimissimi reaches the major milestone of 100 retail outlets. The winning combination of high-quality products, romance and imagination has won loyal customers all over the world. The brand's collections, which are updated weekly, are adored by men and women alike because they offer an innovative natural look; an approach that is more subtle and receptive to modern needs.

In 2001, a crèche was opened at the Intimissimi plant in Vallese di Oppeano near Verona for the children of the company's employees, mostly women. The decision to open the crèche has helped the workforce to achieve a better home-work balance.

Intimissimi shares the same warehouse for online and offline channels while it doesn't allow pick up or returns in store. However, on intimissimi.com you can always change your mind: buy your items, try them at home and if there is something you do not like, return them for free with a courier and receive a refund for the items returned, directly on your payment card. Moreover, Intimissimi has designed and built the site with customers in mind; in fact it believes that shopping at Intimissimi.com should be as easy and exciting as shopping in one of the stores. It has created an automated returns management system where customers can return all or part of the order with just a few clicks.

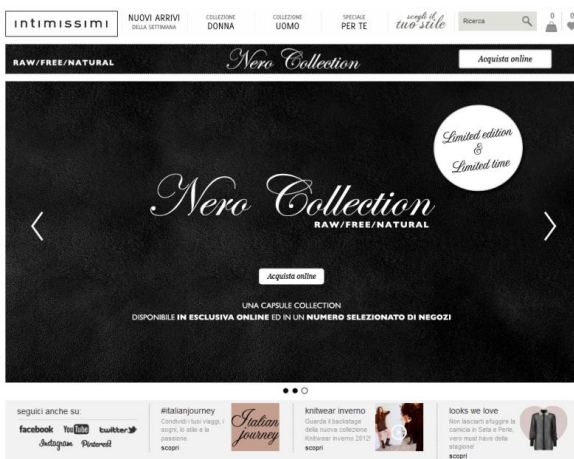


Figure 3.17: Intimissimi - Homepage and example of physical store

## Nencini Sport

Nencini Sport, leader in sport products and equipment, has a long history which started in 1985 when the first store was opened.

The strategy, always focused to the satisfaction of the client, brings Nencini Sport to a constant selection of technical and exclusive products, in the most greater sporting disciplines; in fact over 6.000 articles make complete and technique the range of the present sporting categories in the site.

Through the years, thanks to the professionalism and seriousness of the founders, the company Nencini has grown evolving into a chain of five stores in central Italy. The head office is in fact located in Calenzano (FI) and includes a large centralized warehouse, a sales office, a travel agency and an office that focuses exclusively on online sales that represents the true cutting edge of society; thanks to this, it is given the opportunity to all those who, unable to go in the stores, can choose and buy the items proposed. In fact, Nencinisport.it is a project born with the awareness and the safety to bring on-line the technicality and the specialization that it confirms this company as a leader in the sale of articles and sporting equipment.

Nencini choses to share warehouse between online and offline but to not pick up or return in store.



Figure 3.18: Nencini Sport - Homepage and example of physical store

## Oliviero

The headquarter, a store of over 10,000 square meters, located in Misano Adriatico, was founded by Oliviero Muccini in 1977 and immediately proved a success thanks to the friendliness and competence of the owners that are able to offer high quality and unique prices. In 1997, the website Oliviero.it was only a showcase of Oliviero Clothing.

Over the time, the founder, Oliver Muccini, given the demand and understood the enormous potential of the web decided to give birth to one of the first departments eCommerce in Italy: thus Oliviero.it.

The DNA of the company that is quality, professionalism and courtesy is now the hallmark of Oliviero.it becoming a point of reference for online purchases of the Italians. Oliviero.it is fast and intuitive and makes shopping a real pastime.

The activity of Oliviero.it does not end at the time of purchase. The product support is always available and ready to solve every little problem. Precisely these characteristics, over the years, have become a point of reference for the Italian people. Currently the community has exceeded the threshold of 500,000 members, and of 75,000 daily unique accesses, showing that the online world appreciates and prefers this brand.

Oliviero is a particular player because, as Hoepli, it has only one shop, located in Misano Adriatico. This shop is also considered as a warehouse in fact here stocks are stored and then sent to buyers. This company doesn't allow to withdraw or to return equipment directly in the shop.



Figure 3.19: Oliviero - Homepage and example of physical store



## Stefanel

The Stefanel Group has been active in the fashion industry with the Stefanel brand since 1982. Today it has an international dimension and operates in clothing retailing through two business units, Stefanel and Interfashion. Two identities belonging to the same Group and playing a strong international role with several brands in numerous stores all over the world.

The Group presents a rich and wide product range, ensuring thus a successful presence in the worldwide markets.

The business areas share the same goal: propose products that satisfy the customers' expectations, always aiming at the highest standards of quality and innovation.

The Stefanel Group, an international reality facing future never forgetting its passion for clothing and its own roots.

In 1959, Carlo Stefanel began to produce knitwear in his factory, the "Maglificio Piave" and after twenty-one years the first shop branded Stefanel opened in Siena.

In 1985 the company increased fourfold its turnover and the number of stores and two years later Stefanel was listed on the Milan Stock Exchange.

In 2011 there was the launch of the online store for Stefanel.

The online solution of Stefanel is separated from the offline channel, in fact the company has a dedicated warehouse for the eCommerce and it doesn't allow to withdraw or return clothes in the stores.

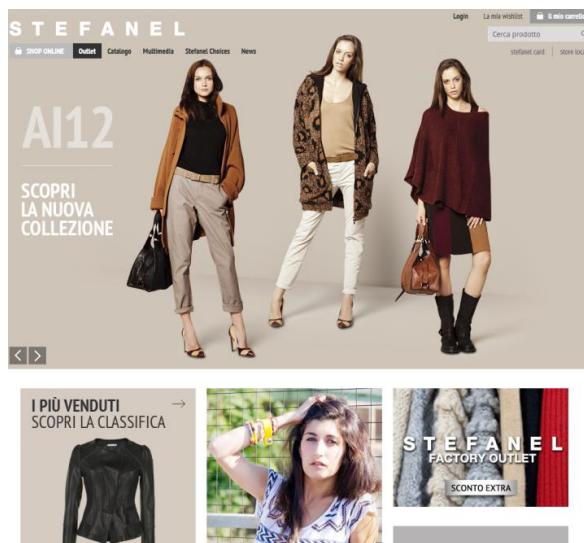


Figure 3.20: Stefanel - Homepage and example of physical store

## The Gigastore

www.theGigastore.com is the website for online sales of the lines Kappa, Robe di Kappa, Jesus Jeans, Superga and K-way brands belonging to the BasicNet Group SpA, a company listed on the Milan Stock Exchange.

The sales started in Italy in 2000.

The website is in Italian and English and the buyer, through a management software, specifically designed and owned by the company, can go directly to about 1 million branded products group. After every purchase, anytime and anywhere in the world, the stock of inventory is automatically updated in real time, eliminating any risk of unavailability of goods.

The Gigastore is a commercial multi-channel player that, having already available a warehouse for distribution in the offline channel, has decided to use the eCommerce channel looking to leverage the experience and skills already mature and to create strategic synergies. The Gigastore doesn't allow to withdraw or to return products in the stores.



Figure 3.21: The Gigastore- Homepage and example of physical store

### 3.1.5 FASHION APPAREL

#### Diesel

The company was founded by Renzo Rosso in 1978. Diesel's milestone years include 1985, 1988 the hiring straight out of fashion college of ex-head designer and Creative Director Wilbert Das, 1991 (beginning of the international marketing strategy) and 1996 (opening of Diesel's first flagship store on New York City's Lexington Avenue). Renzo said that they learned marketing from the US, creativity from Italy and systems from Germany.

In February 2007, the company launched a major intimates and beachwear division for men and women that is carried in the retail and department stores. Diesel Black Gold was announced in November 2007. The company has around 6,000 employees in 18 subsidiaries across Europe, Asia and the Americas. Its products are available in 5000 retail outlets, of which 300 are Diesel-branded stores. Annual sales were approximately €1.2 billion in 2005, and €1.3 billion in 2009. Revenue is largely derived from denim sales, but also extremely successful and influential ranges of accessories and children's wear - Diesel Kid. Production of denim jeans is based mainly in Italy. The biggest store is located in Milan, Italy.

Diesel launched in November 2007 its eCommerce website, the online store of diesel has been developed by Yoox Group, which also handles the distribution of products; deciding to outsource the management of online to the service provider Yoox, it became part of the initiatives "Powered by Yoox" and can thus benefit from the experience and expertise of the giant and to continue to embrace the "core" company.

Having outsourced the management of the online, Diesel can be considered to have a dedicated initiative related to this channel.



Figure 3.22: Diesel - Homepage and example of physical store

## Diffusione Tessile

Diffusione Tessile is part of one of the largest group worldwide for the high-end women's clothing. The company is specialized in the management of inventories of leading brands and sells its products through traditional channel, that is the physical stores, and online channel through the website [diffusionetessile.it](http://diffusionetessile.it). The company's business is to recover all the unsold items of the parent and once they are deprived of the original brand, sell at a discount of at least 50% of that presented in the previous season boutique. The business strategy can be summarized in two principles: wide range of products and good price / quality ratio. The target clientele is made up of a female, aged between 25 and 45 years, residing in large urban centers of northern Italy (Lombardy, Veneto and Emilia Romagna), the islands and Lazio.

Diffusione Tessile is a commercial multi-channel player that, having already available a warehouse for distribution in the offline channel, has decided to exploit it also for the eCommerce channel, but it doesn't allow to withdraw or to return products in the stores.

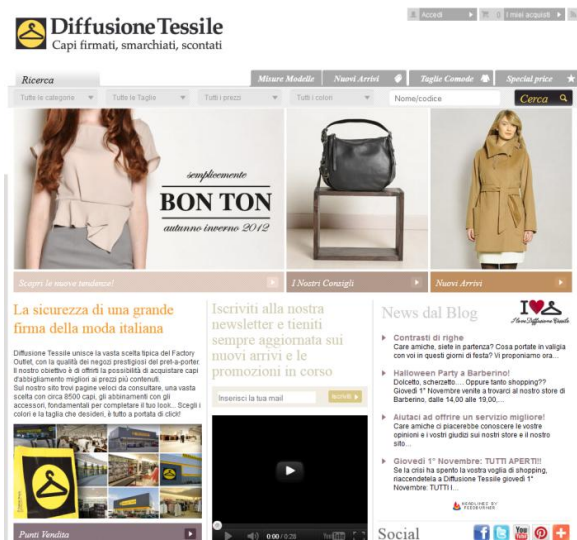


Figure 3.23: Diffusione Tessile - Homepage and example of physical store



## Dressup

The shop Dressup, housed on the third level of the Shopping Centre Atlas is one of the biggest clothing stores in San Marino. In its 250 square meters of exhibition space, find space selected leaders of the best brands in fashion apparel for men and women. The shop is bright and welcoming, designed and made to quickly find what the customer is looking for and make purchases with ease and simplicity.

Dressup online is an idea of A.R.G. Textiles that in 2005 decided to open the online channel to increase the number of customers and sell the unsold stocks of the season. Dressup offers original products at competitive prices with savings guaranteed from 20% to 40% on the price of the store.

Dressup continually strives to serve the customers with professionalism in order to satisfy the consumer. One of its strengths is the delivery of the goods in 24/48 hour and the telephone support to customers before and after delivery. The website is simple and very intuitive and divided into 4 categories: men, women, special price and recent arrivals. The site is updated daily with the latest news thanks to the cooperation of personal shoppers.

For the future Dressup is planning to expand its boundaries also increasing its activity in key European markets.

For what concern the logistics, Dressup tries to create synergies between the online and offline channels, in which it operates sharing the same warehouse; moreover it allows to withdraw products in the store but on the other hand, it doesn't allow to return them there.

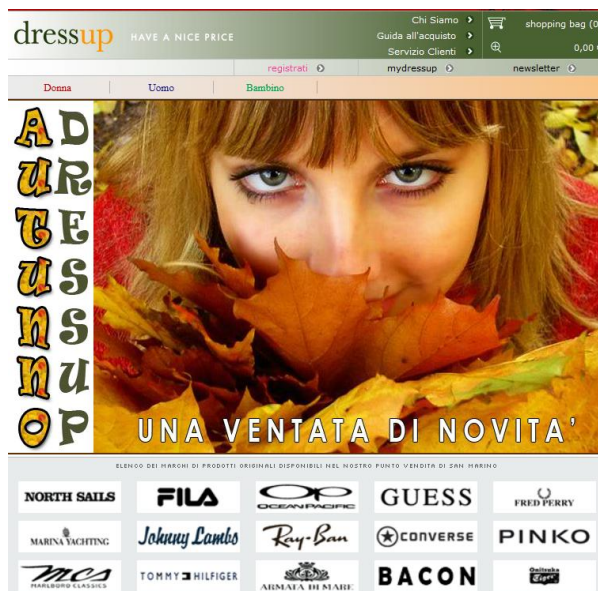


Figure 3.24: Dressup - Homepage and example of physical store

## Giglio

Michele Giglio learnt back in the '60s vital knowledge such as passion for details and interest in customer relations. He learnt this from the tradition developed by his family in the textiles and haberdashery shop owned by his father and grandfather.

The first steps were made after the conversion in 1970 of a one-man business into a Ltd., with the transformation of the haberdashery shop into a clothes store and the opening of new sales outlets. Entirely owned and managed by the Giglio family, this firm has been converted into a S.p.A. starting a remarkable and progressive rise over the last years in which other stores were opened while others completely renovated.

Synergy among the stores is the strength of the group. Each shop is situated around Piazza Croci in the middle of Viale della Libertà in Palermo. Piazza Croci is nowadays recognized by citizens and tourists as the centre of elegance and fashion.

Now the Giglio S.p.A. has a staff of about a hundred people divided among shop assistants, goods arrival and logistics, accounting and administrative office and eCommerce area.

The firm is entirely owned and managed by the Giglio family with the most up-to-date business administration techniques and the aid of state-of-the-art technologies. Totally wired-up and computerized, the company uses the best hardware and software solutions in order to optimize every management and informative process. Each shop is computerized, in order to know the real time sell out situation.

Giglio S.p.A. is completely customer satisfaction oriented. It has always dedicated considerable efforts to the management of customer service and now the firm has a CRM system taking great care over customers.

Regarding logistics, Giglio has a warehouse, in Palermo, that shares between online and offline channels, while it does not seek to create synergies between online and the stores, in fact customers cannot withdraw the goods or return them into the shop.

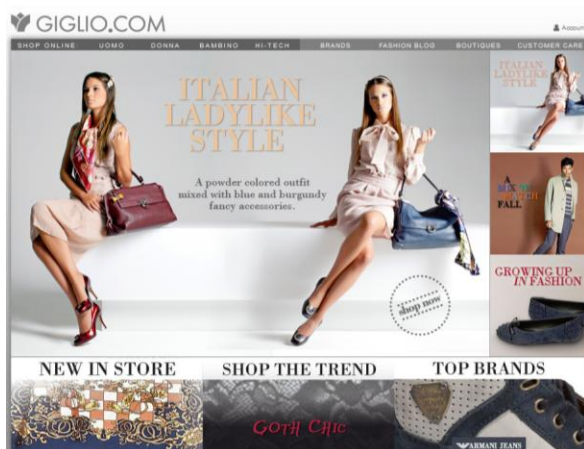


Figure 3.25: Giglio - Homepage and example of physical store

## Gucci

In 1921, Guccio Gucci opened a leather goods company and small luggage store in his native Florence. His vision for the brand was inspired by London and the refined aesthetic of English nobility; his goal returning to Italy was to ally this classy sensibility with the unique skills of his native Italy. Specifically, with the master craftsmanship of local Tuscan artisans. Within a few years, the label enjoyed such success that the sophisticated international clientele on vacation in Florence thronged to Gucci's shop, looking for the equestrian-inspired collection of bags, trunks, gloves, shoes and belts.

During the 50s, opening stores in Milan and New York, Gucci started to build its global presence as a symbol of modern luxury and during the next decade Gucci continued its expansion abroad with stores opening in London, Palm Beach, Paris and Beverly Hills. Domenico De Sole was appointed CEO in 1995, and Gucci made the highly successful transformation to a fully public company. At the beginning of the new decade, the Florentine House launched two relevant projects: a worldwide eco-friendly program to reduce its impact on the environment, and the launch of Gucci's first children's collection, which further highlights the brand reputation for quality and relevance by being exclusively made in Italy.

In 2002 Gucci has opened its online boutique.

Regarding logistics, Gucci shares the warehouse between online and offline channels, but it doesn't allow customers to withdraw the goods or return them into the store.

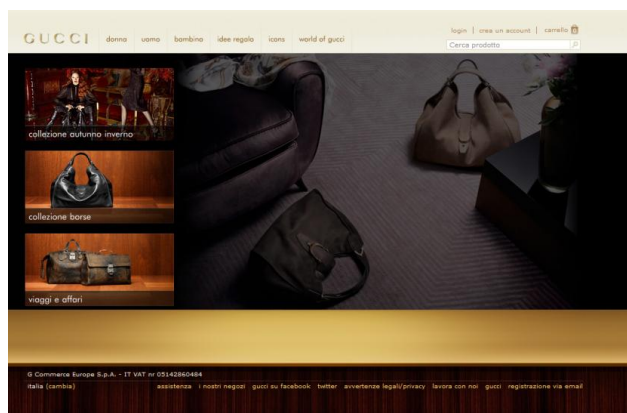


Figure 3.26: Gucci - Homepage and example of physical store

## La Perla – Glam On Web

In 1954, Ada Masotti, an artisan skilled in the tradition of hand crafted Bolognese corsetry opened a lingerie boutique in Bologna. In 1991, the first La Perla boutiques are opened at heart of the international fashion capitals of Milan and Paris. Since October 2008 La Perla has been owned by a San Francisco-based private equity firm focused on investments in growth-oriented consumer products and services companies, with a particular emphasis on luxury brands.

Glam on web was born in 2000 and it is the online boutique of La Perla. Its products range from deep to lingerie, from beachwear to clothing for women, men and children. La Perla, Malizia, Anna Club, Occhi Verdi, Grigio Perla are some brands on the proposed site. Since 2004, the site Glam Outlet was also attached to the traditional one with the objective of making available the quality and exclusivity of La Perla at a younger audience with affordable prices.

The initiative has been very successful so that the company has reached the break even for several years and La Perla thinks of expanding the direct sales service in areas other than Europe and the United States and increase the number of brands sold directly online.

La Perla, as other a commercial multi-channel players, has decide to share the warehouse, already available, also for the online channel. The company doesn't allow to withdraw or to return products in the stores.

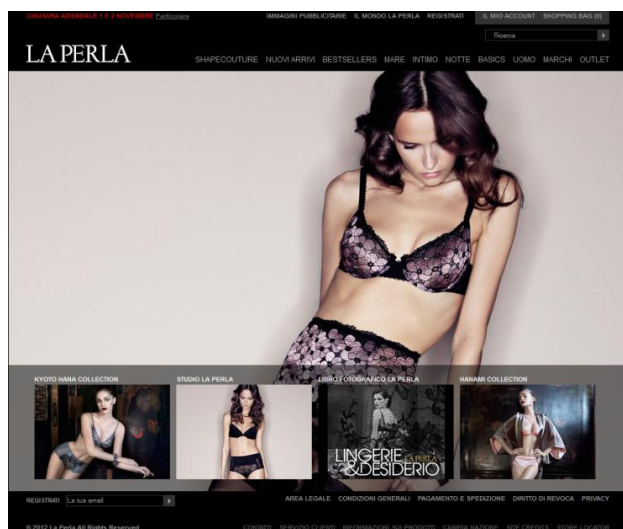


Figure 3.27: La Perla - Homepage and example of physical store



## Luisa Via Roma

Luisaviaroma.com is a top online luxury fashion retailer with 3.000.000 visitors per month. Since the 1930s the company has been based in Florence, where the flagship store is still located.

The website offers clothes, shoes and accessories for men and women from the most prestigious fashion designers such as Balmain, Chloe, Christian Louboutin, Dior, Dsquared, Dolce & Gabbana, Givenchy, Gianbattista Valli, Lanvin, Marc Jacobs, Rick Owens, Roberto Cavalli, Yves Saint-Laurent... and creative avant-garde designers, like Peter Pilotto, Mary Katrantzou, Alexander Wang, Christopher Kane, Gareth Pugh, Damir Doma, etc.

The website features young talents side-by-side with some of the most famous established designers in the industry.

Since 2009 Luisa Via Roma has included the use of social networks in its web-communication strategy. LVR was one of the first companies to believe and invest in new social network channels. Over the past two years Facebook and Twitter fans and followers have grown into a community of active and loyal supporters. Today Facebook is the company's second highest ranking source of traffic for the online store.

The LVR Magazine, an in-house portal for interaction and sharing, has a steadily increasing number of followers that has led it to become one of the top ten channels through which traffic arrives onto the online store.

Regarding logistics, LVR shares the same warehouse for the sales offline and online, but it doesn't create synergies between the two channels for what concerns the withdrawal and the return of products.

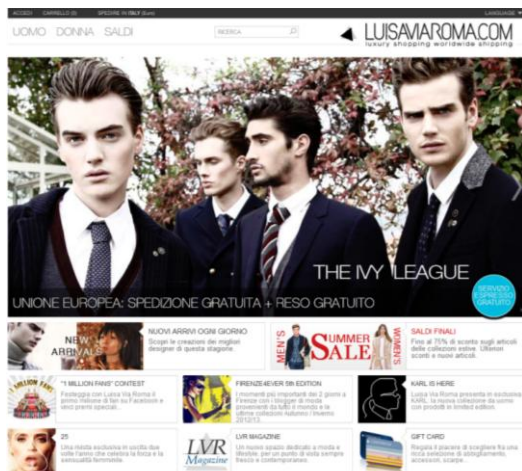


Figure 3.28: Luisa Via Roma - Homepage and example of physical store

## Mandarina Duck

Mandarina Duck is an Italian fashion brand, specialized in leather goods and travel items.

In 1977 Mandarina Duck brand name was born and the first collection was launched in the market: utility. Mandarina Duck appeared out of nothing as a completely new concept: the revolutionary bag, not made out of traditional leather but with unconventional materials and colours.

In the early 80's, two new revolutionary collections hit the market for travel goods, definitely asserting Mandarina Duck as an extraordinary exception in the leather goods market.

During 90's, the international expansion started. Sales were permanently over 1 million pieces on a yearly basis and the company starts direct international operations in several countries: Italy, Spain, France, Germany.

On July 2011, E-Land Group, purchased Mandarina Duck. E.Land Group is the number one fashion company in Korea and in recent years has consolidated its presence on the European market. With the acquisition of Mandarina Duck, E-Land intends to commence an important relaunch project of the brand on worldwide markets.

The group is headquartered in Bologna, with branches in Paris, Barcelona, Dusseldorf and London.

Since November 2005 the website has been eCommerce enabled with the aim of integrating traditional channels offering over 600 catalog products throughout the European Union. The website, due to synergies with the offline channel, that is sharing the same warehouse, has now reached the break-even point.

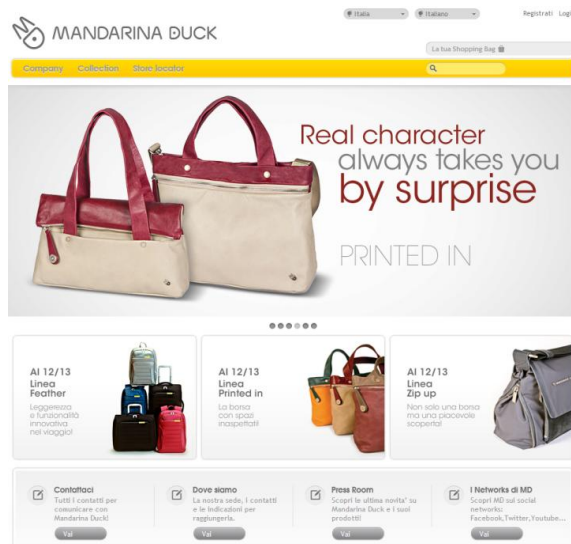


Figure 3.29: Mandarina Duck - Homepage and example of physical store

## Prada

The company, an Italian fashion label specializing in luxury goods for men and women (ready-to-wear, leather accessories, shoes, luggage and hats), was started in 1913 by Mario Prada and his brother Martino as a leather goods shop – Fratelli Prada – in Milan. Initially, the shop sold leather goods and imported English steamer trunks and handbags. Mario Prada did not believe that women should have a role in business, and so he prevented female family members from entering into his company. Ironically, Mario's son harbored no interest in the business, so it was his daughter Luisa Prada who took the helm of Prada as his successor, and ran it for almost twenty years. Her own daughter, Miuccia Prada, joined the company in 1970, eventually taking over for her mother in 1978.

Prada's originality made it one of the most influential fashion houses and the brand became a premium status symbol in the 1990s.

The eCommerce initiative was launched only three years ago.

Regarding logistics, Prada has a warehouse that shares between online and offline channels, while it does not seeking to create synergies between online and the stores in fact customers cannot withdraw the goods or return them into the store.



Figure 3.30: Prada - Homepage and example of physical store

## 3.2 CASE STUDIES CLASSIFICATION

As we have said at the beginning of this chapter, the case studies of the players considered have been classified on the basis of the drivers found. This classification was made in order to observe in real cases what we have studied in the papers and in the analysis of literature. After the classification, we have found a qualitative or quantitative value of each driver, that will be used in order to develop the model object of our work.

### 3.2.1 HOW WE CLASSIFIED

The case studies sorting is made looking at the behavior of each player in relation to the drivers of classification. As seen before, the drivers are of three types: Product complexity, Market complexity and Logistic solution. The first and the second types are related to the distribution problem, while the third one allows us to identify the different logistic choices made by the players considered. Following, the main criterions of classification used in the analysis are listed and explored.

#### DISTRIBUTION PROBLEM:

- Product drivers
  - *Product range* [number of items]: this indicator considers the number of items that each player can sell. In particular, in the Clothing sectors, the product range is the number of pieces managed by the company but not the differences in style (different colors or size) otherwise the product range would increase disproportionately related to other players.
  - *Density* [kg/m<sup>3</sup>]: as density we calculated a qualitative average of the density of the main products sold by the companies analyzed. We thought that there are too different players in the same category and so some of them were analyzed separately. As we can imagine, Computer & Electronics sector has the highest value of density (high weight related to the volume due to the household appliance), while the Clothing sector has a low value of density related to the fact that the weight of these products is very low.
  - *Value density* [€/kg]: also for this indicator, we made a qualitative average of the value of goods sold. The sectors with more value are Clothing and Computer & Electronics, while Grocery and Books, Music & Audiovisual have a lower value of this driver; this is related to the more expensive products the first sectors.
  - *Expiration* [days]: for this driver we considered the life, in a qualitative way, of a product in terms of expiration for Clothing, Book, Music & Audiovisual and Computer & Electronics and of perishability for the Grocery sectors. It is very evident that food products are more critical from the point of view of this driver.

- Market drivers
  - Demand drivers
    - *Density of orders* [orders/year]: this indicator measures the number of orders that each player receives from the online channel in a year.
  - Service drivers
    - *Cycle time* [days]: regarding the cycle time, we considered the time that the customer is willing to wait until he receives the products. We have decided to analyze it for each sector, and we do not calculated the actual cycle time that any initiative takes to process the order because we thought that for similar players, belonging to the same sectors, the time that customers is willing to wait for the receipt is quite the same.
    - *Returns management*: for this driver we considered how much this service is important for the customer in each sector. We obtained a qualitative measure of this indicator; in particular, this driver is very relevant in the Clothing sectors due to wrong size bought or in Computer & Electronics one due to the guarantee.
    - *Punctuality*: this indicator measures the importance that delivery punctuality has for the customers; also this driver was calculated in a qualitative way. The sector with a particular significance of punctuality is the Grocery, especially related to the delivery of fresh products.

## LOGISTIC SOLUTION

For this type of drivers we have classified the logistic strategy adopted by each player. In other words, we built a table in which we showed in column the most important drivers that we take into account, while in lines, we report the name of the players analyzed, then for each initiative we indicated the solution adopted.

This type of classification was implemented through a table because in this way it is easier to read and understand, reaching the main characteristics in order to find clusters of similar strategies.

### 3.2.2 OBSERVATION ON THE CLASSIFICATION

From the above description of how drivers of product and market are measured in order to classify the case study, we can observe that some of them have been calculated in a qualitative way. With this method, we have values not directly comparable and so, in the next chapter, we will see how every driver is related to a scale of values that makes them homogeneous in order to make a comparison.

Another comment is on the fact that not all the drivers are different for each player, while some of them are related only to the sector or the sub-sector they belong to. We have in fact assumed that players into the same sector, sell similar products and offer analogous services.

## 4. THE DISTRIBUTION PROBLEM

Before starting the discussion it should be noticed that the distribution problem is not unique, but through the study of drivers, we found several characteristics for each logistic initiative considered, then grouped into classes. Every feature is made by a different combination of values assumed by the drivers, described in detail in the previous chapter, in terms of product complexity and market complexity required by the customer.

This chapter aims to describe and explain how drivers were addressed and analyzed to obtain the Product Complexity – Market Complexity Model that presents on the x-axis the aggregated value of the drivers that explain the complexity of product and on the y-axis the aggregate value of the drivers that explain the complexity of the market.

The work was carried out in all the four sectors: Clothing, Computer & Electronics, Books, Music & Audiovisual and Grocery. This because it was thought that companies operating in different sectors could still have opted for similar logistic choices and that, in the event of a positive finding, it would have been very interesting for the next phase of cluster aggregation.

### 4.1 METHODOLOGY OF CONVERSION

The description of the distribution problem involves the assessment of drivers different one from the others and characterized by different units of measurement (for example the number of stores is expressed in units while the expiration in days) or by purely qualitative values not represented by a numerical value. For this reason it was not possible to put them directly in the report.

To make a comparison between these drivers and to make a summary assessment of the distribution problem, a conversion was made in a scale of 5 discrete values, depending on the degree of complexity that the individual driver assumes for the various initiatives under consideration (L = low complexity, ML = medium-low complexity, M = medium complexity, MH = medium-high complexity, H = high complexity).

After giving each driver a considered judgment based on its complexity (phase that will be described in detail in the following paragraphs), we proceeded to assign numerical values to ratings through the use of the criterion "constant pitch" (1 = L, 2 = ML, 3 = M, 4 = MH, 5 = H, as indicated in the Figure 4.1).



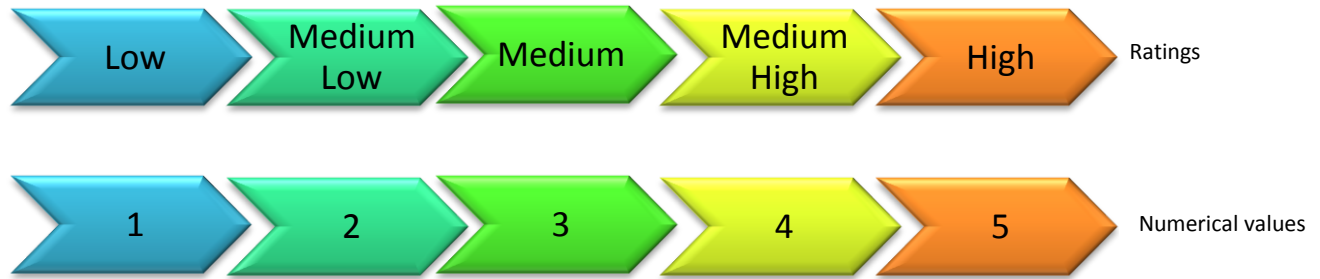


Figure 4.1: Conversion ratings / numerical values

Subsequently, through the use of the ordinal method of Matrix of preferences, the relative weights are assigned to each driver, according to which, each of them impacts more or less on product and market complexity.

The matrix of preferences is a method to allocate comparative order of importance and is a NxN matrix (N = number of drivers) compiled by relative importance of indicators, compared two by two. More precisely, taking into account two drivers at a time was assigned a + or a - sign according to the relative importance of drivers in a row than it is in column (for example, + is assigned if the indicator on the line is considered more important than the indicator on the column). After that, we made the sum of the symbols + for each row ( $\Sigma +$ ) and we gave an order of importance to each driver; the indicator with the largest amount was assigned higher priority equal to 1, while the one that collected the lowest number of + signs have been given lower priority equal to N. Finally, we determined the relative weight of each driver using the formula:

$$P_i = \frac{N + 1 - O_i}{\frac{N(N + 1)}{2}}$$

where:

N = Number of drivers measured;

$O_i$  = Order of importance given to the driver i-th ( $O_i = 1, 2, \dots, N$ )

$P_i$  = Relative weight of the driver i-th ( $P_i \leq 1, \Sigma P_i = 1$ )

Table 4.1 shows the preferences matrix used for the allocation of the order of priority to drivers considered in the evaluation of complexity on product side, while Table 4.2 shows the assignment of relative weights to the same driver:

Product drivers	Product range	Density	Value density	Expiration
Product range		+	+	+
Density	-		+	+
Value	-	-		+
Expiration	-	-	-	

Table 4.1: Preference matrix (product drivers)

Product drivers	Sum( $\Sigma+$ )	$O_i$	$P_i$
Product range	3	1	0,400
Density	2	2	0,300
Value	1	3	0,200
Expiration	0	4	0,100

Table 4.2: Importance weights for product drivers

As can be seen from Table 4.2, the product driver considered more important is Product range, because managing a large number of articles have a substantial effect on distribution and complicates management. Following in order of importance the drivers are Density, Value density and Expiration.

The same method described above was used for the drivers of the market complexity and this is shown in Table 4.3 and Table 4.4:

Market drivers	Density of orders	Cycle time	Returns management	Punctuality
Density of orders		+	-	+
Cycle time	-		-	+
Returns management	+	+		+
Punctuality	-	-	-	

Table 4.3: Preference matrix (market drivers)

Market drivers	Sum( $\Sigma+$ )	$O_i$	$P_i$
Density of orders	2	2	0,300
Cycle time	1	3	0,200
Returns management	3	1	0,400
Punctuality	0	4	0,100

Table 4.4: Importance weights for market drivers

As can be seen from Table 4.4, the driver of market complexity considered the most influential is the Returns management, followed by Density of orders, Cycle time and Punctuality.

To succeed in building a graph in two dimensions, the total complexity value for each class of drivers (product and market) was calculated for every initiative. This value was obtained by aggregating the values of the complexity of the individual drivers belonging to each class, after having multiplied them by the relative weight of each driver (the weights used are those derived from the procedure described above). For the calculation part in these proceedings refer to Annexes.

In summary, based on all significant drivers, each distribution problem can be briefly described through the following procedure:

- Assessment of the value assumed by each driver (described in detail in later sections)
- Transformation of this value in the scale of complexity
- Assessment of total complexity (product and market) for each player considered through the aggregation of values of complexity of the driver multiplied first for the relative weights of each driver.

Finally, it was possible to build the Product Complexity – Market Complexity Model, that presents on the x-axis the aggregated value of the drivers that explain the complexity of product and on the y-axis the aggregate value of the drivers that explain the complexity of the level of market (the final values obtained from the procedure are listed in the Annex). The resulting model has identified the main problems characterizing the eCommerce B2C distribution, problems that are widely described at the end of the chapter.

The description of the distribution problem in terms of complexity for each class of drivers (product and market) was useful for a rapid characterization of the problem oriented to indicate the most interesting choices of attitude discussed in the next chapters. Then a correspondence between the level of product/market and logistic solution could be found.

## **4.2 DRIVERS OF PRODUCT COMPLEXITY**

After identifying the product drivers that affect the design of the logistic system of an initiative, we have studied them in detail and we have evaluated them in terms of complexity using the scale of values described above.

The drivers of product, in the order they will be treated, are: Product range, Density, Value density and Expiration.

## Product range

In Table 4.5 we can see the values of product range offered, by any player considered, to consumers through the online channel.

PLAYER	PRODUCT RANGE (number of items)
<b>BOOKS, MUSIC &amp; AUDIOVISUAL</b>	
Bol	325000
Hoepli	1170000
La Feltrinelli	1200
<b>GROCERY</b>	
Basko	5000
Esselunga	10000
Prontospesa	4000
<b>COMPUTER &amp; ELECTRONICS</b>	
CHL	23000
Darty	7000
Euronics	4500
Mediaworld	3000
Saturn	8000
Unieuro	4000
<b>CASUAL CLOTHING</b>	
Bata	2600
Brums	1400
Cisalfa	2500
Decathlon	3000
Intimissimi	460
Nencini Sport	6000
Oliviero	8000
Stefanel	250
The Gigastore	30000
<b>FASHION APPAREL</b>	
Diesel	2200
Diffusione Tessile	3800
Dressup	1300
Giglio	4500
Gucci	3000
La Perla	518
Luisa Via Roma	5000
Mandarina Duck	600
Prada	850

**Table 4.5:** Values of product range

We had available, for the evaluation of this driver, numerical quantities. This means that it has been possible to build a scale of values in numerical ranges defined, as shown in Figure 4.1. We initially tried to identify constant intervals for all the values but the subdivision was insignificant. In fact, the vast majority of companies considered was positioned in the range of complexity considered low, as the bands were too large due to the high number of products offered especially in the Books, Music & Audiovisual sector. The intervals obtained were constructed with the purpose to spread in a uniform manner the efforts on the line of complexity. We considered the values higher than 23000 as belonging to the highest band and we divided the remaining values in constant intervals; this because values over 23000 were very distant from the others while the values under 10000 were spread quite regularly. As we can see in Figure 4.2 the majority of the initiatives are still positioned in the range of complexity "medium-low" or "low".

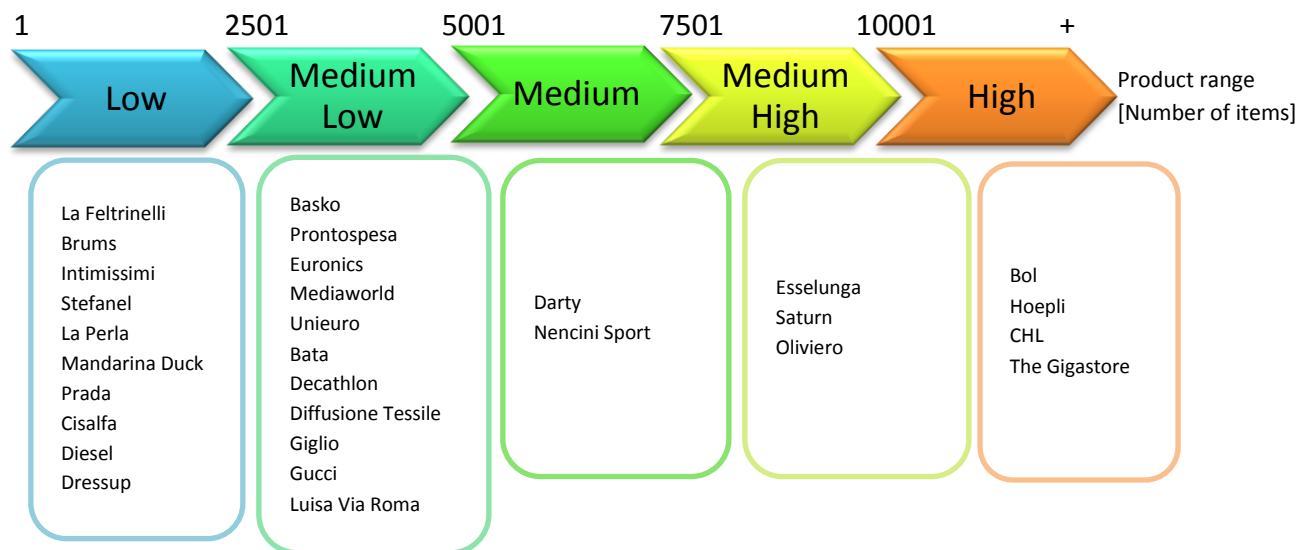


Figure 4.2: Evaluation of product range

From Figure 4.2, we can observe that:

- The Fashion Apparel sector has a low or medium-low complexity related to the fact that the number of items is not so big due to the fact they sell only clothing and accessories. Similarly it's for the Casual Clothing sector, even if these players have more types of product. In fact they don't sell only casual clothing but, some of them, also sport equipment and so they have higher levels of complexity.

- For what concern the Computer & Electronics sector, these players have a medium-low or medium complexity because they commercialize online the products they already have in their shops.
- For the Grocery sector, Basko and Prontospesa, being two small players, have a product range that is limited with respect to the Esselunga one.
- In the Books, Music & Audiovisual sector, the highest number of the players considered has a high range of products, due to the fact that they offer different products and so they are in the medium-high or high level of complexity. Unique exception is La Feltrinelli that has a limited catalogue and so it has a low complexity.

## Density

For this driver we didn't have the value, for each player, to quantify the indicator and so we decided to find it in an empirical way. We divided each sector in sub-sectors depending on the characteristics of each player and on the type of product sold. For each sub-group we took into account some products and, for each of them, we measured dimensions (length, width and height) in order to calculate the volume [m<sup>3</sup>] and the weight [kg]. Finally, through these values, we calculated the density [kg /m<sup>3</sup>] for each product and we made the weighted average of the results obtained to get a univocal value of density for each subgroup.

For Books, Music & Audiovisual, Computer & Electronics and Fashion Apparel sectors we assigned, when we made the weighted average, the same weight to each product considered; for the Grocery one, instead, we considered that some products have a bigger weight due to the fact that they are bought more times or in bigger quantities (for example pasta, tuna and water have a higher weight, while health&care product or detergent are bought rarely). A similar study was done for a sub-sector of the Casual Clothing that is made by those players that sell also equipment like Cisalfa, Decathlon, Nencini sport and Oliviero. We assigned a lower weight to the equipment because they are bought less frequently.

The density value found is assigned to the sub-group for those who have the same value while for the sub-sector that present different value is reported the name of the player.

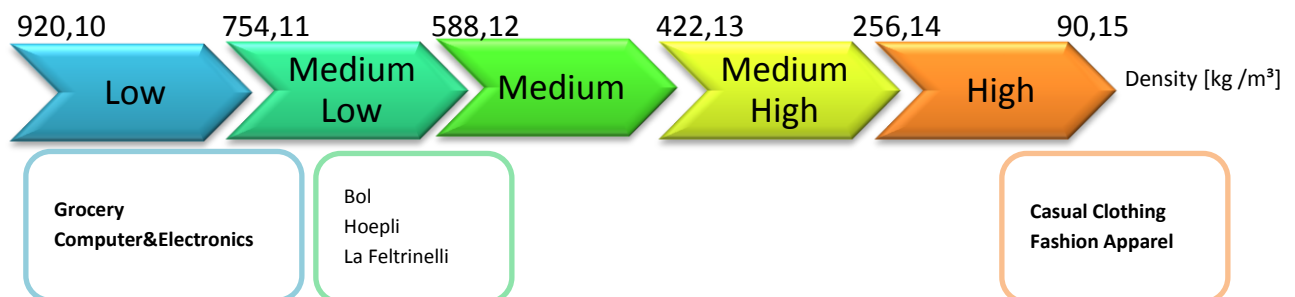


Figure 4.3: Evaluation of density

The scale was built putting at the lower extremity the highest value while at the top the lowest value and dividing the range in constant intervals. The sectors are put, as we can see in Figure 4.3, in different groups because they have different values of density. We associated to a value of high density a lower complexity level due to the fact that, in this case, it is more simple the saturation of the lorry in terms of volume and weight. It is very important that trucks travel in the highest saturated way in order to avoid inefficiencies and to try to optimize costs. Studies demonstrate that it is easier to obtain this result with products having a high value of density.

## Value density

What we have written before for the driver Density can be repeated also for the Value density. Since also for this indicator we don't have information for each player, we decided to use one more time the empirical method. We took into account the weight, already measured, for each product and we associated it to its price, coming up with the value density [€/kg]. Also in this case for Books, Music & Audiovisual, Computer & Electronics and Fashion Apparel sectors and sub-sectors, we assigned similar weights, while for Grocery and a sub-sector of Casual Clothing we gave different weights to products.

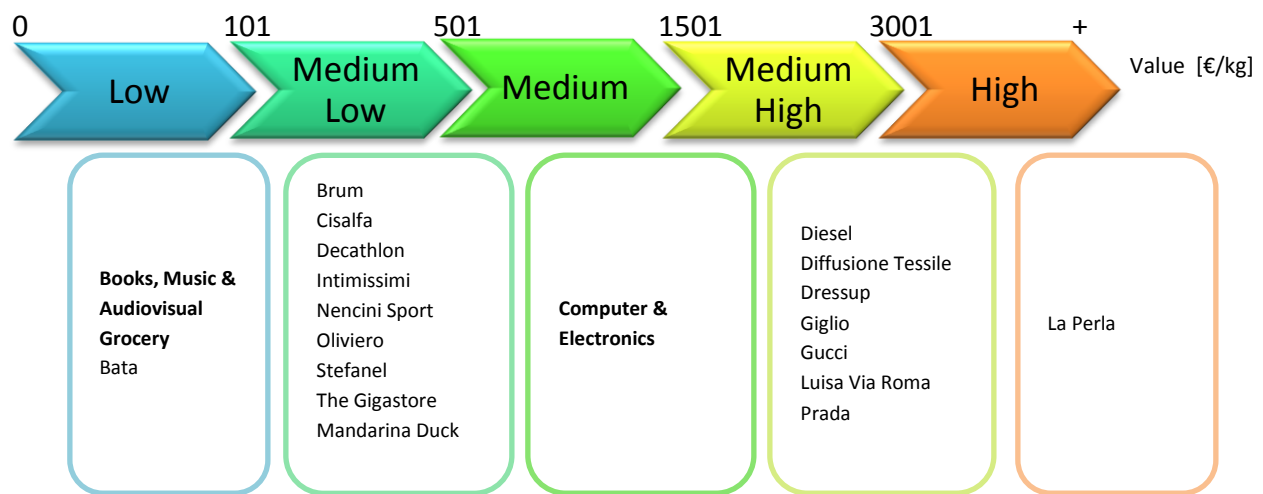


Figure 4.4: Evaluation of Value density

In this case we haven't built the Figure 4.4 as we have done before because the intervals wouldn't have been significant but we decided to spread the values in a more logical way. The sectors with low density are Books, Music & Audiovisual and Grocery, while the clothing sectors are medium-low for the Casual one and medium-high or high for the Fashion Apparel. The Computer & Electronics has a medium complexity of value.

The following Table 4.6 shows the procedure used to get the values of density for the products belonging to the four sectors.



	Product	Volume [m³]	Weight [kg]	Price [€]	Weight	Density [kg/m³]	Value density [€/kg]
<b>BOOKS, MUSIC &amp; AUDIOVISUAL</b>							
Bol, Hoepli, La Feltrinelli	Book_1	0,00020	0,174	7,75		853,74	44,54
	Book_2	0,00125	0,664	18,00		530,17	27,11
	Book_3	0,00104	1,045	26,50		1003,55	25,36
	CD	0,00017	0,090	18,00		522,65	200,00
	DVD	0,00038	0,170	25,00		448,49	147,06
					Average	671,72	88,81
<b>GROCERY</b>							
Basko, Esselunga, Prontospesa	Pasta	0,00132	0,500	0,75	0,2	378,69	1,50
	Tuna	0,00011	0,080	1,00	0,1	730,94	12,50
	Water	0,00100	1,000	0,40	0,2	1000,00	0,40
	Vegetable oil	0,00100	1,500	4,99	0,04	1500,00	3,33
	Salt	0,00081	1,000	0,46	0,04	1233,43	0,46
	Detergent	0,00189	2,070	6,40	0,02	1095,24	3,09
	Meat	0,00038	0,270	3,00	0,15	710,53	11,11
	Fruit	0,00023	0,240	0,52	0,15	1061,57	2,17
	Health&Care product	0,00008	0,200	3,99	0,02	2666,67	19,95
Canned drink	0,00033	0,365	0,50	0,08	1106,06	1,37	
					Average	887,71	4,34
<b>COMPUTER &amp; ELECTRONICS</b>							
CHL, Darty, Euronics, Mediaworld, Saturn, Unieuro	Notebook	0,00293	2,700	1465,50		922,90	542,78
	Netbook	0,00123	1,000	348,50		814,62	348,50
	Cellphone_1	0,00005	0,078	120,00		1533,02	1538,46
	Cellphone_2	0,00007	0,116	599,00		1647,73	5163,79
	Fridge	0,45617	55,000	744,50		120,57	13,54
	Television	0,06642	32,000	1499,00		481,78	46,84
					Average	920,10	1275,65
<b>CASUAL CLOTHING</b>							
Bata	Shoes	0,0018	0,410	49,90		224,97	121,71
	Boots	0,0027	0,760	74,90		285,29	98,55
	Bag	0,0116	0,550	41,45		47,31	75,36
					Average	185,85	98,54
Brums	Baby t-shirt	0,00027	0,052	19,45		193,99	376,45
	Baby shoes	0,00061	0,137	13,40		224,97	98,05
	Baby jeans	0,00083	0,149	33,50		179,62	225,21
					Average	199,53	233,24
Cisalfa, Decathlon, Nencini sport, Oliviero	T-shirt	0,00080	0,155	29,93	0,2	193,99	193,06
	Shoes	0,00182	0,410	74,95	0,2	224,97	182,80
	Jeans	0,00331	0,595	61,00	0,2	179,62	102,52
	Sweatshirt	0,00333	0,500	44,95	0,2	150,24	89,90
	Tapis-roulant	0,30553	50,000	1895	0,1	163,65	37,90
	Bicycle	0,05040	10,000	239,00	0,1	198,41	23,90
					Average	185,97	119,84
Stefanel, The Gigastore	T-shirt	0,00080	0,155	29,93		193,99	193,06
	Shoes	0,00182	0,410	74,95		224,97	182,80
	Jeans	0,00331	0,595	61,00		179,62	102,52
	Sweatshirt	0,00333	0,500	44,95		150,24	89,90
	Bag	0,01163	0,550	79,48		47,31	144,50
					Average	159,23	142,56
Intimissimi	Underpants	0,00020	0,035	12,45		172,41	355,71
	Bra	0,00047	0,070	26,40		149,57	377,14
					Average	160,99	366,43
<b>FASHION APPAREL</b>							
Diesel, Diffusione Tessile, Dressup, Giglio, Gucci, Luisa Via Roma, Prada	T-shirt	0,00080	0,155	172,50		193,99	1112,90
	Shoes	0,00182	0,410	2330,00		224,97	5682,93
	Jeans	0,00331	0,595	527,50		179,62	886,55
	Jacket	0,00998	0,700	2192,50		70,11	3132,14
	Bag	0,01163	0,550	2080,00		47,31	3781,82
					Average	143,20	2919,27
La Perla	Underpants	0,00020	0,035	195,00		172,41	5571,43
	Bra	0,00047	0,070	207,50		149,57	2964,29
					Average	160,99	4267,86
Mandarina Duck	Bag	0,01163	0,550	194,00		47,31	352,73
	Workbag	0,01429	1,900	296,50		132,98	156,05
					Average	90,15	254,39

Table 4.6: Procedure to obtain density and value density

## Expiration

For what concern the driver expiration, we considered values of complexity aggregated for each sector because we assumed that players belonging to the same sectors sell similar products. It was not possible to associate the expiration of products to numerical numbers and so we did a purely qualitative assessment of the driver. Certainly the products with higher expiration give rise to greater complexity than the more durable products, because they require more timely shipments and warehouse activities (picking and construction of the order) fast.

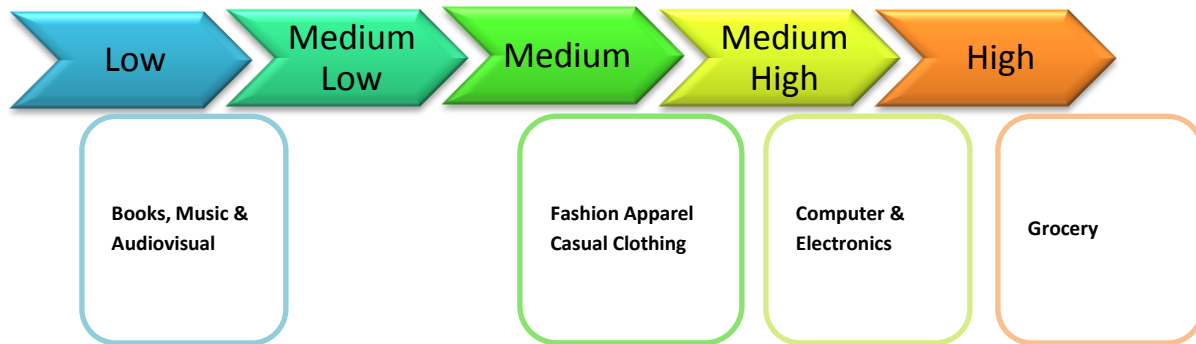


Figure 4.5: Evaluation of expiration

As can be seen in Figure 4.5 products of Grocery sector are those that have a higher expiration. Indeed, in the sector considered, the majority of food products, especially the fresh ones, have an expiration date and they must be sold in short periods (days or at most a few months). Even products of Computer & Electronics, Fashion Apparel and Casual Clothing sectors have relatively high complexity due to the obsolescence. Respectively, we considered medium-high the first one because of continuous technological innovation, while medium the other ones, due to the renewal of collections from the designers for every season. The products of Books, Music & Audiovisual sector were considered, instead, the more durable ones because, even if new products are published, the others do not become obsolete and continue to be sold.

### 4.3 DRIVERS OF MARKET COMPLEXITY

Once identified the drivers of the level of market that affect the design of the logistic system, we studied them in detail and we evaluated the level of complexity using the scale of values described before. Also in this case, some of them were calculated with the real values, while the others in a qualitative way. For those drivers where a quantitative analysis was possible, the evaluation was made player-by-player, otherwise they were analyzed by sector assuming that they have similar characteristics. The choice made is described before the analysis of each driver.

The drivers of the level of market complexity are: Density of orders, Cycle time, Returns management and Punctuality.

## Density of orders

For this driver we had the numerical quantities and so in Table 4.7 we can listed all the values of the density of orders, for every player considered, through the online channel.

PLAYER	DENSITY OF ORDERS
<b>BOOKS, MUSIC &amp; AUDIOVISUAL</b>	
Bol	524862
Hoepli	191268
La Feltrinelli	324000
<b>GROCERY</b>	
Basko	33654
Esselunga	852923
Prontospesa	9879
<b>COMPUTER &amp; ELECTRONICS</b>	
CHL	35897
Darty	43011
Euronics	117391
Mediaworld	421296
Saturn	27778
Unieuro	98266
<b>CASUAL CLOTHING</b>	
Bata	12387
Brums	4348
Cisalfa	2000
Decathlon	118750
Intimissimi	28571
Nencini Sport	55056
Oliviero	15789
Stefanel	8333
The Gigastore	69041
<b>FASHION APPAREL</b>	
Diesel	205000
Diffusione Tessile	21248
Dressup	25425
Giglio	5000
Gucci	13560
La Perla	67573
Luisa Via Roma	120000
Mandarina Duck	14238
Prada	13560

**Table 4.7:** Values of density of orders

Due to the high diversity of the values found, creating a scale with constant intervals was not very significant, so we decided to make the division in a more logical way, paying attention to the difficulties that can be faced in having a particular value of demand and trying to spread the values among all the scale.

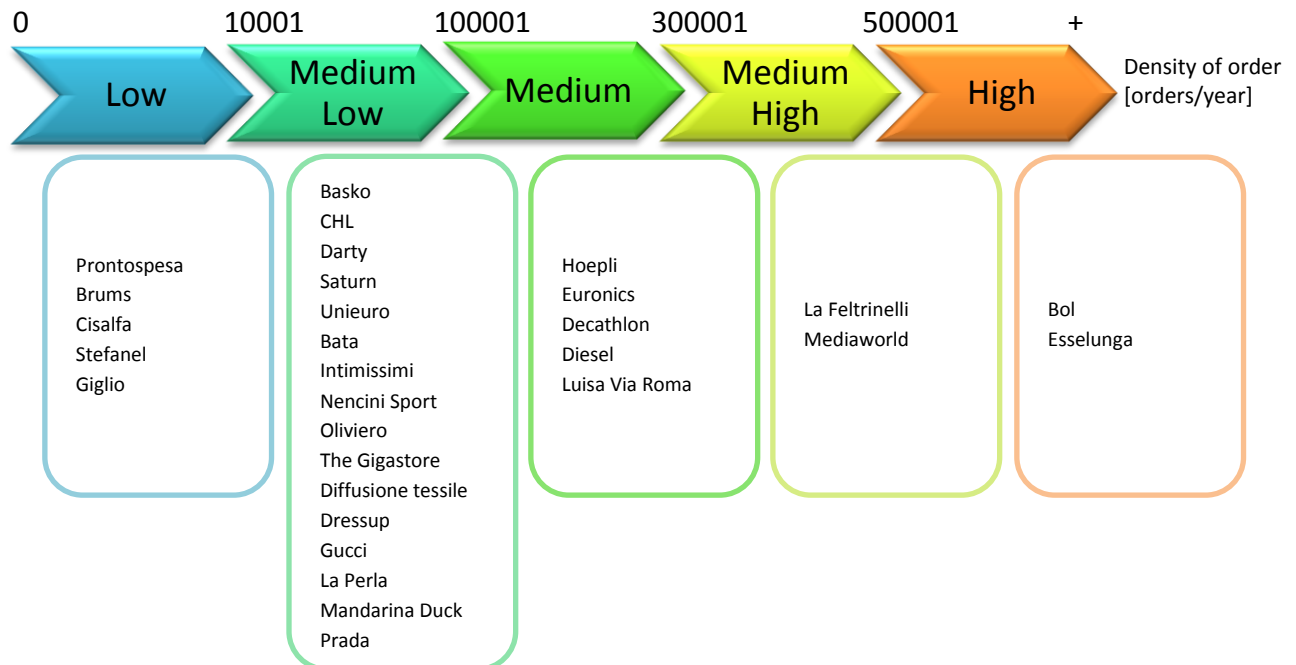


Figure 4.6: Evaluation of density of order

From Figure 4.6, we can see how the complexity is quite related to sector. In fact:

- For the Clothing sector we found the entire players in the left side of the figure, meaning that they have a low or medium complexity.
- Instead, we found on the other side, the right one, the Book, Music & Audiovisual sector, characterized by a high number of orders and so by a high level of complexity.
- A similar comment can be made for the Computer & Electronics sector that has mainly a medium or medium-low level of complexity.
- The Grocery sector is spread among different levels of complexity; this is related to the differences of the players considered.

## Cycle time

For the driver cycle time, we considered the time that the customer is willing to wait until he receives the products, analyzing it for each sector and not calculating the actual cycle time that any initiative takes to process the order. This evaluation was done, even in this case, in a qualitative way.

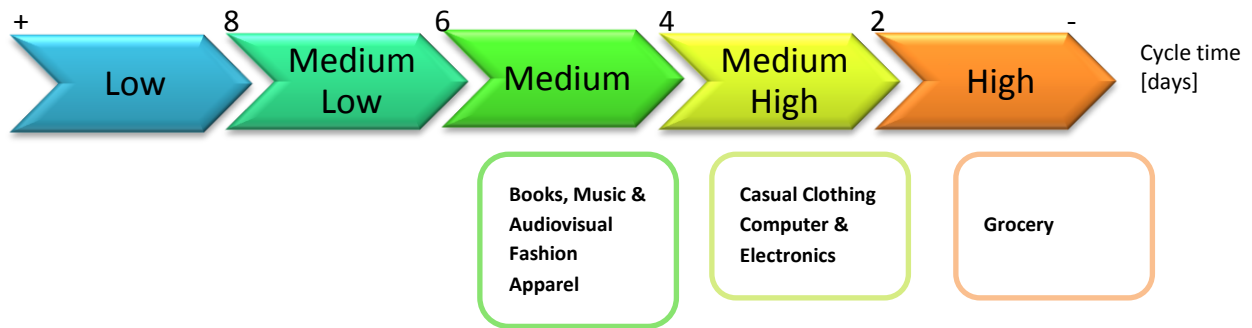


Figure 4.7: Evaluation of cycle time

Surely the sector with less cycle time and, therefore, with greater complexity is the Grocery, as it sells fresh and perishable products in a short time. For this category, in fact, it was hypothesized an average delivery time per order of less than a day. The time goes up considerably for the other sectors, going from hours to days. Casual Clothing and Computer & Electronics have a medium-high value of complexity because the customer is willing to wait for these products from 2 to 4 days, while the Books, Music & Audiovisual sector has a medium value; the waiting time, in fact, is a little higher, from 4 to 6 days. Also initiatives of Fashion Apparel were considered with medium waiting period; differently from casual clothing customers, fashion consumers buy more refined products and so they are also willing to wait a little bit more.

### Returns management

The importance that the customer gives to the service returns management, that is the possibility to return or change the product, was evaluated qualitatively.

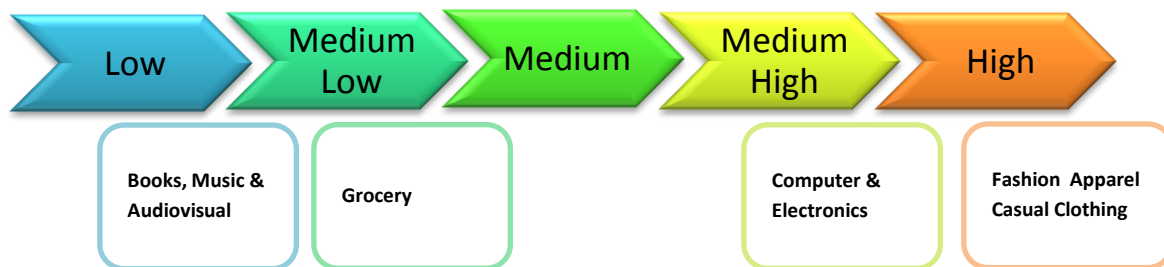


Figure 4.8: Evaluation of returns management

The evaluation of the driver of returns management can be observed in Figure 4.8 and in particular we can affirm that the Clothing (both Fashion Apparel that Casual Clothing) sector is the field for which this need is considered more important due to the fact that each product has several sizes and colors and needs to be worn in order to consider the purchase completed; therefore, it has been placed in the highest level of complexity. Even for Computer & Electronics the possibility to return the product is quite relevant, because this may be damaged during transport and so there

can be recourse to the guarantee offered by the manufacturer. For sectors Grocery and Books, Music & Audiovisual values have been estimated, respectively, middle-low and low as they are generally standard products and only those belonging to the first category are likely to be damaged during transport.

### Punctuality

Also for the driver punctuality was made a qualitative assessment because of the lack of numerical values and it was considered the importance that the customer gives to the fact that the order arrives in the time period promised by the supplier or agreed with actors in the transaction.

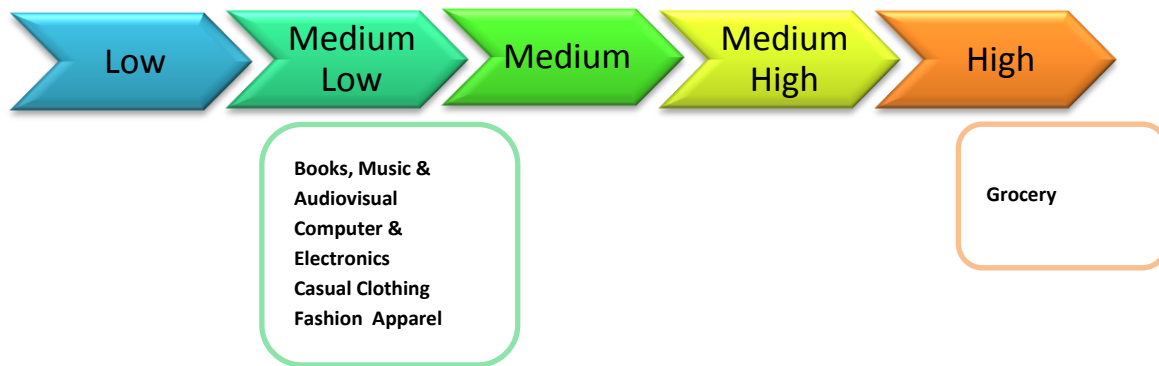


Figure 4.9: Evaluation of punctuality

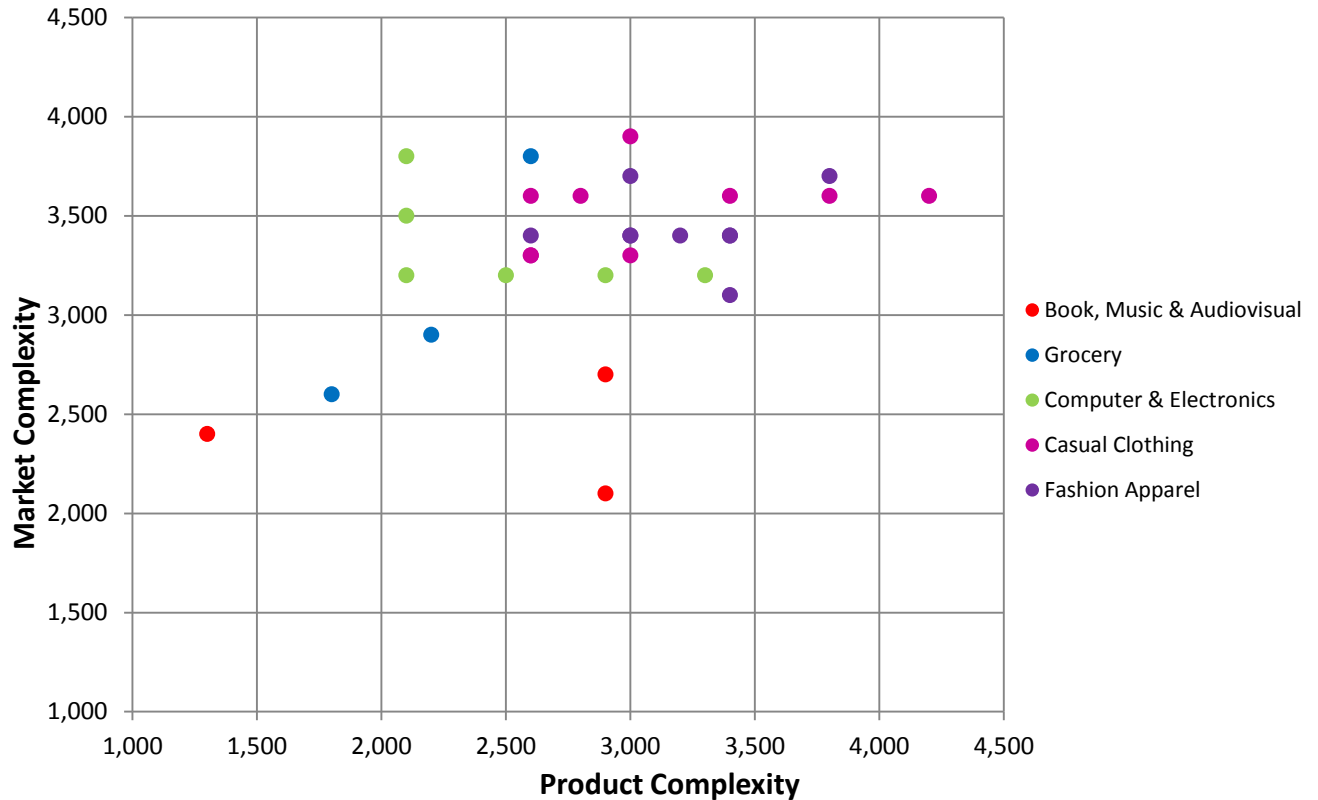
According to the experience, the customer gives great importance to this driver only for the Grocery sector, which has been rightly placed in the range of high complexity. In fact, for the customer who shops on the Internet it is very important to receive what he has ordered in the expected time, both for necessity and convenience and because the products marketed in this area have specific needs. The other sectors are all located in the medium-low level of complexity, as the importance that the customer gives to on-time delivery is much less significant than for Grocery.

### 4.4 PRODUCT COMPLEXITY - MARKET COMPLEXITY MODEL

To build a graph in two dimensions with the outcomes found, we calculated the values of total complexity for the classes of product and market drivers. For each player, the value was found adding the rate of complexity of each driver obtained multiplying the results found before by the relative weight of each driver (calculated in the Matrix of Preferences)(Look at the Appendix for the calculation).

Every player considered has a determined value of complexity of product and market, depending on the value of the drivers, and so a different position on the Product complexity – Market complexity Model, shown in Graph 4.1.

Through this model it was possible to identify the distribution problem that characterizes each player; looking at the Graph 4.1, the different points represent each company.



Graph 4.1: Product complexity – Market complexity Model

Following we analyzed each sector in relation to the distribution problem.

### *Book, Music & Audiovisual*

The distribution problem that characterizes this sector is related to the fact that it does present neither a high Product complexity nor a high Market complexity. If we compare this cluster to the others, we can affirm that the Book, Music & Audiovisual sector is one of the easiest in the management.



### *Grocery*

The Grocery sector is characterized by a low Product complexity and a Market complexity that changes a lot depending on the player considered. This is due to the high differences of the players analyzed; in particular, what makes the results so different is the density of orders. In fact, Esselunga has a number of orders that is, on average, fifty times more than the other two players.

### *Computer & Electronics*

For what concern this sector, the distribution problem is characterized by a high Market complexity and a medium Product complexity: this is mainly related to the importance of the Returns Management driver, which varies from low to high. In particular, Chl is the one with the highest product complexity due to the wide range of the items sold.

### *Clothing*

All the players belonging to this sector, both Casual and Fashion, are concentrated in the top right zone of the graph, meaning that their value of product and market complexity vary between medium and high levels. The only exception is Giglio with higher market easiness due to the poor number of orders.

## 5. LOGISTIC SOLUTIONS

### 5.1 METHODOLOGY

The methodology we followed to build the model of the logistic solutions is:

- Mapping of the logistic solutions
- Identification of the adopted logistic solutions and recognition of their main characteristics
- Identification of the main clusters
- Classification of the logistic solutions
- Building a Model related to the logistic solutions.

We decided to make our analysis on the players considered through the use of three main drivers to analyze the logistic solution:

- *Type of warehouse*: it is important to understand if a player shares the same warehouse between the online and offline channel, in order to create synergies between the two channels, or if it has a dedicated warehouse for the eCommerce that satisfies orders coming from the web.
- *Pick up in store*: this option is related to the fact that a player can allow its customers to pick up goods bought online in a shop that customers can choose. This is a very good option for people who are never at home or in the same place, because in this way they do not have the problem of being there when the courier carries the purchase made online, but they can decide where to go to pick up their goods depending on their commitments.
- *Return in store*: this service that a player can offer is made to allow customers to return products bought on the web in a physical store. Despite everyone hopes to have made the right purchase, it could happen that, for example, the t-shirt is not of the color imagined or it doesn't suit you and so you need to change the size. In this way you don't need to send goods back to the warehouse but you can go to the shops and change it or give it back.

### 5.2 LOGISTIC SOLUTIONS MAPPING

This is the first phase of the methodology followed. Through the analysis of the players considered, in particular looking at the information coming from the eCommerce B2c Observatory of the Politecnico di Milano School of Management and searching information on the websites of these companies, we reached all the information needed to make a comparable analysis between the different players. After that, we developed the following table in which we reported on the lines

the name of each player that we took into account and on the columns the drivers related to the logistic solution.

PLAYER	WAREHOUSE		PICK UP IN STORE		RETURN IN STORE	
	SHARED	DEDICATED	YES	NO	YES	NO
BOOKS, MUSIC & AUDIOVISUAL						
Bol	X		X			X
Hoepli	X			X		X
La Feltrinelli		X	X			X
GROCERY						
Basko	X			X		X
Esselunga		X		X		X
Prontospesa	X		X			X
COMPUTER & ELECTRONICS						
Chl		X	X			X
Darty	X		X			X
Euronics		X	X			X
Mediaworld		X		X		X
Saturn		X		X		X
Unieuro		X	X			X
CASUAL CLOTHING						
Bata	X			X		X
Brums	X			X		X
Cisalfa		X		X		X
Decathlon		X		X		X
Intimissimi	X			X		X
Nencini Sport	X			X		X
Oliviero	X			X		X
Stefanel		X		X		X
The Gigastore	X			X		X
FASHION APPAREL						
Diesel		X		X		X
Diffusione Tessile	X			X		X
Dressup	X		X			X
Giglio	X			X		X
Gucci	X		X			X
La Perla	X			X		X
Luisa Via Roma	X			X		X
Mandarina Duck	X			X		X
Prada	X			X		X

Table 5.1: Mapping of logistic solutions

### 5.3 IDENTIFICATION OF THE ADOPTED LOGISTIC SOLUTIONS

From Table 5.1, we could see how many different logistic solutions the players analyzed have adopted. Every logistic solution is different from the others. We assigned a different color to each solution found and the result is very interesting. We observed, in fact, that the sector, to which a player belongs, does not completely influence the choice; in fact, we experimented that also companies belonging to different sectors, share the same logistic solution. Table 5.2 underlines players that have the same logistic solution.

PLAYER	WAREHOUSE		PICK UP IN STORE		RETURN IN STORE	
	Shared	Dedicated	Yes	No	Yes	No
BOOKS, MUSIC & AUDIOVISUAL						
Bol	X		X			X
Hoeppli	X			X		X
La Feltrinelli		X	X			X
GROCERY						
Basko	X			X		X
Esselunga		X		X		X
Prontospesa	X		X			X
COMPUTER & ELECTRONICS						
Chl		X	X			X
Darty	X		X			X
Euronics		X	X			X
Mediaworld		X		X		X
Saturn		X		X		X
Unieuro		X	X			X
CASUAL CLOTHING						
Bata	X			X		X
Brums	X			X		X
Cisalfa		X		X		X
Decathlon		X		X		X
Intimissimi	X			X		X
Nencini Sport	X			X		X
Oliviero	X			X		X
Stefanel		X		X		X
The Gigastore	X			X		X
FASHION APPAREL						
Diesel		X		X		X
Diffusione Tessile	X			X		X
Dressup	X		X			X
Giglio	X			X		X
Gucci	X			X		X
La Perla	X			X		X
Luisa Via Roma	X			X		X
Mandarina Duck	X			X		X
Prada	X			X		X

Table 5.2: Identification of different logistic solutions adopted

## 5.4 IDENTIFICATION OF CLUSTERS

After having determined the different logistic solution, it seemed very interesting to create clusters intra-sectors due to the fact that companies operating in different sectors share the same logistic solution.

We built a table reporting players divided by logistic solution adopted and not by the sector of belonging. Table 5.3 shows four different logistic solutions to which a variable number of players fits in.

PLAYER	WAREHOUSE		PICK UP IN STORE		RETURN IN STORE		LOGISTIC SOLUTION
	Shared	Dedicated	Yes	No	Yes	No	
Bol	X		X			X	Most shared solution
Prontospesa	X		X			X	
Darty	X		X			X	
Dressup	X		X			X	
Hoepli	X			X		X	Shared Warehouse Only
Basko	X			X		X	
Bata	X			X		X	
Brums	X			X		X	
Intimissimi	X			X		X	
Nencini Sport	X			X		X	
Oliviero	X			X		X	
The Gigastore	X			X		X	
Diffusione Tessile	X			X		X	
Giglio	X			X		X	
Gucci	X			X		X	
La Perla	X			X		X	
Luisa Via Roma	X			X		X	
Mandarina Duck	X			X		X	
Prada	X			X		X	
La Feltrinelli		X	X			X	Pick Up In Store Only
Chl		X	X			X	
Euronics		X	X			X	
Unieuro		X	X			X	
Esselunga		X		X		X	Dedicated Solution
Mediaworld		X		X		X	
Saturn		X		X		X	
Cisalfa		X		X		X	
Decathlon		X		X		X	
Stefanel		X		X		X	
Diesel		X		X		X	

Table 5.3: Identification cluster of logistic solution

## 5.5 CLASSIFICATION AND DESCRIPTION OF LOGISTIC SOLUTIONS

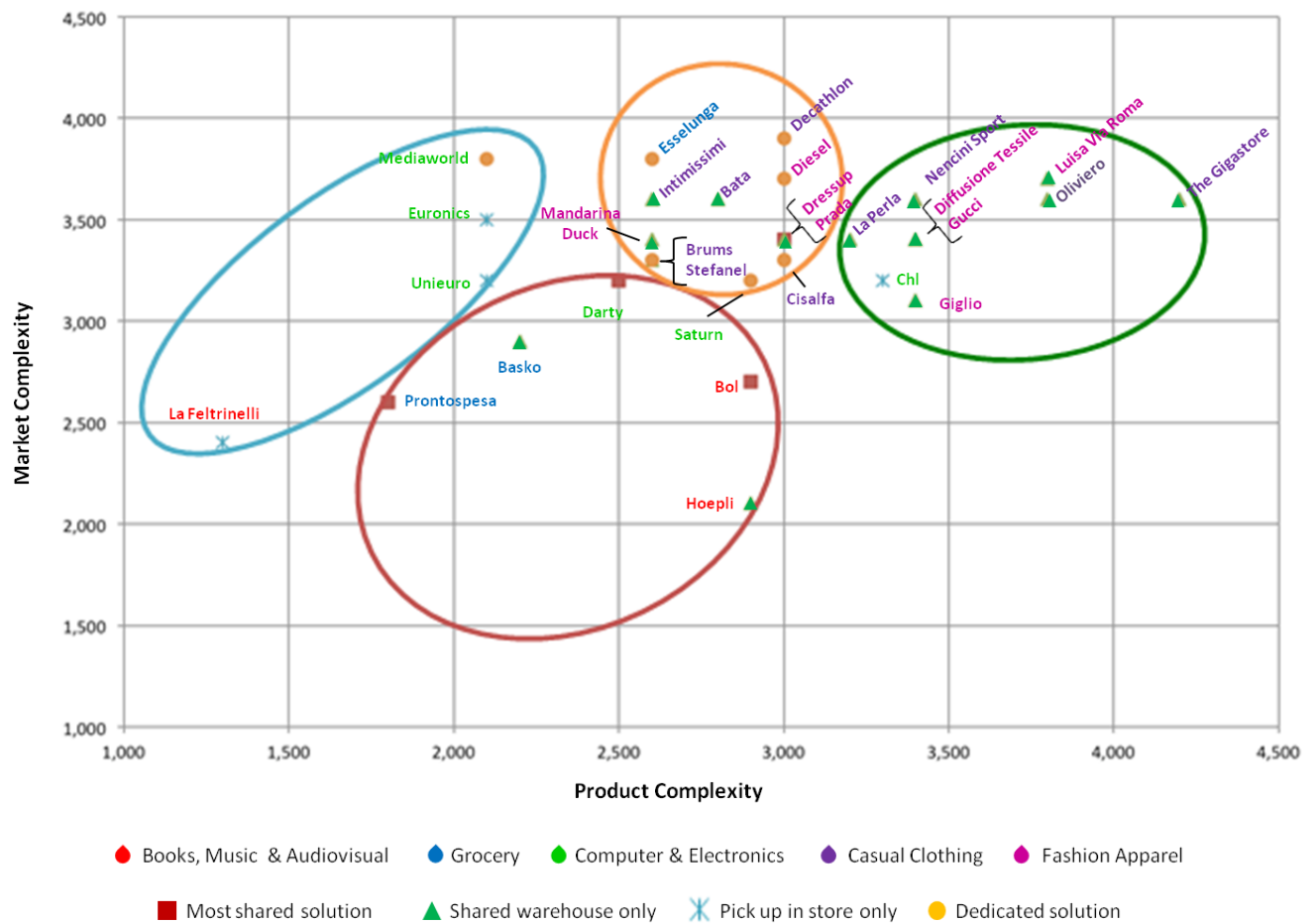
As it is shown by tables 5.2 and 5.3, there are four different choices of logistic solutions. The first characteristic that can be noticed is that the return in store is not allowed by any player. Therefore, the only differences regard the warehouse and the pick up in store possibility.

Starting from this result and analyzing deeper the tables, we tried to name and describe all the solutions adopted by the players considered:

- **MOST SHARED SOLUTION:** This solution is the one with the highest level of sharing. Players who chose this solution had to develop web sites and home pages but their previous delivery systems haven't needed changing. The warehouse is shared between online and offline and eCommerce logistics is therefore incorporated into the existing distribution chain. By becoming part of the main supply chain system, the eCommerce operation has access also to "order online/pick up in store" operations. The store is only partially shared. This solution allows exploiting economies of scale.
- **SHARED WAREHOUSE ONLY:** In this case companies put their attention only on reducing the logistic costs. In fact the central warehouse is used to fulfill the demand coming both from the physical channel and from online customers: also in this case there are advantages coming from economies of scale but, differently from the previous case, they will be only at the warehouse level.
- **PICK UP IN STORE ONLY:** In this case the customers can only order online the products and then eventually pick them up in the physical stores. The only advantage that these players can have is to exploit the existing stores network.
- **DEDICATED SOLUTION:** Players belonging to this cluster had to develop a new distribution channel at the beginning of their eCommerce activity. Moreover, while they may recognize the importance of providing customers with consistent service and buying experiences, their decision has made inventory management challenging. A benefit coming from this solution is the ability to focus on a single purpose, leading to improved order fulfilment because stocks are guaranteed as available to eCommerce customers.

## 5.6 THE DISTRIBUTION PROBLEM – LOGISTIC SOLUTION MODEL

In this phase we represented on the graph of the Product - Market complexity the different logistic choices and we tried to group them on the basis of the solution adopted (and previously described). The result is shown in the graph below:

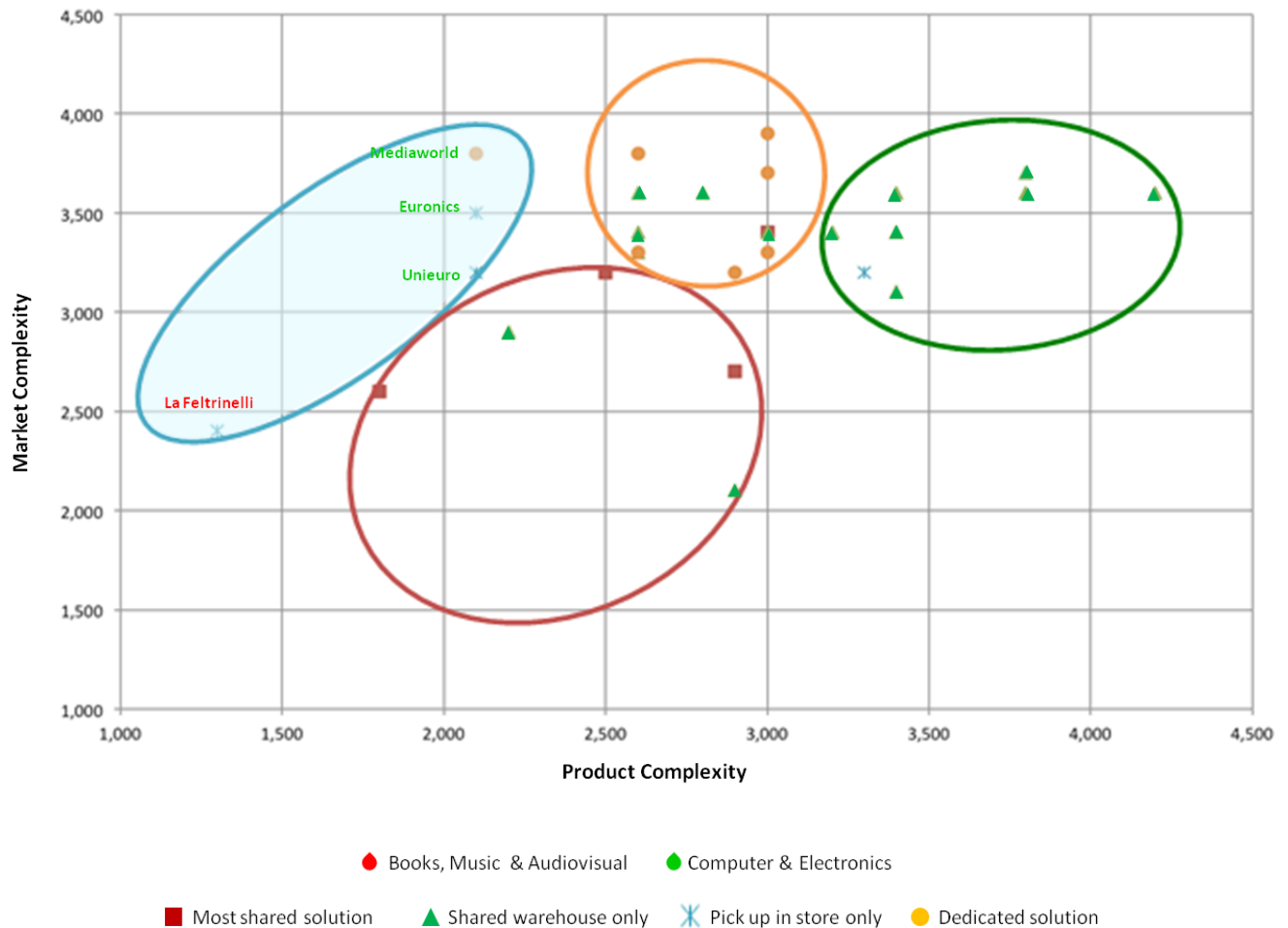


Graph 5.1: Distribution Problem – Logistic Solution Model

What emerges from this graph is that each logistic solution occupies a specific area in the chart (apart from some exceptions). Following we analyze deeper every single cluster identified and we try to relate the logistic choice with the different levels of Product - Market complexity and, if possible, with the belonging sector of the players.



## CLUSTER 1

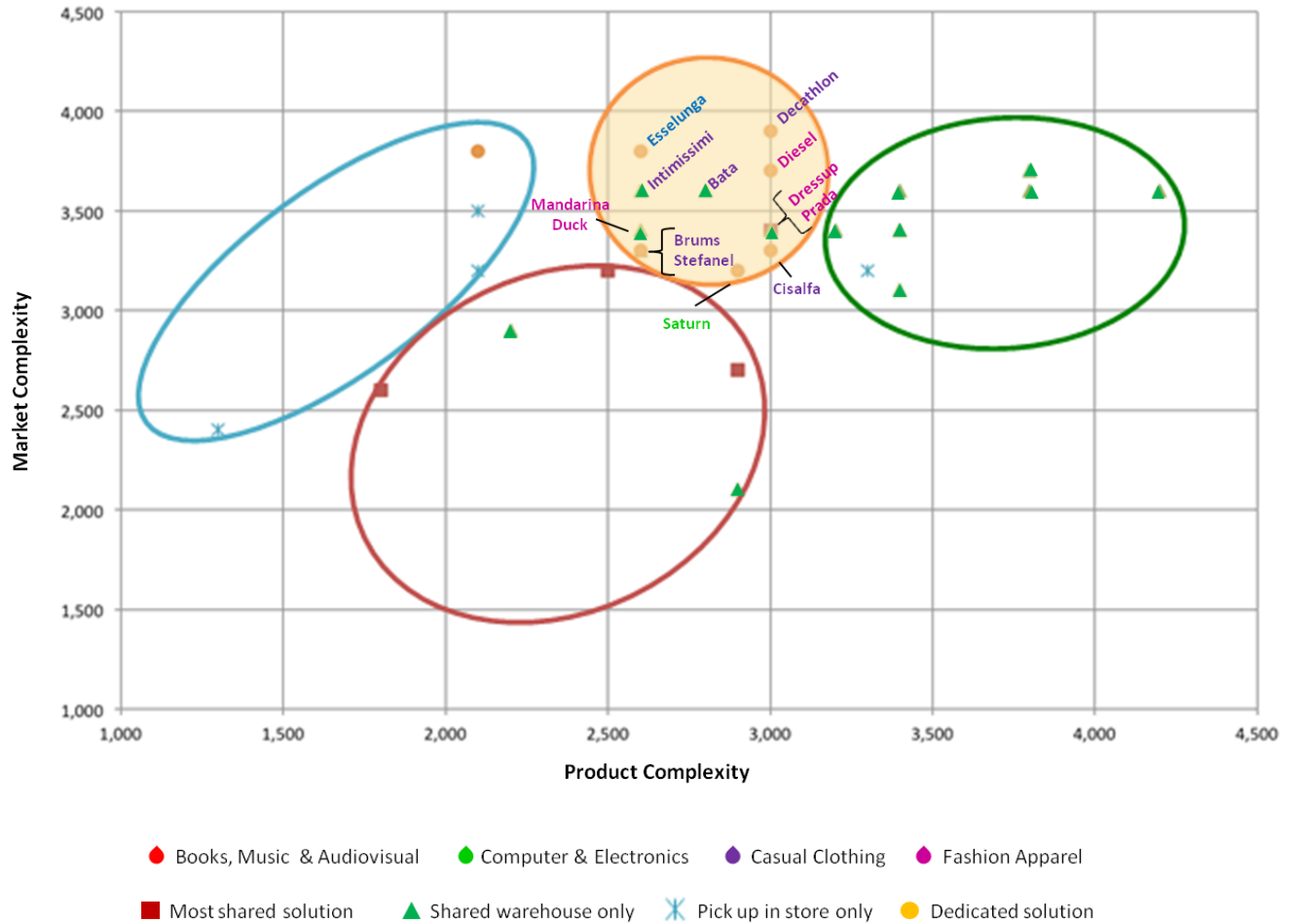


Graph 5.2: Distribution Problem – Logistic Solution Model: Cluster 1

The players belonging to this cluster are: La Feltrinelli, Euronics, Mediaworld and Unieuro. Therefore, one company selling Books, Music & Audiovisuals and the other three selling Computer & Electronics products. The characteristic of this group is a complexity that is higher for the market than for the product.

For what concern the adopted logistic solutions, it emerges that the preference is for the dedicated ones; in particular, the majority of the players chooses to allow the pick up in store. Only Mediaworld opts for a completely dedicated solution, but this is a specific case because its choice comes from the management that wants to give a state of total independence to the online channel and so it does not create synergies with the offline one. What is relevant in this case is that players decide to have a dedicated warehouse, as the duplication of inventories does not generate problems due to the easiness of the products.

## CLUSTER 2

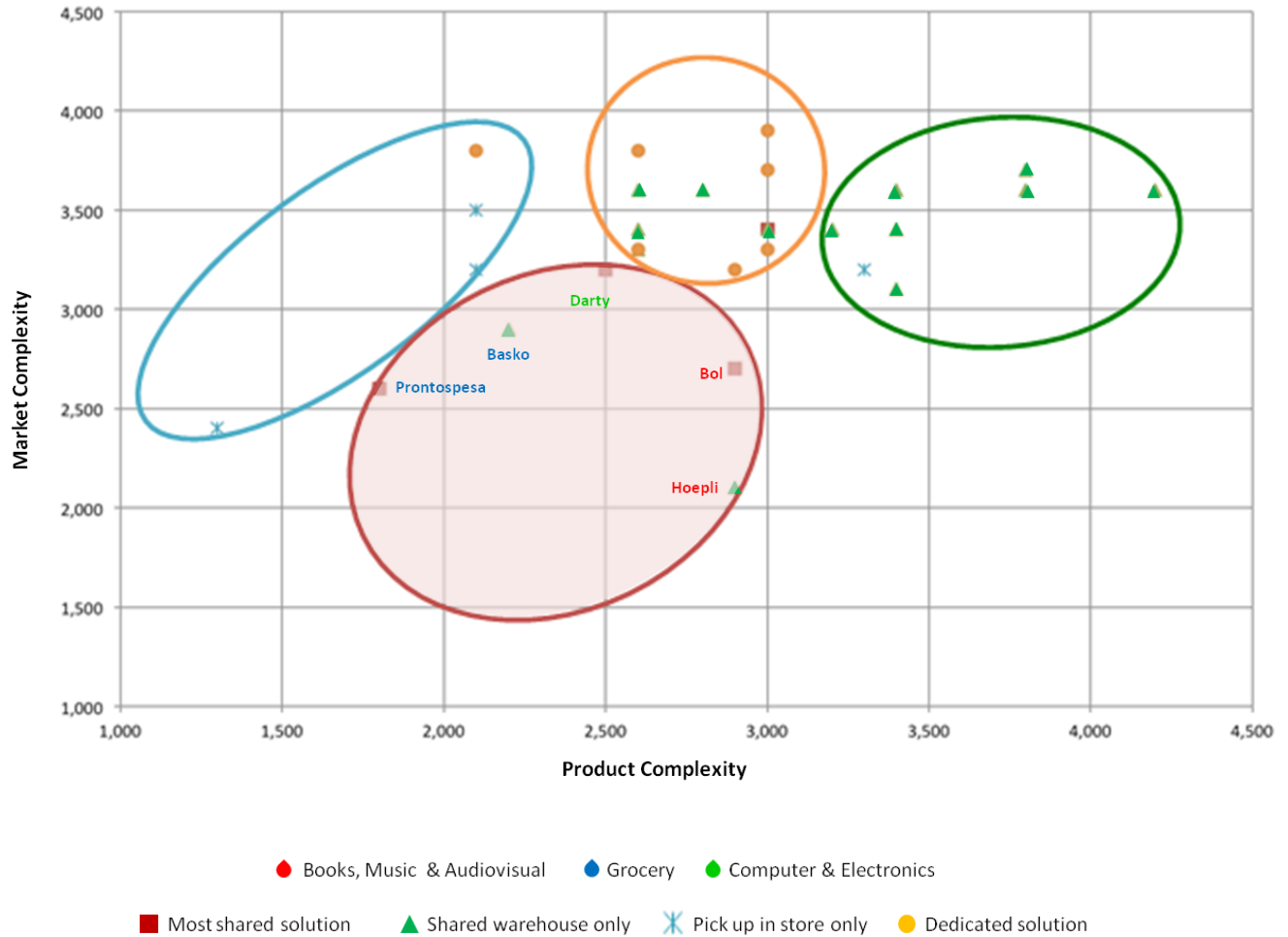


Graph 5.3: Distribution Problem – Logistic Solution Model: Cluster 2

This cluster is represented by those companies characterized by a high market complexity, but also by a product complexity that varies between medium and high. The majority of these players belongs to the Clothing sector.

The most used solution is the completely dedicated one also if a relevant number of players chooses the solution with the shared warehouse. This may be explained by the fact that the two solutions have in common the store dedicated only to the offline channel, maybe because players recognize the importance of providing customers with consistent service and buying experiences.

### CLUSTER 3

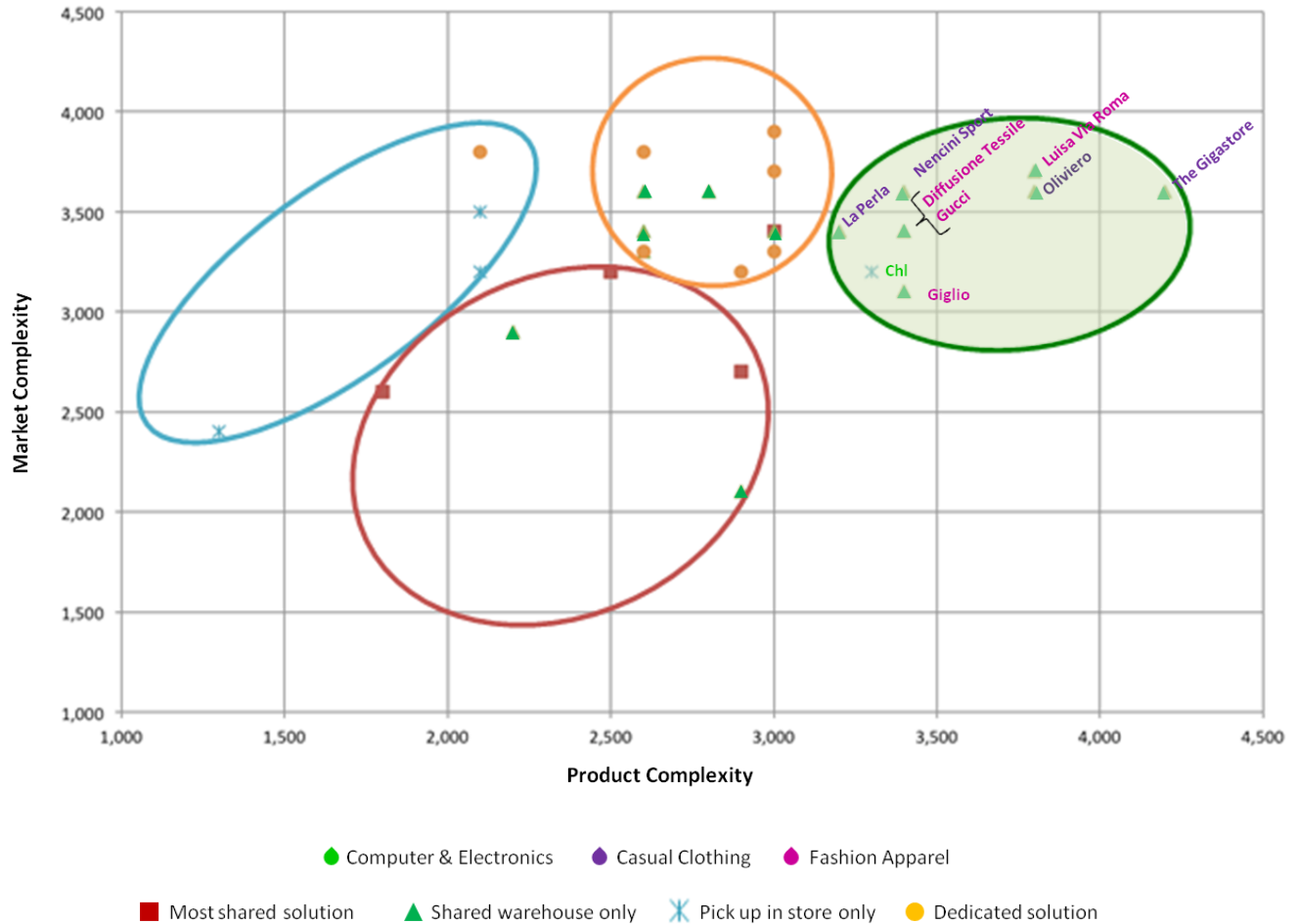


Graph 5.4: Distribution Problem – Logistic Solution Model: Cluster 3

In this group we have those companies that are the easiest in management; the only exception is represented by Darty that, belonging to the Computer & Electronics sector, has a level of market complexity that is a bit higher than the others.

Players in this cluster choose to have a warehouse shared between the online and the offline; the difference is at store level, as the majority decides to offer the possibility of picking up products in the shop, while the others have a store dedicated only to the offline channel. This is justified by the fact that, being the complexity low, it is not necessary to be so near to the customers with dedicated solutions.

## CLUSTER 4



Graph 5.5: Distribution Problem – Logistic Solution Model: Cluster 4

This cluster is characterized by companies belonging to Fashion and Casual Clothing; the only exception is Chl, which is also the one with a different logistic solution with respect to all the other players in this group. As can be observed by the previous clusters, all the firms of the Computer & Electronics sector chooses a more dedicated solution and this is why Chl is the only one who allows the pick up in store and has a dedicated warehouse. On the contrary, the clothing companies have a central warehouse that fulfills the demand coming both from the physical channel and from online customers; this decision comes from the fact that, in this cluster, the product complexity is higher than the market complexity. Therefore these players decide to exploit the shared warehouse to overcome the product complexity problems.

## 5.7 CONCLUSIONS

As a conclusion to this chapter, we want to recap the main concepts emerged.

Sources of synergy include capitalizing on the fact that traditional and eCommerce channels can share common infrastructures and common operations. The use of the existing logistic infrastructure for warehousing and distribution of products for both online and offline channels is an example of shared infrastructure; this is especially the case when firms offer a pick up in the store option, so that goods ordered online could be delivered to the desired store if not already in the store's inventory. A common order processing system, instead, shared between eCommerce and physical channels is a good example of a common operation as a source of synergy.

The following graph summarizes the main solutions adopted with respect to the different levels of complexity:

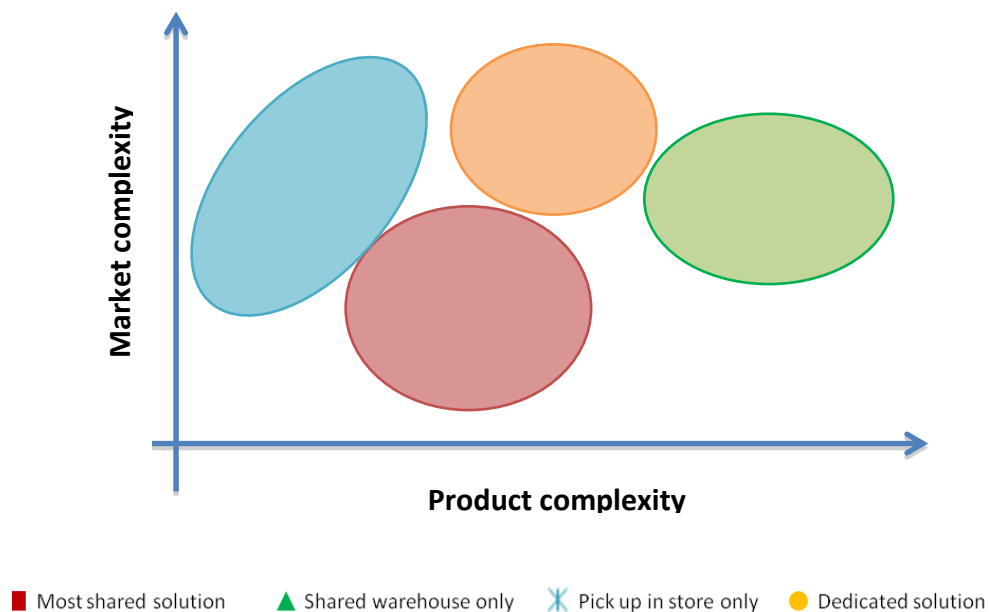


Figure 5.1: Logistic solutions scheme

The first result obtained is the evidence that no players allow the return of the not wanted products in the store. Therefore there isn't a company with a distribution channel completely shared between offline and online.

Analyzing how the firms' logistic choices vary with the complexity, we can notice that the cluster with the highest level of easiness is also the one with the most shared solutions. This because it is not necessary to be near to the customer with a dedicated channel. When the market complexity increases, in fact, the main choice is the store devoted only to the offline. On the other side, when the products are very complex, the duplication of inventories would cause relevant problems and

costs, therefore players with this characteristic decide to use the warehouse both for the online and the offline.

## ANNEXES

### Annex 1: Product and market complexity calculation: ratings assigned to each driver

Player	Product drivers				Market drivers			
	Product range	Density	Value	Expiration	Density of orders	Cycle time	Returns management	Punctuality
<b>Book, Music &amp; Audiovisual</b>								
Bol	H	ML	L	L	H	M	L	ML
Hoeply	H	ML	L	L	M	M	L	ML
La Feltrinelli	L	ML	L	L	MH	M	L	ML
<b>Grocery</b>								
Basko	M	L	L	H	ML	H	ML	H
Esselunga	MH	L	L	H	H	H	ML	H
Prontospesa	ML	L	L	H	L	H	ML	H
<b>Computer &amp; Electronics</b>								
Chl	H	L	M	MH	ML	MH	MH	ML
Darty	M	L	M	MH	ML	MH	MH	ML
Euronics	ML	L	M	MH	M	MH	MH	ML
Mediaworld	ML	L	M	MH	MH	MH	MH	ML
Saturn	MH	L	M	MH	ML	MH	MH	ML
Unieuro	ML	L	M	MH	ML	MH	MH	ML
<b>Casual Clothing</b>								
Bata	ML	H	L	M	ML	MH	H	ML
Brums	L	H	ML	M	L	MH	H	ML
Cisalfa	ML	H	ML	M	L	MH	H	ML
Decathlon	ML	H	ML	M	M	MH	H	ML
Intimissimi	L	H	ML	M	ML	MH	H	ML
Nencini sport	M	H	ML	M	ML	MH	H	ML
Oliviero	MH	H	ML	M	ML	MH	H	ML
Stefanel	L	H	ML	M	L	MH	H	ML
The Gigastore	H	H	ML	M	ML	MH	H	ML
<b>Fashion Apparel</b>								
Diesel	L	H	MH	M	M	M	H	ML
Diffusione tessile	ML	H	MH	M	ML	M	H	ML
Dressup	L	H	MH	M	ML	M	H	ML
Giglio	ML	H	MH	M	L	M	H	ML
Gucci	ML	H	MH	M	ML	M	H	ML
La Perla	L	H	H	M	ML	M	H	ML
Luisa Via roma	M	H	MH	M	M	M	H	ML
Mandarina Duck	L	H	ML	M	ML	M	H	ML
Prada	L	H	MH	M	ML	M	H	ML



## Annex 2: Product and market complexity calculation: translation of judgments into numerical values

Player	Product drivers				Market drivers			
	Product range	Density	Value	Expiration	Density of orders	Cycle time	Returns management	Punctuality
<b>Book, Music &amp; Audiovisual</b>								
Bol	5	2	1	1	5	3	1	2
HoePLY	5	2	1	1	3	3	1	2
La Feltrinelli	1	2	1	1	4	3	1	2
<b>Grocery</b>								
Basko	3	1	1	5	2	5	2	5
Esselunga	4	1	1	5	5	5	2	5
Prontospesa	2	1	1	5	1	5	2	5
<b>Computer &amp; Electronics</b>								
ChI	5	1	3	4	2	4	4	2
Darty	3	1	3	4	2	4	4	2
Euronics	2	1	3	4	3	4	4	2
Mediaworld	2	1	3	4	4	4	4	2
Saturn	4	1	3	4	2	4	4	2
Unieuro	2	1	3	4	2	4	4	2
<b>Casual Clothing</b>								
Bata	2	5	1	3	2	4	5	2
Brums	1	5	2	3	1	4	5	2
Cisalfa	2	5	2	3	1	4	5	2
Decathlon	2	5	2	3	3	4	5	2
Intimissimi	1	5	2	3	2	4	5	2
Nencini sport	3	5	2	3	2	4	5	2
Oliviero	4	5	2	3	2	4	5	2
Stefanel	1	5	2	3	1	4	5	2
The Gigastore	5	5	2	3	2	4	5	2
<b>Fashion Apparel</b>								
Diesel	1	5	4	3	3	3	5	2
Diffusione tessile	2	5	4	3	2	3	5	2
Dressup	1	5	4	3	2	3	5	2
Giglio	2	5	4	3	1	3	5	2
Gucci	2	5	4	3	2	3	5	2
La Perla	1	5	5	3	2	3	5	2
Luisa Via roma	3	5	4	3	3	3	5	2
Mandarina Duck	1	5	2	3	2	3	5	2
Prada	1	5	4	3	2	3	5	2

### Annex 3: Product and market complexity calculation: numerical values and importance weights multiplication

Player	Product drivers				Market drivers			
	Product range	Density	Value	Expiration	Density of orders	Cycle time	Returns management	Punctuality
<b>Book, Music &amp; Audiovisual</b>								
Bol	2,000	0,600	0,200	0,100	1,500	0,600	0,400	0,200
HoePLY	2,000	0,600	0,200	0,100	0,900	0,600	0,400	0,200
La Feltrinelli	0,400	0,600	0,200	0,100	1,200	0,600	0,400	0,200
<b>Grocery</b>								
Basko	1,200	0,300	0,200	0,500	0,600	1,000	0,800	0,500
Esselunga	1,600	0,300	0,200	0,500	1,500	1,000	0,800	0,500
Prontospesa	0,800	0,300	0,200	0,500	0,300	1,000	0,800	0,500
<b>Computer &amp; Electronics</b>								
ChI	2,000	0,300	0,600	0,400	0,600	0,800	1,600	0,200
Darty	1,200	0,300	0,600	0,400	0,600	0,800	1,600	0,200
Euronics	0,800	0,300	0,600	0,400	0,900	0,800	1,600	0,200
Mediaworld	0,800	0,300	0,600	0,400	1,200	0,800	1,600	0,200
Saturn	1,600	0,300	0,600	0,400	0,600	0,800	1,600	0,200
Unieuro	0,800	0,300	0,600	0,400	0,600	0,800	1,600	0,200
<b>Casual Clothing</b>								
Bata	0,800	1,500	0,200	0,300	0,600	0,800	2,000	0,200
Brums	0,400	1,500	0,400	0,300	0,300	0,800	2,000	0,200
Cisalfa	0,800	1,500	0,400	0,300	0,300	0,800	2,000	0,200
Decathlon	0,800	1,500	0,400	0,300	0,900	0,800	2,000	0,200
Intimissimi	0,400	1,500	0,400	0,300	0,600	0,800	2,000	0,200
Nencini sport	1,200	1,500	0,400	0,300	0,600	0,800	2,000	0,200
Oliviero	1,600	1,500	0,400	0,300	0,600	0,800	2,000	0,200
Stefanel	0,400	1,500	0,400	0,300	0,300	0,800	2,000	0,200
The Gigastore	2,000	1,500	0,400	0,300	0,600	0,800	2,000	0,200
<b>Fashion Apparel</b>								
Diesel	0,400	1,500	0,800	0,300	0,900	0,600	2,000	0,200
Diffusione tessile	0,800	1,500	0,800	0,300	0,600	0,600	2,000	0,200
Dressup	0,400	1,500	0,800	0,300	0,600	0,600	2,000	0,200
Giglio	0,800	1,500	0,800	0,300	0,300	0,600	2,000	0,200
Gucci	0,800	1,500	0,800	0,300	0,600	0,600	2,000	0,200
La Perla	0,400	1,500	1,000	0,300	0,600	0,600	2,000	0,200
Luisa Via roma	1,200	1,500	0,800	0,300	0,900	0,600	2,000	0,200
Mandarina Duck	0,400	1,500	0,400	0,300	0,600	0,600	2,000	0,200
Prada	0,400	1,500	0,800	0,300	0,600	0,600	2,000	0,200

#### Annex 4: Product and market complexity calculation: aggregate values

Player	Product complexity	Market complexity
<b>Book, Music &amp; Audiovisual</b>		
Bol	2,900	2,700
HoePLY	2,900	2,100
La Feltrinelli	1,300	2,400
<b>Grocery</b>		
Basko	2,200	2,900
Esselunga	2,600	3,800
Prontospesa	1,800	2,600
<b>Computer &amp; Electronics</b>		
ChI	3,300	3,200
Darty	2,500	3,200
Euronics	2,100	3,500
Mediaworld	2,100	3,800
Saturn	2,900	3,200
Unieuro	2,100	3,200
<b>Casual Clothing</b>		
Bata	2,800	3,600
Brums	2,600	3,300
Cisalfa	3,000	3,300
Decathlon	3,000	3,900
Intimissimi	2,600	3,600
Nencini sport	3,400	3,600
Oliviero	3,800	3,600
Stefanel	2,600	3,300
The Gigastore	4,200	3,600
<b>Fashion Apparel</b>		
Diesel	3,000	3,700
Diffusione tessile	3,400	3,400
Dressup	3,000	3,400
Giglio	3,400	3,100
Gucci	3,400	3,400
La Perla	3,200	3,400
Luisa Via roma	3,800	3,700
Mandarina Duck	2,600	3,400
Prada	3,000	3,400

## REFERENCES

- AA. VV., *"eCommerce B2c in Italia: accelera la crescita, tra nuovi ingressi e modelli di business innovativi"*, Osservatorio eCommerce B2c, 2011
- AA. VV., *"Convegno di presentazione dei risultati della ricerca dell'Osservatorio Multicanalità"*, 2011
- Bardi E.J., Coyle J.J., Gibson B.J., Langley C.J., Novack R.A., *"Supply Chain Management: A Logistics Perspective"*, 2009, pp. 56-57
- Blackburn J., Scudder G., *"Supply Chain Strategies for Perishable Products: The Case of Fresh Produce"*, 2009
- Cho J.J.K, Ozment J., *"The importance of logistics capability in the e-Commerce market"*, Journal of Transportation Management, 2005
- Del Baldo M., *"Logistica: punto di incontro o di scontro Tra old e new economy?"*, Sinergie n. 57, 2002 , pp. 88-103
- Enarsson L., *"Distribution and re-distribution in e-commerce"*, Fourth International Meeting for Research in logistics, 2002
- Fisher M., *"What is the right supply chain"*, Harvard Business Review, 1997
- Forcellini Mazzoni L., Girotti G., *"Le scelte di assetto del sistema logistico nell'eCommerce B2c: un modello interpretativo nei comparti Abbigliamento e Informatica ed Elettronica di consumo."*, 2010
- Fuller J., O'Conor J, Rawlinson R., *"Tailored Logistics: the next advantage"*, Harvard Business Review, 1993
- Groenevelt H., Rudi N., Singh P., *"Product Variety and Supply Chain Structures"*, 2006
- Hannu Y., *"Physical distribution considerations for electronic grocery shopping"*, International Journal of Physical Distribution & Logistics Management, Vol. 31 No. 10, 2001, pp. 746-761
- Jönson G., Johnsson M., *"Electronic commerce and distribution systems"*, 2002
- Lasher C., Deveikis P., *"Solve Your E-Commerce Distribution Puzzle"*, 2012
- Lewis A., *"Future models of retail logistics in an age of e-Commerce"*, 2002

Mangiaracina R., Melacini M., Perego A., *“Le scelte di assetto delle reti distributive: analisi empirica e strumenti di supporto alle decisioni”*, Paper del Dipartimento di Ingegneria gestionale del Politecnico di Milano, 2005

Mangiaracina R., Perego A., *“Logistic strategies in e-commerce B2c: evidence from the field”*, Paper del Dipartimento di Ingegneria Gestionale del Politecnico di Milano, 2007

Meneghetti E., *“L'evoluzione dell'eCommerce nel nostro paese: il caso Bata Home Delivery”*, 2010

Peluso S., *“Le scelte di assetto del sistema logistico nell'eCommerce B2c: un modello interpretativo nei comparti Editoria e Grocery. ”*, 2010

Shah J., *“Supply Chain Management: Text and Cases”*, 2009, pp. 104-105

Weijers S.J.C.M., *“Virtual Certainties about E-commerce, Transport and Logistics”*, Paper to the joint OECD/CEMT Seminar on E-commerce, 2001