Politecnico di Milano
Scuola di Ingegneria Industriale e dell'Informazione

Master Degree in Management Engineering
Supply Chain Management

"Trade channels comparison between Italy and China: Cross-Border E-Commerce versus General Trade"

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Summary

ABSTRACT

Versione Italiana

Nel corso degli ultimi anni, la percezione del mercato Cinese è cambiata drasticamente. Nonostante la Cina sia sempre stata considerata un'economia trainata principalmente dalle esportazioni, le aziende Occidentali hanno iniziato a riconoscere il suo potenziale in termini di attrattività del mercato. Infatti, soprattutto con la diffusione delle tecnologie Internet, il mercato Cinese è diventato particolarmente attivo anche per le importazioni di prodotti stranieri. Tuttavia, l'incertezza su questo mercato, completamente differente da quello Occidentale e caratterizzato da barriere politiche, culturali e linguistiche, è innegabile. A partire da queste considerazioni, la presente tesi ha come obiettivo quello di chiarire, ad aziende Italiane appartenenti sia al settore dell'abbigliamento che del settore alimentare, alcune complessità di questo mercato. Per questo motivo è stato sviluppato un modello comprensivo di tutti gli investimenti e costi da sostenere per aprire un canale di vendita online in Cina. In particolare, si desidera confrontare le soluzioni di "Cross-Border E-commerce" e "General Trade", evidenziando le differenze tra i due approcci e stimando i ritorni economici di un possibile investimento.

English version

During last years, the perception of Chinese market has changed dramatically. Even if China has always been considered an economy mainly pulled by exports, Western companies have begun to recognize its potential in terms of market attractivity. Indeed, especially with the diffusion of Internet technologies, Chinese market has become particularly active also for imports of foreign products. However, the uncertainty of this market, completely different from the Western one and characterized by political, cultural and linguistic barriers, is undeniable. Starting from these considerations, the present thesis has the objective to clarify, to Italian companies belonging either to the fashion or food/wine industries, some points of complexity of this market. For this reason, it has been developed a model comprehensive of all the investments and costs to sustain in order to open a Chinese online channel. In particular, it is desired to compare "Cross-Border E-Commerce" and "General Trade" solutions, highlighting the differences between the two approaches and estimating economic returns of a possible investment.

EXECUTIVE SUMMARY

Premises

The present Master Thesis is born from the review of the existent literature concerning the relation between three main topics: E-Commerce, China and Logistics.

E-Commerce has been a disruptive trend over the last decades, showing an impressive growth and achieving incredible results in terms of global sales. Consequently, it has been the focus of several empirical studies aimed to discover the main characteristics of this type of business in order to highlight prerequisites, resources and capabilities to success. Within this macro topic, recent works have focused the attention on Cross-Border E-Commerce. This last trend refers to "cross-border" trades between two countries, without the need of establishing a legal entity in the importing country.

Figure 1, Number of Worldwide Digital Buyers from 2014 to 2021 in billions (Source Statista.com)

China has been considered, for a long time, one of the most successful developing countries of the world.

Its opening to international markets in 1978 and even more its accession to the World Trade Organization (WTO) in 2001, heavily contributed to turn it in the second largest economy of the world in 2010. China did prove to be also a very attractive market for foreign companies willing to enlarge their businesses. Indeed, balance between exports and imports, which has always weighted more for the former, has begun to modify its structure in favour of the latter during last years. Therefore, numerous researches have been conducted with the objective to explain the critical success factors characterizing this country.

Figure 2, China Political Map (Source: Google Images)

Logistics, despite the different fields in which it finds application, is one of the most complex factors when merging the two beforehand discussed topics. Indeed, it has been recognized by several studies as a major aspect of uncertainty both for E-Commerce scenarios and Chinese environment. An inefficient logistics system undermines the benefits sought by customers when shopping through online channels. On the other side, China is characterized by huge differences in terms of developed infrastructures among different regions. Moreover, the huge size of the country amplifies the importance of an efficient distribution system.

Through the detailed analysis of 89 academic publications, which deal with either one or more of the topics
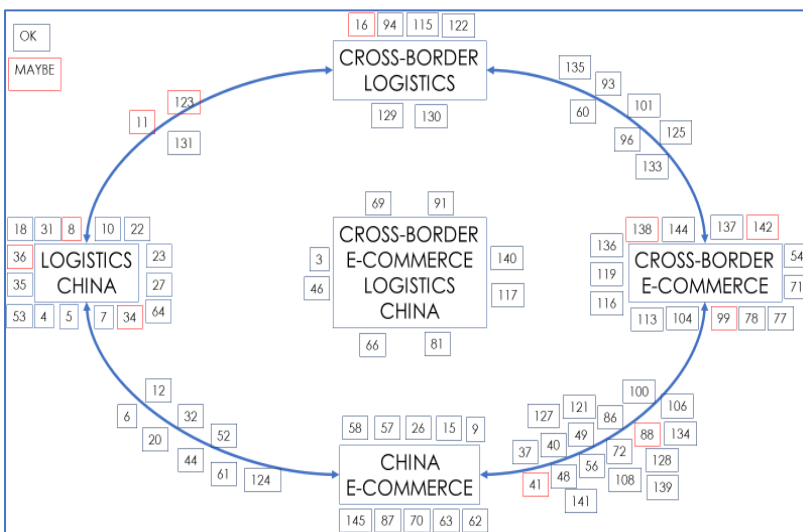
Figure 3,Conceptual Tree developed for the literature review

presented above, candidates recognized an existent gap in the literature. Current literature is focused especially on logistics or E-commerce topics, widening the discussion on International trade and international E-Commerce trade. But among the papers found by candidates, only 8 papers are focused both on China, E-Commerce and Logistics in a cross-border perspective. Moreover, none compares the two different solutions available for foreign companies willing to access the online Chinese market. These are represented by Cross-Border E-Commerce (CBEC) solutions, which allow the trade of products from the exporting country without the creation of any subsidiary in China, and General Trade (GT) ones, which on the contrary require the establishment of a legal entity within the Chinese territory. According to the approach used, different types of online platforms can be accessed. Main online Chinese marketplaces, indeed, have usually both an international version, accessible by foreign companies, and a national one. It is clear how the value of the two versions is different. Business-to-Consumer (B2C) E-Commerce in China accounts for approximately 752 billion USD while import level amounts to nearly 90 billion USD. Therefore, candidates realized that a tool able to compare the two approaches was missing. Moreover, the existent literature developed concerning this environment, is characterized by a high degree of uncertainty. Taxes and duties required by the Chinese government are continuously changed and represent factors of complexity for neophyte companies to this country. Initial investments and necessary annual costs required by online platforms are difficult to discover.

Possible returns coming from the accession of the Chinese online market are even more challenging to be forecasted. Hence, the impression perceived by the study of the existent publications focused on these topics, was the lack of a supporting tool for companies willing to start a business in China. Indeed, none of the models developed within previous works provides a general overview on the size of the investments required, the yearly costs to sustain and the expected returns for entering the Chinese online market.

Objectives

The intent of candidates has been thus to spread some light on the above discussed topics. Consequently, the declared object of this Master Thesis is to provide to the readers an overview on the main viable alternatives for an Italian company willing to access the Chinese online market.

The present Master Thesis identifies different research questions, but all of them could be summarized into two:

Which are the initial investments, annual costs and the related returns to expect when an Italian company decides to open a new trade channel entering the Chinese online market?

Which are the differences if the company belongs to the fashion or food industry according to different scenarios of demand growth?

For this purpose, a model comparing the expected economic returns both of CBEC and GT approaches have been developed. Necessarily, the analysis had to be limited to the trade of some specific categories of products. In this regard, the decision was to consider fashion and food/wine industries. The reason of this choice has to be sought in the completely different features characterizing products belonging to these two industries: size, weight, shape, value and final price.

Concerning the determination of the online platforms to include in the model, candidates opted for comparing four different websites, two for each of the above-mentioned approaches. Therefore, all the investments and costs required by Chinese platforms were evaluated in order to compare them. In addition, with the aim of providing to the readers an evaluation of the total investment required to start this new business, all the costs to be faced when approaching the Chinese market have been inserted into the model. Hence, the main output of this work consists in the evaluation of Net Present Values (NPV) and Pay Back Time (PBT) for different viable alternatives in a five-years' time horizon. Consequently, an extensive research was performed, with the final aim of support companies and entrepreneurs in the entry decision by trying to reduce the uncertainty of this type of investment.

Methodology

Due to the various topics to be touched in order to develop this kind of comprehensive overview on all the issues arising from the choice of entering the Chinese online world, numerous data and information were needed. Hence, different sources were exploited for creating the cited model. Surely, literature review was useful to discover some aspects of this type of trade, which were not known by the two candidates. Nevertheless, some initial clarifications regarding different processes involved in the content of this work were necessary. Consequently, few interviews were initially set with professionals in the logistics field. The following phase concerned an intensive research on the Internet aimed to gather data to insert in the model both for logistics processes and platforms costs. Actually, this research lasted for all the development of the model and thus performed in parallel with other phases. Then, some doubts regarding initial demands achievable by the hypothetical company opening the Chinese channel arose. Therefore, a meeting with the relator was fundamental in order to change this perspective, as readers will discover lately. Finally, last and more specific interviews were conducted in order to confirm some points of uncertainty created by first results obtained by "running" the model.

The model has been developed following a defined structure. Indeed, for the sake of clarity, each macro-topic involved in the focus of this work deserved a specific analysis. Therefore, eight different sections were analysed once at a time with the aim to provide the most complete view on each topic.

First of all, "Revenues" chapter was introduced. Readers should not be misled by the name. Within this chapter, in order to overcome the "senselessness" of predict a five-years horizon demand for a hypothetical company willing to access the Chinese online market, a range of ten different initial demands and six possible distinct paths of growth has been designed. Consequently, once input data are inserted by users, yearly revenues are obtained.

Secondly, in the "Logistics costs" chapter, the evaluation of the best logistics alternative to ship goods from Italy to China is performed. This section has been further divided into "County of origin (Italy) logistics", "International logistics" and "Country of destination (China) logistics". Italian cities of origin and Chinese cities of destination considered in the model are declared. All the different options are thus presented, and the main formulas used to compute overall logistics cost reported. Moreover, some considerations regarding the type of product shipped are discussed. The following three chapters have been named as "Marketing costs", "Platforms costs" and "Internal and Production costs". Their aim is to explain to the readers which are the related costs of these voices and the possibilities available for the targeted companies. Within each of these three sections, indeed, assumptions needed are made explicit and points of complexity explained.

Thirdly, "Fixed and Yearly Costs" voice has been discussed in order to consider annual costs required by the platforms involved and additional fixed costs to sustain when the solution chosen is the GT one.

Lastly, "Taxes" and "Duties" sections have been presented. With regards to these two last chapters, detailed information have been provided in order to reduce the uncertainty surrounding these topics. As already pointed

out above, China continuously adapts taxes and duties concerning import and export activities. Nevertheless, a portrait of the current situation has been reported to support the value of parameters used for computations.

Results

Once the model was finalised, two different configurations for input data were set, for fashion and wine products respectively. Hence, candidates began to run the model, obtaining a huge amount of data to analyse. Indeed, due to the structure imposed, in addition to final NPVs and PBTs and thus revenues and Net Cash Flows (NCF), yearly values for each voice of cost considered were obtained. Moreover, due to the decision to evaluate ten different initial demands and six growth rates, hundred and twenty specific cases were created.

At this point, candidates undertook to understand which were the most relevant findings emerged by outputs of the model. Final choice was to discuss only three growth scenarios. There exist two main reasons for explaining this choice. The first concerns the existent differences between them. Indeed, the three growth rates considered were appointed as pessimistic, optimistic and more realistic ones. Hence, the attempt to provide the most comprehensive overview on the situation faced by a company entering the Chinese online market was pursued. The second reason refers to exposition matters. The three considered were sufficient to show those trends, which in the humble opinion of candidates are the main findings obtained through the model developed and that however, emerge also from the cases not discussed.

First of all, the main result achieved concerns principal topic of this work, declared since the title of this Master Thesis: "Trade channels comparison between Italy and China: Cross-Border E-Commerce versus General Trade". Hence, the factor influencing the switch of optimality between CBEC platforms and GT ones has been identified. In all the cases analysed, indeed, it clearly emerges how for relative low levels of annual demand, CBEC approach returns higher values in terms of NPV. Obviously, since NPVs are evaluated in a five-years' time horizon, and that each scenario is characterized by a different growth rate along the five years, it cannot be provided an always applicable threshold number of products sold. Therefore, three different analysis had to be performed.

A constant demand of products along the five years represents what has been addicted as the pessimistic scenario. In this case, an initial demand of 25.000 fashion items still see to prevail CBEC platform while an entry demand of 50.000 fashion items assure better returns using a GT approach. On the contrary, for wine products with the highest initial demand of the range considered, correspondent to 200.000 products, CBEC marketplaces remains the preferred ones.

The optimistic scenario is characterized by an exponential growth along the five years. The threshold value is represented by an entry demand of 2.500 units for fashion industry and around 15.000 wine bottles.

Logistics growth scenario, representing the more realistic one, shows the typical curve of new product introduction. GT solutions outperform CBEC ones with an initial demand of 25.000 fashion products while with a value approximately of 140.000 units for wine.

The reason behind the optimality in terms of return of CBEC solutions for relative low levels of initial demands concerns the higher investments required by the GT approach. While, at the increase of the demand, other voices as taxes and marketing costs prevail.

In order to spot the exact level of products sold corresponding to the moment in which cash flows of GT platforms become higher than those of CBEC ones, a pair comparison has been performed. Indeed, the four platforms considered are in reality associable to two main groups. Alibaba owns TMall Global (CBEC) and TMall Classic (GT), while JD International (CBEC) and JD.com (GT) are part of the same company Jingdong. Fashion and wine industries have been analysed comparing the four platforms to provide the most useful and evident insights. For what concerns the first comparison, results obtained through the model state that with an annual demand of approximately 26.400 fashion items cash flows of TMall Classic, and thus of GT solution,

results to be higher than those of TMall Global. 1.295.864 € and 1.236.681 € are the correspondent values of NCF respectively.

On the contrary, as already reported above, wine products require higher demands for making GT the preferred approach. Indeed, JD.com outperforms JD International, in terms of NCF only with a minimum annual demand of 457.600 wine items.

In conclusion, it can be stated that, according to the results provided by the model developed by the two candidates, a CBEC solution is suggested for companies that approach the Chinese market for the first time and that thus cannot rely on high levels of sales. Indeed, being Chinese customers completely different from western ones, a deep analysis of the market is essential. Customers' perception of the brand has to be investigated because most of times even the most famous one might fail in this environment. Therefore, the CBEC approach allows for lower initial investments and thus exposes less the company to risks. Later, if desired results are achieved in terms of sales, companies might consider to further invest and establish a legal entity in China. In this way, once the market has already been tasted, higher returns can be obtained.

The second result of this Master Thesis concerns different aspects that, at the increase of the initial demand faced by companies targeting the Chinese online market, should be considered.

Firstly, the choice of the transportation mean in charge of the international shipment of goods is highly influenced by the annual demand. As regard to this topic, a distinction between the product categories involved is necessary.

Fashion goods, as emerged also from literature review, are usually shipped by airplanes. However, the model developed has tried to deeper investigate this aspect. Indeed, for annual demand lower than 1.000 units, the express courier results to be the best solution in terms of cost. This point can be explained considering frequency of shipments and air pallets saturation. Such a low number of products yearly demanded by the market would imply an extremely low saturation with acceptable frequency, incurring thus in high costs required. On the contrary, saturation might be optimized by reducing significantly the frequency of shipments and consequently entailing eventual opportunity costs. Annual demands higher than 1.000 fashion products assume the use of air transportation with the activation of only one warehouse in China, specifically within the area of Shanghai. This city, indeed, due to the centrality of its location in respect to other destination cities, has been appointed for hosting the warehouse considered in this type of solution. When the threshold of 450.000 annual sales is reached, the model suggests to go for a three-warehouses solution. Indeed, due to the size of Chinese territory, optimization of local distribution costs, justifies the fixed cost for opening two more warehouses between the three considered: Chongqing, Tianjin and Shenzhen.

Wine products, on the other hand, entail a different scenario. The maximum level of demand for which an express courier solution is preferred is 2.500 units. After this threshold, sea transportation becomes the best option in terms of costs minimization. The reason for the adoption of maritime means rather than airplanes lays in the characteristics of the products. Goods belonging to wine industries have usually lower values compared to fashion items and higher weights. Therefore, longer lead-times do not heavily impact on the costs related to the immobilization of capital during the international shipment.

The other aspect to consider, according to the annual sales achieved, concerns the cost structures of the viable solutions considering the four platforms involved. For both the product categories considered, weight of logistics costs shows a decreasing trend at the enhancement of the yearly demand. It is true that higher number of products shipped might allow for a better saturation and thus resulting in a lower unitary cost. However, this decreasing trend is mainly caused by other voices of costs that rise up more at the growing of the demand. Indeed, the majority of costs computed within the model, such as those of marketing and production, are strictly dependent on the number of products demanded by the market. Weight of taxes on the total costs, shows the highest percentage increase and also the main voice of cost for both the platforms and the product categories

involved. Despite the continuous change of their absolute percentages, operated by the Chinese government and beforehand reported, their value is undeniable.

Readers should consider that, the increasing trends presented are though influenced by some fixed costs. Indeed, "Internal costs" and part of "Platform costs" hold high weights with low demands, but then due to their fixed nature, are overshadowed by the above cited costs.

The final result, that candidates have thought was worthy of discussion, concerns the comparison between the two products categories considered. Indeed, as already emerged during previous analyses, there exist several differences while trading fashion or wine goods. Above all, probably the most important decision regards the choice of either accessing or not the Chinese online market. Once again, it is necessary to exploit, for the sake of exposition, the three growth scenarios before presented.

In the cases of constant demand during the time horizon of reference, first positive NPVs are obtained with an entry demand of 5.000 and 50.000 units, for fashion and wine products respectively. Therefore, when companies forecast lower initial sales the suggestion coming from the model is to not access the market. For both the two cases cited, the Pay Back Times (PBTs) assume values of approximately four years. It is clear that fashion goods, with an initial demand of 50.000 (as wine in this case), would pay back much faster, specifically in two years.

In regard to the scenario characterized by exponential growth of the annual demand, both fashion and wine goods pay back with lower level of sales achieved. First positive NPVs, indeed, are achieved with respectively 1.000 and 2.500 units demanded in the first year. Considering the initial demand of 2.500 units, fashion companies need 3 years to reach the break-even point while wine companies more than 5 years.

Analysing the scenario showing a "s-curve" (logistics curve) as growth rate within the five years, first positive NPVs are achieved with 2.500 fashion goods as initial demand and the PBT assumes a value of approximately 5 years. On the contrary, first-year sales of wine products need to account for 25.000 units in order to get a positive NPV and consequently reach the break-even in roughly four years. Therefore, investments are not justified if, in this specific case, forecasts of possible initial demand are lower than the reported number of units entailing positive returns.
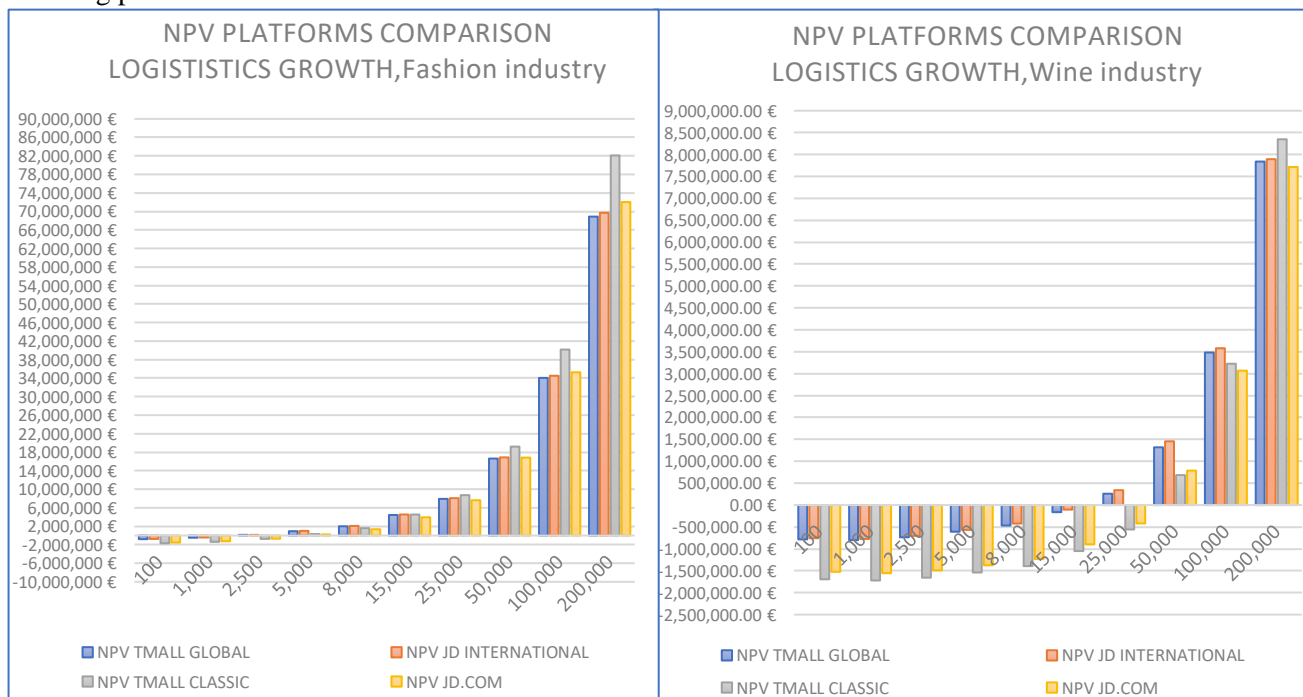
Figure 4, NPVs comparison of the four platforms for the two product categories analysed in the logistics growth scenario
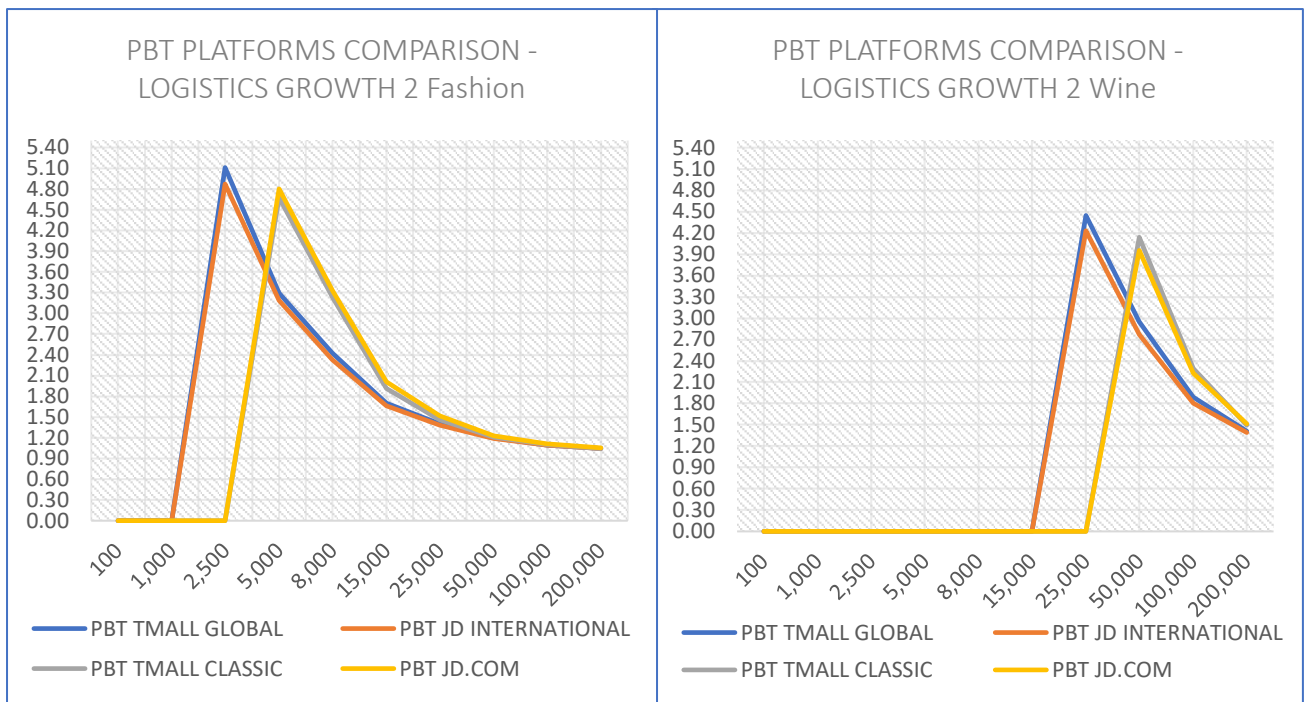
Figure 5, PBTs comparison of the four platforms for the two product categories in the logistics growth scenario

Readers should consider that, all the numbers reported in this last result section, concerning the comparison between fashion and wine industries, do refer to CBEC approach. Indeed, as already declared within the section dedicated to the trade channel comparison, GT platforms are preferred only with high level of demands (Figure 4, Grey and Yellow bars). Therefore, when analysing first positive NPVs and shortest PBTs with all the variables set equally, it is obvious that these are achieved through CBEC solutions.

For what concerns the emerged differences of results between the product categories involved, the main reason has to be sought in their distinct characteristics. Indeed, fashion goods are characterized by a mark-up six times higher than the wine goods' one, according to model settings. Therefore, it is unavoidable that the former achieves somehow better results.

Despite all the limitation of the model developed concerning the subjective values of some parameters, that are in reality specific of the company involved, the range of demands used to depict the desired overview of the Chinese online market limits the comparison. Indeed, considering the different prices set for the specific products, it could be stated that higher demands might be easily achieved by the product with the lowest price. In this regard, several different considerations could be done, but due to the already high level of complexity created by the various topics included, they are out of the scope of this Master Thesis.

However, apart from some necessary structural limitations, this work has been challenged by a country director of an important E-commerce platform, and resulted to be realistic. Thanks to the gentle and reliable businessman, candidates were able to validate the model. At the same time, some important points have been raised and then discussed along the whole thesis, highlighting also some possible future works to perform in order to complete the discussion within this theme.

1. Introduction

The present Master Thesis is focused on export flows from Italy towards China. The objective of the two candidates is to develop a model that would allow Italian companies to better understand how to access the Chinese online market. Specifically, viable logistics alternatives and related costs, as well as investment and annual costs of the main Chinese online platforms have been studied and deeply analysed.

However, in order to provide to the readers a complete understanding of the contents, an overview on the main topics will be presented in the following paragraphs.

1.1 China

Since its opening to international markets in 1978, China has been one of the main successful developing countries of the world. China's booming economy has greatly benefited from trade liberalization and globalization and has become the second largest economy of the world in 2010, as shown in the Table 1.

China has always been known for being an economy driven by manufacturing, materials and energy industries, as well as by exports and both public and private investments. It has been for years a place mostly recognized for its labour force, a country where occidental companies used to outsource their productions. However, it is evolving in a "new economy". The related structure is driven by service, health, technology, information industries and consumption. Indeed, consumer spending is now leading the way. The latest numbers show that consumption accounted for as

Based on data from the International Monetary Fund, 2018	
Country	Value (in trillions)
1 United States	20.4
2 China	14
3 Japan	5.1
4 Germany	4.2
5 United Kingdom	2.94
6 France	2.93
7 India	2.85
8 Italy	2.18
9 Brazil	2.14
10 Canada	1.8

Table 1, Ranking of the top 10 world economies (Source: IMF.com)

much as 64,5% of Gross Domestic Product Growth (GDPG) in the first nine months of 2017, which is 2,8 percentage points higher than the same period a year before. Certainly, it is well known that emerging economies, generally, rely on investments and exports before shifting to consumption-driven models as they mature. Chinese president Xi Jinping has emphasized this transition as a key to achieve "high-quality development". And global companies have been swooping in, determined to cash in on a Chinese consumption boom. But a closer look at China's economy over the past three decades reveals that consumption was already a major engine in the past. From 1987 to 2016, consumption contributed more to China's annual GDPG than investments twenty times. Only around the turn of the century the country became heavily dependent on investments: from 2000 to 2010, investments made a higher contribution in seven years. This period coincides with the accession to World Trade Organization (WTO) in 2001.[1]

Furthermore, there is also something else that is changing: Chinese people are more and more interested in foreign products and this change is also reflected in the modified balance between exports and imports in the recent years. Both of them still represent two major sources of growth for the country; according to the General Administration of Customs (GAC), in fact, exports increased 10,8 percent to reach 15,5 trillion yuan while imports were up 18,7 percent to 12,5 trillion yuan.[2]

It is though undeniable that Chinese consumers' tastes are changing, highlighting also the inclinations of the new generation of Chinese people, the so called "millennials". China had 564 million netizens[3] as of December 2012, accounting for more than one-fifth of the world's population of internet users. This puts China's total

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[1] Https://asia.nikkei.com/Economy/China-s-new-onsupmtion-driven-economy-isn-t-what-it-seems
[2] https://www-xinhuanet.com/English/2018-01/12/c_136891659.htm
[3] A netizen (also called cybercitizen) is a person who actively participates to internet's life, strongly contributing and believing to the freedom of expression through this mean. The origin of this term is attributed to Micheal Hauben.

internet penetration at 42.1 percent. Just to provide a complete picture about this trend, the number of users, who accessed the Internet from their mobile phones reached nearly 356 million as of 2011.[4] This number shows two additional important trends to be further analysed in this Master Thesis: the general increase in Internet users and the shift from general electronic field to the mobile field, reflected also in the trade through Electronic-commerce (E-commerce) and Mobile-commerce (M-commerce).

The demand for imported products is thus increasingly high, and it is often satisfied through the internet.

The reasons are different: first of all, Chinese people usually spend most of the day at the workplace. Hence, they need to make their purchase in the evening, when shops are usually closed. Moreover, they prove to be particularly suspicious. Therefore, before concluding a purchase, they are interested in reading products reviews and other consumers' opinion on the different online marketplaces. In this connection, online chats are spreading as a communication mean able to link selling companies with final consumers. Finally, the price is usually lower on online channels rather than physic one, and this is not a negligible feature.

However, this country has a completely different culture compared to the European one. There exist several factors that deeply influence business relationships:

1. **The Guanxi and Confucianism concepts.** China is a relationship-oriented society. Guanxi, which can be roughly translated as network and interaction, is vital for business. By building Guanxi, the company minimizes risks, failures and setbacks. The Chinese prefer to deal with people they know and trust. Confucianism affects business practice a lot: all relationships are deemed to be unequal. It is necessary to show respect to age, seniority or educational background. Management style tends toward the directive, which reflects basic Confucian concept of the hierarchical nature of society.

2. **Face**. The concept of Mianzi or "Face" is important for the purpose of business interaction. "Face" is a combination of dignity, pride and public reputation. A slight mistake can make the Chinese "lose face" and it can offend them. The easiest way to cause someone to lose face is to insult the individual, to criticize in front of others or to treat her/him as an underling when official status in an organization is higher.

3. **Collectivism**. Chinese culture is collectivist oriented. The group, rather than individual, is honoured. This results in tighter teamwork, more consensual decision making, more obedience and spreads information sharing. The Asian tradition of slow-decision making is due in part to the people's group orientation.

4. **Meetings&Greetings**. When meeting businessmen in China, foreigners should display sincerity and respect. Handshaking has to be very lightly and followed by exchanging of business cards, preferably with English text on one side and Chinese on another. [5]

Therefore, before approaching this market, it is fundamental to understand how to cope with Chinese business actors and the related importance of interdependences.

The above-cited word "Guanxi" represents one of the many local un-written rules concerning a system of personal relationships that carry long-term social obligations.

Guanxi, refers to the Confucianism idea that nobody should be left by oneself, and thus that belonging to a strong network of relationships guarantees benefits. Indeed, the other idea that is behind this term, is the concept of reciprocity: once a favour is made, the beneficiary would do everything to return it.

The style of relationships that Chinese companies and customers seek in every type of business relation is all behind this belief.

Therefore, occidental companies have to be confident with this concept, especially since there are several characteristics as taxes and duties that are difficult to understand and that are continuously modified. Indeed,

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[4] https://www.statista.com/topics/1179/internet-usage-in-china
[5] https://www.morethanshipping.com/cultural-factors-in-doing-business-in-china/

without trustful Chinese partners, it could be very difficult to properly operate in China without knowing the way businesses are conducted.

Now a question could be raised: why a foreign company should be interested to enter in a such difficult market as the Chinese one is?

This is a good question, which is easy to answer: the huge potential of the Chinese online market.
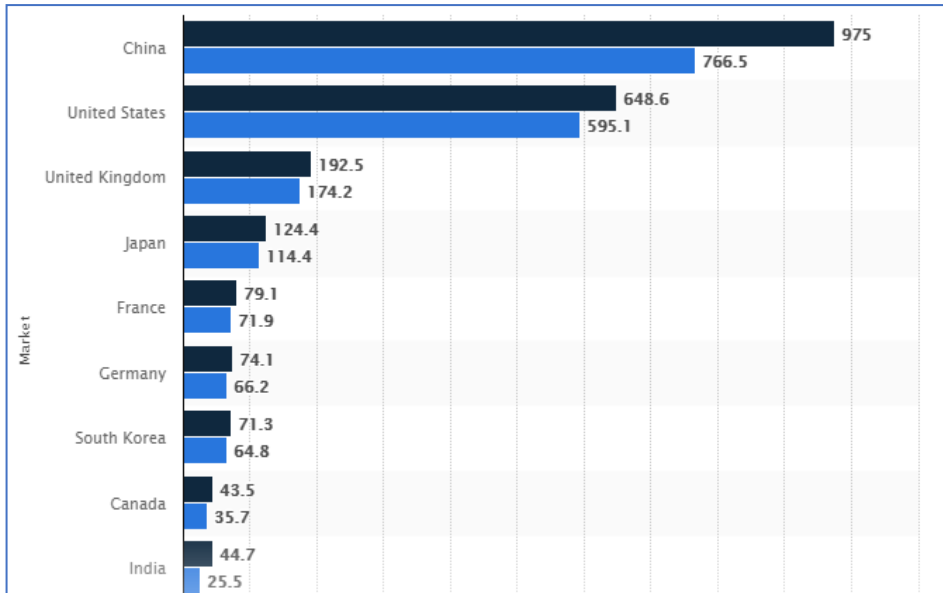
Figure 6, Countries with the largest B2C e-commerce markets in 2015 (Light-Blue) and 2016 (Dark-Blue) in billion USD (Source: Statista.com)

Even if in the last years Chinese economy has slowed down its growth, China still remains a high growth country compared to the rest of the world.

China's Gross Domestic Product rose by 6.9% in 2017 reversing this downward growth trend for the first time since 2010. With high national savings and relative low consumption, China results to be a major outlier compared to other economies.

There are optimistic growth forecasts of consumption, which accounts now for around the 50% of GDP on average, against a world average of 58% (Figure 8). Consequently, as already pointed out, to grow strongly, but also sustainably, China needs to boost consumption. At 46 percent of GDP (Figure 8), China's national savings are 26 percentage points higher than the global average, largely due to the household sector, with consumption correspondingly low. This reduces the current welfare of Chinese citizens, fosters high levels of investment which are unlikely to be absorbed efficiently, and, were investment to fall, would lead to even larger current
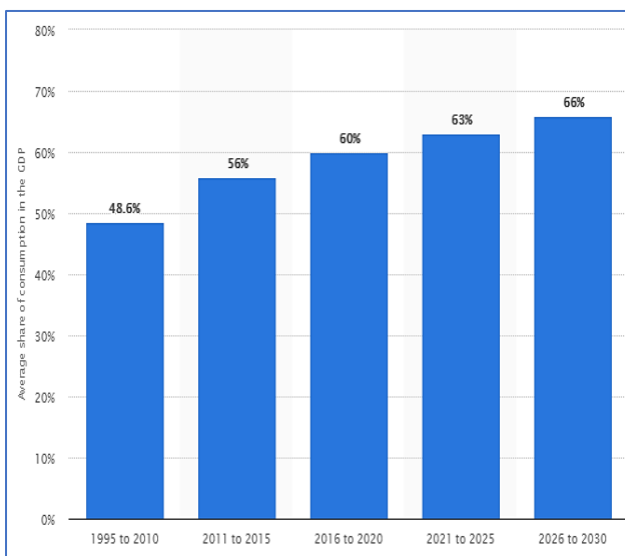
Figure 7, 1995-2030 projection of Consumption in China (Source: Statista.com)
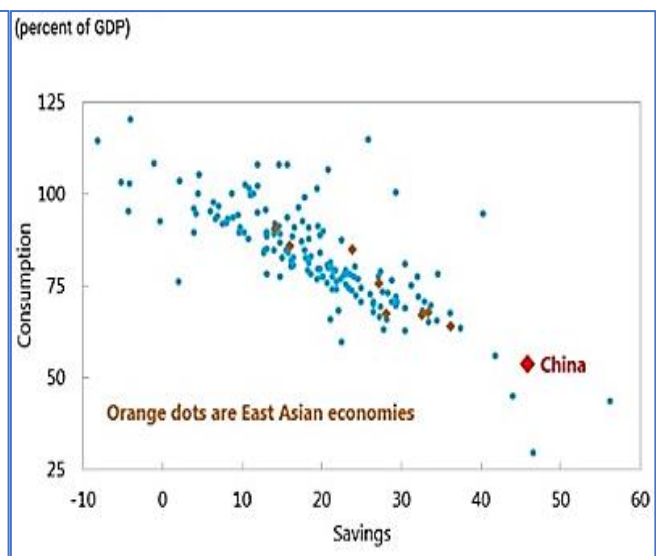
Figure 8,Chinese Consumption vs Savings as percentage of GDP (Source: IMF)

account surpluses, worsening global imbalances. [6] However, even with these relatively low consumption rates compared to other countries, China is already the biggest e-commerce market of the world and according to Mooney (2016), China is expected to be a larger Cross-Border E-Commerce (CBEC) market than U.S, Japan, Germany and U.K. by 2020.

Moreover, as it can be seen from the charts below, the number of Chinese online shoppers is continuously increasing (Figure 9) and it is reflected in the prospective of e-commerce sales from 2014 to 2019 (Figure 10).
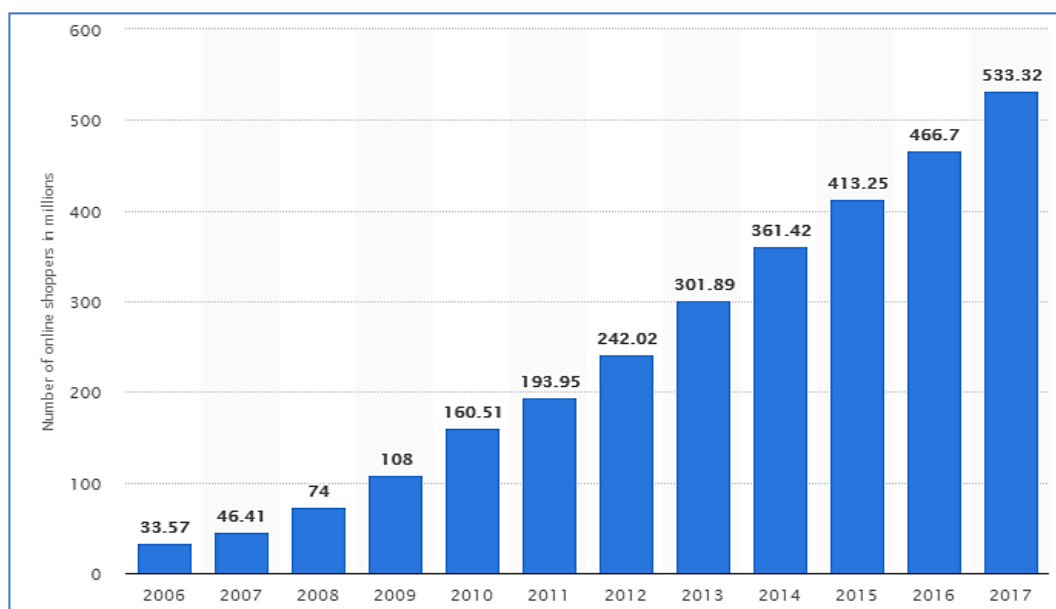
Figure 9, Number of Online Chinese Shoppers from 2006 to 2017 (Source: Statista.com)
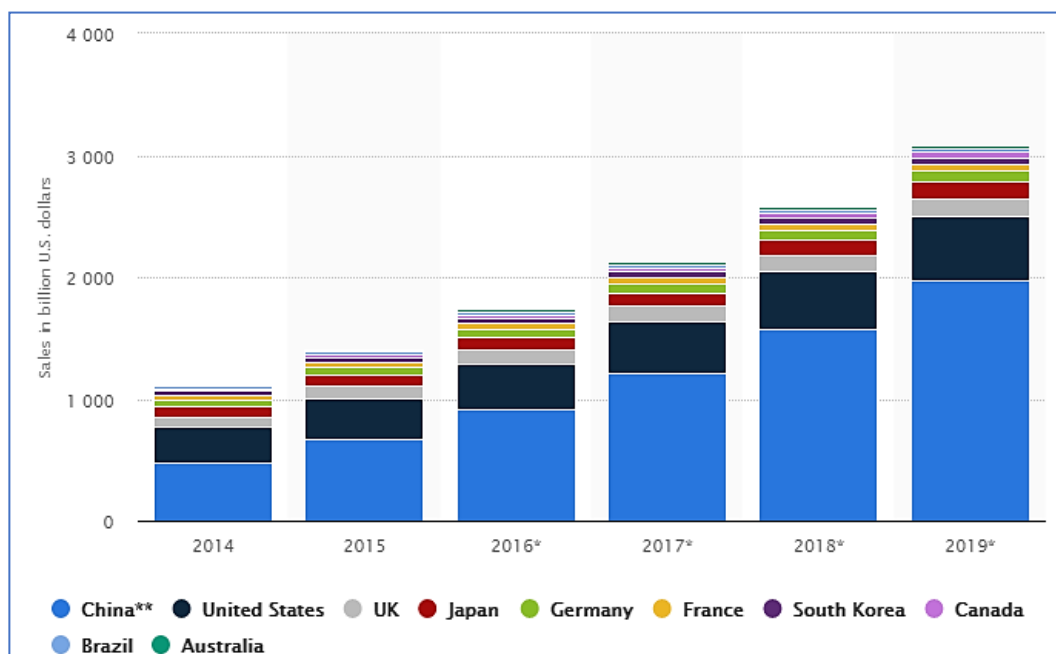
Figure 10, E-commerce sales from 2014 to 2019 in billion USD (Source Statista.com)

Therefore, even if the Italian exports towards China has been increasing during the last years, there is still an incredibly huge potential of this market. We only need to keep in mind that, considering the sizes, Italy is exporting less in China that in Belgium.

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[6] https://www.imf.org/en/News/articles/2017/08/09/NA081517-China-Economic-Outlook-in-Six-Charts

On the other way around, the Chinese government realized the importance of import activities for its economy. Promoting E-commerce development, and in particular the cross-border one, is an important strategy for China's foreign trade transformation and upgrading. Therefore, in the last years several policies and projects have been implemented in order to favour these actions. This is, for instance, the case of the different Free Trade Zones (FTZs) established in recent years over the Chinese territory.

FTZs are special geographic areas where it is possible to perform the import and export of goods under specific custom rules. Within the FTZ, specific rules rather than the those of the country are adopted. These specific rules in the majority of cases mean absence of some duties. In addition, mandatory duties and VAT are not to be paid at the moment of import of goods. Moreover, in these areas, companies enjoy also of additional benefits in terms of cost of the storage area. In designing the global supply chains, FTZs result to be important opportunities of savings for companies involved in cross-border businesses. In this regard, a special mention should be done for what concern Bonded Warehouses, but for the sake of expositions, these will be further analysed in the logistics paragraph 1.3.

Figure 11, Pilot Cities in the FTZs actually opened in China, (Source: Dezan Shira&Associates, 2018)

Another important aspect to consider regards all the policies designed by the Chinese government to facilitate foreign companies while exporting their products in China. Indeed, especially for Small-Medium Enterprises (SMEs), some custom duties have been lowered below the usual rates while others, such as the import tax, even reduced to zero.

To conclude, it cannot be said that it has become easy to conduct business in China. However, with a deep analysis on the market and of the notoriousness of the brand, and the support of trustful Chinese partners, China has become a more than attractive market to target.

1.2 E-commerce

E-commerce can be defined as the use of websites on the internet to conduct business activities. It has been currently growing rapidly: by 2004 it was a business accounting approximately for 1,6 billion euros, in 2016 its global sales worth over 35,1 billion euros[7]. These numbers highlight by themselves the magnitude that this phenomenon has reached.

The main benefits of E-commerce can be summarized as follows:

- Savings by reducing intermediaries' roles
- Savings thanks to online promotion/advertising
- New customers

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[7] https://www.enlabs.it/lo-stato-dellecommerce-in-italia-e-nel-mondo-nel-2018/

- Direct control on the final market
- Not limited geographically
- Possibility to provide abundant information on products
- Create market for niche products

Necessarily, there exist also some drawbacks such as a greater competition due to the presence on the targeted market of international companies, and that customers have more information and thus can directly compare products. Moreover, still not everyone uses online channels and, above all, there is the inability to experience the product before the purchase, which might discourage some buyers.

Nevertheless, it is undeniable the importance that this phenomenon achieved nowadays. In the following chart, it can be noticed the increasing number of worldwide digital buyers that contribute to its success.
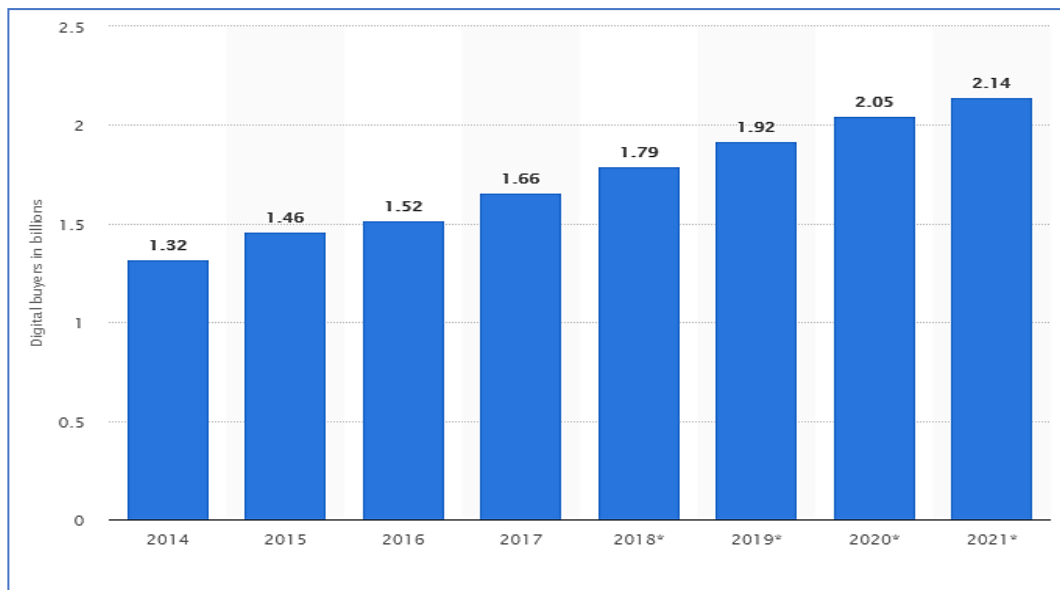
Figure 12, Number of Worldwide Digital Buyers from 2014 to 2021 in billions (Source Statista.com)

However, along with the paybacks of e-commerce there are also some characteristics that are fundamental to success while operating business through electronic channels.

In Figure 13, the most popular online purchase drivers according to global Amazon visitors are represented. It can be noticed as the "Free delivery" outperforms all the other drivers, and along with other drivers such as "easy return policy"
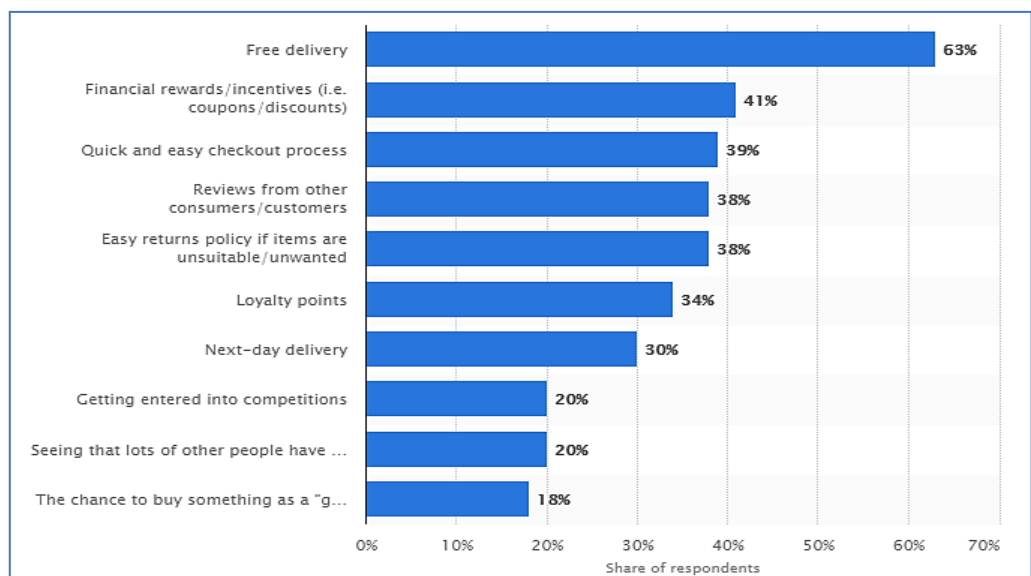
Figure 13, Amazon purchase drivers (Source: Statista.com)

and "next-day delivery" points out the importance of Logistics which will be further analysed in the next section. Other drivers such as "reviews from other consumers", "financial rewards/incentives" and "quick and easy checkout process" highlight some possibilities offered by the online channel that are not always viable with the physical one.

However, as discussed beforehand in the previous part, what concerns China and Chinese customers is not always the same as western regions, consequently, the above graph should be intended just as an illustrative list of realistic drivers.

Therefore, while approaching new and different markets, as in the case of the Chinese one, deeper analyses should be performed in order to detect which are the correspondent drivers (e.g. customer relationships orientation) influencing the purchase decision.

For what concerns the level of E-commerce B2C in China, it amounts to 752 billion USD[8], and it is distributed between the main Chinese online players. As the Figure 14 depicts, TMall Classic and JD.com hold respectively the 57% and 27% of market share, leaving to other actors the remaining part of the market. It is noticeable also the share held by Amazon, as a support of the previous considerations made for drivers: China's E-commerce follows a different logic compared to the occidental view.
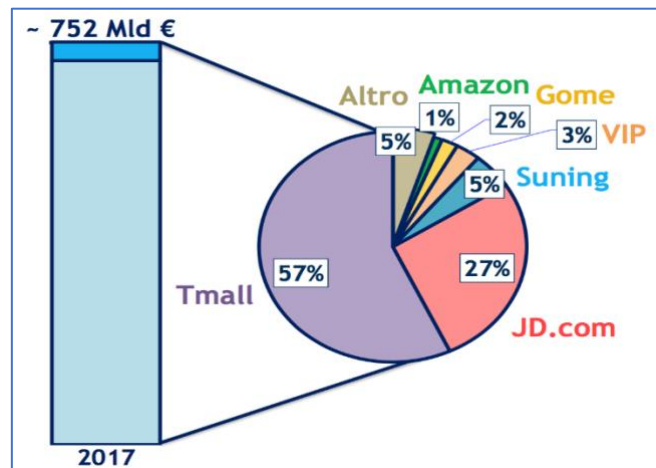
Figure 14, E-commerce B2C in China (Source: Osservatorio Politecnico of Milan; By iResearch 2017)
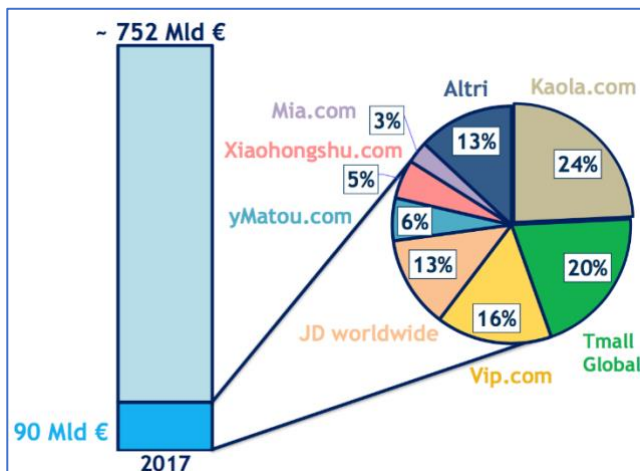
Figure 15, E-commerce B2C in China: import (Source: Osservatorio Politecnico of Milan; By iResearch 2017)

Moving the focus on the import levels (Figure 15), it accounts for around 90 billion USD out of the 752 mentioned above, having as main players TMall Global (20%) and JD worldwide (13%) representing the "international" version of the Chinese platforms cited before. As it can be noticed from the figure besides, Kaola.com and Vip.com do detain non-negligible quotes, but represent more specialized and less comprehensive websites compared to the others.

In order to clarify this aspect, the readers should now concentrate their attention on the difference between two different sales model: General Trade (GT) and Cross Border E-Commerce (CBEC).

In brief, General Trade requires to the foreign company to establish a legal entity in China and consequently allows to access Chinese websites as the previous mentioned TMall Classic and JD.com.

The main benefits of a GT solution are the possibility to access national online platforms and also to sell on physical channels enabling companies to pursue multichannel strategies. The major drawbacks are the higher investments needed, stricter requirements for what concerns registrations, controls and approvals for the business, and the loss of full control on the B2C flow.

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[8] Osservatorio Politecnico of Milan.

On the contrary, a CBEC solution gives the right to foreign companies to manage all the operations from their country of origin (without the obligation of the Chinese legal entity) and consequently to access the latter online platforms cited above. Main benefits of this solution are represented by lower investments required, higher control on the B2C flows and a more favourable legislation in terms of controls, procedures and taxation. However, customs procedures change according to the FTZ used and there is high uncertainty regarding regulatory issues.

Whatever the model selected, it is fundamental to operate according to what expressed before as Guanxi. Chinese customers are different from Europeans and Occidentals in general. Great attention should be also paid to the social network world. Indeed, Chinese users exploit them not only for leisure purposes but also in order to discover new products, to read comments of other customers regarding previous purchases and, also, to suggest products bought, which satisfied them, to other users.

In order to conclude this paragraph, a final mention should be dedicated to WeChat, even if not considered in the model developed within this Master Thesis due to lack of information on its related costs and investments required.
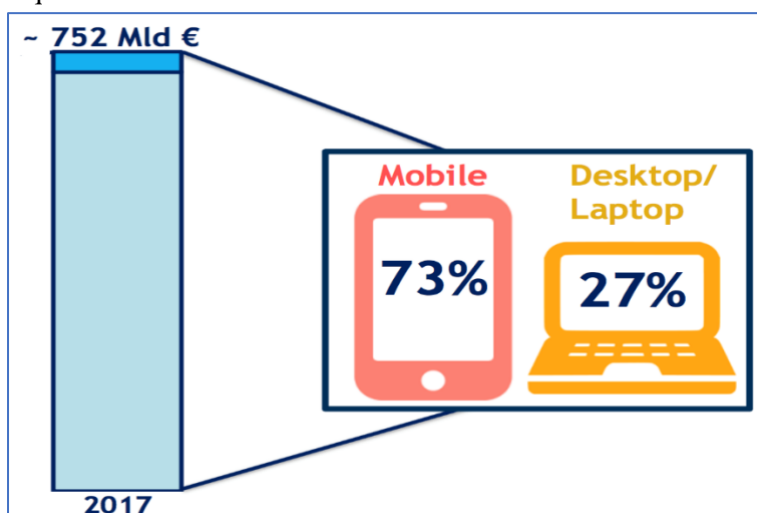
Figure 16,Channels E-commerce in China (Source: Osservatorio Politecnico of Milan, by iResearch 2017)

WeChat could be seen as a marriage between traditional e-business and social media communication resulting in an emerging way of doing business in China(spreading now also in other countries). It represents the perfect results of the shift that will be then analysed in the literature chapter from E-commerce to the so called Mobile-commerce. So, the natural development seen in the recent past with the progressive shift from personal computer to mobile phones and then smartphone, finds a respective movement into the E-commerce field.

Moving the focus back to WeChat, in 2015, 15% of its users made E-commerce purchases through it and the year following the percentage doubled. Easiness in the usage, proximity and continuous contact with customers are the highest benefits of this new platform and certainly, it is a significant emerging trend which would deserve more appropriate researches in following studies.

1.3 Logistics

As previously emerged, logistics plays a fundamental role in an E-commerce scenario, not only from an economic standpoint but especially as one of the main drivers for complexity, and even more in a country such as China. Indeed, Chinese territory besides being incredibly vast, it is fragmented between different regions in terms of connections and infrastructures.

Before entering into details in the inland Chinese logistics, the reader should be informed on the main viable logistics alternatives to reach China from Europe: Sea, Air, Road and Rail.
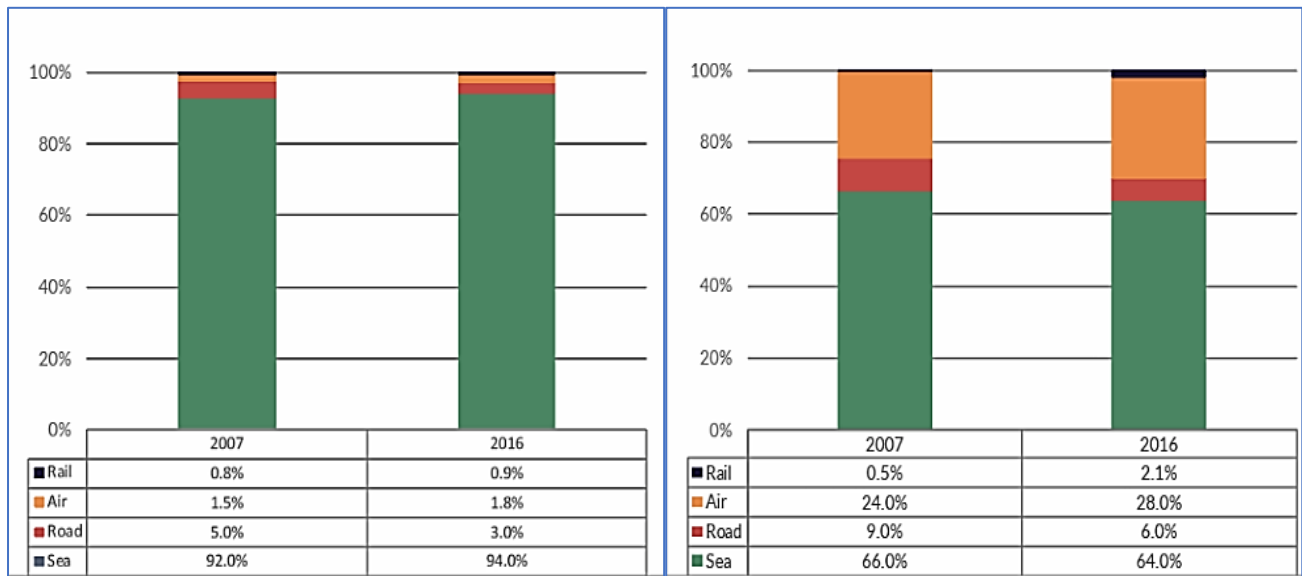
Figure 17, a) China-Europe Trade by Weight (2007-2016), b) China-Europe Trade by Value (2007-2016)

As it can be noticed from the above charts, Sea accounts for the higher percentages both in terms of weight (94% in 2016, +2% gained on the total in less than 10 year) and value (good transported through Sea freight reached the 64% of the total value transported goods in 2017) due to the high volumes transported through this mean. Air has high percentages for what concerns trades by value, caused by the nature of products transported. Indeed, Air is used for high value goods for which it would not have any sense to wait timings required by Sea. As the graphs show, even if the goods transported by air freight reach the 1.8% of the total goods transported by weight, the relative value reaches the 28%, and this trend shows that the goods moved by air are even more valuable year after year (+4% from 2007 to 2016 by value).

Road is usually dominated by the two already mentioned alternatives, due to medium lead times, high costs and low traceability. According to the last point, road transportation presents risks related to the journey that should not be underestimated. It is not rare, especially in some specific country, that a road freight becomes a valuable target for both thieves and kidnappers: to reach China by road, for instance, European or Italian companies have to pass through many different countries, and some of them could be risky. Anyway, any other observation on these logistics solutions will be further analysed also in the chapter n. 4.

For what concerns rail alternative, according to the charts displayed, it seems to be negligible. In the reality, mostly in the last years, different projects have been carried out by many countries (e.g. Silk Road Economic Belt; for further details, chapter n. 4) in order to restore some rail routes that might achieve greater importance in the following years.

Rail transportation has been, since the first years (end of 19th century and during the 20th century), one of the most reliable and important way to transport medium volumes across medium-long distances. Lower lead times with respect to sea freight and higher ones (but obviously lower costs related) for air freight, made it an option always worth of consideration. Due to the globalization effect and ever more attention in international relationship between nations (despite of a huge effort in coordination both for building the base infrastructure and creating the conditions to an international project of this magnitude), it represents though a huge investment to face when building the infrastructures. But then, if well-exploited, potentially it could represent somehow an optimal solution. Indeed, the rail alternative could be a good compromise for thousands of companies, especially SMEs.

The chart below summarizes costs and transit time for the proposed logistics alternatives.
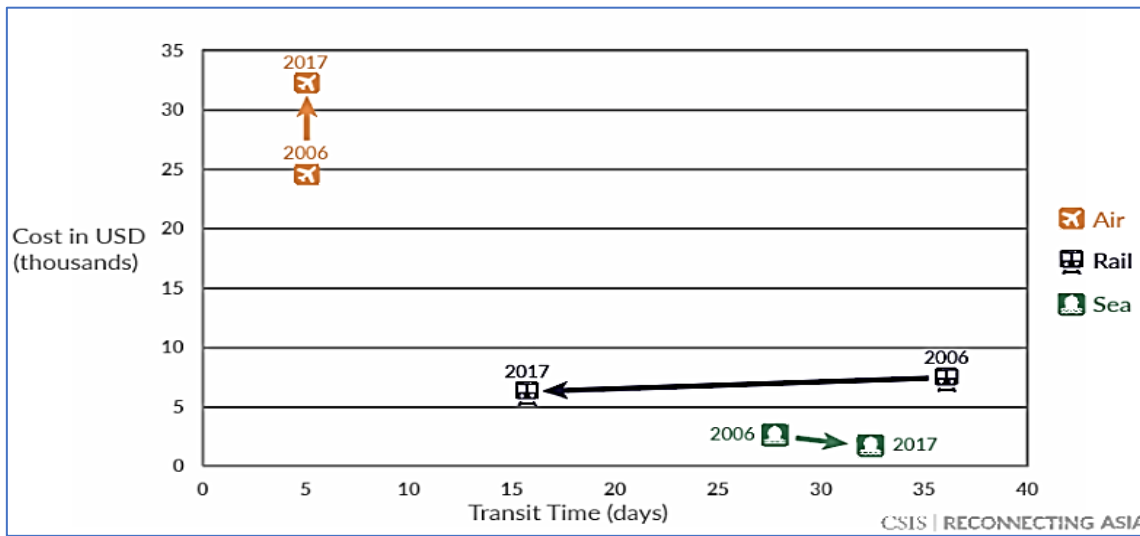
Figure 18, Logistics Costs vs Transit times (Source: Xu Zhang,Eurasian Rail freight in the One belt One Road Era, Cranfield Unviversity)

If the international shipments are well consolidated and known by the majority of the actors interested in the topics developed into this Master Thesis, inland Chinese logistics might represent an uncertain and scary subject. China's logistics industry has developed rapidly in recent years availing from China's economic expansion, continuous improvement of technologies and the constant development of the E-commerce market. Nevertheless, the central-eastern region appears to be the most developed one, while western areas seem to be still less "matured" from a logistics point of view.

Hong Kong and Shanghai represent the two most important logistics hubs of the country. Due to the creation of logistics centres near to the ports, following considerations are about this type of infrastructure, but obviously, they are not the only ones in these logistics Chinese capitals. Hong Kong has nine container terminals for sea transportation, comprising 24 container berths capable of handling up to 20.8 million TEU ("Twenty-Foot Equivalent Unit") only in 2017, with a +4.8% with respect to 2016.

Located at the heart of the Yangtze River Delta, instead, Shanghai is not only the leading container port in China, but in 2016 it has been also the busiest container port in the world which handled 37.13 million TEUs, up 1.6% from 2015.[9]

Two other important ports are located in Shenzhen and Guangzhou creating the most important logistics centre of the country, known as the Pearl River Delta area. The Pearl River Delta economic zone (PRD) is one of China's leading economic regions and a major manufacturing centre. PRD is one of the most vibrant economic regions and, indeed, in 2016, real GDP of the PRD grew by an average of 8.3%.

It locates at the Pearl River estuary where the river enters the South China Sea. The zone is formed by 9 cities, namely

Figure 19, PRD Area in China (Source: HKTDC)

[9] http://china-trade-research.hktdc.com/business-news/article/Facts-and-Figures/Mainland-China-Provinces-and-Cities/ff/en/1/1X39VTST/1X06BOQA.htm

Guangzhou (the provincial capital), Shenzhen, Foshan, Zhuhai, Jiangmen, Zhongshan, Dongguan, four districts and counties of Huizhou and four districts and counties of Zhaoqing (as depicted in Figure 19).

With the aim to bring logistics services to the north, a further logistics hub has been set up in the area of Tianjin and Beijing. Due to the position of Beijing in the inland China, Tianjin is the principal city for logistics purposes because it faces onto the sea (Figure 20).

The China Tianjin Pilot Free Trade Zone (TJFTZ) was officially launched in April 2015 as part of China's second batch of free trade zones following the establishment of the Shanghai FTZ. Its strategic positioning is intended to make it an open platform for the collaborative development of the Beijing-Tianjin-Hebei region. TJFTZ will fully leverage Tianjin Port's advantages in being able to serve overseas markets, including Northeast Asia, in order to promote economic growth in Beijing, Hebei and other inland regions. Tianjin port, as the largest comprehensive and commercial port in North China, provides services to 400 ports in more than 200 countries and regions all over the world. It handled 551 million tons of freight (+1.9%) and 14.52 million TEUs (+2.9%) in

Figure 20, Tianjin and Beijing provinces (Source: Google Images)

2016. Moreover, Tianjin Binhai International Airport is a major cargo freight centre in China.[10]

As just mentioned, the rural western area remains almost isolated from the rest of the country and also the infrastructures to connect it are not so well developed as in the richer eastern areas. This is why government has extended the number of FTZ opened and relative pilot cities also to Chongqing, in order to develop and align the western and central areas through a new logistics hub located in the centre of China. Chongqing is one of China's four municipalities directly under the central government, but its structure is substantially different from the other three. For instance, the area of Chongqing is 13 times that of Shanghai, and its population is 6.3 million more than Shanghai's. The vast majority of Chongqing area is still rural. In 2016, Chongqing's urban population only accounted for 62.6% of its total population[11].

In all of the FTZs cited, as well as in the other current or future FTZs, there is still another theme to discuss, and it is the one of Bonded Warehouse (BW).

BWs are critical infrastructures which could represent an additional benefit to FTZs when approaching a foreign country such as China. Indeed, BWs are sometimes stand-alone structures and sometimes parts of common warehouses in which there are different rules to be applied. A BW is a warehouse where dutiable goods may be stored, manipulated, or undergo manufacturing operations without payment of duties. As a duty, obviously, also payment of VAT and excises are excluded. Therefore, if goods are stored inside a BW, it is possible not to pay these tariffs at the import but to postpone the payment of these taxes at the moment in which the product will be consumed, sold, or to some extent, when the good physically will exit from the BW. Bonded Warehouses are a solution to create synchronization between the inbound and outbound financial flows. This could represent a critical aspect to take into consideration when thinking to export toward another country, especially if this country has regulations, norms, laws that are easily changed year after year, creating risk in the investment approached. Hence, it represents a place in which it is possible not only to store goods but also to physically change the good itself, through some transformation such as changing the packaging or adapting the label of

[10]http://china-trade-research.hktdc.com/business-news/article/Facts-and-Figures/Tianjin-Market-Profile/ff/en/1/1X000000/1X06BVTM.htm

[11] http://china-trade-research.hktdc.com/business-news/article/Facts-and-Figures/Chongqing-Market-Profile/ff/en/1/1X000000/1X06BPV2.htm

the good. In this way BW is a real, existing leverage to adopt in the logistics field depending on the needs of the company involved.

Moving the attention back to issues regarding inland Chinese logistics, even in the more developed areas, there still remain some problems. The Ministry of Commerce of the People's Republic of China argued that the ratio of logistics costs to GDP was approximately twice of that of U.S. in 2010.

The transportation and logistics industry in China have witnessed a rapid growth since 1990, concurrently to the economic growth. However, it seems to not be enough to sustain the increasing demand for logistics services also due to the phenomenon of CBEC.

In recent years, it has been heavily invested in the logistics sector. The Chinese government designated logistics industry as strategic one realizing the importance of having an efficient distribution system for a further economic growth and modernization of the country. Nevertheless, according to Rahaman et al (2017), still remain issues concerning inadequate logistics infrastructures, high rates of damages in transit, congestions at ports and industrial roads, and above all, inconsistent policies and regulations that bear on transportation costs. Therefore, considering an E-commerce point of view, the difficulties incurred in transportations through inland China might weight the double considering eventual returns that are very frequent in an E-commerce context.

Finally, thinking about a foreign company approaching the Chinese market and consequently in the need to face logistics issues, everything can only worsen. Therefore, one time again, the best option would be to have trustful partners operating in China on which to rely on.

2. Literature Review

In the following chapter is reported and described the candidates' elaborations and analyses about the present and past literature, according to the researches done. The chapter is subdivided into different parts: at the beginning is cited the methodology adopted for the researches and classifications of the documents read by the candidates. Then, with a further subdivision, the topics identified in the literature are explained step-by-step adopting an own-built guideline.

2.1 Methodology for the documents research

The research of documents regarding the analysis of the existent literature concerning the present Master Thesis was focused on 4 main keywords: e-commerce, China, logistics and cross-border.
The following literature review has the objective to present the state of the art as regards the combination of these four main topics. Moreover, in order to broaden the review, related words such as distribution, e-market, online, export and digital have been considered.
The starting point for finding papers was a research of keywords both on the title and on the abstract using all the possible combinations of the above cited keywords.
Firstly the papers were searched on the main management-related databases (Elsevier, Emerald, Science Direct, Taylor & Francis, Routledge, Atlantic Press) which allowed to access the most relevant journals according to the focus of the present Master Thesis (International journal of physical distribution & logistics management, International journal of production Economics, International journal of logistics research and applications, Journal of business research, Journal of international management, journal of organizational computing and electronic commerce, scientific journal of logistics, international journal of electronic commerce, Journal of economics and management) and to the "results" of the main management conferences (Wuhan international conference on e-business, International conference on education, technology, management and humanities

Figure 21, Excel Database for the classification of the literature's documents

science, World conference on transport research, International conference on engineering management, engineering education and information technology, world conference on transport research).

This initial research led to the creation of a database of 145 documents that were subsequently deeper analysed, by reading the abstract, with the objective to discard repetitive, non-relevant and outdated ones.

As depicted in the figure above, the database has been built adopting Microsoft Excel, establishing a legend with the aim of highlight the importance of documents[12] and create a table where all of them were classified according to 12 columns: 1) Title, 2) Year, 3) Author/University, 4) Journal/Paper/Conference, 5) Sources, 6) Macro Arguments, 7) Topics, 8) Conceptual/Literature Review/Survey, 9) Methodology adopted in the document, 10) Qualitative/Quantitative approach, 11) Possible References inside, 12) Keywords used.

It should be noticed that "Macro Arguments" has been used as a synonymous of short summary, "Topics" evidences the core elements analysed within the document and "Possible References" either the presence or absence of links with other related documents.

This step resulted in a narrower database of 115 papers (Low importance documents were discarded), which were further examined and sorted, by reading their introduction and conclusion, aiming at the creation of a conceptual tree (Figure 22), adopting PowerPoint to design it. "Cross-border logistics", "logistics China", "China e-commerce" and "cross-border e-commerce" have been identified as the main areas of analysis and thus as the four "external" nodes of the above-mentioned conceptual tree. The central node gathers all the papers dealing with all the four main keywords and therefore is named "Cross-border, e-commerce, logistics, China". Analysing the consistency and coherence of the papers with the tool newly introduced and thus with the objective of this Master Thesis, the final database was created. The resulting 89 papers were accurately read.
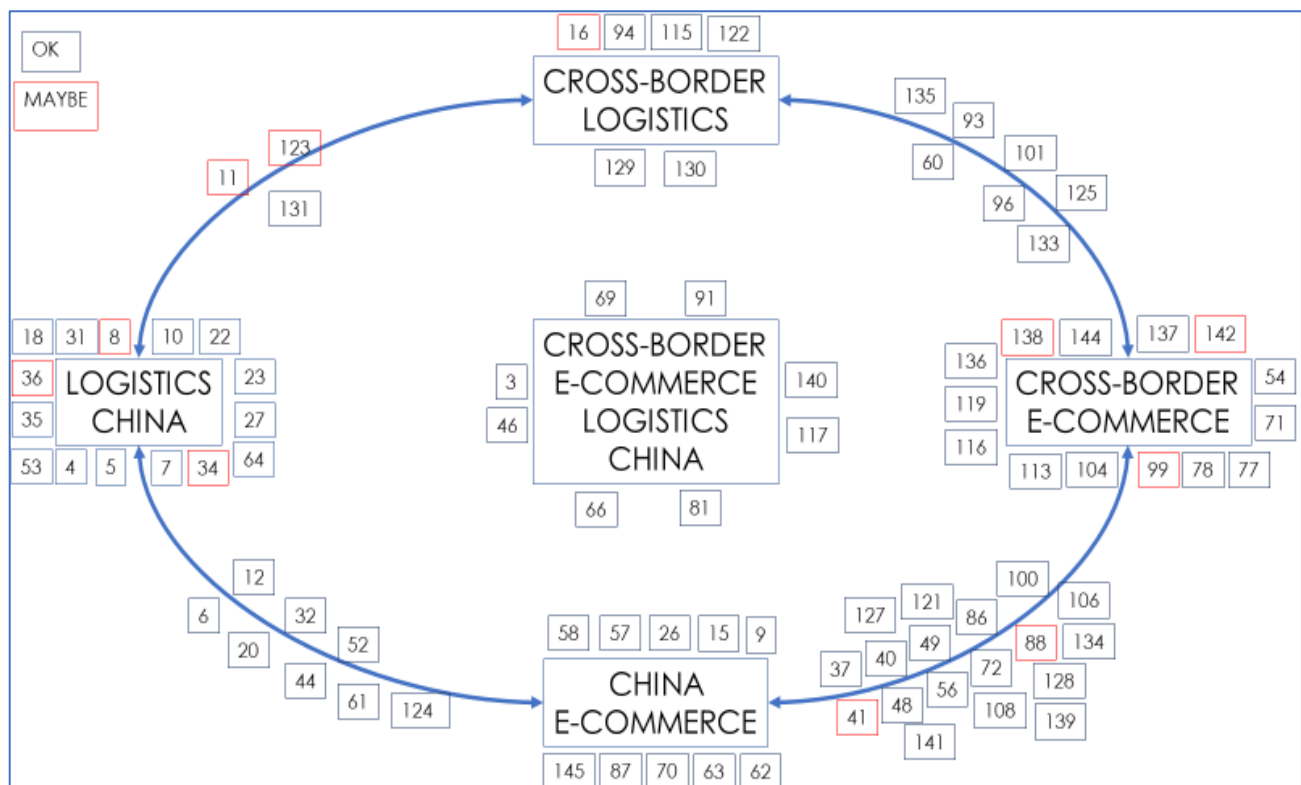
Figure 22, Conceptual Tree developed: Red cells identify those documents that could be avoided after reading them, Grey ones identify those rightly positioned. The positioning on the arches or the nodes has been discussed by the two graduate-candidates after a review session run together and then proposed and accepted with the supervision of the relator.

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[12] Green=Maximum Importance; Yellow= Medium Importance; Red=Low Importance; At the end of the line, if blue was present, it evidenced the alignment with the focus of the thesis; in the same way, orange has been used to underline those documents eliminated after the preliminary screening.

Before entering in details of the areas depicted in the graph, in the following paragraph data about the database and the 89 papers chosen as the basis of the literature review are reported.

2.2 Documents Classification

The following paragraph is structured in order to exhibit the characteristics of the final database.
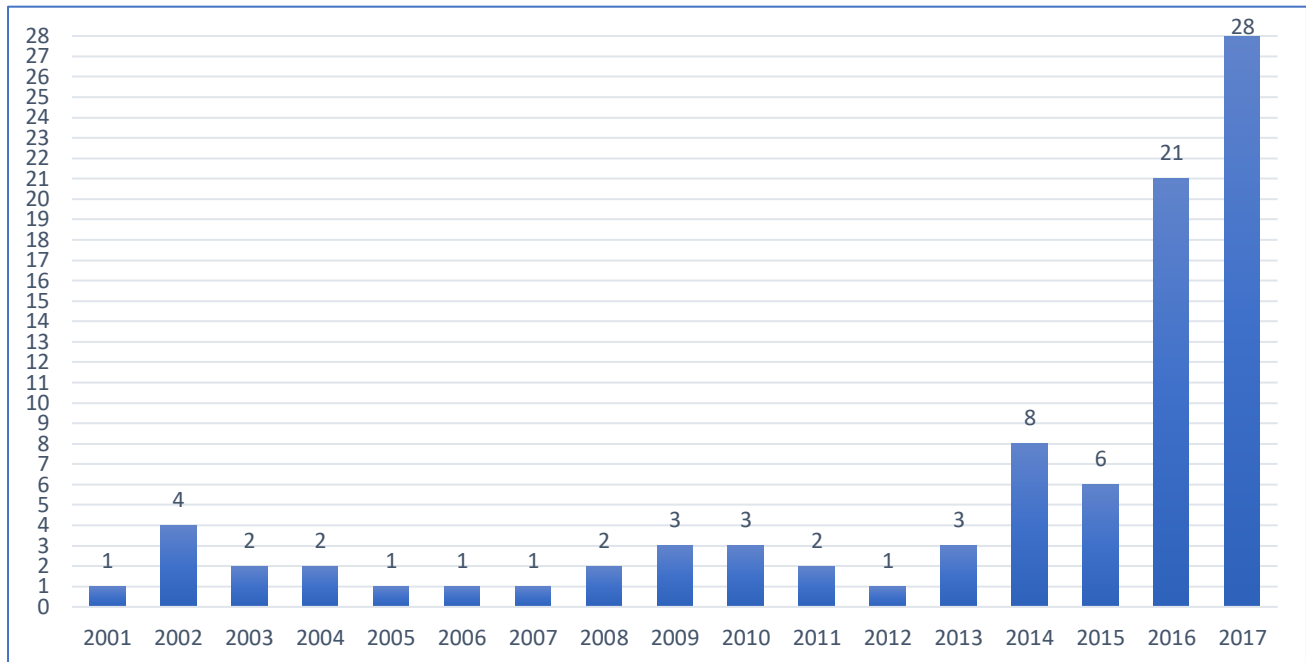
Figure 23, Distribution according to the publication year of the documents selected in the final database

At first, a review focused on the publication dates of the final set of papers and on the research methodology used is provided. The choice was to weight more the most recent papers found on the previously cited databases, nevertheless trying to cover the whole period starting from the new millennium.

The reasons behind this choice are different.

First of all, according to the humble opinion of the two candidates, the more recent the document, the more the probability to find concepts and analyses carried on our thesis topics, and consequently the more useful for their purposes.

Secondly, due to the huge number of papers circulating on the internet, a priority criterion had to be discussed between the two candidates when searching documents. Indeed, it was not always possible to organize face-to-face meetings between the two during the documents' research. Following this criterion, made it possible to search papers independently and with a constant alignment.

Thirdly, after the first researches, the candidates understood that there exist several papers, written before the biennium 2008/2010, concerning too generic topics in the E-Commerce world. Many of them describing basic concepts that nowadays are either well-managed by any person involved in this field or that have been overcome by following findings.

Lastly, E-Commerce is a real, dynamic and in constant evolution phenomenon which changes year by year in any part of the globe, depending on macro and micro-economic, cultural, governmental and technological factors. Therefore, exploiting the most recent papers increased the likelihood to catch the latest trends, thus providing to final readers the most complete, precise and coherent picture of the topic.

For what concerns instead, the methodology used by paper authors, the choice was different.

Research method	# of Papers	%
Analytical model	27	30%
Case study	11	12%
Conceptual analysis	17	19%
Descriptive analysis	17	19%
Literature review	5	6%
Multi-methods	6	7%
Survey	6	7%

Table 2, Distribution according to the methodology adopted in the papers of the documents selected in the final database

In this case the idea was to find out more analytical and specific case studies due to the nature of this Master Thesis, that requires an analytical approach to design the model. Indeed, the 30% of the papers adopted deals with analytical models while the 12% with case studies, reaching a 42% that seems to be reasonable. For the remaining 58%, the criterion was to balance the sample in the most effective way, to get as much information as possible to cover any lack of data, argument or concept. However, it cannot be denied that the research and the choice of papers was conducted according to the availability of the documents in the different databases.

For what concerns the topics analysed, in order to highlight insights coming from the papers research, the distribution of the documents is depicted in the following table:

Topic	N° of papers	%
Cross-Border, E-Commerce	14	15,7%
Arc	18	20,2%
China, E-Commerce	10	11,2%
Arc	8	9,0%
Logistics, China	15	16,9%
Arc	3	3,4%
Cross-Border, Logistics	6	6,7%
Arc	7	7,9%
Cross-Border, E -Commerce, Logistics, China	8	9,0%

Table 3, Distribution according to topics identified in the documents selected in the final database

By observing this table, it is immediate to see that the 5 nodes are quite balanced (6,7% in the worst case, 16,9% in the best one), where the minimum is showed by "Cross-Border, Logistics" due to our selection and decisions. Indeed, papers about this topic are really numerous and the selection has been focused on keeping only those that have a perfect coherence with these two keywords and for this Master Thesis purpose. On the contrary, it is possible to notice that the arch in between the nodes "Cross-Border, E-Commerce" and "China, E-Commerce" places 18 documents, accounting for 20% of the documents selected, and considering the two nodes at the sides, the count raises up to 47,2% for a total of 42 papers out of 89. The reason behind this higher proportion is given by the huge availability of documents about China E-Commerce context and situation. China is a fervent country where E-Commerce and especially Cross-Border E-Commerce is continuously revised. Consequently, to understand the current framework, the two candidates recognized to need more details and thus more papers. The only arch with a lower weight is the one between "Cross-Border, Logistics" and "Logistics, China", and the reason lies in the completely different approaches about logistics when describing Cross-Border logistics and domestic one. There are not many authors dealing with comparisons or analyses about these differences. As it seems to emerge from the first steps of this literature review, researches are conducted in details only in one field. Moreover, this Master Thesis deals with numerous and different factors to analyse. Therefore, according to the candidates, logistics was sufficiently covered, especially thanks to another Master Thesis,

"Distributive strategies to support online cross border sales to China in food and apparel industries: an activity-based model to compare different solutions", that tried to cover this gap (Pagnanelli et al, 2015). Consequently, no more papers have been searched.

Finally, the central node places only 8 documents: this is the first symptom of the difficulty in analysing at the same time all the topics which is exactly what the two candidates have as objective.

Lastly, for sake of comprehensiveness, a table with all the papers of the database divided according to the research method is here below provided.

Research method	Papers
Analytical model	Tiessen et al. (2001); Leung et al. (2002); Wang et al. (2006); Lean et al. (2014); Yang et al. (2014); Song et al. (2014); Zhang and Huang (2015); Libera and Pagnanelli (2015); Noci et al. (2016); Feng et al (2016); Ai et al. (2016); Zhou et al. (2016); Liu (2016); Hsiao and Chen (2016); Lu and Wang (2016); Shan (2016); Yuanyuana and Bingliang (2016); Deng and Wang (2016); Liu and Yan (2017); Yang et al. (2017); Giuffrida et al. (2017); Beauvallet (2017); Su and Xu (2017); Xu et al. (2017); Ma et al. (2017); Huo et al. (2017);
Case study	Zhang (2002); Guanasekaran and Ngai (2003); Chen et al. (2004); Zhao et al. (2008); Zanger et al. (2008); Hou and Trappey (2010); Farhoomand et al. (2014); Wang (2015); Towers and Xu (2016); Qiao et al. (2017); Huang et al. (2017);
Conceptual analysis	Mahpula et al. (2013); Jiang and Prater (2002); Efendioglu and Yip (2004); Ying and Dayong (2005); Premazzi et al. (2010); Pezderka and Sinkovics (2011); Savrul et al. (2014); Zheng (2016); Megnan (2016); Yu et al. (2016); Li and Lv (2016); Song et al. (2017); Imperatrice (2017); Noci et al. (2017); Kim et al. (2017); Su et al. (2017); Fang (2017);
Descriptive analysis	Goh and Ling (2003); Sinkovics et al. (2007); Liu (2010); Xianglian and Hua (2013); Pang et al. (2014); Zhenhua and Qiang (2015); Wang and Zhao (2015); Yang and Shen (2015); Xiao et al. (2016) Liu (2016); Kawa and Zdrenka (2016); Agrawal and Fox (2016); Yang et al. (2016); Sun et al. (2017); Yue et al. (2017); Cho and Lee (2017); Chen and Yang (2017);
Literature review	Liu (2012); Grochal-Brejdak et al. (2013); Giuffrida et al. (2017); Zhang et al. (2017); Rahman et al. (2017);
Multi-methods	Yang et al. (2016); Kawa (2017); Wang et al. (2017); Zhang (2017); Li et al. (2017); Wang et al. (2017);
Survey	Dalya and Cui (2002); J. Et al. (2009); Tian et al. (2009); Zhang and Figliozzi (2009); Li and Li (2011), Choy et al. (2014);

Table 4, Distribution of papers according to topics identified in the documents selected in the final database,

2.3 Literature Review

The method adopted to perform the review of the existent literature was to analyse, one at a time, the four nodes of analysis converging then in the central one following a clockwise direction. The starting node selected was "Cross-Border, E-commerce" due to the possibility to immediately identify some gaps in the existent literature and fill part of them with the content of this Master Thesis.

Before starting, a brief methodological note for the literature review should be reported.

Firstly, for the blocks used in the conceptual tree, the driving concepts will be defined. Then the analysis will take into consideration also the different documents positioned on the blocks' edges. Secondly, the candidates will use primary documents (89 as described above) to create the storyline of the literature review and, to reinforce concepts or specific points, also secondary sources cited in the documents adopted, due to their academic reliability being papers validated both by the universities of the authors and by the candidates' relator. Thirdly, the concepts will be developed and explained to provide to the reader the most complete framework of the state of the art concerning these topics. Finally, the literature gap will be clearly defined at the end of the chapter.

Therefore, after an extensive reading of the papers, the two candidates have summarized them in word documents and then, in order to write down the literature review, they have firstly developed a short schedule to organize the papers. Then, the literature part has been written summarizing concepts from the first source and adopting sentences about secondary sources.

2.3.1 Cross-Border, E-commerce:

Cross-Border refers to the flow, in terms of logistics, information, money and management, between two different countries. To be precise, the Cross-Border E-Commerce refers to the situation in which two countries belonging to different trade blocks are involved, due to the presence of completely different tariffs and non-tariffs barriers that change one trade's framework from another one. However, this concept nowadays is used for identifying all the international flows without considering this distinction.

E-Commerce identifies instead the ever-stronger phaenomenon that is enlarging its presence at a global level, finding fertile territories mostly everywhere. E-commerce could be synthetized as the use of electronic means to exchange information and to carry out activities and transactions. It is a business activity conducted using websites on the Internet and this is a subset of the definition designed by the OECD in 1998: "…all business occurring over networks using the Transmission Control Protocol/Internet Protocol (TCP/IP)'' (J.H. Tiessen et al. / Journal of International Management 7 (2001) 211–233)

In this case, Cross-Border and E-Commerce, mixed together, give birth to the concept already cited in the previous chapters of Cross-Border E-Commerce (CBEC), which represents one of the main trends in the E-Commerce generation and that in the last decade is creating value and new business opportunities, especially in those countries where it is regulated with the aim of controlling and balancing this movement.

Consequently, CBEC differs significantly from 'regular' e-commerce in, among other things, scope, regulations and strategies. A possible general definition could be drawn according to Yuxiang Pan, 2017, where CBEC usually refers to transactions, payment and logistics in different countries through e-commerce. Many other authors have defined it in similar or different ways, according to the different cuts that they wanted to investigate. The attributes of cross-border E-business could be also defined as globalization, intangibility, instantaneousness, and paperlessness offer a great level of facilitation of capital and information flow across different countries, and lower the border boundaries in trade (Pan 2017; Huo et al. 2017). And, as Fang et al. 2014 suggested, an integrated service system results fundamental for future development of cross-border E-business as well as a level of legislative support is also a determinant of cross-border e-commerce adoption behaviour for Chinese companies (Pan 2017; Chen & Liu, 2014).

Anyway, in general terms, the process consists of buying overseas products directly from foreign retailers and suppliers via the internet, without the specific need for an intermediary business entity in the country where the company is exporting.

What is important to underline is that many times in the existent literature CBEC is treated as synonym of internationalization in the digitalization era, both for enterprises not already on the E-Commerce world and for companies already present. This concept has to be kept in mind from here on out.

Grochal et al. 2013, provides an interesting list of economic prerequisites of internationalization of e-commerce enterprises, dividing them in market prerequisites and costs prerequisites. To the first category belong elements such as "high degree of digitization facilitates the multiplication and transmission of products, services and systems" (Osarenkhoe, 2009); "creation of market niches and internationalization of operations to increase the sales market" (Varma, 2011); "reduction of geographic, language and cultural barriers as well as the psychic distance thanks to the combination of the relationship network with new communication technologies" (Moen, Gavlen, Endresen, 2004; Czinkota, Ursic, 1987).

As costs prerequisites instead, Grochal et al. 2013 reports "cost reduction thanks to the economics of the information exchange without the loss of the value of the message content" (Wymbs, 2000); "easy replication of digital products makes it possible to deliver them at low cost to each recipient even in the course of a short

lifecycle" (Chung-Shing, 2001); "economy of scale expressed as fixed costs divided by the size of the base of buyers (demand approach) and economy of range or the creation of a single set of digital assets (e.g. databases of customers) thanks to which the offered value can cover many varied and separate markets" (Chung-Shing, 2001).

Thus, Mesut Savrut et al. in 2014 described the potential benefits and barriers of E-Commerce when a company, especially focusing the attention on Small and Medium Enterprises (SMEs), decides to become international following the globalisation trend, while J.H. Tiessen et al. 2001 develop a model for suggesting how to become international SMEs on the E-Commerce. In both papers it is also analysed the managerial level, a critical lever often presented in many analyses and better discussed later in the review. Nevertheless, the first issue is that managers should ensure that they are able to acquire the enabling and enlightening technical and cultural skills associated with international e-commerce use.

SMEs have already been making use of e-commerce in creating value-added, new services and new business models, expanding their business and compete in global markets. However, there are a number of technical and non-technical limitations associated that limit or prevent SMEs getting into use information technology and e-commerce operations. Because many of these SMEs cannot cope with these limitations such as technical, economic and legal barriers by themselves, they need public and/or private support. And this support represents a fundamental element to be deeper analysed within this review.

A firm operating on a global market can take advantage "of four main sources of benefits vis-à-vis competitors operating in only a local context" (Mesut Savrul et al.2014; Mundim et.al, 2000): 1) economies of scale; 2) exploitation of lower input costs; 3) risk compensation; 4) optimality of market segmentation.

In this way, globalisation is a source of opportunities as well as a source of threats, because of the double face of competition: increased product market competition may cause SMEs to reduce their price mark-ups but, at the same time, the "learning by competition" analogy suggests that the pressure to survive may speed up the adoption of new technologies and thereby enhance the productivity of SMEs. And e-commerce is a vector that can more easily help to reach this scope.

Electronic commerce (e-commerce) technologies have the potential to bring significant productivity gains at firm level. Especially when applied to business-to business relations, "electronic technologies can lead to rationalisation of business processes and cost savings" (Mesut Savrut et al. 2014). As an immediate impact, these technologies allow automation of common processes, such as distribution, sales, after-sales service and inventory management (Mesut Savrul et al. 2014; OECD, 2000).

There are a variety of ways by which the internet and e-commerce are useful for SMEs and Wikibooks 2014, provides a short summary of them, better depicted and generalized through the following figure:

- It facilitates the access of artisans and SMEs to world markets.
- It facilitates the promotion and development of tourism of developing countries in a global scale.
- It facilitates the marketing of agricultural and tropical products in the global market.
- It provides avenues for firms in poorer countries to enter into B2B and B2G supply chains.
- It assists service-providing enterprises in developing countries by allowing them to operate more efficiently and directly provide specific services to customers globally.
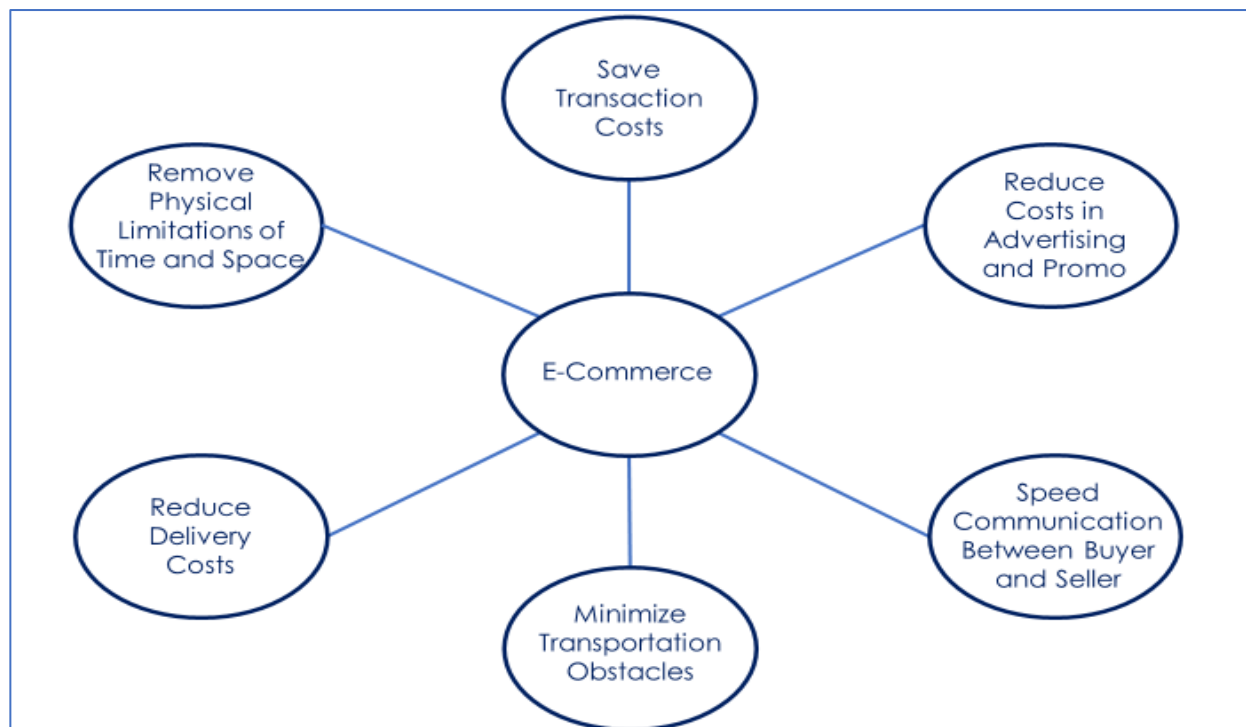
Figure 24, Potential Benefits of E-Commerce (adapted by Mesut Savrul et al. 2014)

The use of web and e-commerce, and consequently of IT technologies resulted in the digitisation of offered products, services and systems, facilitating their multiplication and transmission to a distance (Osarenkhoe, 2009). As a result, information technologies made it possible to overcome the geographic barrier and reduce the psychic distance resulting from language and cultural barriers. It is considered that technologies are mostly independent from cultural differences, which contributes to a reduction of the influence of that barrier (Moen, Gavlen, Endresen, 2004), but on this theme the opinions are conflicting (e.g. Sinkovics et al.2007; Kotha et al. 2004, etc.). IT technologies make a faster internationalization of existing markets possible along with the emergence of new, virtual markets and transnational market niches. They enable a reduction of costs of delivery of products and services to the customer and promote the attainment of the economy of scale and range by way of an access to a larger, international market (Chung-Shing, 2001; Moen, Gavlen, Endresen, 2004; Osarenkhoe, 2009; Varma, 2011).

Deng et al, 2016, shows the meaning of EMA, Early-Mover Advantages, reporting firstly the old work of Lieberman and Montgomery (1988), that still today is robust, then its findings related to E-Commerce.

Indeed, authors suggest that first-mover advantages primarily arise from three sources: 1) technological leadership (i.e., learning curve and R&D), 2) preemption of resources (i.e., key input factors and locations), and 3) switching costs and buyer choice under uncertainty. At the same time, first movers have to incur disadvantages arising from four sources as time elapses, namely, 1) free-rider effects, 2) resolution of technological or market uncertainty, 3) shifts in technology or customer needs, and 4) incumbent inertia.

Thus, Deng et al, complete their research extending to E-Commerce the framework around it: if a company is an EMA, it could have more time to understand and develop successful strategies, accumulating experience and knowledge. Through its marketing and active product co-development efforts, an early mover may be able to establish the perceptual structure of the market to its advantage, and become the prototype against which all late entrants' offerings are compared. But this effect has a limited lifecycle, because after three to five years, early-mover disadvantages will counterbalance the EMA. After six to seven years, such disadvantages will even completely negate the EMA. Moreover, the study finds how e-commerce portals constantly offer windows of opportunity for nascent latecomers to venture into the international markets.

Despite its benefits, there are a number of technical/technological and non-technical/non-technological limitations associated with internet-based electronic commerce. The two major technical limitations are related to security concerns and infrastructure, but others are the legal, regulatory and political, the cultural and the economic barriers, as depicted in the figure 24 above (Mesut Savrul et al., 2014; Grochal et al., 2013), without forgetting those barriers faced by SMEs in exporting that include "the lack of capital and capacity, and the general complexity of serving overseas markets" (UNCTAD, 1993).
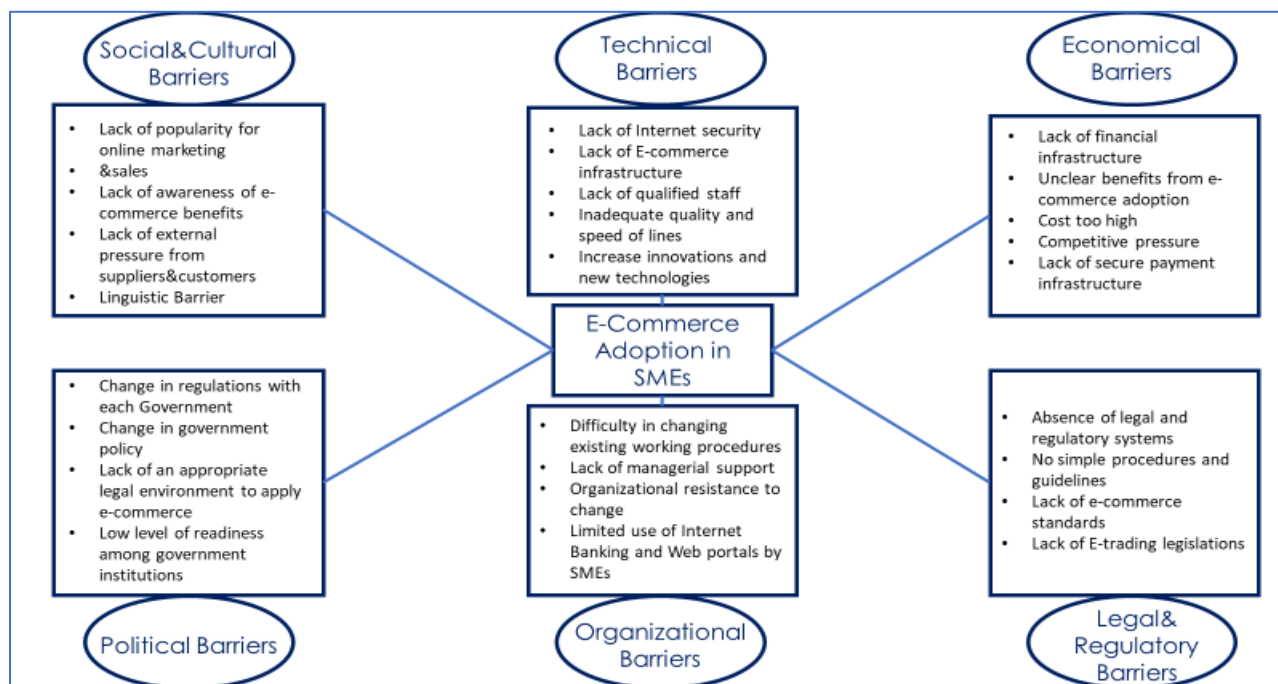
Figure 25, E-Commerce Barriers for SMEs (Adapted from Grochal et al, 2013)

Thus, Pezderka et al. 2010, develops a conceptual framework about the e-risks, that explicitly details the reasons for online market entry choice over more traditional entry modes for SMEs, due to the inherently resource-poorer condition than large corporations, and their vulnerability threshold to business failure is consequently lower. Therefore, the paper finds out 25 risk dimensions, classifying them into three categories: (1) traditional IB risks contain dimensions which have their origins in the physical environment (to date, these have been excluded from emerging e-risk frameworks); (2) operational risks include dimensions which are typical for domestic brick-and-mortar firms as well as domestic e-businesses; (3) online media risks are unique to online media use. These dimensions, combined with the OLI framework designed by Dunning (2001)[13], affect the perception[14] of e-risks, and they impact on the market entry choice a well as management choice of SME

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[13] Dunning's OLI Framework (Ownership, Location, Internalization) (Dunning, John H. (2000). "The eclectic paradigm as an envelope for economic and business theories of MNE activity". International Business Review. 9: 163–190);
Those companies interested in internationalizing themselves, gain advantages according to these three dimensions.
Ownership advantages: specific advantages refer to the competitive advantages of the enterprises seeking to engage in Foreign direct investment (FDI). The greater the competitive advantages of the investing firms, the more they are likely to engage in their foreign production.
Location advantages: Locational attractions refer to the alternative countries or regions, for undertaking the value adding activities of multinational enterprises (MNEs). The more the immobile, natural or created resources, which firms need to use jointly with their own competitive advantages, favour a presence in a foreign location, the more firms will choose to augment or exploit their O specific advantages by engaging in FDI.
Internalization advantages: Firms may organize the creation and exploitation of their core competencies. The greater the net benefits of internalizing cross-border intermediate product markets, the more likely a firm will prefer to engage in foreign production itself rather than license the right to do so. (Source: Wikipedia)
[14] Perception is a learned mental process used to reduce the complexity of information about the environment. Market entry decisions are based on ''perceptions of the environment, [and] not on environmental reality'' (Johnston & Wright, 2004, p. 235)

for online or offline internationalization. C. Chen et al. 2017 instead talks about the difficulty, increasing year-by-year, in developing technologies to avoid the risk of entering, through CBEC, of illegal, dangerous or not compliant goods into one country. In their work, the focus is on develop technological tools or systems for the identification of commodity types, because it is a difficult task for computer programs. Moreover, the commodity types defined in official regulations are usually composed of terminologies which are different from the words people usually use to describe the commodity on the web. This makes the matching of a CBEC commodity's popular name to its official name more difficult.

A challenging task are also the noisy information in the names of commodities and the wording of commodities' popular names and official names that can be significantly different. Finally, another important task for the proposed systems is to transform the textual rules in the national regulations into a computer understandable form which can be used by the inference engine.

As reported in Sinkovics et al. 2007, "online standardization leads to cost savings" (Kambil 1995; Sinkovics and Penz 2005) and website adaptation is potentially a costly undertaking. Indeed, incorporating culturally responsive features in a website necessitates the employment of culturally experienced staff and expert linguists to undertake the initial design and launch of country specific websites and to provide continuous analysis and interpretation of cues and generate insights from online dialogue and interaction with customers, residing in culturally diverse environments. Forrester Research (2001) reinforce this view by observing that repeat visitation of websites is predominantly determined by interactivity, trust, the right composition of quality content, ease of use, speed and frequency of updating, while cultural dimensions and appeals are of negligible importance. Therefore, culture plays a less important role than expected?

Sinkovics et al. 2007 reports the idea of Kotha et al. 2004: buyer's online experience is critical to website competitiveness. This induces the firm to create various "relationship services". Consequently, relationship services are a mechanism to create a bond with online customers and engender buyer trust (Kotha, Rajgopal, and Venkatachalam 2004).

In the cross-border context, the creation of relationship service implies adaptation or differentiation, but in any case, a strong effort and attention on this theme. Relationship services are provided as a part of making the website more culturally sensitive and specific to the target market (Lim et al. 2004; Lynch and Beck 2001; Singh, Zhao, and Hu 2003). Cultural adaptation does have the potential to improve the effectiveness of websites. Yamin and Sinkovics (2006) reason that website interactivity entails a degree of cultural adaptation and that such cultural adaptation is beneficial in terms of sustaining the buyer/seller 'dialogue'.

Thus, Sinkovics et al. 2007 and J.H. Tiessen et al. 2001 suggest that adapted websites will depict online cultural values, which are representative of respective country values (as provided by Hofstede and Hall Framework[15]). The results of the study show that in high-context cultures communication is implicit, indirect and deeply embedded in the context, and therefore the cultural adaptation is a secondary need and standardization represents a real potential benefit. On the contrary, in low context cultures, communication is more direct, less implicit and more informative and requires something more, different, personal, valuable: so, adaptation seems to be the unique way of involving the customer in the right way.

As cited before, the government plays a fundamental role for the development and control of CBEC, and in the following lines there will be a review about not only on the meaning of government actions and policies for changes in the E-Commerce context, but also the taxation framework in this field.

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[15] Hofstede's cultural dimensions theory is a framework for cross-cultural communication, developed by Geert Hofstede. It describes the effects of a society's culture on the values of its members, and how these values relate to behaviour, using a structure derived from factor analysis. Using numerous parameters and indexes, he developed a model to analyse the results of survey collected by IBM's employees between 1967 and 1973. The original theory proposed four dimensions along which cultural values could be analysed: individualism-collectivism; uncertainty avoidance; power distance (strength of social hierarchy) and masculinity-femininity (task orientation versus person-orientation). Independent research in Hong Kong led Hofstede to add a fifth dimension, long-term orientation, to cover aspects of values not discussed in the original paradigm. In 2010, Hofstede added a sixth dimension, indulgence versus self-restraint. (Source: Wikipedia)

Cross-border e-commerce as enterprise innovation plays a mediating role between government's pro-innovation supportive policy and firm performance. (Chen et al. 2017)

Many studies show that government pro-innovation policy has a positive and direct effect on enterprise innovation, for instance, Zeng's research (2014) pointed that government pro-innovation policy has positive influences on both enterprise technology innovation and institutional innovation. In addition, many studies have shown that government pro-innovation policy had a significant correlation with firm performance. Common ground appears to be forming in Damanpour's (1991) study, which proposed that technological innovation and institutional innovation acted synergistically on enterprise performance enhancement. This synergy theory was verified in different situations of the economics.

In addition, "government pro-innovation policy mentioned earlier also links to business-mode innovation. Historical reviews about technology reformation in China" (Xiwei and Xiangdong, 2007) found that government pro-innovation policy can improve enterprise innovation by improving efficiency of resource allocation to some extent, but excessive government intervention or inadequate supervision would lead to economic distortions. In other words, "the relationship between government policy and business-mode innovation is nonlinear". (Chen et al. 2017)

Chen et al. 2017 suggest that with the enterprise innovation, government pro-innovation policy could be turned into firm performance in the field of cross-border e-commerce. Through statistical and linear regression models, it has been recognised different details:

1) That government pro-innovation policy has some impact on firm performance.

2) Enterprise innovation theory has been extended by adding business-mode innovation as one subsystem of enterprise innovation.

3) Empirical results indicate that institutional innovation and business-mode innovation both play a full mediating role in the relationship between government pro-innovation policy and firm performance, while technological innovation has a partial mediating effect.

Then, again Chen et al. 2017, analyses pro-innovation policies related to the phenomenon of M-Commerce, that is a particular typology of E-Commerce developed in the last 10 years and that is revolting the past logics turning them to new unexplored field. With the rapid development of network technology and palm equipment, users begin to spend more time on mobile client due to the popularisation of smart phones, and m-commerce is developing at a higher speed than traditional e-commerce. (Chen et al. 2017) According to Tiwari and Buse (2007), M-Commerce is defined as any transaction completed by mobile electronic devices. M-commerce offers extra functionality to the existing e-commerce such as location and localisation services (Chen et al.2017; Junglas and Watson, 2008). Despite E- and M-commerce have the essential similarity, the Cross-Border M-Commerce (CBMC) has increasingly captured the attention because of a broader profit space than cross-border e-commerce. Indeed, CBMC can lead to a huge number of users who may far surpass the PC clients and could be an opportunity to enter in the Cross-Border Commerce regardless of venture size thanks to its easiness and potentially no limits application.

But the government action is not limited into the pro-innovation or business-mode innovation field. The actual debate on the government role in CBEC (or CBMC) is also on the taxation field, which represents one of the greatest and intricate themes on the web-commerce. Many studies have been written on this argument (e.g. Beauvallet 2017), mostly really technical with the aim of exploring the benefits, especially from the host government's point of view, of some types of taxes with respect to others, but an optimal solution is still far away.

Agrawal et al. 2017 tried to describe and find suggestions and a possible solution in this context. Rapid growth in e-commerce has altered the ability of jurisdictions to enforce commodity taxes on a destination basis. This results in different effective tax rates depending on the way in which goods and services are purchased and the characteristics of both the products and the sellers. What comes from this paper is the understanding of a chaotic and complex situation, no matter the country analysed. E-Commerce, M-Commerce already represent a difficult element to manage for taxes, because flows follow different paths and logics from the physical selling of goods

and services. But CBEC and CBMC are probably even more complex due to the difficulty to understand the cross-border processes, the flows, the origin and the destination, and consequently "normal" taxation logics are not applicable or are fallible. Anyway, at the end of their analysis, the destination principle[16] has been defined the appropriate place-of-taxation rule for consumption taxation of cross-border trade.

For this block, no other papers have been analysed for taxes themes because the field is too wide and it is not the focus of this thesis: to deeper analyse it, there should be a study on this topic.

Now, the question behind CBEC is how to approach it and what it is needed to open this kind of channel, especially because even more often entrepreneurs of small and medium enterprises (SMEs) with inadequate capabilities and limited resources drove digital transformation in their companies (L. Li et al. 2017).

Digital transformation is defined as transformation "precipitated by a transformational information technology" (Lucas et al., 2013, p. 372). Such transformation involves fundamental changes in business processes (L. Li et al. 2017; Venkatraman, 1994), operational routines (L. Li et al. 2017; Chen et al., 2014), and organizational capabilities (L. Li et al. 2017; Tan, Pan, Lu, & Huang, 2015), as well as entering new markets or exiting current markets (L. Li et al. 2017; Dehning, Richardson, & Zmud, 2003). Although organizational transformation, in general, entails changes in strategy, structure, and power distribution domains (L. Li et al. 2017; Romanelli & Tushman, 1994), "digital transformation highlights the impact of IT on organizational structure, routines, information flow" (Dehning et al., 2003; Orlikowski, 1996), and "organizational capabilities to accommodate and adapt to IT" (Cui & Pan, 2015; Zhu, 2004).

With CBEC, the SMEs attempt to sell online to customers located in different countries governed by different jurisdictions. Compared to domestic e-commerce, CBEC imposes some unique, daunting challenges on SMEs, ranging from language barriers (Lynch & Beck, 2001; Sinkovics et al. 2007) and cultural differences (Sinkovics et al. 2007) to operational complications such as international shipping, customs clearance, and tax compliance (Kim, Dekker, & Heij; Agrawal et al.; Beauvallet; 2017).

Intuitively, overcoming these challenges will require SMEs to acquire various capabilities in areas such as foreign language proficiency, cross-culture awareness, and familiarities with foreign law and regulations as well as international operations (L. Li et al. 2017).

With support from their digital platform service provider, such as Alibaba (and many others), which works as a facilitator in the E-Commerce world, the SME entrepreneurs were able to do so through upgrading both their own managerial capabilities and their companies' organizational capabilities in CBEC. The study developed by L. Li et al. shows how SME entrepreneurs with inadequate capabilities and limited resources can take advantage of third-party IT services to drive digital transformation. For SMEs, digital transformation is usually initiated by the entrepreneurs and it is, as Besson and Rowe (2012) and J.H. Tiessen et al. 2001 noted, more a managerial issue than a technical one: successful digital transformation demands not only acquiring and deploying technical resources but also—perhaps even more importantly—tackling managerial issues (Doherty & King, 2005) such as redesigning business processes and training (Markus, 2004) and investing in e-Commerce human resources and organizational capabilities (Cha et al., 2015).

Moreover, J.H. Tiessen et al. 2001 in their model propose 9 propositions to describe how to internationalize a SME, and, even if the paper is one of the oldest read, these propositions were really light-year ahead, so we decided to report them to clarify possible necessary points for approaching to CBEC.

Proposition 1: Levels of perceived industry disequilibria and uncertainty facing an SME are related positively to its e-commerce resource commitment.

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[16] Destination Principle: A regime of international taxation according to which consumption taxes are levied where products are consumed. The rates of VAT and excise applied are those of the country of final consumption, and the entire revenue accrues to that country's budget. This system ensures production neutrality, since indirect taxes do not discriminate between foreign and domestic producers, and exports are exempt from domestic taxation. The disadvantage is the need for monitoring of cross-border trade flows. See also origin principle of taxation. (Oxford Reference; http://www.oxfordreference.com/view/10.1093/oi/authority.20110810104737666)

Proposition 2: The level of foreign market opportunities perceived by an SME is related positively to its level of e-commerce resource commitment and cultural adaptation.

Proposition 3: The level of customer demand for e-commerce capability is related positively to the level of SME e-commerce resource commitment and the functional sophistication of the firm's website.

Proposition 4: The need for technological legitimacy in an industry is related positively to the level of SME e-commerce resource commitment.

Proposition 5: The Internet technical capability residing in a firm is related positively to levels of international SME resource commitment and the functional sophistication of the website.

Proposition 6: The cultural capability within a firm is related positively to levels of international SME resource commitment and cultural adaptation directed at that market.

Proposition 7: The relative capacity of the firm (firm size/number of customers) is related positively to levels of international SME resource commitment and functional sophistication of the website.

Proposition 8: The firm's dependence on distributors is related negatively to the functional sophistication of the website.

Proposition 9: Firms selling to business, as final customers, will have higher international e-commerce resource commitment and lower cultural adaptation than those selling to consumers as final customers.

Apart from models about internationalization and innovation toward technology and web-commerce, are there other elements to take into consideration when dealing with physically distant and different customers? Following this line, it has been investigated whether retailers exploiting Internet for an international expansion can have chances to increase the transaction rates with foreign customers by engendering trust and providing compensation as a form of incentive in order to increase customers' information sharing, the antecedent of a buying–selling transaction online. In particular, it was studied their role on customers' willingness to divulge sensitive information as well as their actual disclosure behaviour to a foreign and unknown retail firm selling online products and/or services to final customers. (Premazzi et al. 2010)

Through their work they validated some interesting conclusions adopting statistical assumptions associated with analysis of variance (ANOVA) and analysis of covariance (ANCOVA), with the idea on the basis of data collected through internet: 0also, this topic is being more and more relevant in the last years and it is an argument not to forget.

Premazzi et al. 2010 so concludes that "The higher the trust, the higher the behavioural information disclosure", "When compensation is offered, customers will provide more information", "In the high trust condition, subjects will provide more information when offered compensation than when offered no compensation". These conclusions should be considered by any interested person in the E-Commerce world.

At this point, in order to study this block, a question should be proposed before going on: is it the best option the E-Commerce channel? Consequently, would you choose "Online channel, offline channel, or dual channels?" (P. Zhang et al. International Journal of Production Economics 191 (2017) 37–50 – Elsevier)

Literature from this point of view is divided: some think that it is better a dual channel, others that this could bring to cannibalization. So, it is possible to say that a dual channel carries positive effects under some conditions. Within P. Zhang et al. 2017 there are references to Bernstein et al. (2008), who find that when the customer lacks an outside alternative, adding an online channel can lead to higher profit for the retailer; otherwise, the profit will reduce. Or Huang and Swaminathan (2009), who propose that when the offline channel has a significant cost advantage and the online channel can brings in more customers to the market, the bricks-and-mortar retailer should add the online channel. Zhang (2009) find that whether the bricks-and-mortar retailer to add an online channel depends on the delivery cost and consumer online disutility and "only if the delivery cost and consumer online disutility are not too large, the dual-channel structure is beneficial for the retailer" (P. Zhang et al. 2017; Zhang 2009). Ofek et al. (2011) find that when the degree of product differentiation is high, the bricks-and-mortar retailer should add an online channel; otherwise, he should adopt a single offline channel.

Agnihotri (2015) believes that whether the dual-channel model is better mainly depends on whether the retailer owns the channel integration capability.

Comparing supply chain structures and models, and then analysing cost structures and profits and the degree of customer acceptance, P. Zhang et al 2017 provide managerial insights (e.g. price, products differentiation) on how to manage the presence of dual channel or, on the contrary, of only one channel, and they suggest that:

1) When the degree of customer acceptance of online channel is low enough, the retailer's optimal channel structure is a pure offline channel.

2) With the degree of customer acceptance rises slightly, though there are also no sales on the online channel, a pure offline retailer can strategically use dual channels to obtain a lower wholesale price from the manufacturer. Consequently, the retailer earns more profit.

3) When the degree of customer acceptance is medium and both channels have positive demand, the retailer's optimal channel structure is dual channels.

4) Finally, when the degree of customer acceptance is high enough, a pure online channel structure is more appropriate for the retailer.

2.3.2 Connecting Arch:

Before reviewing papers about Chinese E-Commerce, the conceptual tree proposes a connecting arch, which function is to pass from one block to the other trying to describe at the same time the main concepts in between the two nodes. In this way there is a sort of gradual step in moving towards the next node, understanding at the same time how authors and researchers have treated more than one or two concepts in their academic works.

Chiericozzi, in his Politecnico di Milano' thesis named "Export to China through cross-border Ecommerce: opportunities, challenges, and operational guidelines" in 2016, and in another thesis, this time from Padova's University, written in Italian by F. Magnan in 2016, it is analysed the CBEC towards China in a similar way, focusing the attention on many common themes and producing valuable qualitative guides (the first) or report (the latter) for driving interested companies in the Chinese intricate forest of CBEC. In his thesis Chiericozzi reports a lot of references, details, numbers about the China economy, about the platforms (Alibaba and JD), about the relationship between Italy and China, and so on. Dividing the work in small chapters about one specific topic, the result is a clear and easy way to understand many critical points such as different regions and industries, warehouses and FTZs, logistics and platforms, thus the work will be adopted as a fundamental source for our model.

As we reported also before approaching the theme of CBEC, the author says "Cross-border ecommerce platforms in fact allow international companies to run their business in China directly from overseas, without needing a legal entity or physical operations in China mainland. This is a real opportunity for Italian companies, especially all those SME that didn't have resources to expand their business in China previously."

At the same time, F. Magnan reports details about TMall and JD platforms as well as logistics information also about possible own stock or third-party solutions to face different scenarios, but again, the work is more qualitative rather than quantitative, and consequently we decided to take it, as the Chiericozzi thesis, as perfect reference for our model. According to them, there are obviously many problems to be overcame, but the benefits of CBEC are clearly higher than the disadvantages. The problem is to firstly understand which are these problems/barriers, because otherwise it becomes hard to set up a good CBEC channel towards China.

Already in 2000, F. Farhoomand et al. was writing that was becoming increasingly evident that the proliferation of Global Electronic Commerce (GEC) was dependent on resolution of a myriad of technical, organizational, economic, cultural, political, and legal issues. In addition to several country-specific barriers to GEC, resistance to change, lack of education about the potentials of GEC, and lack of flexible software were found to be the key inhibitors to the orderly acceptance and deployment of computer-mediated commerce at the global level.

Reporting Zwass framework for electronic commerce, the authors entered in details describing those elements that, for them and for that years, so at the beginning of the electronic movement, were the criticalities.

Surprisingly, or maybe not, the criticalities are currently actual and discussed in more recent papers. In fact, many of these problems still prevail and are clearly seen as major barriers to GEC nowadays, (even if GEC has been substituted by CBEC to some extent), thus giving great value to this old but foreseeable document.

Therefore Farhoomand et al., identified technical and organizational problems as the greatest points of break, but also added cultural, political, economic and legal barriers in their work as already described also in the previous literature node. For example, technical issues fell into five broad categories: infrastructural issues, organizational-level problems related to the integration of new GEC solutions to existing legacy systems, standards issues, issues related to the capabilities of the Internet, and security concerns, while organizational issues manifested themselves in the form of resistance to change and negative attitudes, lack of education and knowledge, and lack of management education and commitment. Or again, as an example of concepts already cited, cultural issues particular to a country, ethnicity, religion, and language that affect smooth exchange of goods and services between different countries were identified. "In an electronic environment, one of the most significant of these cultural issues relates to national languages, especially with Asian iconographic languages" (F. Farhoomand et al. 2000)

Fifteen years later, Zhenhua et al. 2015, studied those problems identified as main open barriers for CBEC proposing also some countermeasures, exactly as Yang et al. 2015: logistics (topic better explained in following blocks), custom clearance (explained also by the following authors reviewed, Yue et al. 2017, Fang 2017, Yang et al. 2015) and credits barriers (fully exploited in the China-E-Commerce node).

Indeed, Yang et al. 2015 proposed a research in which pros and cons of different platforms have been analysed and, as it will be explained also in the following block review, the most important Chinese platforms follow these hypotheses predicted.

Platform Modes	Representative Enterprise	Operating Way	Advantage	Disadvantage
B2B Platform	International Website of Alibaba	Integration of online platform and offline trade	Abundant products, provide supply and demand information, enquiry, payment, etc.	The logistics and customs clearance is done according to the traditional way, with low efficiency and long lead time consuming
C2C Platform	Global Purchase of Taobao	Overseas purchasing platform	Abundant products, big user flow, low access threshold of the merchant	Weak control on the supply chain; false or artificial goods may exist; slow logistics
The Third Party B2C Platform	TMall International	Foreign wholesaler or manufacturer's direct delivery, direct shipment platform	Strong control on the supply chain: genuine products, fast logistics	Slow investment attraction in early phase; great capital demand; limited product variety; small use flow
Comprehensive self-support B2C Platform	No.1 Higo	Suppliers establish the cross-border self-support platform	Strong control on supply chain; the quality is guaranteed; sufficient capital; fast Logistics	Greatly restricted by the industry policy
Vertical Self-sport B2C Platform	Miyabaobei.com	Vertical self-support platform for specific product supplier	Strong control on the supply chain; genuine brand; fast logistics	Great capital demand; limited to the specific products; small user flow

Figure 26, Comparison of different E-commerce platforms (Yang et al. 2015)

Here it is reported the same figure used in Yang et al. 2015 document because its readiness and simplicity.

The import cross-border e-commerce market is divided into five categories: B2B platform, C2C platform, B2C platform, flash sales platform, shopping guide and rebate platform. B2C platform also can be divided into three small categories: the third-party B2C platform, comprehensive self-support B2C platform, and vertical self-sport B2C platform. And, obviously, different modes have different operating ways, so that the advantages and disadvantages they present are also different.

Thus, Yue et al. 2017 focuses more the attention on the government side, reporting that there are actually two different international policy trends on cross-border e-commerce. One is to regard cross border e-commerce as a trend of international trade development in the future, and consequently governments support it by simplifying customs clearance procedures and increasing tax exemption quotas. To some extent, it is form of trade liberalization. The other trend is protectionist. These governments treat cross-border e-commerce as illegal international trading, because of the existence of tax evasion, fake goods, and other issues (Yue et al. 2017; Bingyong Tang, 2017). In China, the government has taken a positive approach to encourage the development of cross-border e-commerce and actively explore new regulations by establishing demonstration areas (Yue et al. 2017; Yuxin Mao, 2016).

Thus, again, customs clearance, inspection and quarantine, tax policy, payment and settlement, financial support are the main elements that a government should analysing while deciding how to approach to CBEC, and the Chinese one has clearly set a positive general approach. Yue at al. 2017 follows up describing how CBEC involves five stages (product announcement, warehousing logistics, customs clearance, payment, and after-sales service). Focusing on China's CBEC, but the same happens for all the countries, problems are related to slow customs clearance (e.g. Yang et al. 2015), confused tax rebate scheme, high risk foreign exchange payments, expensive and inefficient international logistics, unclear government supervision, as well as poor after-sales service. The reasons behind these problems are attributed to: 1) Differences in cross-border product inspection standards; 2) Traditional "whole in and out" customs clearance mode cannot meet the "one by one in and out" of B2C; 3) The quality of cross-border trade service platform is uncertain; 4) The management and function of cross-border payment agencies is not clear; 5) The cross-border disputes lack procedural regulation; 6) Economic statistics conflict with the new industry model; 7) Untimely consultation and implementation of policies and regulations from different departments.(Yue et al. 2017)

This is the Chinese internal framework with all the positive and negative aspects, accompanied by an external political-governmental framework not so easy to understand. "With the development of cross-border E-business, institutional support by government has been emphasized in emerging markets, in order to facilitate the cross-border transactions and regulations in an integrated system. The further development of cross-border E-business has an advanced requirement of standardization in international rules of online transactions." (Huo et al. 2017). To realize it, emerging markets are suggested to be further involved in cross-border communications through the development of multi-lateral or bi-lateral partnerships for facilitating cross-border E-business (Huo et al. 2017; Li, 2013). The development of compatible rules of taxation, regulations, cross-border payment, and also intellectual property-right protections are important in facilitating CBE-business. Developing international rules requires compromising of regional differences and interests across different countries. Moreover, the identification of international operators in cross-border E-business management is an important issue to be solved, and E-contract as well as E-signature offers support (Huo et al. 2017; Huang, 2013; Tan, 2012). Furthermore, the legal regulations also have a great value to settlement of trade dispute in CBE-business transactions, and the rules can be important for business identities (Huo et al. 2017; Zhou, 2013). "Therefore, from 2012-2013, a number of pilot Chinese cities have been approved with institutional support on cross-border E-business, and this research aims to estimate the effect of institutional support." (Huo et al. 2017) Before entering in details on the pilot cities and how researchers have studied this theme, the institutional support of CBEC in pilot cities can offer support to IT infrastructure and trade-related service in cross-border electronic transactions, and further improves the performance of export trading companies. Therefore, internet can have positive effect to lower the operation cost, and expand the accessibility of companies to information. The network effect of information sharing can offer a great deal of values to companies following Metcalf's law and companies involved in CBEC with a good absorptive capacity can take advantage of learning effects.

With the construction advance of cross-border e-commerce comprehensive pilot area in China (CBECPA for short), 13 CBECPAs have been approved to establish by the state council in 2016. The competition among these areas is increasingly fierce. So, many authors have investigated how many pilot cities and in which position

they should be defined in order to maximize the potential benefits without creating cannibalization/negative competition between them (Lu et al. 2016, Wang et al. 2017).

The CBECPAs are based in 13 cities from north to south which has formed a sort of circular distribution: Dalian, Tianjin, Qingdao, Hefei, Suzhou, Shanghai, Hangzhou, Ningbo, Shenzhen, Guangzhou, Chongqing, Chengdu, and Zhengzhou. The competitions between these cities is real and, even if in some cases stimulates the economic results, in other creates potential disadvantages each other, both online and offline.

For this reason, Wang et al. 2017 suggests that the cross-border e-commerce comprehensive pilot area should invest according to their endogenous value[17], the CBECPAs should chose cooperation strategy according to different situation and when the government determines the quantity of the comprehensive pilot areas, they should consider the cost of the approval of a cross-border e-commerce comprehensive pilot area, the reserve value of cross-border e-commerce of the city and the traffic between the economic hinterland to the city, the user's preferences and other factors.

Of course, related to pilot Chinese cities there is also the concept of downstream supply chain for CBEC, and this theme has been developed for example by Feng et al. 2017. Through their work, they explored the issue of strategic cost control in supply chain downstream. They argued that researchers in E-commerce need to take advantage of strategic cost, because traditional cost models usually focus on estimating cost and they do not have mechanism for alternative selection to make decision. Thus, the decision should be taken on 3 strategic cost control measures: 1) to choose the right logistics operation modes; 2) to achieve value chain by entire process of supply chain management (SCM); 3) to improve facility development and information & communication technology (ICT).

While Wang et al. 2017 focus the attention on transaction costs between the two main typologies of CBEC (B2B, B2C), Yang et al. 2014 explore two modes to approach CBEC: online store of firms via the cross-border third party platform and online store of firms built by themselves for export markets expansion. Thus, in the first document, transaction costs are divided into five compositions, which are information cost, negotiation cost, transportation cost, tariffs cost and middlemen cost. These types of costs are affected by transaction technology and transaction systems, and are analysed according to the 2 market CBEC typologies. Findings show how governmental policies are fundamental especially in the short-term because then it is required something more in order to ensure constant growth also in the CBEC field. In the second document indeed, they focus the attention on four factors which may affect the growth at a general level and the mode selection of cross-border e-commerce for SMEs, namely E-marketing, electronic payment, electronic customs and international logistics. E-marketing, electronic customs and international logistics are the impact of SMEs cross-border e-commerce mode selection, and further find that most of SMEs who are weak at cross-border e-commerce operation stay on third party cross-border e-commerce service platform; Shin (2010) argued that "electronic payment is also an important part of cross-border e-commerce can improve transaction convenience", as it will be possible to see in details also in the next node review about China-E-Commerce. Anyway Yang et al. 2014 in their papers provide the following results:

"The application level of E-marketing, electronic customs, international logistics are the most influential factors on cross-border e-commerce model selection. The stronger application level of the three factors, the smaller probability SMEs choose third-party platform. Therefore, another conclusion can be found that most of SMEs who are weak at cross-border e-commerce operation stay on third party cross-border e-commerce service platform. Electronic payment does not have a significant impact on SMEs cross-border e-commerce model selection." However, it should be noticed that also the last factor, E-payment, results to be influential nowadays

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[17] Endogenous Value: The endogenous value determines the best investment quota, in this example, for the single pilot city, also from a governmental point of view. It is affected by the agglomeration effect, the competition effect and the space structure effect (Wang et al. 2017).

due to the raising of multiple possible choices that, despite of an increasing service level and diversified opportunities, they are obviously creating a more complex framework on this argument (Huo et al. 2017).

According to documents reviewed until here, the problem in CBEC could be cross-border logistics, customs duties, as well as the payment of foreign exchange risk. At the same time, fraud, false trading, sale of fake and shoddy goods and other acts are also a serious problem; the credit problem is one of the important factors restricting the progress of cross-border e-commerce transactions. Credit evaluation system is an indispensable part in cross-border e-commerce; its construction can reduce transaction risk, improve the efficiency of the transaction, and bring great benefits for the sustainable development of cross-border Ecommerce. Yang et al. 2016 and Xu et al. 2017 provide an investigation of this problem describing the process for credit system building and evaluation on platforms, comparing it with general trade credit evaluation.

Before going into the details about the next China-E-Commerce node, Huang et al. 2017 analyse a particular topic about Chinese approach to CBEC through the paper in which they face the boundary permeability[18] and the online and offline hybrid organizations, that represent two possible examples of interested SMEs also for this thesis. With their work, it is possible to study the managerial internal problems in developing a hybrid company towards a possible CBEC looking also to a real case study of a Chinese important company such as Suning.

The process model demonstrates that an online–offline hybrid organization is hybridized through three multiple and conflicting boundary permeability paths, namely complete, partial, and preventive permeability paths. Many companies are running online and offline business units simultaneously. Consequently, many of them face the problem of combining these two conflicting business units into one to operate them synergistically. Combining two units with different institutional logics leads to the formation of a hybrid organization. Online and offline business units have different institutional logics because the organizational behaviour and consumer purchase behaviour in these two units are different; hence, a hybrid organization will be generated by combining online and offline business units. Combining two different business units is related to boundary managerial behaviours because the combination process involves breaking up the original units' boundaries so that resources can enter or exit the units. Thus, as reported within Huang et al., Borys and Jemison (1989) suggest that boundary permeability could play an important role in the formation of a hybrid organization.

When a company prepares to implement a certain strategy, it needs first of all to study the different structures of the business units, then the corresponding capabilities before it can succeed and, in any case, the process of hybridization should be a process made of strategic plans. And, for different degrees of boundary permeability, a company must have different capabilities[19] (Huang et al. 2017).

2.3.3 China, E-commerce:

At this point, it is necessary to investigate deeper the Chinese context and relationship with the E-Commerce and all the topics described since here, because, as Su et al. 2017 wrote, "the pace of development of China's cross-border e-commerce would be more rapid during the next five years and the development prospects would be promising. What's more, the total export and import trade amount is even expected to reach 19 trillion. That is to say, cross-border e-commerce is sure to become a significant force to promote China's foreign trade, thus enhancing Chinese people's confidence of further development of China's cross-border e-commerce industry."

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[18] "Permeability" is the degree to which the focal organizational unit is open to influence from its environment. The main role of boundary permeability is to build good cooperative relationships between organizations and it is fundamental to build a hybrid organization because the business units must coordinate and communicate across the boundaries, and coordination across organizational boundaries is a major factor in the choice of the specific mode of governance and in the design of the mechanism to create the hybrid arrangement. Organizations should implement different boundary permeability strategies simultaneously when combining business units. (Huang et al. 2017)

[19] Capabilities: "Assimilative capability" refers to an organization's capacity to reconstruct managerial and technological capabilities by absorbing knowledge, resources, or cultures obtained from external sources through open boundaries. "Ambidextrous capability" refers to the behavioural capacity to simultaneously pursue conflicting demands such as the ability to demonstrate alignment and adaptability across a business unit. "Autonomous capability" refers to a capability in which an organization preserves the business units' operations for continued exploration through structural separation (Huang et al. 2017)

The reasons behind this growth are different (and found many authors supporting it, such as Yang et al. 2015), and according to Fang 2017, growth momentum, so technological progress, consumption upgrade, industry foundation and credit protection are four of the main factors for China's CBEC development. But there are also weaknesses and problems.

Cultural issues such as 'socializing effect of commerce', 'transactional and institutional trust', and 'attitudes toward debt' were determined to be the major impediments to e-commerce in China. (Fang 2017; M. Efendioglu et al. 2004)

Authors and analyses see 'infrastructure' (e.g. connectivity hardware and software, telecommunications, product delivery and transportations systems) and 'services' (e.g. e-payment systems, secure messaging, electronic markets, etc.) as the primary diffusion factors (e.g. Zhao et al. 2008, Fang 2017), while considering fundamental cultural factors associated to the previous ones, so technology (computers, connectivity, and gateway to Internet for people), payment systems for enabling transfer of funds, and distribution systems for physical transfer of goods. Since 2004, China has developed an aggressive high-tech market economy, but everything started with MOFTEC (Ministry of Trade and Economic Cooperation) that established the China International Electronic Commerce Center in 1996 to research and promote digital business.

Cultural/social factors could be a limitation, even if they show positive (higher household income) and negative (differences in culture) aspects, distinguishing:

- Transaction trust (ordered goods will arrive, payment will be made)
- One-upmanship (bargaining): Chinese are formidable negotiators
- Socialization effect of on-site commerce (friendly conversations between the vendor and the customer): The success of doing business in China also depends heavily on the quality and sometimes the quantity of personal relationships (Fang 2017; M. Efendioglu et al. 2004)

Especially this last point represents a unique characteristic of this market and could be the real future in the E-Commerce with a business-model built on the example of WeChat, the Chinese social network through which ever more companies are developing, strengthening and finally selling goods.

In designing the right contact with an ancient culture such as the Chinese one, the company willing to export through CBEC has to deal with problems related to the character of the Chinese people, who wants familiarity with the other party (strong individual relationship and long-term association between the parties), and getting satisfaction from winning business negotiations (they are willing to employ a variety of tactics to get the best deal); trust, so the existence of trust-worthy online merchants, and Internet security and credit card security; consider that debt is not good and, connected to this point, all the possible relative discussions about payment systems to adopt (Fang 2017; M. Efendioglu et al. 2004)

From two different studies of the Politecnico di Milano's Observatory in 2016 and 2017 the logistics, the payment systems, the legal framework and the way of selling online are fundamental factors in order to ensure a solid and robust CBEC channel. In these studies, researchers have investigated the market, the E-Commerce world studying also the different platforms adopted, providing suggestions on the approaches to adopt in order to establish a functional CBEC channel. For what concerns the study of the 2016, the focus on the payment system, carries to the following paragraph, translated from Italian: "Online payments in China are managed by a limited number of national players. The mobile channel (mobile payment) is growing strongly. In China there are three categories of ePayment service providers: credit card issuers, commercial banks and third-party companies ("third party"). These ones operate through two channels, namely online payment (online payment via PC) and mobile payment (online payment made with a smartphone)."

In his thesis in 2016, Zheng studied the different payments methods in China (also Yang et al. 2015). He said that, for Italian companies, in order to find the right payment solution in the cross-border e-commerce with China, there are 2 paths: one path is to cooperate with a Chinese cross-border e-commerce platform, many of this type of platform are branches of existing giant domestic e-commerce platform, such as Tmall Global (affiliate of Tmall), JD Worldwide (affiliate of JD), etc. The payment methods (E.g. account balance, debit card,

credit card) on these affiliate platforms are those already available on their parent platforms, i.e. Tmall or JD, but the variety of payment methods of the former one is not as high as the later one. Regarding cost, the cross-border e-commerce platforms usually ask for various fee including service fee, commission fee and guarantee deposit. The other path is to integrate directly a Chinese payment system into the e-commerce platform of foreign companies. Several solutions, including AliPay, TenPay, and UnionPay, are analyzed on various aspects such as the cost of payment system, integration approaches, security features, degree of diffusion and so on. (Zheng, 2016) As it is possible to state, payment method represents a core point to analyse and discuss before planning the enter into the mainland China (Huo et al.2017).

The other focus of the observatory then, it is on the legal side, that carries to the following part, translated again: "the excessive regulation and legislative uncertainty and the piracy and counterfeiting phenomena make it difficult to sell in China through eCommerce. Companies wishing to operate in China using eCommerce mode must face legal issues complicated by the regulation and legal uncertainty of the Chinese legal system". Legal, political and the subsequent financial frameworks, represent a real mess in China, continuously changing day-by-day also directly from the Central Government.

In the study of the 2017 instead, the focus was given to the different platforms and how they are sharing the market in China, and information have been analysed both in the introduction part of this thesis as well as they will be considered in designing the model.

But China is a unique and different country also from other points of view and on other themes.

First of all, re-taking and enlarging the concept of social network and WeChat linked to E-Commerce, S. Yang et al. 2016 discuss that, compared to traditional product-oriented e-business in China (e.g. Alibaba, Taobao, JD), WeChat business is people-oriented, based on social networking interactions. Thus, building relationships with these potential customers on the platform is critical. WeChat is a marriage between traditional e-business and social networking communications, where firms have developed customer relationships along two distinct ways: business relationships and friendships.

Within the S. Yang et al. work is cited how some researchers suggest that combining business relationships and friendships is positive to business, while others note that combining both might cause potential conflict (Frenzen & Davis, 1990; Johnson & Selnes, 2004; Price, Arnould, & Tierney, 1995; Heide & Wathne, 2006; Grayson, 2007). WeChat business is a new e-business model. The development of customer relationships on WeChat business is distinguished from that in offline business, and even from traditional ebusiness

Findings suggest that developing both business and friendship relationships with new customers in WeChat business (and, consequently, also in other business models eventually) could increase product sales. However, developing both business and friendship relationships with experienced customers could be counterproductive, potentially leading firms to pay for wasted time through less profitable campaigns. Developing both business relationships and friendships with experienced customers nullifies the positive effect of each independent strategy (S. Yang et al 2016). From both the managerial and the economic perspective, this aspect needs to be kept in mind when approaching Chinese people also from different business models. The reason behind it indeed is again in the cultural difference with, for example, western countries.

However, in China, entrepreneurs have to face also other challenges, such as the Brand Protection. China has developed IPR[20] rights especially in the last decades, when the country has been accepted by WTO[21] and

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[20] IPR: Intellectual property (IP) is a category of property that includes intangible creations of the human intellect, and primarily encompasses copyrights, patents, and trademarks. It also includes other types of rights, such as trade secrets, publicity rights, moral rights, and rights against unfair competition. Artistic works like music and literature, as well as some discoveries, inventions, words, phrases, symbols, and designs, can all be protected as intellectual property.

[21] WTO: The World Trade Organization (WTO) is an intergovernmental organization that regulates international trade. The WTO officially commenced on 1 January 1995 under the Marrakesh Agreement, signed by 124 nations on 15 April 1994, replacing the General Agreement on Tariffs and Trade (GATT), which commenced in 1948. It is the largest international economic organization in the world. The WTO deals with regulation of trade in goods, services and intellectual property between participating countries by providing a framework for negotiating trade agreements and a dispute resolution process aimed at enforcing participants' adherence to WTO agreements, which are signed by representatives of member governments and ratified by their parliaments.

consequently it had to align itself to the other members. Despite the commitment of Chinese government to comply with WTO obligations and provisions of TRIPS Agreement, and despite the improvement of IPRs protection system, China struggled to fulfil some obligations and is still weak on many IP rights rules. (Imperatrice, 2017)

In 2017, after 15 years since accession to WTO and signature of TRIPS[22] Agreement, China has strongly improved its IP system. However, some weak points still persist.

Anyway, together with laws and regulations, Chinese government has established special IP courts in Beijing, Shanghai and Guangzhou, in order to improve enforcement. These courts are issuing progressive decisions to protect IP owners and to respond to their complaints against infringements occurring in trade platforms. These decisions may enhance cooperation between brands and platforms such as those previously cited.

Imperatrice, in her work, for fighting counterfeiting suggests, for an enterprise willing to enter the Chinese market, that it is important to tailor its brand protection strategy to address the problem of Chinese counterfeits and to adapt to the special challenges presented by enforcement in China. And to pursue this objective, enterprises should be aware of IP protection situation in China and therefore study an adequate strategy to protect their brands. At the moment, in China the trademark can be registered in two ways and both of them have their own specificities, namely National registration through CTMO[23] and International Registration.

A last important theme to review is in Liu 2010 paper, where he analysed the tax field, considering E-Commerce, firstly from an international perspective, thus from a Chinese one. And in this sense, he wrote that "China's tax law has related provisions, bringing opportunities for the taxpayers' tax planning. For example, the definition for foreign enterprises to gain revenue via the internet to offer information service to the China's enterprises is: 1. if the information is patent right or proprietary technology, such information belongs to royalties, and withholding income tax and sales tax shall be imposed; 2. If the information collected and sorted out by foreign enterprises is from public society and does not involve patent right or proprietary technology, such information does not belong to royalties; furthermore the information collection is finished outside China, it belongs to labour outside the country, thus, withholding income tax and sales tax are not imposed on such information income. Item 2 mentioned above can be used by the taxpayer for tax planning." Consequently, the foreign enterprises need not pay tax to the Chinese government when they collect public information for China's enterprises and transmit such information via the internet. And this is not an extraordinary point, because in the intricate forest of Chinese jurisdiction there are potential benefits that most of the times are not considered.

Zhao et al, 2008, cite how Chinese government has built, since the first signals of ecommerce world development, the web network that is still used today. Then it describes the peculiar and fundamental characteristics that the Chinese web market shows, but being written 10 years ago, things have been changed. It describes in fact:

- The business infrastructure for supporting e-commerce is not in place. (Today yes)
- Corporate culture in most enterprises does not promote the innovation of IT (Today yes)
- Trust and security are barriers to the development of e-commerce in China. (Not fully exploited)

Then it starts to describe two cases: CCEC ad Alibaba. The success of CCEC and Alibaba was based on their ability to offer real value to their buyers and sellers, helping them conduct better transactions at lower cost and low risks. The value creation activities occur in each step of their transactional processes, and this is a distinctive feature of doing business with Chinese people. Communication occurs in every stage of the transactional process in the China e-market, and then, four phases of transactional process were identified: information, negotiation, payment and delivery. (Zhao et al. 2008)

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[22] TRIPS: The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is an international legal agreement between all the member nations of the World Trade Organization (WTO). It sets down minimum standards for the regulation by national governments of many forms of intellectual property (IP) as applied to nationals of other WTO member nations. TRIPS was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994 and is administered by the WTO.
[23] CTMO: China Trade Mark Office (Sources: Wikipedia)

This process could be seen as "standard" and each of these steps has the same relevance according to information gained, thus carrying us to state that, even if benefits are clearly huge, the effort in dealing with Chinese businesses should be proportional.

Finally, before going on with other concepts and principles according to the conceptual tree developed, two papers are cited as part of the China-E-Commerce block because dealing with Chinese logistics topics. Ma et al. 2017 indeed studies how China's over 200 thousand cross-border E commerce businesses have focused more on the service and cost of supply chain downstream. Through two different models, where the description and resolution of them is not a thesis focus, they analyse how much is it important to control supply chain downstream costs in an E-Commerce and CBEC context. They wrote: "One of the most important reasons for the dramatic development on it is that cross-border E-commerce business along the supply chain can lead to big cost savings". Due to this increasing importance, control over costs, quality and flexibility are fundamental and they become

Figure 27, Logistics Network of JD Express (Ma et al 2017)

fundamental not only for the web channel at the end, but also for the online one due to the review of all, or at least many, processes involved. Zhoua et al. 2017 instead, despite of analysing as Ma et al. the supply chain system, focused the attention on the equilibrium model, which includes four levels decision-makers: supplier, E-commerce enterprise, logistics service providers and customer. From their analysis, the conclusions are that considering the market affected by consumers' online shopping behaviour, (as already said, in China this is a core factor), the model provides a reasonable reference to E-commerce decision-making at all levels of decision-maker.

2.3.4 Connecting Arch:

This connecting arch refers to those documents dealing with logistics and e-commerce in China and thus try to link the characteristics of e-commerce in China with the logistics environment of this country.

Based on a survey conducted by the Ministry of Commerce, China has revealed promising prospects for e-commerce in China's import and export business (Retail Asia, 2005; J., M.J. and Ng, 2009). One of the main issues concerns that multinational logistics operators in China may spend months, if not years, applying for the necessary operating licenses and permits which are issued by different government ministries, departments or bureaus (Ng 2004; J., M.J. and Ng, 2009). The interpretation and implementation of existing policies in e-commerce in the Pearl River Delta (PRD), one of the principal areas of Chinese economic growth, have created dilemmas in further developing e-commerce as well as logistics operations in the PRD and other parts of China (J., M.J. and Ng, 2009). Moreover, the logistics industry in China started late, not modern enough, restricting the development of e-commerce logistics in China (Xianglian and Hua, 2013). The e-commerce business can be completed on the network, realize final trading but rely on logistics support. Indeed, as suggested by Xianglian and Hua 2013, "without an efficient, reasonable, smooth logistics system, the advantage of e-commerce would be difficult to function effectively". From the point of view of enterprises, the core competitiveness of e-commerce enterprises is not limited to price competition, the logistics service is becoming

more and more important, and the logistics distribution has a great influence on consumer's cognition and trust (Wang, 2015).

A healthy e-commerce infrastructure needs to be supported both by advanced technologies and by a friendly business, legal and cultural environment (Tan and Wu 2004; J., M.J. and Ng, 2009). The reason why cannot implement economic distribution is those e-commerce logistics companies, business enterprises and distribution companies, which is mutual separation and compete with each other, the interests of the business cooperation between them is less than the competition (Xianglian and Hua, 2013).

Strengthen the construction of self-logistics system, promote the development of the third-party logistics, strengthen cooperation between enterprises were the suggestions coming from a case study developed by Wang 2015. Moreover, economic distribution needs professional logistics management talents to design specialized programs for businesses and consumers. E-commerce in china does not yet have such conditions (Xianglian and Hua, 2013).

The demand for improvements, which would facilitate the rapid development of e-commerce, has resulted in speeding up the supply process such as the use of web-based solutions (Anaza and Zhao, 2013; Towers and Xu, 2016). But between the others, the supply side needs to respond to more efficient and effective methods of delivery from the producer through to the final destination (Forsberg and Towers, 2007; Towers and Xu, 2016). Consequently the delivery process has been the subject of much attention aimed at reducing lead-time (Bolumole, 2001; Chopra and Meindl, 2007; Towers and Xu, 2016), improving reliability of supply and availability (Yi et al., 2011; Towers and Xu, 2016), and responsiveness to changes in customer demand in the selling season (Zhang and Huang, 2012; Towers and Xu, 2016) through addressing the physical distribution service quality of internet e-commerce retailing (Chang et al., 2013; Rabinovich and Bailey, 2004; Towers and Xu, 2016). Xianglian and Hua 2013, highlighted as main problems of e-commerce logistics system in China the low logistics quality and the high logistics distribution costs.

Another important factor, considered by many different authors when dealing with businesses in China, is that personal relationships have a relatively high importance for business practises compared to the enforcement of technical and contractual specifications elsewhere (Lovett et al., 1999; Ambler et al., 1999; Towers and Xu, 2016). Here should be necessarily cited the concept of Guanxi, a Chinese term standing for network or connection that is considered essential to operate successfully in this country. The relational behaviour of guanxi is driven more by morality and social norms rather than by a focus on legality (Arias, 1998) which results in establishing personal trust with the buyers. Leung et al. (2005) suggested that competence through product knowledge, market development, and adaptation to buyers' requirements allows suppliers to show psychological commitment and establish guanxi with the buyers (Towers and Xu, 2016). In order to achieve customer satisfaction performance, the Chinese supply chain should focus on improving reliability of physical distribution service quality mediated through developing guanxi based personal relationships (Kam et al., 2011; Towers and Xu, 2016).

2.3.5 Logistics, China:

This node has the intent to describe how the Chinese environment has changed from a economic and logistics perspective.

China is a developing country that has experienced different changes in the last decades.

Before 1978, it was a centralized economy run by the Chinese Communist party that decided "what, where and how much to manufacture as well as how to allocate and distribute any economic output" (Zhang et al, 2009). Moreover, as highlighted by Zhang, only state-owned wholesalers were allowed to provide logistics services. Therefore, without competition, state-owned distributors were able to keep 5–17% margins at each layer without offering any value-added and/or logistics service beyond basic transport and warehousing services (Jiang and Prater, 2002).

After 1978 there was what has been called "liberalization". China's economy grew rapidly after opening to the world in 1978 and became the second largest in the world in 2010 (Lean et al, 2014). This period experienced a series of policies aimed to encourage companies at import and export activities and were granting to them greater autonomy including new financial, planning and operational capabilities (Zhang et al, 2009).

As recognized by Zhang 2002, Asian financial crisis in 1997 and China access into WTO led to structural transformation of China's economy, with an important role covered by air transportation and the increase of both imports and exports. Indeed in 2002, for China domestic economy, most goods were transported by rail or by river or sea (Zhang, 2002). However, there were different logistics issues in those years: transport costs in China were twice as expensive as in developed countries (Waters, 2007). Congestion and shipments delay were frequent at Chinese seaports due to capacity shortage (Fallows, 2007). Highway construction and transport bottlenecks augment congestion problems in port areas (Goh and Ling, 2003).

Moreover, despite a reduction in national level regulations since China's entry to the WTO, local governments still set up bureaucratic and political barriers to protect local businesses or products and prevent the entry of outside competitors. In addition, although port productivity was not an issue, Chinese ports were affected by inadequate intermodal connections, bureaucratic custom procedures and in some cases low customer service (Song and Yeo, 2004).

With China's rapid economic growth, Chinese logistics output has increased at an annual compound rate of 12.7% since 2000 (Yuanyuana and Bingliang, 2016). Since the introduction of third-party logistics (3PL) services in the mid-1990s and particularly after China joined the World Trade Organization (WTO) in late 2001, the 3PL industry has developed rapidly (Chin, Bae, and Kim, 2007; Chu, 2012; Sha and Guan, 2009; Rahman et al, 2017). In 2010, the total value of China's logistics sector was USD 19.38 trillion, increasing by 15% year-on-year (Mahpula et al, 2013). However, there still were some problems: according to the Ministry of Commerce of the People0s Republic of China (PRC), the ratio of logistics cost to GDP was approximately 18% in 2010, which is approximately twice of that in the United States. Jiang and Prater (2002) stated that the main problems in China's logistics distribution are undeveloped infrastructure, government regulations, regional protectionism and fragmented distribution channels throughout the country. Goh and Ling (2002) documented that aged infrastructure, archaic handling equipment and the lack of qualified logistics personnel cannot meet the vibrant demand in the economy. These issues are partially still encountered by different authors in more recent publications. Indeed, Logistics services are essential to the day-to-day operation of the Chinese economy and a major source of employment, with considerable implications for economic and social development in China (Mahpula et al, 2013).

According to Mahpula et al 2013, China's market players can be classified into four types in terms of their structure: logistics companies restructured from traditional warehousing providers and transport companies; newly formed state-run or state-owned logistics companies; foreign (including Hong Kong) players; emerging private entrants located across the country.

Hong Kong and Shanghai have always been the two most important logistics hubs in the country. Two other important ports, that are acquiring importance in the last years, are located in Shenzhen and Guangzhou, making the region around the Pearl River Delta China's most important logistics center (Mahpula et al, 2013).

Moreover, to bring logistics services to the north, a third Chinese logistics center in Beijing/Tianjin has been set up. China's logistics industry has developed rapidly in recent years, benefiting from China's economic development, continuous improvement of logistics technology, and constant expansion of the e-commerce market (Mahpula et al, 2013).

The Chinese economy has always shown regional inequality: the developed eastern region, the developing central region, and the lagging western region. One of the reasons behind regional inequality is the uneven distribution of transport infrastructure (Demurger, 2001). Due to the highest economic level and earlier starting on logistics industry, industrial average wage, fiscal expenditure and industrial outputs of logistics industry in

eastern region are significantly higher than the other two regions. By contrast, the level of transportation facilities is higher in the central region for its superior geographic conditions and inland transportation network (Yuanyuana and Bingliang, 2016).

However, inadequate logistics infrastructure, high rate of damage in transit, congestion at ports and industrial roads, and inconsistent policies and regulations add additional burden on transportation costs (Zacharia et al., 2011; Zhang & Figliozzi, 2010; Zhou, Min, Xu, & Cao, 2008; Rahman et al, 2017).

Previously, the logistics industry included only transportation and warehousing. Now it has integrated transportation, inventory management, warehouse management, material handling and packaging and supply chain management (Lean et al, 2014). In China the logistics and distribution infrastructure has not been developed at the same pace as the growth of the Chinese economy, and the lack of modern logistics infrastructure exposes its logistics service providers to risk (Wang et al., 2006; Rahman et al, 2017). Many logistics service providers find it difficult to implement coherent distribution strategies due to underdeveloped transportation systems (Tan et al., 2014, Rahman et al, 2017).

Realizing that an efficient logistics system is of paramount importance for further economic growth and modernization of the country, the Chinese Government has designated logistics as a strategic industry (PRC, 2016; Sohal and Rahman, 2013; Rahman et al, 2017) and systematically investing in the development and improvement of logistics infrastructure during the implementation of the country's 13th Five-Year Plan (2016–2020) (Jiang, 2016; Mahpula, Yang, Kurban, & Witlox, 2013; Mingjun, 2016; Rahman et al, 2017).

In recent years, the Chinese government has really invested heavily in this sector in order to improve distribution systems (Fu, Bentz, and McCalla, 2011, Rahman et al, 2017).

However, the challenges with transportation issues remain critical. There is a lack of nation-wide integration of transportation networks; hence the intermodal transport network is far from developed (Rahman et al, 2017).

In China, various government departments and local governments are involved in regulating the logistics activities by enforcing formal and informal policies related to logistics that create bureaucratic processes and disruptions in the distribution networks (Hong & Liu, 2007; Lightfoot & Almeida, 2007; Rahman et al, 2017). Inadequate logistics infrastructure, overcharging of road tolls, high rate of damage/loss in transit, congestion at ports and industrial roads, and inconsistent policies and regulations in China add additional transport cost (Mahpula et al., 2013; Shi et al., 2016; Rahman et al, 2017). In conclusion, as identified by Joo et al 2013 and then highlighted by Rahman et al 2017, it can be observed that despite the strain of Chinese governments during the last years, the logistics infrastructure in China is still relatively less developed compared to the developed nations. Consequently, "the lack of transportation networks and distribution facilities make the Chinese transportation and warehousing costs higher than western nations" (Rahman et al, 2017).

2.3.6 Connecting Arch:

This arch should be used as a mean to connect what has been explained in the above paragraph regarding the logistics situation in China with the implications for logistics in a cross-border environment that will be instead discussed in the following paragraph. However, due to the few papers belonging to this arch and the nature of it, that is probably the more "forced" one, but unavoidable for the sake of simplicity in the representation of the conceptual tree used to build the literature review of this present Master Thesis, the few findings can be considered as insights to connect the two adjacent nodes.

In recent years, against the background of the global economic downturn, China's import and export sector has slowed down and cross-border e-commerce has become an important part of China's economy progress (Shanghai Municipal Commission of Commerce, 2014; Ai, Yang and Wang, 2016). According to Mooney (2016), China is expected to be a larger market than the U.S., Japan, Germany, France, and the U.K. by 2020. Logistics is required to adapt to cross-border.

In this context, orders featured by small quantities, high frequency have gradually replaced the traditional large transactions in containers and the small cross- border e-commerce got rapid development. (Zhang and Huang 2015). This is the reason why, it is widespread the involvement of third-party logistics (3PL) in charge of the whole or part of the logistics supply chain. In an e-commerce environment, 3PL takes charge of the logistics design, delivery, storage and transportation in a supply chain with its professional and complete value-added services (Ying and Dayong, 2005).

2.3.7 Cross-Border, Logistics:

The present node wants to investigate in the existent literature the characteristics of logistics in a cross-border scenario. In order to pursue this objective, some data and features of e-commerce have been exposed for the sake of clarity. Moreover, there is a focus on Small-Medium-Enterprises (SME) due to the direction that this Master Thesis wants to take.

E-commerce has become one of the most dynamic sectors of the economy. It is estimated that Asia (40%) will have the greatest share in cross-border e-commerce, Europe (25%) and North America (20%) will come next (Leeuwis, Lukic and Van Heel 2014).

The latest trend in this market is cross-border trade. It is based on selling products to customers who are located in other countries. The Boston Consulting Group estimates (Leeuwis, Lukic and Van Heel, 2014) that by 2025 the annual value of the global income from cross-border e-commerce may amount to 250 to 350 billion dollars. The volume of China's cross-border e-commerce is about 20% of its total import and export trading volume and Asia will be the center of cross-border e-commerce, accounting for some 40% of total revenues by 2025 (Heel et al., 2014).

One of the key areas of e-commerce is logistics, which comes down to such processes as: supplying e-shops, storing and managing goods, shipping them to customers and returning goods (Kawa and Zdrenka, 2016). The logistics needs of this market are varied due to growing diversity of products in terms of value, importance and size (European Commission, 2012; Kawa and Zdrenka, 2016). Currently, a few logistic trends that will determine further development of this line of business may be distinguished in e-commerce. These are, among others, logistics of returns, same-day delivery services, development of new logistic co-operation models, broking services and cross-border transport (Kawa and Zdrenka, 2016). Another important factor to consider is the trend of shopping through mobile devices. It affects the logistics of online shops to a large extent. Firstly, the goods are delivered to different places, and the buyer wants to be able to dynamically change the delivery destination. Secondly, the customer does not like to wait too long. The delivery should, therefore, be as fast as possible. To date, same-day deliveries are dedicated and very expensive services, because they are connected with direct delivery from the sender to the receiver, omitting intermediate points (Kawa and Zdrenka, 2016). However, apart from standard problems which e-shops struggle with in cross-border e-commerce, the following should also be taken into account: delivery cost, time and quality of delivery, communication in a foreign language, payment currency, payment terms, legal and tax conditionings, dealing with returns (Kawa and Zdrenka, 2016). Cross-border payments, as part of the upstream chain of cross-border logistics, have a significant effect on the speed of cross-border transactions. The declaration, inspection and tax processes that are involved in shipping goods through customs affect cross-border payments, as do preferential tariffs that may be used to promote economic development or laws meant to prohibit smuggling and money laundering (Aleksandar and Jovanka, 2012).

Considering all of the issues that e- shops are facing, a proper quality of services in those above-mentioned areas is not easy to provide. For small and medium enterprises this task may be especially difficult. SMEs do not have bargaining power as high as the large companies do. In consequence SME are less competitive (Kawa and Zdrenka, 2016).

One of the biggest constraints for SME is product delivery. Because of the smaller volume of parcels sent abroad small and medium companies are not able to negotiate with logistics operators like the big enterprises do. Due

to the lack of scale SME are facing higher delivery costs (Kawa and Zdrenka, 2016). Costs incurred during Overseas Direct Purchase (ODP) can be different depending on customs procedures. In this context, Amazon, the world's largest global B2C website, warns consumers that additional charges for customs clearance might be levied (Ai, Yang and Wang, 2016). The development of cross-border e-commerce demands efficient cross-border logistics. To encourage the development of national or regional cross-border e-commerce, most economic entities adopt free-tax policies for shipments under a certain value (Ai et al., 2016).

An important factor to considered, as suggested by Ai et al. 2016, is that while approaching at cross-border e-commerce is that different industries are affected by different logistical factors.

According to Hartmann (2016), customers of cross-border e-commerce expect quick, reliable, and secure delivery. Indeed, cross-border e-commerce, especially global B2C, is increasingly involved in air delivery rather than maritime network. Furthermore, customers want to track their own goods in real time (Woods, 2016; Ai, Yang and Wang, 2016).

Even though air transport is more suitable for e- commerce due to the speed advantage (Mooney, 2016; Ai, Yang and Wang, 2016) there exist some barriers impeding air transport in cross-border e- commerce (Ai, Yang and Wang, 2016). According to Cainiao, Alibaba's logistics subsidiary, the air freight industry is not sufficiently ready to meet the demands of cross- border e-commerce (Fried, 2016). Indeed, besides air transport, maritime transport too is playing a significant role in the global supply chain because of the volumes involved. Nevertheless, cross-border e-commerce tends to be associated more with air transport than ocean shipping (Mooney, 2016; Ai, Yang and Wang, 2016).

2.3.8 Connecting Arch:

This last connecting arch has the scope to connect the findings regarding logistics in cross-border situation with the world of cross-border e-commerce and thus own all those papers that do not perfectly fit in the two adjacent nodes.

At present, the comprehensive and in-depth development of cross-border e-commerce industry has more and more demand for logistics service function and service level. The fragmentation of service resources cannot meet the requirements of cross-border e-commerce development (Qiao, Sun and Li, 2017). With the all-round development of cross-border e-commerce, the demand for logistics services, service levels and service costs is becoming higher and higher. And the demand hierarchy is becoming increasingly evident (Qiao, Sun and Li, 2017). It is also with the development of economy, cross-border e-commerce logistics mode has changed from traditional "container" transportation to current various modes; the enterprises have the ability of building overseas warehousing and choosing the third-party logistics to provide better logistics service to consumers (Su and Xu, 2017). Information development drives the rapid development of cross-border e-commerce (Sun et al, 2013; Zhang, 2017), but in the process, cross-border e-commerce also faces a lot of issues in logistics, such as the slow speed and high costs of logistics, difficulties in product return and exchange and restrictions in after-sales services, etc. (Yang et al, 2014; Zhang, 2017). Moreover, cross-border e-commerce enterprises with different sizes and different strengths have different requirements for logistics (Su and Xu, 2017). In contrast with traditional trade, online shopping is inseparably associated with the delivery to the final customer (so-called last mile), i.e. as recognized by Kawa 2017, the most complicated and costly process in the whole supply chain. By analysing and comparing the big-data-based logistics information platforms, Zhang (2017) found that the big- data-based cross-border e-commerce logistics optimization platform can greatly improve logistics service efficiency and level, which is by far the best logistics service form (Zhang, 2017).

Finally, as recognized by Qiao, Sun and Li (2017), logistics for cross-border e-commerce can be distinguished according to the value of the good: low-priced consumer goods imply a relative lo freight capacity and delivery time requirements (Qiao, Sun and Li, 2017) while for high value luxury goods is the opposite.

2.3.9 Cross-Border, Logistics, China: the core node.

Since all the nodes belonging to the conceptual tree have been analysed, the core one is theoretically the last but also more important one. Indeed, it should represent the block in which the documents cover, at least at a conceptual level, all the fields needed to discuss our thesis. Obviously, the number of available papers is low and this is not a lever in favour of the development of the thesis topics, even if it might be sign of the complexity and difficulty in explaining or describing the themes which will be faced in the model development. Over the past 30 years, China has undergone drastic changes in its economy and society, which have marked the transformation of the country into an industrial reality and turned it into the most promising and fast-growing developing nation (Reuters, 2015; Giuffrida et al, 2017).

Growing salaries, willingness to spend and discrimination of purchased products for Chinese middle classes are three of the major factors that stimulate China's cross-border e-commerce industry. This industry is also encouraged by Chinese authorities aiming to create a more vibrate and competitive market for production and sale in China. Moreover, for CBEC there is the need to meet new requirements, such as higher timeliness, small scale, scattered and high frequency. Indeed, logistics is considered a source of competitive advantage (Visser and Nemoto, 2002; Giuffrida et al., 2017) and the efficiency of the distribution network is regarded as a success factor for firms in the e-commerce market (Cho et al., 2008; Giuffrida et al., 2017). As already reported by Hensher et al. (2015) and Hou (2014), Chinese e-commerce has been developed incredibly rapid causing the logistics industry unable to keep the same pace and thus resulting in a bottleneck for e-commerce development. Moreover, e-commerce demand is growing faster in lower-tier cities, located in more rural areas, and this leads to further demanding logistics tasks (AT Kearney, 2014; Giuffrida et al., 2017). In addition, the main method of traditional international logistics is by sea, while transportation of cross-border e-commerce logistics is diverse. Another important factor, that increases the complexity of cross-border logistics developments, is recognized by Sun et al. (2017) as the flow through "two domestic and foreign logistics systems, as well as two countries" and all the issues linked to "customs, inspection and quarantine and other links".

The cross-border e-commerce logistics, in synthesis can be explained as "that a business activity in which the trading entity in different countries or regions reaches an agreement through an e-commerce platform and then pays and liquidated the goods to serve the goods through cross-border logistics" (Sun et al., 2017). Due to the nature of e-commerce environment, users' transactions have to rely on the network, as the main body under the line, and as highlighted by Sun et al., "logistics and distribution are directly related to the successful completion of the e-commerce transactions." Yang et al. 2014 advocates that there exist two main methods for SMEs to operate cross-border e-commerce in China: "Online store of firms via the cross-border third party platform" and "the online store of firms built by themselves for export markets expansion."

Third-party e-commerce platform plays a very important role in expanding foreign markets for SMEs. (Yang et al., 2014).

C. Chen et al. 2017 analysed one of the giants (already cited) in E-Commerce Chinese world: JingDong. "JD.com is one of China's largest comprehensive E-commerce retailers and self-run platforms and it possessed more than 50% of Chinese B2C E-commerce market since 2015. While maintaining the enormous market share of retail, its self-built logistics system has also drawn much attention and argument since its establishment in 2012. JD Express has made great effort in infrastructure investment, intelligent logistics techniques and human resources."

This paper has a strategic importance for the candidates because it represents one of the rare papers describing and providing information on this web-platform. Even if there are no data about costs, this paper has been used to understand the structure of the logistics (not only international but also domestic logistics) for China. For what concerns JD for example, until 2016 seven RDCs (Regional distribution center), thirteen FDCs (Front distribution center) and a large number of DCs (Distribution center) have been operated spreading over China's mainland. The logistics network of JD Express is shown in Figure 27 above.

A hub-and-spoke distribution network maintains the balance between transport efficiency and cost. The main objective of E-commerce business in China should be to minimize transportation costs, having higher requirements to cargo handling cost and consolidation time in logistics hub and at the same time pay attention to complex route system design from demand point to logistics hubs. (C. Chen et al. 2017)

According to this document and the related information, not only it has been able to deeper study one of the platforms (i.e. JD) analysed in the model, but also to develop hypothesis for other platforms.

In the same way Wang et al. 2015, has been analysed for its great alignment with thesis topics. It provides three main logistics models in cross-border e-commerce: third party logistics, overseas warehousing and logistics alliance. The advantages and disadvantages of the three models are respectively analysed and reported, because of their importance and fundamental suggestions. According to Wang et al. 2015:

- Third Party Logistics: outsourced provider ("third party") that handles supply chain management for another enterprise. Here it refers to the activity of outsourcing logistics and distribution by cross-border e-commerce enterprises to logistics service providers. Cross-border third party logistics is an inevitable result of specialization in logistics industry. Cross-border e-commerce enterprises outsource logistics to the third party, and the party typically specializes in transportation and other logistics services of supply chain to meet customers' demands. So, it is a win-win strategic partnership relationship. In this way, 1) It is possible to meet scattered logistics demand of cross-border e-commerce customers, 2) It is conducive for cross-border e-commerce enterprises to enhance competitiveness and 3) Social resources can be more effectively used from the whole society. But on the contrary, E-commerce enterprises have less controllability to the goods and it is obviously difficult to meet the demand of personalized logistics service.

- Overseas Warehousing: logistics model that sellers of cross-border e-commerce directly establish warehouses for goods storage overseas. Cross-border e-commerce enterprises can store goods in advance in overseas warehouses. Once an order is placed on cross-border e-commerce platform, the seller can deliver and distribute the ordered goods directly from the nearest warehouse to the buyer. Effective operation of overseas warehousing depends on estimation of market size in target country. The model can improve logistics service experience of customers and it can upgrade the service level of cross-border e-commerce, even if it is difficult to predict the stocks accurately and it is not suitable to personalized products.

- Logistics Alliance: logistics model between self-operated logistics and outsourcing logistics. It combines the advantages of self-operated logistics and outsourcing logistics and reduces the risks of the two opposite models. Logistics alliance is organized by two or more economic organizations to cooperate through signing contract in the long term. The main purpose is to make use of members' advantages to share resources, have complementary advantages and achieve logistics objective together. It is characterized with interdependence, mutual cooperation, risk and benefit sharing of alliance members. The advantages are the sharing resources and complementary advantages as well as the providing logistics service of higher quality at lower price facing, however, an uncertain operation efficiency.

M. Giuffrida et al. 2017 specifically study the apparel industry and "presents an Activity-based model to quantify the logistics costs of three logistics solutions that can be adopted to sell online in an international context." Adopting specific hypothesis, this paper tries to provide an answer to the question "which is the best option to transport fashion items from Italy to China?".

Developing 3 solutions to deliver goods from a foreign producer or retailer's warehouse to the Chinese consumer's door such as 1) distribution from a warehouse in the country of origin through express couriers, 2) distribution through a sorting hub located in China, and the receiving hub is in an FTZ with transport typically by plane and 3) distribution from a warehouse in China, warehouse in an FTZ, transport by train or ship, having

a warehouse that easily allows managing in advance the shipping process so that goods are already available in China when needed.

Of course, the value of the product as well as the annual traded volumes have an impact on the selection of the most efficient logistics solutions. Thus, the article suggests that "the higher the value the greater the convenience to opt for the solution with a hub in China due to the high incidence of storage costs occurring in case a Chinese warehouse is owned."

Yang et al. 2014, analysed the factors involved in the development of cross-border e-commerce in China for SMEs. The mode selection of cross-border e-commerce impacts on the E-marketing, electronic customs and international logistics. Consequently, "most of SMEs who are weak at cross-border e-commerce operation stay on third party cross-border e-commerce service platform" (Yang et al., 2014).

On the contrary the authors claim that electronic payment does not have a significant impact.

This document ends up with a very important clue, according to the objective of this Master thesis, concerning the behaviour to be adopted by a SME approaching to CBEC:

"In its infancy, the executive should expand foreign markets and conduct foreign trade business with third-party platform. When enterprises acquire enough ability of cross-border e-commerce, they should build their own website to continually improve the operation ability of cross-border e-commerce." (Yang et al., 2014).

2.3.10 Literature conclusion:

The reported literature review represents a long and detailed summary about what researchers, experts, professors and students have been working on in these years concerning the phenomenon of Cross-Border E-Commerce. All the possible variations cited as the M-Commerce, towards China, focusing the attention most of the times on the macro-argument of logistics and international logistics are discussed. The state of the art provided in this Master Thesis aims to draw a complete overview on all the most recent themes, considering at the same time that in this context, an international, web-, technology-related and fast one, it is quite complex to be aligned on all the concepts.

Anyway, the idea behind this literature review was to find the "macro-gap" existent nowadays. According to all the documents read or reported, the candidates have found some theoretical gaps to be covered in the following years. This thesis enters in one of these fields trying to overcome the lack of information about one of the most important and eventually critical gap of all: the lack of a real comparison between the CBEC solution, from Italy to China, and the General Trade, with the aim of selling then through a web-platform considering all the requisites, costs, efforts, tasks, criticalities, variables and responsibilities.

No authors indeed have focused the attention on combining the theoretical concepts behind the analysis and studies with real numbers, to provide to a possible entrepreneur, that most of the times is scared or does not have the capabilities required, information and scenarios. Entrepreneurs have to take the right decisions on how to export, which platform to choose, how to deal with difficulties and how to manage logistics, economic and financial flows, and this thesis aims to support them on this hard task.

Moreover, in the literature review presented, there is often the willingness to point out one theme and fully exploit it, but then it seems that there is a lack of understanding of the whole picture. For instance, there are no papers (according to researches done by candidates) dealing with the Cross-Border General Trade with the final objective of selling through internet, even if many authors have analysed mostly all the possible elements useful to depict this kind of solution, such as international logistics optimal solution, platform analysis and payment system choice, researches on taxation fields and so on.

Despite that some Politecnico di Milano' theses have tried to cover many existent gaps in different fields about the E-Commerce world in China, the most of them were precise and focused on one theme. Libera and Pagnanelli 2015 discussed about the possible international logistics solution, Zeng et al. 2015 analysed possible

Chinese payment solutions and Chiericozzi et al. 2015 investigated possible theoretical benefits, barriers, platforms and trends of CBEC in China.

This Master Thesis instead wants to provide a real objective tool, considering all the previous arguments studied, adding some possible taxation solution, despite the huge uncertainty and difficulty that nowadays is present in China about this theme. The final aim was thus to create a sort of guide to any interested reader on how, when, where and why to invest in one or the other channel, knowing the possible economic returns (and, consequently, the risk faced) through the Net Present Value and Payback-Time calculations.

3. Thesis Object

This Master Thesis has multiple objects.

First of all, it wants to provide to the readers an overview of what is, what does it mean and how it works E-commerce in 2018. Indeed, even if several authors have already entered in detail in this subject, after two decades of constant development and evolution, the two candidates aim to contribute to the existent literature with a general outlook on this theme.

The idea is then to direct themselves towards one of the latest trends in the world of E-commerce.

Cross-Border E-Commerce (CBEC), represents a particular typology of E-commerce and has being seen by many authors as the future of online purchasing.

Secondly, it aims to describe the undeniable importance of logistics and its different characteristics from the "traditional one" when entering in an E-commerce context, and further in a CBEC world. It will be investigated the today's strengths, weaknesses and challenges and the relevance that such topic is gaining in the global context of the trade, becoming a pillar for the electronic one.

The following step will be to link the previous two concepts with the Chinese market that, as it has already been explained, it represents the point of convergence of the majority of the world trade flows due to its continuous expansion and development. Indeed, China as economic agent, is gaining power, importance and becoming the driving leader for this type of economy year after year.

The final output of the thesis will be an analysis of different possible demand scenarios that an Italian company might face accessing the Chinese online market. Through a model developed by the two candidates, it will thus be possible to compare Net Present Value (NPV) and Pay Back Time (PBT) that would occur when approaching the above-cited market through four of the main online Chinese platforms taken into account in the present Master Thesis. Therefore, it will be possible to provide to any kind of Italian company operating in the fashion or food and wine industries, and willing to export their products towards China, a clear image of the possible demand scenarios, investments, logistics, platforsm and taxes costs to sustain.

In this way a company of the type described above, will be able to adopt and use the model developed within this work to take out strategical, tactical, financial and operational decisions knowing what they are going to face, reducing the blind area and the relative perceived risks and according to their product characteristics.

The aim is thus to provide to Italian entrepreneurs a picture of the five years following the eventual access to the mentioned market, in order to allow him or her to either take or postpone the kick-off decision for this type of investment.

Finally, to deeper analyse the thesis objects, it will also be provided a comparison between the "direct CBEC" and a General Trade (GT) approach.

3.1 "Direct" Cross-Border E-Commerce

Direct Cross-Border E-Commerce refers to the trade that, since the product development and production are carried out in Italy, there is not any establishment of a legal entity in China and therefore everything is completely managed through the E-Commerce business model directly from Italy.

In this context, the candidates have designed and answered to the following research questions:

Which could be the demand for an Italian company, especially a SME, if it decides to open a CBEC channel for exporting towards China?

Based on this research question, an analysis of different scenarios according to the possible number of interested customers on the different platforms analysed (TMall Global, JD Worldwide, TMall Classic, JD.com) was performed. Conversion rates, market shares, the number of purchases of the customers, the possible demand growths over time were studied and examined. The conclusion was that in a context as the one in which this

Master Thesis is focused, where there is the highest uncertainty and a continuous change of the environment, it did not make any sense to try to forecast an initial demand for model purposes. Therefore, the choice was to study a range of different demands level in order to provide entrepreneurs with an idea of how all the parameters change according to the number of products shipped and sold. The market research and thus the forecasts for initial demands are left to them, who deeply know their products and have the resources to deeper analyse the desires of Chinese consumers.

Which are the prerequisites and the platform costs to face when choosing the CBEC platform for promoting and selling the products in China? And consequently, which are the responsibilities to take on for managing the new channel?

Once the choice to open a CBEC channel has been taken and many field-studies investigated, it is needed to understand which CBEC platform suits better for the requirements and targets that the company is willing to obtain. For the previously cited platforms, prerequisites, costs, benefits and barriers are analysed. The purpose is to allow companies to select the best platform according to their different needs, capabilities and resources.

Which are the different logistics opportunities and costs to face if the Italian company decides to open the CBEC channel? And which of these channels represents the optimal solution according to the possible demand scenarios?

Logistics is a huge field that should scare any kind of enterprise without adequate capabilities. It represents a real barrier when thinking to internationalise and digitalise the company. Especially when the company has to deal with the CBEC logistics the knowledge about this topic should be clear and thus represent a possible leverage to optimize and "play" with the great number of possible combination and configuration for export. This Master Thesis will investigate the different possible logistics configurations leaving then to companies the choice between them according to different evaluation criteria and the experience about the field.

Which are the taxes to pay when exporting to China through this business model? Which are the advantages or disadvantages to take into consideration, also considering customs?

Lastly, it was fundamental to understand the typology of taxes, the taxation level, the peculiarities and details, the custom clearance operations and the relative potential benefits or problems stemming from the last government decisions and policies. In China, during the last decade, many policies have been set either to protect, increase or control CBEC. This fragmented framework represents another scary element for Italian entrepreneurs, who see China as an unknown, distant and too different country. The object of this thesis is hence to try to reduce the chaos of this subject, clarifying and reordering the elements towards a more understandable picture.

3.2 General Trade for E-Commerce

General Trade for E-Commerce involve (in this context) the opening of a legal entity in China through which the company will be able to manage all the financial, logistics, information and resources flows to exploit then the E-Commerce as a Chinese company.

Exporting through this business model has some similarities with the "direct" CBEC. Indeed, the product is still sold on web platforms and, according to the platform chosen, part of the local logistics and marketing actions could be managed by the platform itself. The main differences regard the international logistics, fully managed and coordinated by the company, and the financial flows, managed directly in the Chinese state, through the legal entity as a subsidiary. For this reason, even if the structure of the model developed follows the direct CBEC model, it requires a deeper investigation into the governmental and territorial policies in China, thus

different investments to establish a sort of Chinese entity. Consequently, the following research questions such as the previous ones, aim to highlight some interesting points:

Are there some differences with respect to the direct CBEC? If yes, which are the main differences on the platforms chosen?
Differences are clearly present, but when a company is dealing with a context like the Chinese one, even if clear in mind, it could be difficult to find out and understand all the details necessary to run the business in the best way. The thesis has the humble objective to distinguish and explain the differences and then to provide to the reader the right suggestions so that decisions can be taken being aware of risks, benefits, problems, requisites, requests, etc.

Which are the additional investments to do, the policies to follow and the potentialities of this business model?
Opening a legal structure in China is not immediate, and despite of many opportunities coming from this choice, the company has to know how, where, when and what to do in order to not lose precious time, wasting money and thus starting as soon as possible the new business. For this reason, in this model it will be clear that initial investments required are surely higher due to the need of covering and answering to the different Chinese prerequisites and policies. Nevertheless, in some cases, this choice represents the springboard for obtaining greater results in the future.

It should be mentioned that, behind all the research questions designed, there is the idea of guiding the reader, and a possible entrepreneur, towards the optimal decision in choosing the most suited solution between the two approaches, the four platforms considered and the several logistics solutions proposed.
Consequently, if we want to find a couple of generic final research questions for the whole Master Thesis, they could only be:

Which are the initial investments, annual costs and the related returns to expect when an Italian company decides to open a new trade channel entering the Chinese online market?
Which are the differences if the company belongs to the fashion or food industry according to different scenarios of demand growth?

4. Methodology

In the present chapter, candidates are going to describe in the most possible clear and detailed way all the reasonings, analyses, researches and computations made in order to get realistic results about the topics above-mentioned. The model has been developed on Microsoft Excel. It considers some inputs data, both pre-determined and requested to the interested SME or entrepreneur, according to some assumptions or market characteristics. Then, it returns as output a 5-years picture computing immediately Net Cash Flows (NCFs) year-by-year, Net Present Value and Payback Time parameters.

As previously cited, all the assumptions and computations start with the initial demand and the related growth. From them it is possible to obtain the related revenues, taxes and costs for the 5-years horizon considered but also any kind of observation or insights to propose and to reflect on in this Master Thesis.

Before entering in detail analysing topics, ideas, formulas and structure of the model, it is necessary to understand what kind of method and organization have been used by the candidates not only to build the model itself, but also to gather information and data to use within the model.

4.1 Model Methodology

At the beginning, the candidates decided to face the Master Thesis topics by reading academic papers and related literature as already explained in chapter 2, because of the lack of knowledge about the CBEC and GT themes. Despite a solid preparation during the academic path on many issues treated in this thesis, most of the times they had been studied as stand-alone elements. Consequently, since the first moments, it was clear how this Master Thesis, at least from a theoretical point of view, should have considered all of them at the same time and, moreover, with a higher degree of precision.

For this reason, after a background obtained through literatures and readings, the candidates started to build schemes and possible structures. The main elements identified in the readings were classified in order to follow a precise path when searching for information and data, and with the aim of divide the main topic into smaller ones. When dealing with trade concepts indeed, the perspective is really wide. Trade reflects many sub-elements which have to be considered, all together, when dealing with this subject. Marketing researches and activities to support the trade, logistics to build the network at the basis of the trade, relationships with the government and customs to be aligned with policies and rules in order to avoid issues during the trade period (as well as the knowledge needed on the country in which the company is exporting and trading), the platform used to sell (online or offline), are examples of chapters hidden within the trade topic. Moreover, if the trade channel to build is from Italy to China and related to E-commerce, on the top of the difficulty created by the themes cited, the challenge is even harder, due to distance, cultural, linguistic, environmental and legal barriers in continuous change, year after year.

Consequently, the candidates divided the thesis themes in different and smaller chapters, that later will be explained in detail, according to the costs that the Italian SME could face when approaching to CBEC or GT. In order also to reduce the huge context in which the content of this work was submerged, the arguments have been summarised into basic assumptions and parameters, platform costs, logistics costs, taxes & duties, marketing costs and internal costs, common areas for both CBEC and GT. Then the initial and yearly fixed Chinese investment required have been developed. Adopting this subdivision, the wider trade topic has been faced one theme at a time giving also the possibility to the candidates to work separately, if needed. Therefore, working on two issues at the same time, it was possible not to lose precious time and constantly search useful information and data, in order to simultaneously develop more than one part of this work keeping them aligned.

Once defined the rough structure of the thesis and how to divide the work between the candidates, the problem faced concerned the research and the understanding of the huge quantity of data needed to run the model. Initially the idea was to set up numerous interviews with different people working in the international logistics industry, in consultancy companies, in customs and public sectors. Unfortunately, following this mindset, the difficulties faced were several.

First of all, the contacts: candidates searched for them on internet, through LinkedIn, Facebook, but most of the times there were no answers from the chosen target people. Consequently, the idea was to search through word of mouth exploiting friendship. In this way, some interviewers were found, both for physical interview and at the phone.[24] The issues emerged with this method concerned the related limited view of the people met about these themes: indeed, it happened to find an interviewer really gentle and available to disclose data and information, but the job context of this person resulted to be too much reduced and focused on just one topic. What the candidates were looking for was a complete view on the flows between Italy and China and the related times and costs. This was immediately clear after the two interviews conducted with one warehouse manager of Yoox.com, an important E-Commerce website well known in Italy which also operates in the international context, and with a dependent of a private logistics consultancy agency[25]: they were available to provide precise and detailed information, data and insights about logistics (their industry sector, in this case). In this case all the issues deriving from the existent differences between reality and the theoretical model to be developed emerged. The model has been thought to be as most generical as possible in order to be adapted on and to be feasible with the higher number of possible interested companies. Indeed, there are no signals in the literature referring to a tool with these characteristics. Nevertheless, logistics as well as any other theme treated in the thesis, was managed with precise scenarios and determined parameter, because even when only one parameter is changed, the overall result is completely modified providing radically different solutions and observations.
Therefore, candidates decided to interrogate those practitioners in order to collect numbers, data and especially confirm and clarify those points that they discovered through internet researches and the revision of books, notes and lectures taken from the academic path at the Politecnico di Milano university.

Secondly, even if exploiting Internet and websites, many possible information sources were covered by copyrights, Intellectual Property Rights (IPR), or also were under payment system, creating thus physical barriers to better deepen some concepts and themes. When these barriers were faced, the choice was always to further search the same concepts on other websites until either confirmation or negation. The last solution adopted to shed light on doubts was to ask to the relator if the numbers, variables or assumptions collected could have been used or not.

Finally, the linguistic barrier, even if this could be seen as a silly limitation, was one of the hardest one faced. Just to give an example to the reader, JD International and JD.com are not translated in English (as depicted in Figure 28). Even adopting the translator tool given by Google, the website cannot be translated correctly and especially those pages useful for our purposes, such as policies, taxes, requirements and similar ones, are not completely understandable.

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[24] In one particular case candidates had the opportunity also to participate for some hours to a sort of handover with an employee working in logistics company, asking for demands and data; with that experience, they practically understood the distance between model and reality.

[25] Further details on information and data discovered through interviews are reported into the model explanation; details on the interview are reported into the References and the Appendix chapter 8.

Figure 28, JD.com Home page translated with Google translator: as it is easy to notice, even with this tool, the translation is not complete

Consequently, in some cases, candidates searched same information through different and secondary sources.

While information were being gathered, candidates started to develop the logistics part of the model, due to its complexity and due to the need of understanding the logistic network at the basis of the trade channel for CBEC (or GT) between Italy and China. Simultaneously, also the final tables, through which NPVs and PBTs would have been computed, were built. This step was made in order to understand if, adding some information and data, the model would have been sufficiently robust and coherent.

Adopting this methodology, the model was changed many times. Once it had a rough final structure, the model itself drove candidates towards additional numbers and corrections needed in order to finalize the work and the results, as a virtuous and continuous loop-cycle.

Once results were found, candidates, together with relator and professor, have set up meetings and exchanged emails in order to decide how to better show the results obtained and how to present them within this Master Thesis.

4.2 Model overview
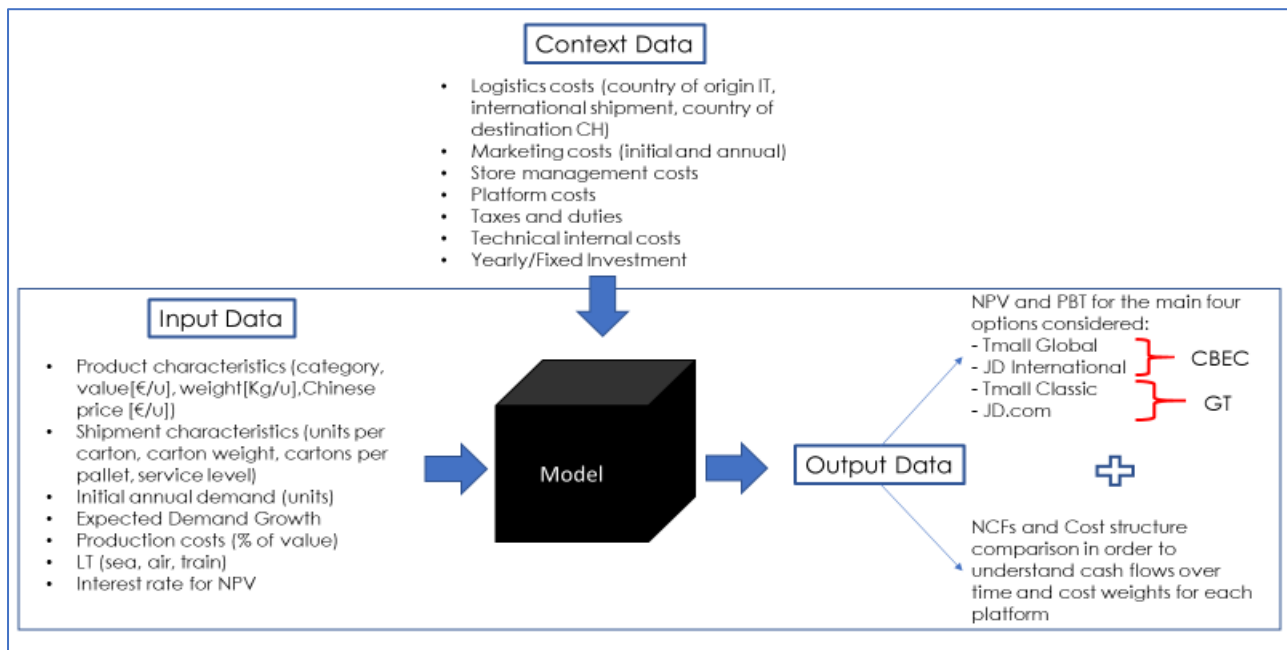
Figure 29, Model Overview

In the figure above, the simple idea behind the model is shown. In this way it is possible to understand how candidates have faced and built it in order to solve the thesis topic. The choice was to summarise all the computations, elements and concepts into 3 building blocks, two out of three inputs of the black box (which represents the Excel model). This has to be seen as an attempt to structure the work from this point forward into a realistic and immediate tool that provides coherent results. Nevertheless, as explained before and because of the idea behind represents something theoretical by definition, the final output should be considered as predictions for what concerns numbers and based on many assumptions.

As previously cited, the elements considered to run a complete economical and procedural view for trade towards China are numerous, as the Context Data section in Figure 29 lists. This represents what it has been written in the paragraph above about the complexity of the analysis concerning the trade channel: logistics for instance, which is one of the most complex, hard-to-face, wide and costly side of this kind of trade, is only one of the external inputs needed to compute NCFs and NPVs, together with taxes, duties and all the other fields. Indeed, with the following figure, candidates are showing how trade is composed according to studies and assumptions made in the model, so that it is easy to understand how it was not possible to enter in detail more than a certain level. Otherwise, the model would have been unbalanced in one field or in another and maybe misleading final results and related sensitivity. Trade is thus the centre of complex interconnections between many and completely different fields, and the image below shows it.

Anyway, in the following sections, each field will be further analysed, and all the hypothesis or assumptions will be clarified.
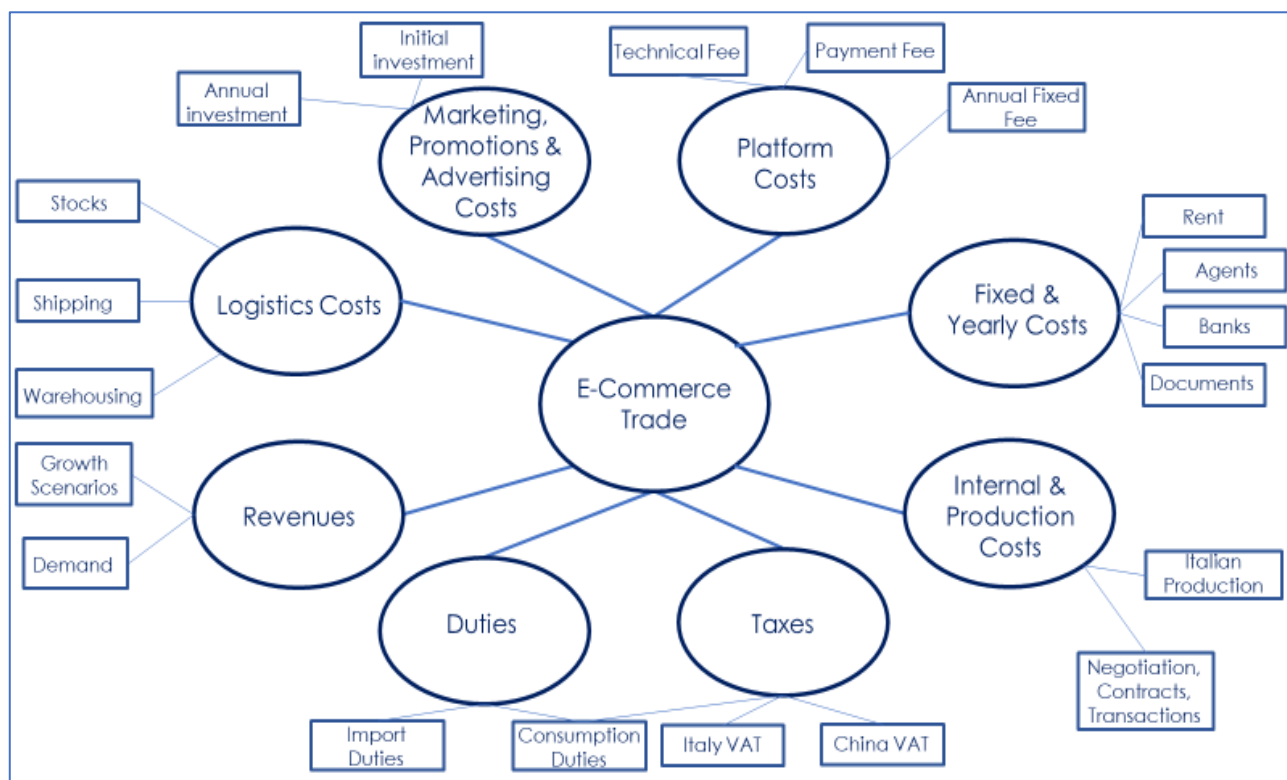
Figure 30, E-Commerce Trade concept: how trade has been defined by the candidates

Without anticipating any detail or result, an actor approaching the model developed by the two candidates should be aware of the possibility to change some parameters according to:

- The product category; choosing between olive oil, sparkling wine, clothes, wine, cheese, pasta, chocolate, mineral water; for model analysis purposes, only wine (food sector) and clothes (fashion sector) have been chosen for our analysis and results;

- The initial demand; for the sake of simplicity and for the model purposes, 10 demands have been set in order to have a clear and coherent comparison for the two previously cited chosen categories and to provide to the readers a general overview of the returns for eventual investments;
- The logistics solution; choosing between 4 intercontinental transportation modes (sea freight, air freight, train freight and express courier), but allowing also the choice to eventually have more than one warehouse in China to organize the domestic deliveries, chosing between one, two or four warehouses;
- The platform adopted for trade; selecting between TMall Global and JD International for CBEC and TMall Classic and JD.com for GT;
- Finally, all the other parameters can be changed or simply modified according to the context that the SME or the italian entrepreneur is expecting in China; this means that, for instance, if Chinese government decides to delete or levy a tax, or if the user is expecting higher internal costs than those which candidates have set up, every value of parameters used can be modified into the excel sheet.

As a direct consequence, candidates have developed a model that could compute some parameters according to thousands of different configuration (at least 3840 configurations). However, for the scope of this Master Thesis, from here forward, two main configuration will be declared and, consequently, only some of them will be considered, reducing the window of results on two product categories (fashion and wine) and selecting the logistics option minimizing costs.

4.3 Input & Context Data

As the Figure 29 shows and then Figure 30 explodes, the model provides some data named as "Input Data" and "Context Data". The former are those parameters required to be inserted inside the "model black box" in order to obtain the results. The latter are instead the different computations made by candidates after having explored the whole trade picture. In the description of the different fields it is going to be followed a clockwise turn starting from the "Revenues" field in the Figure 30 because, as it is possible to imagine, without a demand there is no trade.

4.3.1 Revenues

This field has been named Revenues in order to explain not only the initial numeric demand chosen for the model (the initial quantity demanded by the Chinese market for the Italian product), but also the different growth demand scenarios that have been hypothesized and that coherently generate revenues over the years for the SME under study.

Theoretically it is possible to set up any kind of initial demand into the model but, due to thesis purposes, the candidates focus was to describe in the best and clearest way the trends and the related curves when parameters are changing and, obviously, the first one is the initial demand.
For this reason, the initial demand has been decided heuristically, increasing step-by-step the gap between the first and the latter demand, as it is shown below:

1. 100 units
   +900 u
2. 1000 units
   +1500 u
3. 2500 units
   +2500 u
4. 5000 units
   +3000 u

5. 8000 units
6. 15000 units   +7000 u
7. 25000 units   +10000 u
8. 50000 units   +25000 u
9. 100000 units   +50000 u
10. 200000 units   +100000 u

One comment should be done at this point: being demand heuristically defined and these values important to create and reflect trends coherent to cover a sort of complete spectrum of all the possible CBEC or GTs' demands, the likelihood of these demands is not the same. Due to the generic approach given to the model and to the specific parameters and needs that a SME could set in order to define the initial demand, it is not the purpose of this thesis to estimate the probability of occurrence for each single demand. Indeed, the objective is to give realistic, or at least possible, trends and scenarios to evaluate the economic and organisational effort and impacts of the decision to access the online Chinese market. Consequently, qualitative comments for the estimation of the probability of occurrence, based on both observations and insights stemming from literature and theoretical concepts studied during the academic carrier, will be provided along with the development of this work. In addition, candidates, running the model several times, have seen the trends' evolution of many different demands and, according to them and the results observed, they chose the best possible combinations. This initial demand has to be divided into the different Chinese cities and, according to the concept of "initial" demand, has to reflect a growth for obtaining the 5-years demands that will be the inputs for the final NCFs, NPVs and PBTs tables. Consequently, candidates have faced these two issues in different ways.

E-Commerce demand in Chinese Cities

For what concerns the subdivision of the demand into the different cities, candidates have approached this issue by adopting a classification for Chinese cities following both the administrative divisions of China, which designates the cities into three levels, and the reasoning of Pagnanelli et al. 2014 based on Gan and Goh 2014. In this way, cities are grouped according to provincial-level cities, which include municipalities and the country's Special Administrative Regions, country-level cities and prefectural-level cities. China has a total of 662 cities that fall into these three categories, with Shanghai boasting the largest population with over 24.5 million residents as of 2017[26]. The country has a total of 34 provinces that house its cities. In total, China has over 160 cities that have a population of over 1 million people. Moreover, it has also metropolitan areas that encapsulate densely populated urban areas with suburban areas and rural areas that are more sparsely populated. According to 2016 data, about 590
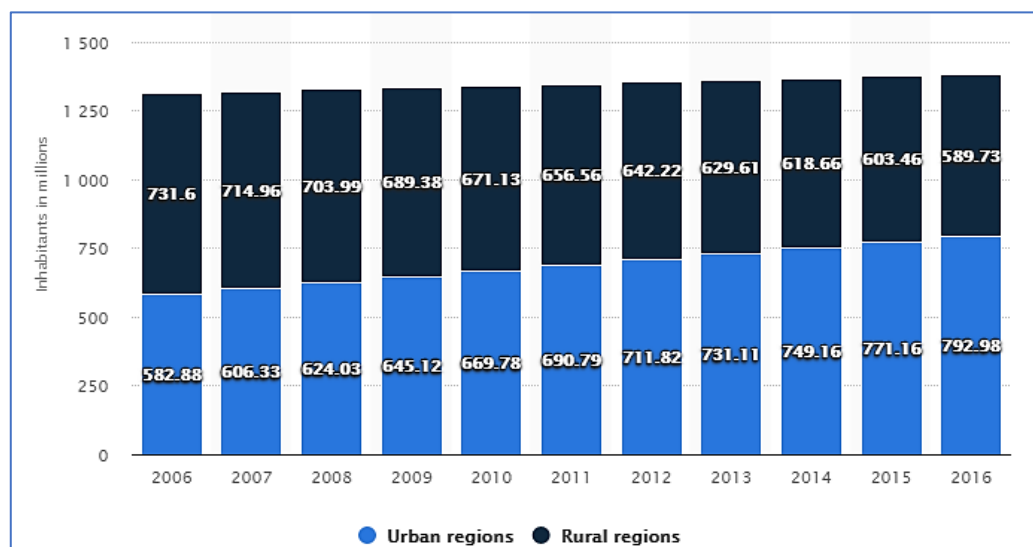
Figure 31, Urban and Rural Chinese Population (Source: Statista.com)

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[26] https://en.wikipedia.org/wiki/List_of_cities_in_China_by_population_and_built-up_area

million people still reside in one of China's many rural areas, even if the trend, as depicted in the figure besides, is clearly a declining path. The relative urban population indeed, has faced a growth of 36% in just 10 years.

Therefore, Chinese cities are broken down into tiers, especially when they are being discussed in the media in local TV Channels. These tiers are designated using set criteria, including population size, infrastructure and economic outlook. Tier I cities include the centrally-administrated municipalities of Shanghai, Tianjin, Guangzhou and Beijing, each of which have a population exceeding 10 million. Tier II cities include the larger cities of China including, but not limited to, Chongqing, Guiyang, Nanjing and Qingdao. Tier III cities are not as developed as Tier II cities but many of those falling in this category are considered to be economically significant. For the thesis purpose, Chinese cities are divided in first and second tier according to their economic force and growth but also according to their population, as it is possible to notice in the figures below. "The reason for this choice is that these tiers' cities are the ones where the B2C ecommerce market value is mostly concentrated, despite the fast growth of lower tier cities" (Pagnanelli et al, 2014; Gan, Goh; 2014).

To summarise, first tier cities considered into the model are Beijing, Guangzhou, Shenzhen, Tianjin, while second tier cities are many and especially the firsts 9 of the following lists are those cities with a huge growth rate in terms of population (in 2014 there was an unbelievable estimation for Chongqing in which 1300 people were moving from countryside to city per day[27], searching for better lifestyle or simply searching for jobs). They are Chongqing, Hangzhou, Zhengzhou, Dalian, Chengdu, Fuzhou, Suzhou, Nanning, Ningbo, Changchun, Harbin, Wuhan, Shenyang, Changsha, Hohho, Hefei, Shantou, Jinan, Zhuhai, Lhasa, Ürümqi Sanya, Taiyuan, Nanchang, Xiamen, Kunming, Xi'an, Tsingtao, Wuxi, Guiyang, Lanzhou, Haikou, Nanchino.
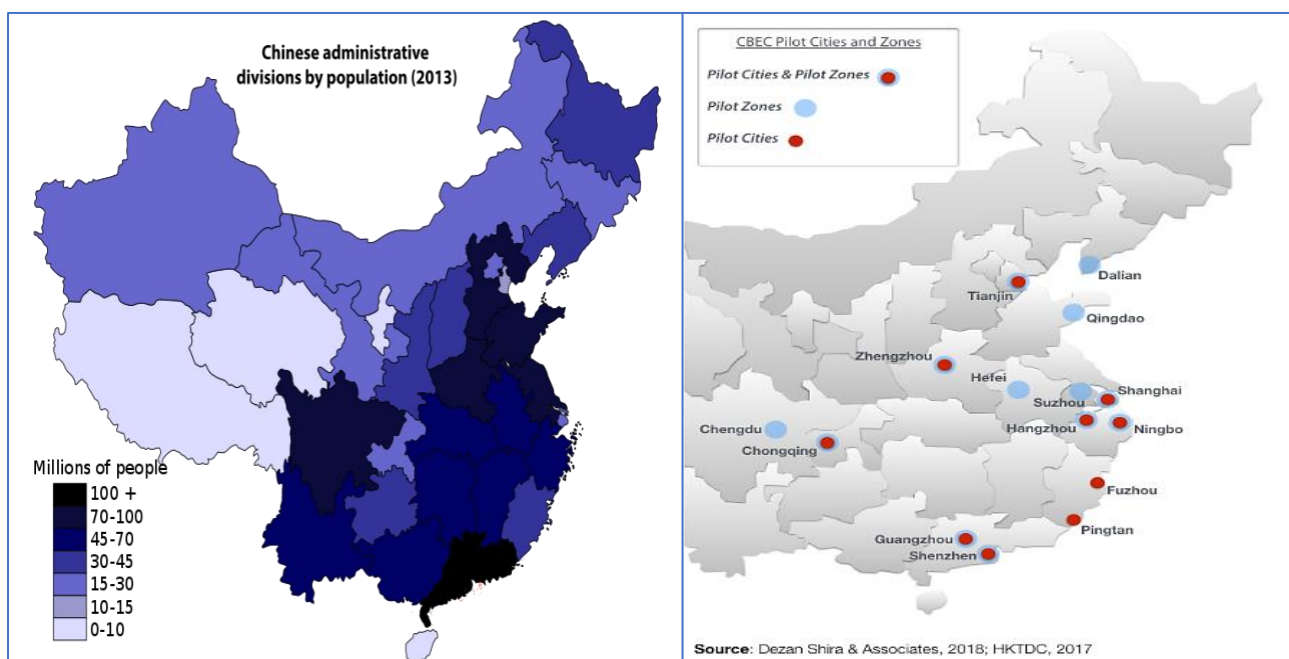
Figure 32,a) China population map, (Source: Wikipedia; b) Pilot Cities and Pilot Zones: highlighted also those areas (Dalian and Quingdao) that are going to be future pilot zones (Source: Dezan Shira&Associates, 2018). As it can be easily noticed, major and more populated cities are located on the coast area and are also those cities belonging to the FTZs areas due to thei importance, economic power and relative growth.

Not surprisingly, pilot cities and more populated areas are the same and between these cities are hidden not only those with the highest online shopping power, but also those cities which are considered "capital" for

those regions called Free Trade Zones (FTZ), as explained also in previous chapters and recaptured in following paragraphs. Figure 32 b) is reported again to an easier comparison with Figure 32 a).

These cities are the centres for the economic investment and effort that Chinese Government is investing to promote international trade focusing especially on the E-Commerce and the CBEC on top. Chongqing again, for instance, represents one of the cities in FTZ with also a large Bonded Warehouse that international companies can use (benefits of this choice will be better described in the logistics paragraph).

Moreover, Chongqing is also one of the two cities designed (the other one is Chengdu, present in the above list) to be the arrival destination of the train line that connects Europe to China, the so-called Silk Road Economic Belt, as depicted in the Figure 33 and then better explained in the logistics paragraph again.

Figure 33, Silk Road Economic Belt (CSIS 2018)

Apart from any kind of possible observation to cite about these cities, once they were found, the allocation of the initial demand needed to be performed. For this purpose, considering both the population of the city and the city GDP with the same weights, (0,5), the forecasted demand was allocated following the formula:

$$\textit{Demand allocation in city}_i=$$

$$[0,5 * \left(\frac{\textit{Population city}_i}{\textit{Total Population}}\right) + 0,5*\left(\frac{\textit{GDP city}_i}{\textit{Total GDP}}\right) +] * \textit{Total Demand}$$

Figure 34, Demand Allocation Formula adopted into the model

In the following table instead are reported already cited cities (those cities considered in this model) and the 4 columns needed for computing the final one in which there is the demand share that each city gains. Multiplying that share for the total demand applied to the model, it is obtained how many items should be delivered to each specific city.

DEMAND ALLOCATION PER CITY					
City	Population	Population (%)	GDP (mln RMB)	GDP (%)	Demand Share
Shanghai	22.315.474	11,566%	2.181.815	8,376%	0,09971
Pechino	11.716.620	6,073%	1.980.081	7,602%	0,06837
Guangzhou	11.071.424	5,738%	1.542.014	5,920%	0,05829
Shenzhen	10.358.381	5,369%	1.450.023	5,567%	0,05468
Tianjin	11.090.314	5,748%	1.444.201	5,544%	0,05646
Chongqing	7.457.600	3,865%	1.278.326	4,908%	0,04386
Changsha	3.093.980	1,604%	715.313	2,746%	0,02175
Zhengzhou	4.253.913	2,205%	620.190	2,381%	0,02293
Chengdu	7.415.590	3,843%	910.889	3,497%	0,03670
Fuzhou	1.179.720	0,611%	910.889	3,497%	0,02054
Xiamen	3.531.347	1,830%	301.816	1,159%	0,01494
Wuxi	3.543.719	1,837%	807.018	3,098%	0,02467
Hangzhou	6.241.971	3,235%	834.352	3,203%	0,03219
Wuhan	9.785.388	5,072%	905.127	3,475%	0,04273
Hefei	3.310.268	1,716%	467.291	1,794%	0,01755
Zhuhai	501.199	0,260%	166.238	0,638%	0,00449
Changchun	4.193.073	2,173%	500.318	1,921%	0,02047
Dalian	4.087.733	2,119%	765.079	2,937%	0,02528
Xi'an	6.501.190	3,370%	488.413	1,875%	0,02622
Guiyang	1.171.633	0,607%	208.542	0,801%	0,00704
Haikou	615.835	0,319%	90.520	0,348%	0,00333
Harbin	5.878.939	3,047%	501.081	1,924%	0,02485
Hohhot	774.477	0,401%	270.539	1,039%	0,00720
Jinan	4.335.989	2,247%	523.019	2,008%	0,02128
Ürümqi	3.029.272	1,570%	240.000	0,921%	0,01246
Taiyuan	3.426.519	1,776%	241.287	0,926%	0,01351
Kunming	3.855.346	1,998%	341.531	1,311%	0,01655
Suzhou	5.345.961	2,771%	1.301.570	4,997%	0,03884
Lanzhou	2.628.426	1,362%	177.628	0,682%	0,01022
Shenyang	6.255.921	3,242%	715.857	2,748%	0,02995
Shantou	5.329.024	2,762%	156.590	0,601%	0,01682
Lhasa	420.000	0,218%	31.200	0,120%	0,00169
Sanya	685.000	0,355%	64.989	0,249%	0,00302
Nanchang	2.357.839	1,222%	333.603	1,281%	0,01251
Tsingtao	3.718.835	1,927%	800.660	3,074%	0,02501
Ningbo	3.491.597	1,810%	712.887	2,737%	0,02273
Nanchino	7.165.292	3,714%	801.178	3,076%	0,03395
Nanning	803.788	0,417%	266.197	1,022%	0,00719

Table 5, Demand allocation per city adopting the formula n.1 above

Growth demand scenarios

Once explained how candidates did set the initial demand and how this demand is reflected in the different cities, which is a fundamental logic to compute the logistics costs in the next paragraph, it is critical to understand how the issue of the demand over time for the model has been managed.

Indeed, it is not sufficient for the model to use one-shot initial demand, because NPVs and PBTs require more than one year to be computed. Consequently, the initial demand should show a particular and unique trend after the first year, depending on multiple variables.

Despite of the fact that marketing investment could represent the first immediate thought when thinking about connections between growth and demand, candidates did not find any kind of possible relationship between them in the literature or in other models, and consequently it has been decided not to link them. Moreover, after a first discussion for trying to interpolate demand growth, marketing investment, market share and different platforms, no clear path has been found and the final decision was to release the initial hypothesis to interconnect all the elements.

Therefore, the choice has been to create six different growth scenarios through which a SME could run the model physically checking the variations, the trends and the hypothesis done facing different growth rates. This methodology, even if time consuming for running the model, creates the opportunity to compare multiple scenarios according to expectations of the company and its marketing department, for any demand set into the model.

Obviously, for the thesis purpose, the above-mentioned ten initial demands represent the starting point for candidates to get the 5-years demands needed, even if the model has been built to be reactive to any kind of demand. According to these hypotheses, in the following graphs are reported the 6 growth scenarios.

In these figures are depicted the scenarios chosen by the candidates in order to run the model and produce, compare and analyse results at the end. The graphs are projecting the 10 initial demands chosen over the 5 years, in order to clearly show the possible expected demands in the Chinese market.
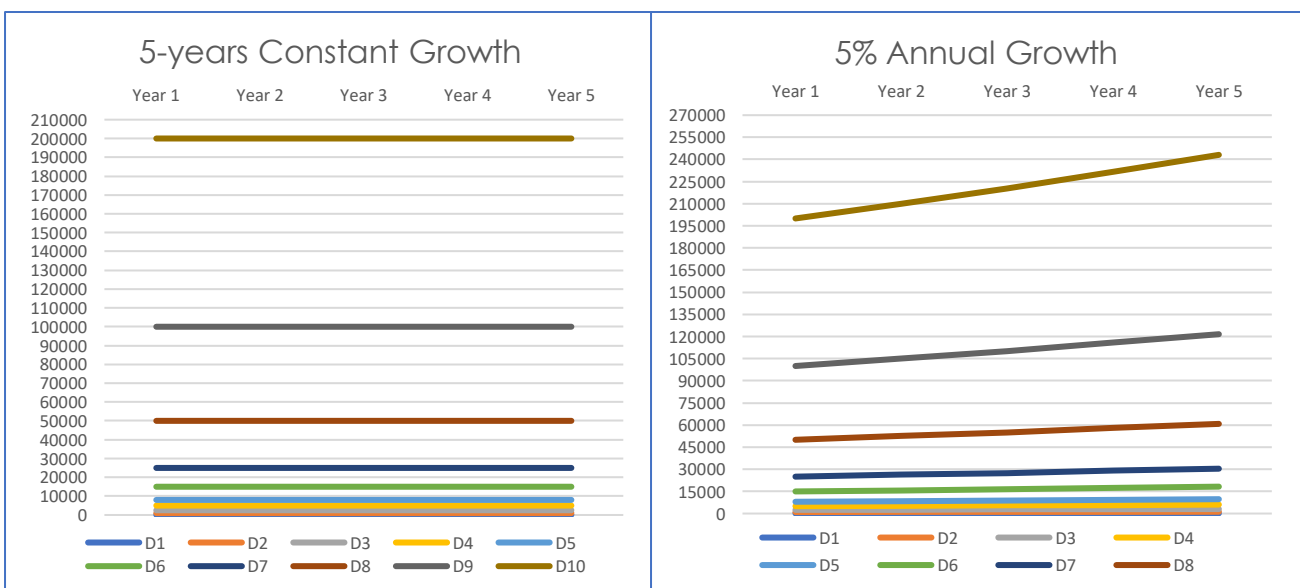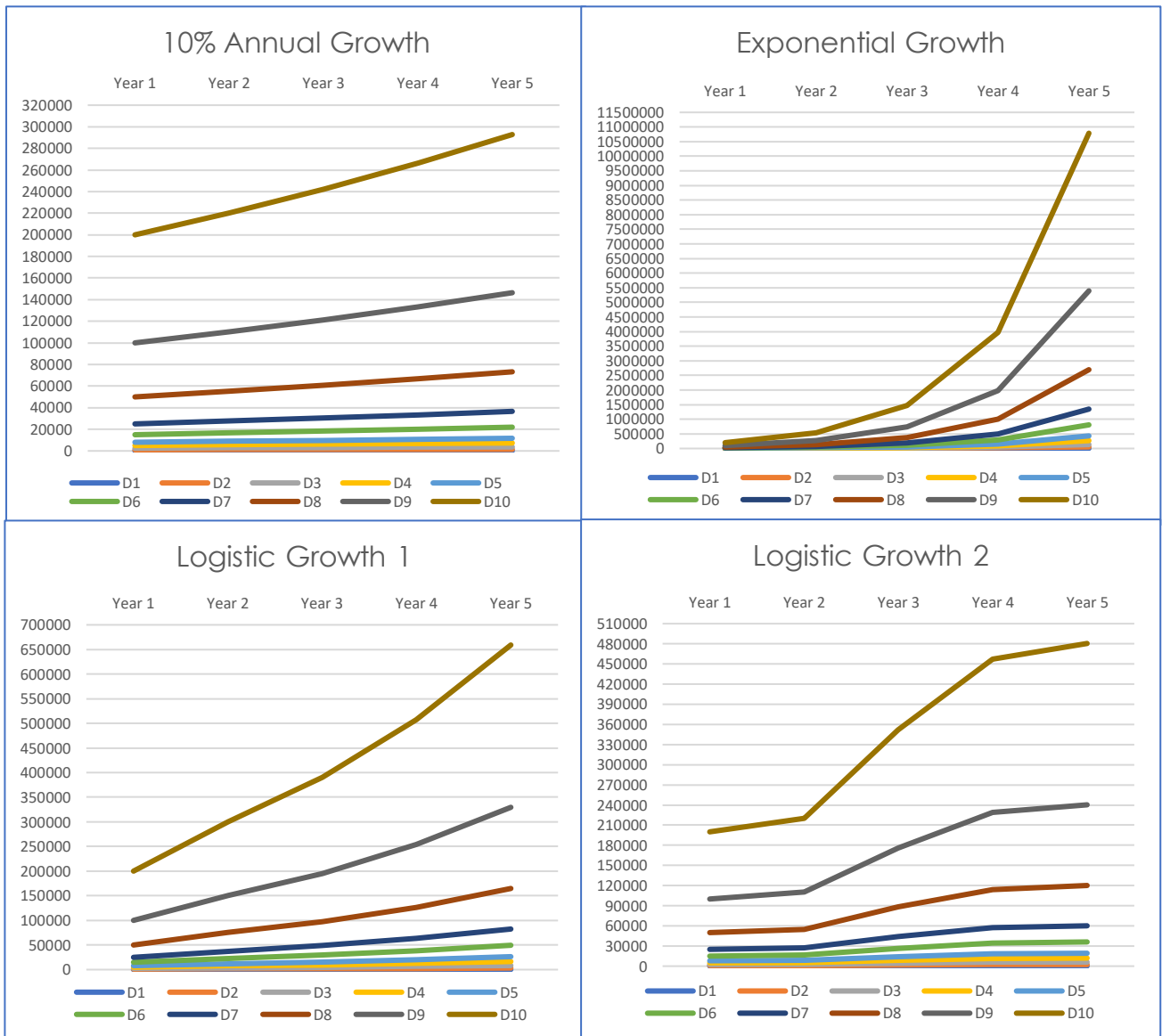
Figure 35, 6 Demand Growth Scenarios; a) Constant Demand for 5 years in-a row; b) 5% of annual increase for each demand; c) 10% of annual increase for each demand; d) Exponential demand from one year to the other (100% increase); e) Logistic growth with high initial rate, slight increase in year 3 and high increase from year 4 to 5; f) Logistic growth with slight increase, high growth in year 3 and slight growth from year 4 to 5

Scenario 1, 5-Years Constant Growth

The first scenario reflects a realistic demand path especially if the SME has no intention to invest year-after-year significant amount of money to gain visibility and, consequently, market share on the platform chosen. Indeed, this could represent a typical situation in which a SME takes the decision to start an E-commerce business but then, for multiple and different reasons, does not follow the initial steps, such as:

- unexpected events;
- unexpected competitions;
- organizational inertia;
- technical, technological, organisational lack of competences;
- resistance or fear to invest/believe to the project after initial losses by management or resources;
- lack of capitals;

- lack of correct effort and/or follow up with the project;
- wrong KPIs and consequent inability to estimate performances correctly;

Despite of a possible unbelief, this situation could be a realistic one, especially because in the literature there are numerous references of investments failures not driven by economic issues. Italian companies moreover, due to the different nature and context in which they operate and grow, could be sometimes an example of organizational inertia, resistance to change, lack of digital technologies to support and drive the business (even if in lasts years there is an initial shift in terms of digitalisation and opening to international contexts). For all these reasons, the scenario has a low likelihood compared to other ones, but it is consistent.

However, as for this first scenario, also for the other ones is still valid the comment already done about the absolute value of the initial demand: the more is the initial demand, the lower is the likelihood that the demand could be really reflected into the market at the first year of operations by the company. Especially the demand n.9 and demand n.10 seem to be really hard to be achieved.

Scenario 2, 5% Annual Increase

The second scenario shows a realistic situation for a SME in its initial steps in exporting towards China through online channels. The reason behind is to be researched in, for instance, constant annual investment and effort for the development of this trade channel with a good response by the market in terms of demand growth. For 100 units demand (D1) the growth is not significant and, realistically, does not support the decision of starting the investment, due to the fact that the maximum expected demand in the fifth year will be 123 units, but for other demands, excluding those really high (D9=100.000 units, D10=200.000 units) the scenario changes significantly.

Using D5 (=8.000 units) and D6 (=15.000 units) the fifth-year demands obtained are 9.725 units for the first and 18.234 units for the latter, and these values immediately show how they could differently impact on the final NPV. Looking at the D8, a possible initial demand with 50.000 units choosing the right platform and the right initial investment both in marketing campaign on the E-commerce platform and on the management of the store on it (although a little high initial value), it is obtained an increase of 10.777 units in 5 years.

Scenario 3, 10% Annual Increase

The third situation instead is a little more successful scenario but still realistic, as long as the relative economic side, the organization itself and the effort provided follows the project or, better, it represents a core strategic operation for the whole company. 10% of growth is, for any kind of business, a very positive result and it requires dedicated resources and attention to be achieved. A D1 can reach 148 units under the 5-years horizon, but a D6 or a D7, the best demands before considering the "Top 3" that clearly in the graph C) show an extraordinary trend, they show an increase, respectively, of 6.962 units and 11.603 units.

Scenario 4, Exponential Demand Growth

The Scenario 4 could be seen as an outstanding and unbelievable situation which forces the common logics of demand growth. In reality, to double the previous demand for 4 years in-a-row seems to be impossible or, exclusively, a matter for huge and, according to international market analyses, digital multinational companies (see figures below). The candidates are aware of this, but they have thought that this trend could reflect or, at least, simulate, an unexpected growth of the demand due to a market response stronger than previsions or due to a virtuous and extremely positive cycle which might lead the market share up against other companies on the platform.

Figure 36, Exponential Growth of digital companies: as it is possible to notice, exponential growths are achieved by digital companies in a time horizon of 10 years (Source: http://espresso.repubblica.it/attualita/2015/08/27/news/cannibali-digitali-1.226561#gallery-slider=undefined)

To drive a similar behaviour there should be actions made especially for the Chinese customer, as a reactive and fast customer service, with a constant possible contact or chat to use for Question&Answer sessions, as it was underlined into the literature chapter and as the continuously growing WeChat App is offering, changing the framework into the E-Commerce picture. Or again, a fast logistics return (a theme that will be better exploited in the logistics section) or an important investment with marketing advertising and promotional campaigns, especially in the first steps of the project. Lastly, to obtain a similar growth rate as shown, there is the need of focusing attention, resource and strategically support with the whole organization a similar investment, probably moving it to ensure a core position into the business company's portfolio.

Observing the graph, it is possible to notice that even the lowest demands, that in other scenarios were really low and, at a theoretical level, not supporting an investment decision based on a mid-short-term horizon as the one of the 5-years chosen, reach in the D1 case 5.399 units starting from 100 units, in D2 53.943 units from 1.000 units and in D3 134.847 units from 2.500 starting units. Already for these simulations, demands obtained are achieving in the fifth year extremely positive quantities. Thus, from the D8 on, final demands are probably not achievable with more than 2.5 million sold units and, consequently, D7 represents the border-line realistic scenario with the 1.438.402 sold units in 5 years.

Scenario 5 & Scenario 6, Logistics Growth 1, Logistics Growth 2

Here the candidates are adopting the enumeration for distinguishing between two different growth rates for a similar trend, the so-called S-Curve or Logistics Curve. This curve, when it is assuming the standard form, entails the equation[28] :

$$f(x) = \frac{1}{(1 - e^{-x})}$$

Figure 37, Standard S-Curve

The importance of this curve finds fertile ground in many field studies, and it is a well-known function because of its important characteristics that are useful to describe many realistic situations. Hence, with time on the x

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28 The complete function is described as follow: "A logistic function or logistic curve is a common "S" shape (sigmoid curve), with equation: $f(x) = \frac{L}{1 + e^{-k(x - x_0)}}$; Where e = the natural logarithm base, x_0 = the x-value of the sigmoid's midpoint, L = the curve's maximum value, and k = the steepness of the curve." (Source: Wikipedia)

axis and the other parameter considered on the y axis (it could be demand, money, growth etc.), the shape of the curve reflects a typical situation in which, after the first moments of initial investment (for example "Start Phase"), the curve shows a light increase that, after a certain period, starts growing with a similar growth rate of the exponential curve (Growth Phase). Later, once the growth has been exploited, the curve reflects a slight decrease (Scale Phase) and finally a period of maturity where, consequently, there is no further growth. To some extent, after the maturity phase, there could be a sort of asymptotic behaviour, so that the curve has reached a maximum potential in terms of growth or starts decreasing due to the saturation effect. This behaviour is shown in the figure besides.
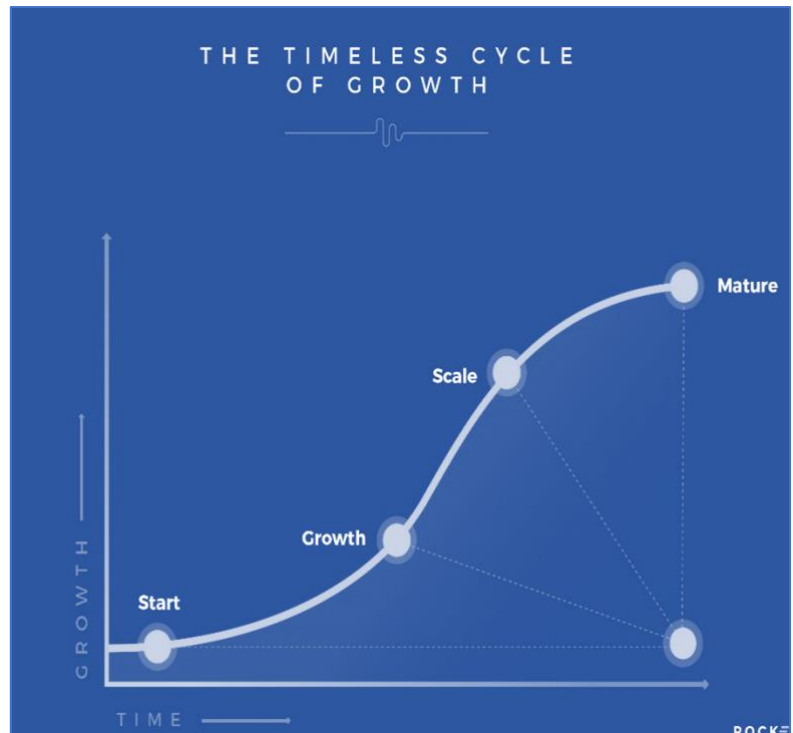
Figure 38,Standard S-Curve example (source: Google Images)

For this Master Thesis purposes, the decision was to create two scenarios based on the S-Curve in order to reflect two distinct demand paces, in which in the Logistics Growth 1) the initial growth is immediately strong and the downturn is really light, while in the Logistics growth 2), on the contrary, the path is more similar to the standard curve. Just to clarify, the growth rate between the five years is summarised in the following table.

Growth	Year 1	Year 2	Year 3	Year 4	Year 5
Scenario 5	-	50,00%	30,00%	30,26%	30,31%
Scenario 6	-	10,00%	60,00%	30,11%	5,24%

Table 6, Growth Rates between years for the Logistics Curve 1) and 2)

Certainly, the greatest limitation in the development of these two curves has been the short time horizon managed in the thesis. Indeed, it has been hard to reflect in only 5 years the complete path of the curve, but, adopting these percentages, as showed in the graph e) and f) in the Figure 35, the shape is sufficiently clear.
The difference between the 2 scenarios is quite immediate looking at the demand growth in the graphs at the beginning of the chapter, with the fifth scenario that seems to be more positive than the last one, even if the last one could be seen as the typical expected demand growth for an investment like the opening of the online trade channel. Qualitatively, in fact, with a short time horizon to run the analysis, it is credible to expect that in the middle years the growth reflects a strong rate due to the cumulative effect of the first 1 or 2 years and that, after a stronger increase, in the immediately next years the growth is slightly reduced. Anyway, both scenarios could be taken as realistic paces and according to the demand effect, results showed through these curves are feasible. Comparing for example the D1, D5 and D10 only to have an idea between the 2 scenarios, it has been obtained the following graph.
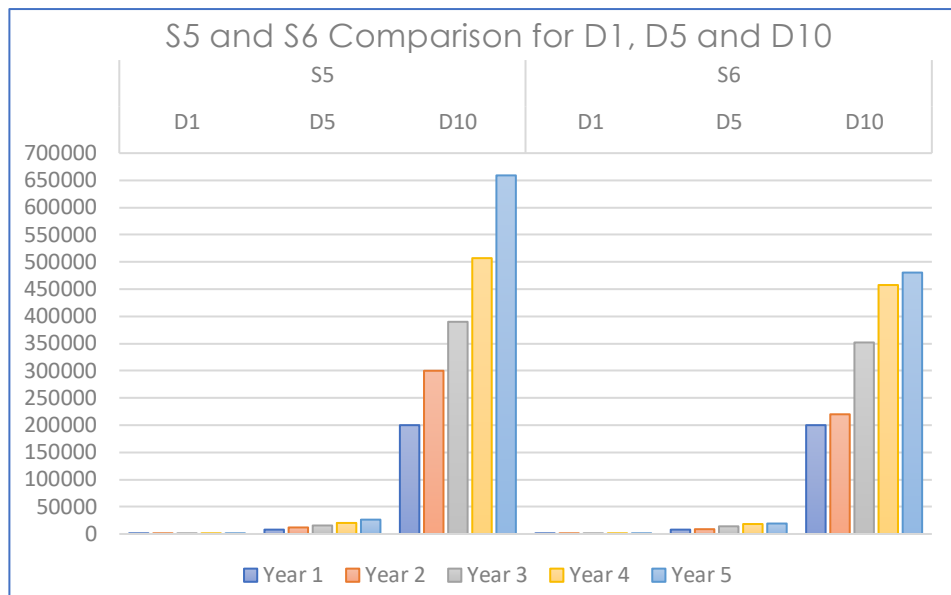
Figure 39, Logistics Demand Growth 1) and 2) comparison for D1, D5, D10

4.3.2 Logistics costs

Logistics, as already emerged during the literature review and previous chapters, represents one of the core themes of the present Master Thesis. Logistics can be defined as "the entire set of organizational, managerial and strategic activities which, within a company, rules the flows of materials and related information from suppliers till the delivery of finished products and after-sale services. [29]" This definition by itself might already make readers realize the several possible consequences of a careless management of logistics activities. In an E-commerce perspective even more, logistics plays a fundamental role. Indeed, all the benefits related to this well-established trend, as presented in paragraph 1.2, might lose their relevance if not supported by an efficient logistics system. It is clear how logistics is a very comprehensive and complex topic.

Therefore, for the sake of exposition, the present chapter will be further divided in three sections: Country of origin (Italy) logistics, International logistics and finally Country of destination (China) logistics. At the end of them, a last paragraph, explaining the different options provided to the users by the model developed, will be presented. However, before entering into details in each of these three areas, some considerations concerning the focus of this work are needed.

First of all, despite the several researches and interviewees[30] performed by the two candidates, all the numbers and values that will be further presented within this chapter and in the thesis, are in the reality dependent on the specific case. Indeed, while evaluating logistics costs for both inland and international logistics, there exists a plenty of variables that influences them. Characteristics of the product (weight, value and size), as well as the decisions related to the type of shipment (third-party intermediary chosen for transportation, transportation mean, frequency, carton sizes etc.) heavily affect the final cost.

Secondly, another important aspect which has not been considered in detail within this thesis regards Incoterms. The reason behind this choice is the overcomplexity that would have been created considering them as a variable into the model.

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[29] https://www.ailog.it/

[30] See Bibliography; see Appendix 8.1;

Incoterms represent the need of the formal representation of responsibilities and risks between the buyer and seller. Incoterms stands for International Commercial Terms, and expresses standard rules used in whatever international sell of goods. The main objective is thus to clearly define the subdivision of tasks and responsibilities, in order to avoid possible misunderstandings between the two players involved. The key point is to identify that moment in the supply chain where responsibility moves form one actor to the other. In this way it is possible to estimate the cost that each participant has to sustain and consequently also the price requested by a third-party (usually freight forwarding companies) for the related service.
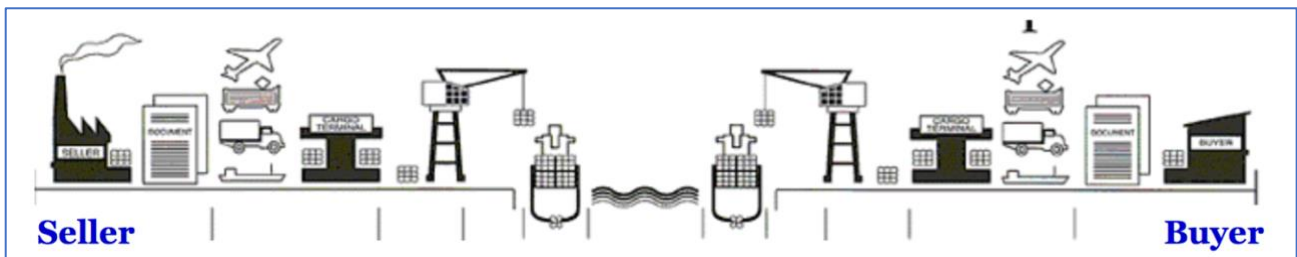
Figure 40, Supply chain perspective in an international context (Source: M. Melacini - International Trade slides, Politecnico di Milano)
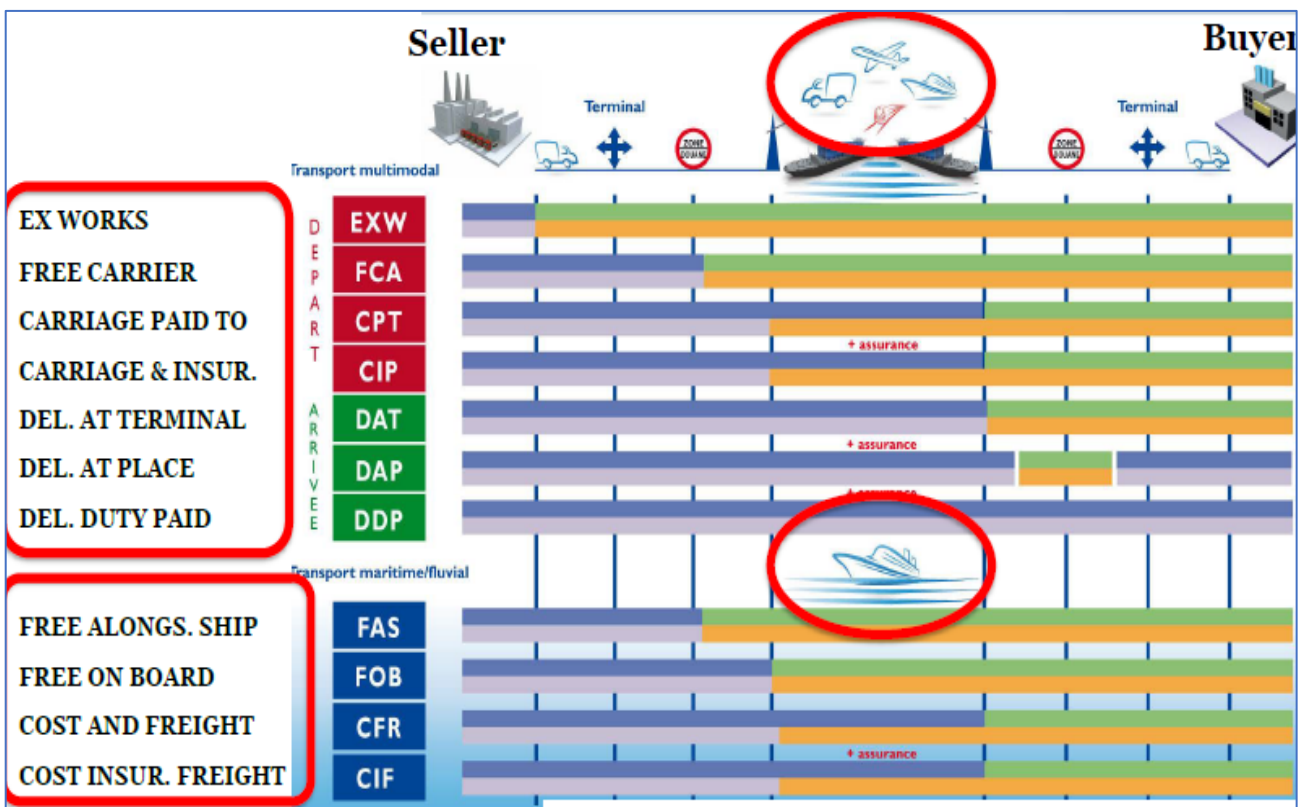
Figure 41, Incoterms List 2010; costs and responsibilities according to the different Incoterms: dark blue lines are showing the costs for the seller (i.e. the exporter in the thesis context) while the light blue the responsibilities; on the contrary, green line shows the costs sustained by the buyer (i.e. the company that should sell in China, in this Master thesis it is not present) and in orange its responsibilities. (Source: M. Melacini – International Trade slides, Politecnico di Milano)

There exist 11 different rules[31], starting from "ExWorks" where almost all the activities are in charge of the buyer, until "DeliveryDutyPaid" (DDP) which represents the opposite case. It is clear that each of them does have advantages and disadvantages, however, these are well beyond the focus of this Master Thesis. The only

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[31] Incoterms were updated last time in 2010, therefore reference is to incoterms 2010; the new version will be probably released in 2020; See Appendix 8.2 for the whole Incoterms List.

important point to keep in mind for the thesis is that, in all cases studied (e.g. for the computations of the "value" voice of the product adopted into the model, to compute then other cost voices such as Duties and Taxes, see chapters 4.3.7 and 4.3.8), the reference has been always the DDP incoterm because this represents the easiest one to compute logistics cost[32], due to the fact that the exporting company has to pay for the whole supply chain process.

This hypothesis is also supported by the e-commerce channel, because the platforms do not assume any logistics cost and risk for the goods in transit. Indeed, a part from one possible option given by JD International and JD.com (see chapter 4.3.4 for further details), no platform manages the physical goods flow. However, it should be underlined that in the literature, the majority of the international exchanges of goods are ruled by the CIF (CostInsurance&Freight).[33]

Nevertheless, readers should be aware of their existence and that, when requiring a quotation for an international shipment, the price obtained is always bound to a given incoterms.

Finally, prices for a similar shipment are different along the year. Indeed, the cost of a shipment is dependent upon the balance of flows between the two countries involved, the months in which it is performed and the exchange rate fluctuations. Starting from the first point presented, as depicted in Figure 17a) in paragraph 1.3, the main transportation mean used between China and Europe is Sea Transportation. Products are stocked within containers that are further loaded on ships. The higher cost for a freight forwarding company is represented by the cost to be paid for returning empty containers, due to the imbalance of flows between two countries. Consequently, the level of trade flows between Italy and China influences the cost required to a company willing to export and it is even variable during the year.

The period of the year in which the shipment is performed represents thus another point of cost variability. Indeed, according to information had with the interviews conducted, there exist periods in which costs are even 30% higher than the rest of the year[34]. The peak-periods usually coincides with months before Christmas and those before the Chinese New Year's Eve, which furthermore changes every year according to the new moon[35]. According to this, it should be noticed that it is not a coincidence the peak-period crosses the Chinese New Year's Eve. Indeed, as already described in the introduction chapter, China is weighting more and more on the global international trade balance, and the e-commerce boost created in the last decade is actually spreading this imbalance. Ports and airports freight such as the Chinese ones are moving millions of containers and pallets every year, from all the globe, and the trend is also increasing.

Moreover, also exchange rates varies during the year and they can be more favourable during some months than others. Differently from holidays, this last aspect depends upon the flows of currency in and out of countries, and it is therefore even more complex to take into account.

Consequently, all the costs that will be presented along the development of this chapter are the results of months of researches on the internet and several interviewees both formal and not. The reader should thus consider them as indicative values but not universally applicable due to the different aspects beforehand discussed.

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[32] DDP equal to DAP, so DELIVERED AT PLACE (the seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. The seller bears all risks involved in bringing the goods to the named place.) but, in addition, there is an obligation for the seller to clear the goods not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities.

[33] CIF incoterm states that the seller delivers the goods on board the vessel or procures the goods already so delivered and the risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination, along with a minimum cover insurance.

[34] See interviews in Appendix 8.1

[35] The date varies between the 21st of January and the 19th of February.

From: Country of origin (Italy) logistics

Due to the direction of the product flows analysed in the present Master Thesis, and then evaluated in the model developed, it is obvious that Italian logistics activities and related costs should be the first ones to be presented. Within this paragraph, the objective is to present all the activities and costs occurring from the seller company's warehouse until the airport or port in the country of origin, and all the related assumptions made.

The two candidates approached this topic with some consideration regarding which Italian ports and airports to include into the model.

Italian Ports

Firstly, for what concerns sea transportation, four ports were selected according to their geographic positioning within Italy. They were Genoa (ITGOA), Venice (ITVCE), Ancona (ITAOI) and Gioia Tauro (ITGIT)[36]. This decision was made for the attempt to immediately try to minimize transportation costs between the productive site of the company and the origin port from which the international shipping would have been started. However, this idea was, some months later, set aside. Indeed, in one of the many informal interviews performed during the evolution of this work, it did emerge that Genoa is almost the only Italian port from which it is possible to ship constantly products towards China using the LCL (Less than Container Load) logic.

In this regard, it might be useful to clarify the difference between FCL (Full Container Load) and LCL. FCL refers to the case in which a company is able to saturate by itself the whole capacity of a single container, LCL regards the opposite case. Therefore, even if annual demand for companies has not been estimated[37], it has not been thought to be able to fully saturate one container without incurring in very low frequencies of shipment that on the other side might cause stock-out issues (see later within the chapter the frequency issue).

In this connection, companies offering consolidating activities should be cited. Consolidation refers to the activities performed by freight forwarding companies, which put together goods belonging to different companies in order to saturate containers and thus get lower prices for the same maritime route. This is all the essence of LCL logic that has been appointed to be the only viable way for the type of companies to which this work is addressed.

Following this criterion, all the solutions analysed for Sea Transportation have the hypothesis behind of relying on an intermediary third-party service provider (e.g. DHL, Panalpina, etc.) for freight-forwarding products towards China. For SMEs, in fact, the logistics channel is one of the hardest topics to face, due to the complexity already explained behind it. Therefore, it has been assumed that no SME, at least in its first steps approaching the e-commerce world and the Chinese context, would challenge itself in reaching the new market alone.

Consequently, the only port of origin included in the model developed was Genoa, under the hypothesis of working with a generic intermediary. Moreover, once the international shipment cost was computed, it was clear that the optimization of Italian transportation could be left behind. Indeed, as readers will discover lately along the development of the thesis, inland and international transportation are costs of two different sizes.

Italian Airports

Concerning now air transportation, if for sea transportation the choice of ports was difficult, it was immediately clear that Milano Malpensa (MPX) and Roma Fiumicino (FCO)[38] should have been the only two airports to

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[36] See Appendix 8.5 for further details; ITGOA, ITVCE, ITAOI, ITGIT are acronyms adopted in the international maritime context through the INTERCO codification. Purpose of the INTERCO is to provide ways and means of communication in situations related essentially to the safety of navigations and persons, especially when language difficulties arise.

[37] See Revenues chapter 4.3.1.

[38] See Appendix 8.5 for further details; MPX and FCO are acronyms used into the IATA codification. The International Air Transport Association (IATA) is the trade association for the world's airlines, representing some 290 airlines or 82% of total air traffic.

include within the model. Indeed, despite the high and increasing importance of these airports for Italy (they are considered the only Italian Hubs for international flights), there were some issues concerning routes towards the selected airports of destination[39]. After the selection of both airports of origin and destination indeed, some researches on the internet were performed through estimates calculators of different freight forwarding companies. It was evident that adopting minor Italian airports (as well as ports) did lead to higher lead times and costs for the international shipping, due to the fact that these solutions included a lay-over through intermediate airports. Consequently, the first decision taken revealed to be the most appropriate for the purposes sought.

Finally, the two airports chosen actually split Italy in a fair and half way from a qualitative transportation costs' point of view, and thus also in this perspective the choice seemed to be appropriated.

Railways Stations

Even if it is an alternative that is still in a "work-in-progress" phase, due to all the considerations discussed in paragraph 1.3, rail transportation has been included in the model. Candidates, during their researches, recognized the potential of this logistics solution. Therefore, even if nowadays it is a solution always dominated by both sea and air transportation, once all the ongoing project will be concluded, it might represent a good compromise between the above-mentioned options, especially for SME.

According to information gathered on websites and literature, the Silk Road Economic Belt seems to be the only chance to reach Far East (especially mainland China) by train. From a European standpoint, this road should start from Hamburg (Deutschland),[40] that would become a sort of hub for all the exporting companies interested in trading with Far East, from all over the Europe. Of course, from the Italian perspective, there should be an additional logistics cost (both by road or train) to reach this hub, but it has been considered negligible according to the whole cost structure analysed in this Master Thesis and thus incorporated into the Italian inland logistics cost.

It should be underlined that some articles have discussed on the possibility to extend this rail network also to other European countries, in order to establish a functional rail connection from all the major countries in Europe, adopting Hamburg as a real consolidation point, but no validation has been found for this theme. Anyway, from the model perspective, train transportation would start from Milan Central Station, which is the biggest Italian station from a train flows point of view, to reach first Hamburg and then the destination railway stations that will be discussed later in this chapter. Train transportation mode follows the same logics of the Sea transportation, because for the product category chosen into the model only closed containers can be selected, despite the existence of many different wagons and containers is available.[41]

Express Courier

The last alternative considered is the express courier, that of course represents a solution completely different from the ones described above. It starts from an Italian city, (Milan in the model due to the logistics preferential position towards European logistics networks)[42], it has no intermediate points, such as consolidation hubs or stops, and thus connects directly the Italian SME's productive site with the Chinese customer, from a theoretical standpoint. Indeed, express courier could consider also a warehouse stop in mainland China, thus converging to the bonded warehouses solutions considered in this thesis, but this option is not only not adopted in the real context, but also not efficient. Lead times for this transportation mode are competitive, comparing to the ones

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[39] Same issues did occur while selecting Italian ports.
[40] See Appendix 8.5.
[41] See Appendix 8.6.
[42] See Appendix 8.5.

that will be displayed in the next paragraph about international shipment, but costs are usually higher. The critical advantage is the direct shipment to the customer, therefore, it seemed (and, actually, it is) a contradiction to use this solution with intermediate stops, even if with the theoretical objective of beneficing, for instance, of the bonded warehouse customs and financial benefits.

International logistics

Once ports, airports and rail stations were selected, the two candidates started to argue about the different options for a company in order to transport goods from their warehouses to the defined structure in charge of the international shipping. Even in this case, due to the lack of experience, the choice was to look for some confirmation from some professionals of the logistics field. It soon became apparent that goods should have been moved by road, and thus using trucks, rather than national trains. On the contrary, some issues arose while thinking about possible intermediate warehouses. Freight forwarding companies are in charge of withdrawing the goods from the selling companies' warehouses, but they do not usually move them directly towards the point of origin of the international shipment. Indeed, in order to not have to rent extra space to complete logistics operations, freight forwarding companies use to gather all the goods of customer companies within their own warehouses, performing there consolidating activities, and then moving full containers to the port/airport. This aspect created some difficulties for collecting cost information to insert in the model. The reason is that client companies usually see only the whole price for the shipment, while freight forwarders utilize different voices of costs (in this case "cost of pick-up") for the various operations performed. Consequently, it appeared impossible to find a real "always-applicable" fare for inland transportation.

Therefore, the criteria pursued, because of all the above-mentioned points of complexity, was to use an average cost for what that has been named within the model as Italian inland logistics cost.

More in detail, exploiting previous studies concerning cost of the road transportation in Italy, for each port/airport, it has been evaluated an average cost for the transportation and consolidation service considering all the possible locations of exporting companies' warehouse and also the initial annual demand to be inserted within the model. Then, according to the demand and the capacity of a general truck, saturation has been computed.

In the next page, within Figure 42, candidates report the main formulas adopted to compute some of the numerous logistics cost voices. Readers should notice that, due to the same logic behind, express courier and road transportation in Italy are adopting similar computations, where only the fares per kilometre are changing. They consist in a sort of generic equations, to provide to the readers an idea of the logics and computations adopted in the model. The first two equations compute the saturation of the containers for both volume and weights parameters, while the third one applies the fare to the so-called hundredweights taxable, the unit of reference for computing logistics costs in the reality. These formulas are adopted both in maritime, road and air transportations.

The fourth formula instead provides the logics behind the cost computation for the courier express transportation mode. Now, not all the mathematics computations that have been used into the model can be reported due to the multiple themes faced within the thesis and its purposes. Otherwise only logistics, due to its extremely complexity, would need a thesis aside. However, if readers would be willing to know more about this topic, all the computations can be found in the several worksheets created on Microsoft Excel in order to develop the model. In addition, there exist previous and more specific works completely focused on the logistics topic.

Nevertheless, it is important and probably fundamental to explain the idea used and the parameters set within the logistics side of the model.

Saturation of containers, both in terms of volume and weight, is fundamental to set the frequency of the shipments, and, thus the number of shipments occurring yearly. Moreover, the fare charged by the third-party service logistics provider depends upon the number of products guaranteed per shipment, and thus for low

annual demands, saturation of each container reveals to be essential. Indeed, the quantity of products shipped directly impacts on the total cost of the international shipment.

$$1) \quad \frac{annual\ demand\ [pieces]}{pieces\ per\ box} \cdot \frac{1}{frequency} \cdot volume\ of\ the\ box \quad vs \quad volume\ of\ the\ container$$

$$2) \quad \frac{annual\ demand\ [pieces]}{pieces\ per\ box} \cdot \frac{1}{frequency} \cdot weight\ of\ a\ full\ box \quad vs \quad max\ weight\ of\ the\ container$$

$$3) \quad \frac{annual\ demand\ [pieces]}{pieces\ per\ box} \cdot \frac{1}{frequency} \cdot volume\ of\ the\ box \cdot 3 = hundred\ weights\ taxable$$

$$4) \quad price\ \left[\euro / _{km} \right] \cdot \ distance\ [km] = service\ price$$

Figure 42, Formulas used for logistics computations, both domestic, international and downstream ones (Sources: interviews and academic theory)

As readers might notice, formulas displayed within Figure 42 are quite easy to understand. A special mention should be done for the "3" expressed in the third formula. This value refers to the so-called volume ratio 1:3, in this case specific of road transport. Indeed, for each shipment volumes and weight, are computed similarly to the first two formulas, and then are compared with the actual weight in kilos. In air freight 1 cubic-meter (cbm) equals 167 kilos (volume ratio is 1:6), in maritime freight 1000 kilos (volume ratio is 1:1) while in road transportation 333 kilos. Consequently, the highest between volume and actual will be charged[43]. For what concerns the fares used for computing transportation costs, they depend, as previously discussed, upon the quantity shipped. Therefore, tables as the one depicted above have been used for the computations.

Peso min fascia (kg)	Peso max fascia	Tariffa
0	0,5	26,65317712
0,5	1	30,00664047
1	1,5	33,38503663
1,5	2	36,71356717
2	2,5	40,07949693
2,5	3	43,42049387
3	3,5	46,77395722
3,5	4	50,13988698
4	4,5	53,49335033
4,5	5	56,85928009
5	5,5	60,21274344
5,5	6	63,56620679
6	6,5	66,93213655
6,5	7	70,31053271

Table 7, example of worksheet used for fares computations.

Moreover, within the evaluation of total logistics costs, final voices are represented by handling and picking costs. Within these voices, there exist some differences related to the type of transportation mean used. Indeed, times required by air pallets loading/unloading operations are different from those required for instance by sea containers. At the same time, also different packaging used and loaded/unloaded within the air pallet/container/ truck, would require different handling activities both in terms of time and cost. Thus, again, solutions are heavily affected by the huge number of variables.

However, for the sake of simplicity, and because they do not represent a differential cost item, same computations for handling and picking costs have been used regardless the transportation mean. Therefore, the computation for these cost voices have been set as follows:

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[43] https://www.mol-logistics.nl/academy/volume-weight-calculations/?lang=en

$$Handling \: \& \: Picking \: costs = (Gate \: fee + Fillin \: fee) \cdot \: shipment \: +$$
$$(Unloading \: fee) \cdot \: shipment \: +$$
$$(Picking \: fee) \: \cdot \: piece$$

Figure 43, Handling & Picking costs formula; first row refers to activities performed within Bonded Warehouses; second row refers to either ports or airports and depends upon the type of container; third row refers to operations within Bonded Warehouses and depends upon the type of packaging.

It is clear that this consists in a kind of simplification. However, due to the final object of this work, international shipments, and in general logistics, represent only a part of a more comprehensive set of topics faced and related cost. Therefore, the suggestion of the two candidates for future users of the model is to exploit it as a tool to obtain general insights to access the online Chinese market, rather than a mean to assess the precise logistics costs that will have to be faced.

As stated previously, international shipment is the major voice of cost to take into account while analysing logistics. Just to provide some numbers, when using the range of demands adopted in the model, the picture for the two product categories is the following. For wine items, express courier ranges from 1.034 € to 1.450.497 €, sea transportation from 16.894 € to 235.094 €, air transportation from 17.158 € to 1.076.544 € and finally rail one shows middle results in between sea and air means. Fashion items instead, at low demand show similar costs, apart sea and air transportation that are inverted (sea means at D1 cost around 18.451 € and 17.905 € for Air). When reaching D10, costs raise up to 653.135 € for the express courier solution, 1.919.902 € for Sea and 857.569 € for Air, again with train mean in the middle. Consequently, international shipment was also one of the parts that required more effort to the candidates in order to gather all the information needed and to understand all the possible points of complexity and difference. Therefore, in addition to the previously described formulas, with the aim of expose as clear as possible the subject, all the points will be presented according to the order followed by candidates when approached this part.

Products, Boxes and Pallets

Just before starting the analysis for the international logistics transportation, a detailed picture of the products that are going to be carried through the different solution and of the computations and choices taken as inputs for the model should be depicted.
First of all, as already described, the product categories included into the model were olive oil, sparkling wine, clothes, wine, cheese, pasta, chocolate, mineral water; however, for model purposes, only wine (food sector) and clothes (fashion sector) have been chosen for detailed analyses and results. Consequently, these two categories have been deeply studied, both from the weight point of view and the structure because these parameters should influence the logistics model and thus the costs.
Adopting as a reference both the real scientific experimental process weighthing clothes and bottles and a website found on Internet[44], candidates have estimated the weights of some items of the two related categories.[45]
According to these researches, average weight for a generic fashion item has been set to 450 grams, while for a bottle has been set to 1 kilogram: candidates adopted a low-rounding only in this case to simplify computations, because, according to single cases analysed, a generic full wine bottle could weight from 1,2 to 1,5 kilograms, depending on the glass type.
These items for the international shipment should be put into boxes than loaded on pallets and finally loaded into containers or air-pallets.

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[44] www.quantopesa.it
[45] See Appendix 8.3

For what concerns boxes, exploiting the interview with the warehouse manager of Yoox, candidates have received the following inputs, summarised into the table below.

Packages/Boxes			
Standard	Name	Measures(cm)	Weight (g)
(Yoox own products)	N1	68x46x25,5	850
	N2	66x50x18	680
	N3	56x39x10,5	360
	N4	47x37x7,5	230
	N6	29x26x7	130
	N8	58x36x14	420
	N9	40x28x14	250
Special (double protection)	Name	Measures (cm)	Weight (g)
(3P products-valuable/riskier products)	O2	66x50x18	1510
	O4	47x37x7,5	410
	O6	29x26x7	220
	O8	58x36x14	670
	O9	40x28x14	460
Big-International Export	Name	Measures (cm)	Weight (g)
(Big shipments)	j2	59x39x41	800
	j3	60x60x56	1720

Table 8, Boxes adopted in international shipments from Yoox (Source: Yoox Warehouse Manager)

As it is possible to see, boxes for logistics transportation are multiple and completely different from the dimension, weight and also "owner" point of view. Thus, the choice of this parameter depends again on multiple factors, that surely affects also computations for logistics. Candidates have asked to the Yoox contact additional information in order to choose the right box for the item under analysis, and the results are the following.

For the fashion item, releasing the hypothesis that the company exporting these items produces really valuable products such as dresses or really valuable clothes and that need awareness and the minimization of risks in terms of damages or quality issues, boxes should be bigger not to bend clothes. Moreover, the final Chinese price for fashion items will be higher, so no issues will be raised if the weight or the dimension (and, consequently, costs) increases for the box chosen.

The box chosen resulted to be the J3 as named into the table (same names adopted by Yoox company), where between 40 and 45 pieces can be disposed.

For the wine bottle, instead, the situation is different. Bottles need minimization of risks for damages, because of their fragility. At the same time, however, the mark-up imposed for these products it is not really high, even if it follows a completely different logic from the one charged into domestic market (i.e. Italian one) due to many factors, later listed. Therefore, there is a clear trade-off to overcome: it is not possible to use the heaviest box or the biggest one just because the company wants to be sure to avoid risks, because efficiency and optimization of costs represent the main drivers into the logistics option for the wine sector. Thus,
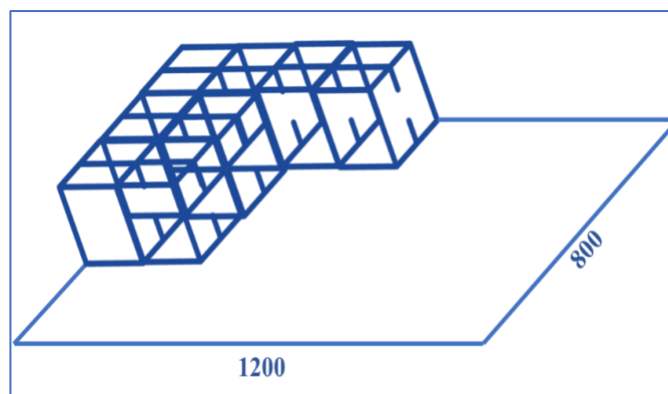

Figure 44, Euro-pallet dimensions in mm; Boxes are loaded on it, and it is possible to overlap multiple boxes

for this product category, box O9 has been chosen. It is theoretically designed for valuable products, but also for the weakest ones, and ensures almost 1.3 kilograms less than the box adopted for fashion items. Dimensions are sufficient for transporting the products, and the box provides a special double protection, against damages. Inside the wine box, 6 bottles have been defined as the standard number of pieces placeable, such as a normal box buyable in supermarket.

According to these choices, parameter have been set into the model.

Boxes then enter into pallets, and depending on the dimension and the typology of the pallet which enters into a specific container[46], the number of boxes that can be lay changes accordingly. For what concerns fashion items boxes selected, due to their huge dimensions, only four of them are sufficient to fulfil the standard sizes of the Euro-pallet. Boxes containing wine products, on the contrary, due to their lower size, can be loaded in the number of 54.

Cities Selection and Warehouses Location

The first step when dealing with the international phase of Logistics was to pick the Chinese destination cities to include in the model. Similarly, to the first approach to select ports and airports of departure, the two candidates analysed the geographic location of the main Chinese cities (first tier cities in paragraph 4.3.1.). After several considerations and different researches on the internet, Tianjin, Shanghai, Shenzhen and Chongqing were the destinations chosen to better serve the country from a logistics point of view.
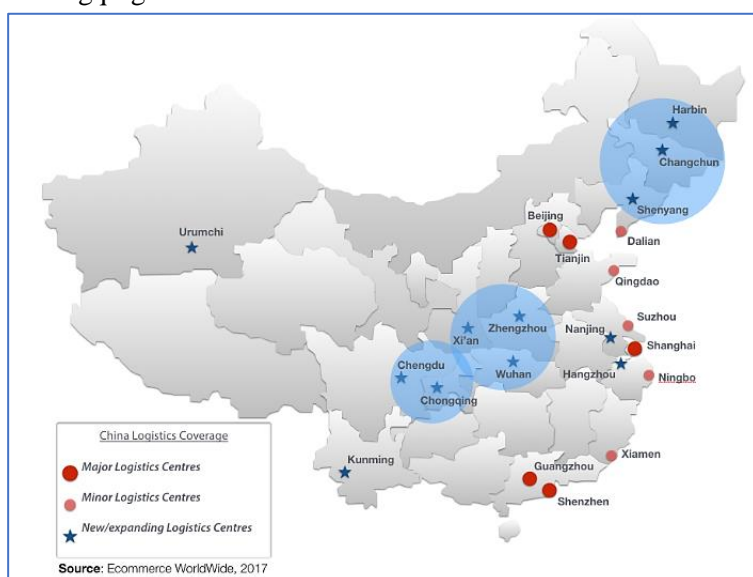
Figure 45, Pilot cities and related logistics centres being developed. (Source: Ecommerce WorldWide, 2017)

As it can be noticed from the figure besides, the first three cities selected already represent major logistics centres for the country. Tianjin is one of the four municipalities under the direct administration of central government of the People's Republic of China (PRC). It is designated to serve the northern area of China exploiting also its proximity to Beijing. Shanghai is the largest city of the country by population; being a global financial centre and transport hub has been thought to be optimal to serve the central area. Shenzhen became officially a city only in 1979, but grew up very rapidly exploiting foreign investments. Due to its location and closeness with Guangzhou, it has been selected to answer to the logistics demand of the southern part of the country. All the three cities presented since this point are located in the eastern part of China, with the aim of take advantage both of airports and ports. However, due to the huge dimensions of the territory, according to the humble opinion of the two candidates, a fourth city positioned in the centre was necessary. The one selected was Chongqing. Despite being a new and expanding logistics centre, the choice has been heavily influenced by its rail station. Indeed, in order to replace the obvious missing of a port, candidates discovered that this city was one of the two main destination of the new Silk Road Economic Belt[47]. Therefore, with the geographical position of the four cities selected, their relative infrastructures and the fact that both of them are located within FTZ, the search for points of arrival in China was considered finished.

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[46] See Appendixes 8.3, 8.4, 8.5.

[47] See paragraph 4.3.1.

At this point, once the different transportation means and the related points of destination have been presented, it is time to expose to the readers some considerations concerning the type of products exported. Indeed, due to the already high complexity of the themes covered in this work, the focus has been set on goods belonging to fashion and food/wine industries. The reason behind this decision has to be sought in the relative different characteristics of these types of products.

For what concerns fashion goods, it is now well known that the preferred mode for international shipments is the air one. Indeed, they are usually characterized by high value that justifies any box dimension chosen. Therefore, using either trains or ships would lead the company to face high costs related to the huge tied-up capital due to the long lead times (LT) occurring for these transport modes. On the contrary, airplanes, despite the higher cost for the Italy-China route as well as any other, outperform the other options exploiting the short lead times.

On the other side, products belonging to the food/wine industry, due to their relatively low value, can sustain the higher timing of rail and sea transportation[48]. Indeed, as already discussed before within this chapter, international shipment does represent the main voice of cost, especially for these products with small profit margins compared to fashion ones.

In order to build the model, average Lead Time (LT) for both transportations means and the different routes between Italian cities of origin and Chinese cities of destination have been evaluated. These values have been computed exploiting on one side information gathered during interviews, on the other routes' calculator tools provided on the website of some maritime and airline companies[49].

For what concerns LT, a further explanation is provided due to the importance of this parameter. Indeed, LTs for the four solution has been imposed as average of data displayed into tables reported in Appendix 8.5:

- Sea: 36 days
- Air: 4 days
- Train: 20 days
- Express Courier: 12 days

These LTs consider not only the time needed for the physical international shipment, but also all the operations to be performed at the port/airport/railway station and the final movement to the Bonded Warehouse (BW). Custom activities are not considered within these computations due to the adoption of BW, which allows to perform custom operations outside the port area, and therefore do not represent differential timings.

However, in addition to the average LT used for computing international logistics, there is also an important LT to consider in mainland China. Indeed, Chinese dimension and less developed rural areas are increasing the time needed for inland transportation with respect to Italy. Moreover, the eventual presence of multiple warehouses to be served generates an additional timing required. For instance, if the logistics solution chosen is sea transportation and the suggestion is to open all the four warehouses considered (Shanghai, Shenzhen, Tianjin and Chongqing), it is clear that from the 3 ports located on the East Coast, some quantities need to be delivered to Chongqing, resulting thus in an additional LT (and costs) to be considered into computations. On the contrary, if the solution adopted becomes the train one, from Chongqing (the only railway station considered for previous information provided) goods need to be distributed to other warehouses, thus entailing additional times and costs.

Later Inventory Carrying Cost were analysed. Therefore, costs for both Safety-stock, Cycle stock and In-transit inventory were computed for all the solution proposed, as the following pictures are showing:

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[48] Readers should be aware that food products considered in this Master Thesis and thus in the model developed are not perishable ones.
[49] https://www.maersk.com/routes/search-routes; http://www.cma-cgm.com/ebusiness/schedules; https://www.logistics.dhl/it-it/home/richiedi-una-quotazione.html

$$Cycle\ Stocks = \frac{pieces\ sent\ per\ shipment}{2}$$

$$Safety\ Stocks = k \cdot \sqrt{\sigma_d^2 \cdot LT + d^2 \cdot \sigma_{LT}^2}$$

$$In\ Transit\ Stocks = \frac{\#\ annual\ pieces\ shipped}{365} \cdot LT$$

Figure 46, Formulas of Cycle stocks, Safety stocks and In-Transit stocks adopted into the model, according to academic theory (Sources: "La gestione del Sistema di produzione", Andrea Sianesi, Politecnico di Milano professor, ed. 2011))

In these formulas, some parameters set for the results obtained and described within chapter 5 have been used. First of all, as previously defined, the annual pieces shipped are equal to the annual demand, free variable for the reader but set with a precise logic behind by candidates[50]. To be precise, in the second formula reporting the classic expression for Safety Stocks, parameters are the following:

- k, "company's service level target": for e-commerce, service level has to be really high. Candidates imposed 95%;
- LT, which is the average lead time of the data gathered into table reported in Appendix 8.5 for each logistic solution and already explained above;
- σ_d^2, it is the powered variance of the demand, computed as $\sigma_d^2 = demand/_{2\ *\ z0.975}$
- σ_{LT}^2, it is the variance of the lead time, computed heuristically as $\sigma_{LT}^2 = LT/_{365}$

Moreover, since one of the input data of the model is represented by the initial annual demand, some evaluations were needed in order to decide the right frequency of the shipment. Approaching this topic firstly, the two candidates glimpsed a possible optimality in a frequency that in most of the cases (considering possible initial demand) would have never allowed companies to saturate containers unless with quarterly shipments. In this case though, different issues related to stock-out would have arisen. As a consequence, the choice was to rely for this part on previous models and researches existent in the literature.[51]

Finally, for the sake of comprehensiveness, also a courier solution was evaluated. Indeed, during a specific interview with an export operator of a famous Italian fashion brand[52], it did emerge that occasionally door-to-door service in the shortest period of time are required (as previously discussed in Courier Express paragraph).

To: Country of destination (China) logistics

As already discussed in the previous section, the choice of Chinese destination cities was characterized by geographical coverage of the territory. The criteria pursued was thus to minimize transportation costs within inland China. Indeed, for what concerns total logistics cost, the main part of it is represented by transportation.

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[50] See previous sections.

[51] About frequency topic, there should be opened a chapter aside only to explain how is it treated in reality and how has been considered into the model. For the sake of clarity, frequency in reality is minimized, due to the related risks of a trip, both on ship, aircraft, train or road, and also due to costs, of course. Candidates, exploiting interviews conducted, have discovered that companies normally adopt between 10-12 shipments per year no matter the product (obviously, not perishable goods). This frequency is not optimal for the e-commerce and, on top, the CBEC-GT trade options because it is needed a faster response than the general trade situation without e-commerce platform presence. Within the model the frequency obtained is much higher because it is always considered the optimal saturation of the single trip and the constant replenishment of warehouse/s.

[52] See interviews in Appendix 8.1

Consequently, since one of the benefits sought by customers when shopping in the online market is the fast delivery, the service level offered plays a significant role when designing the distribution network.

Moreover, in an E-commerce scenario, the cost for the return of either unsold or defective goods cannot be overlooked. Even if this latter issue has not been included in this work, the model has been designed to allow future users and researchers to improve it.

Due to the cross-border purposes of the thesis, all the Chinese cities selected as destination point of the international shipping, are located in FTZ where there exist bonded warehouses (Table 9).

FreeTradeZone (FTZ) , Pilot Cities with Bonded Warehouse (BW)						
Region	Open Year	City 1	City 2	Train (West/North Ch)	Sea	Air
Shangai	2013	Shangai			X	X
Fujian	2014	-			X	X
Guangdong	2014	Shenzhen	Guangzhou		X	X
Tianjin	2014	Tianjin			X	X
Henan	(2018/2020)	Zhengzhou		X		X
Chongqing	(2018/2020)	Chongqing		X		X
Sichuan	(2018/2020)	Chengdu		X		X
Zhejiang	(2018/2020)	Hangzhou	Ningbo		X	X
Shaanxi	(2018/2020)	-				X
Liaoning	(2018/2020)	-			X	X
Hebei	(2018/2020)	-				X
-		Dalian			X	X
-		Qingdao			X	X
-		Hefei				X
-		Suzhou		X		X

Table 9, FTZs, Pilot cities and BWs: in the table are reported the FTZs and the related cities which belong to the CBEC boost pushed by the Chinese Government. As it is possible to notice, the underlined cities (in yellow) are those chosen for our logistics studies because they belong to an FTZ, they are pilot cities and they also have also a BW. In addition, each city guarantees at least two possible logistics solution, giving to the Italian SME in the model context the great advantage to choose the best logistics option.

Bonded warehouse model, as depicted in Figure 47, requires a registration of goods that will be subject of trades at the Chinese customs. In return these products can be stocked in special warehouses without the necessity to pay custom duties before the customers' purchase. When the order is placed on the CBEC platform, there occur the sharing of details order, payment and logistics with the custom. Then, when custom operator communicates the agreement to release, the platform dispatches the goods notice to the bonded warehouse. At this moment the last-mile delivery toward the customer starts.
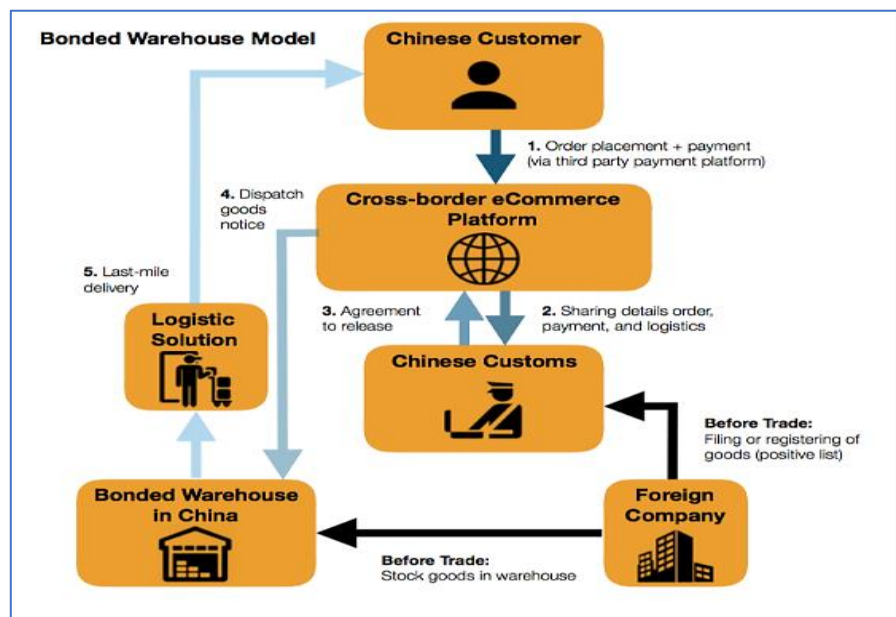

Figure 47, Bonded Warehouse Model (Source: CBEC Guidebook)

In order to consider the cost for the final allocation of products demanded by the different Chinese cities, starting from the warehouse/s opened in the cities of destination for the international shipment, some computations were needed.

Cluster Shanghai	Units	Cluster Shenzen	Units2	Cluster Tianjin	Units3	Cluster Chongqing	Units4
Shanghai	47909	Shenzen	26271	Tianjin	27129	Chongqing	21076
Fuzhou	9870	Guangzhou	28008	Pechino	32851	Changsha	10450
Wuxi	11856	Zhuhai	2157	Zhengzhou	11017	Chengdu	17635
Hangzhou	15467	Xiamen	7181	Changchun	9835	Xi'an	12600
Wuhan	20532	Haikou	1602	Dalian	12146	Guiyang	3382
Hefei	8432	Shantou	8080	Harbin	11942	Ürümqi	5985
Suzhou	18661	Sanya	1452	Hohhot	3459	Kunming	7950
Nanchang	6013	Nanchino	16311	Jinan	10223	Lanzhou	4911
		Nanning	3456	Taiyuan	6492	Shenyang	14392
				Shenyang	14392	Lhasa	811
				Tsingtao	12015		
Shangai	138740	Shenzhen	94518	Tianjin	151501	Chongqing	99192
Demand	0,288752	Demand	0,1967157	Demand	0,315311	Demand	0,2064435
Percentage	9	Percentage	8	Percentage	8	Percentage	6

Table 10, Clusters of cities for each Chinese destination city considered into the model; this table is referred to the particular case in which all the warehouses taken into consideration have been activated. Therefore, the total demand have been subdivided to the nearest cities around each warehouse.

In Table 10, it is showed as clusters for each of the four Chinese destination cities has been created, allocating their total demand to second-tier cities. The aim was to try to minimize times and costs for the local distribution. Indeed, for each route between first-tier cities (Shanghai, Shenzhen, Tianjin and Chongqing), the relative distances have been computed and then relative fares considered[53].

Options selection

As shown in the figure above, directly from the model developed by the two candidates on Microsoft Excel, nine different logistics options are simultaneously computed. In this way, the user can pick the most appropriate

	Option Selection				
0		If ND, please fill the following empty cell with the solution chosen or fill the option 8--->			
1		Minimal Costs	2.117.240,67 €	Costo Totale Air e 4 WH	
2	WH	2 WH/Min costs	2.146.916,60 €		
3		4 WH/Min costs	2.117.240,67 €		Which is the solution chosen?
4	Mode	Sea Min costs	4.608.993,40 €		4
5		Air Min Costs	2.117.240,67 €	total logistics costs	4.608.993,40 €
6	Mode&Downstream	Min Sea focus Downstream costs+reverse	4.698.412,65 €	Ita + Intercontinental + Stock + Picking costs	4.522.495,71 €
7	focus	Min Air focus Downstream costs+reverse	2.117.240,67 €		
8	Own	1) Choose your own solution and fill the cell on the right with total costs; 2) fill the cell below with the downstream costs in China; 3) select the option n. 8 on the right			
9	Express	Express Solution	10.553.699,62 €		
		Fill the cell with the theoretical % of downstream costs (i.e. 30% of Express Solution)			

Figure 48, Excel Sheet for Logistics selection

solution according to the characteristics of its business. It can be chosen between the different transportation modes since there might exist already established agreements with either maritime or airline companies. Moreover, there is also the possibility to insert its own costs for the logistics, reflecting the declared objective of this Master Thesis: despite the importance of the logistics topic, the model developed aims to provide a

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[53] Additional tables used for the computation of local distribution fares are reported in Appendix 8.7.

general overview to neophyte companies on which are the costs and the possibilities when accessing the online Chinese market. A special mention should be dedicated at the choice of the number of warehouses located in China.
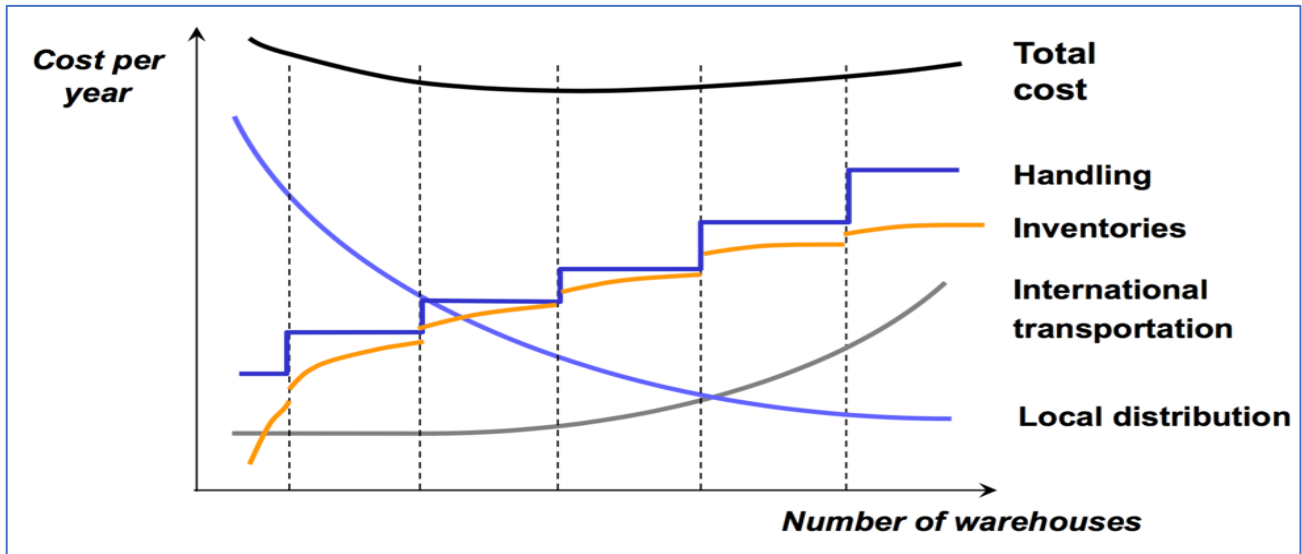

Figure 49, Logistics costs vs Number of warehouses (Source: M. Melacini - International Trade slides, Politecnico di Milano)

In the Figure 49, it is displayed the behaviour of local distribution, international transportation, inventories, handling and thus total costs at the increase of number of warehouses. Therefore, the idea of candidates was to compute also additional options characterized by the use of more than one central warehouse within China.

4.3.3 Marketing costs

At this point it becomes necessary to understand which are the initial marketing investments and the following marketing annual costs to face. Indeed, the four Chinese online platforms evaluated in the model developed, require both minimum initial investments and yearly costs for advertising purposes.

The former consists in a sum equivalent to 250.000 €[54]; it should be intended as a first mean to introduce and publicize the goods and the related brand on the platforms. This amount of money represents the minimum investment required by Alibaba which owns TMall Global. It is though clear that higher initial investments might increase the brand's visibility on the website. Therefore, companies willing to rapidly achieve high market shares, and which can afford the related economic effort, might decide to invest higher amount of money since the beginning.

Readers should now be informed that, for thesis purposes and due to absence of data concerning this topic, the same value as initial marketing investments has been set for all the Chinese platforms considered. Once again, lack of information and uncertainty do not allow for a precise evaluation of all the costs. However, it is opinion of the candidates that this aspect will not heavily influence the goodness of the model. Indeed, considering the aim of this Master Thesis, and thus to provide an overview on the main alternatives to access the online Chinese market, the comparison between the different platforms is not negatively affected since no differential costs have been introduced. Moreover, since candidates did not find any information regarding the relationship that could exist between initial marketing investment, platform adopted, and market shares gained on it, the choice of the same required investment seems to be coherent. Therefore, 250.000 € has been set as initial marketing investment for all the cases analysed.

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[54] Business plan China.pdf; see Appendix 8.5.

For what concerns annual marketing costs, they have been estimated as a percentage of revenues. More specifically, they have been intended as an ex-post cost: starting from the final revenues of the year, a percentage has been allocated as the cost needed to advertise the products and thus to achieve the related demand level. Consequently, they are variable according to the number of products sold. In this regard it is not to forget the relation between the heuristically demand considered and revenues already presented in the chapter 4.3.1. Moreover, as beforehand discussed in the "Growth demand scenarios" paragraph, the two candidates are aware of the connection between marketing investments, potential growth of the demand and, as highlighted before within this section, market share obtained. Nevertheless, due to the absence of valuable references regarding the Chinese market, the choice was to adopt a demand growth scenario system rather than use a regression model to forecast a possible growth.

The above cited percentage of revenues, used as yearly marketing costs, has been set at 15% for CBEC platofrms and at 12% for GT ones. This choice has been determined after researches in previous models and appears coherent with the other costs considered. However, as many other parameters' values within the developed model, it can be modified by future users according to the budget decisions of the company and the notoriousness of the products brand. The more known is the brand the lower will be the investment needed to achieve the same demand level, even if in this case, it should be opened a discussion for the related impacts on the different platforms. However, this is out of the thesis' scope.

The suggestion of the two candidates to a company neophyte to the Chinese market, is thus to conduct a deep market analysis before approaching this new trade channel. Indeed, in order to decide the appropriate level for the initial and yearly investments discussed within this paragraph, it is necessary to evaluate the knowledge that consumers have on the brand. This evaluation can be carried out by the company itself or rather outsourced to specialized service providers and should be performed on the E-commerce platforms themselves, social networks and the different search engines in order to obtain the most complete and detailed picture in the Chinese context.[55]

4.3.4 Platform costs

The following paragraph represents one of the most critical chapters of the present Master thesis. In order to face this cost field, indeed, candidates needed to search, collect and understand a huge quantity of data, releasing into the model also basic assumptions that could be modified or changed by the theoretical SME, accordingly. The scenario in this field is fragmented and complex, so candidates will try to explain in detail all the observations, data and criticalities behind it. According to a CBEC guidebook drawn by the General Consulate of the Kingdom of the Netherlands in Shanghai, there are currently six major models for brands to sell their

Figure 50, Different types of Chinese Platforms divided into categories (Source: CBEC Guidebook for Dutch companies)

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[55] Costs related to market analysis will be considered in the "Internal&Production costs" paragraph.

products via CBEC to Chinese customers: via a brand's standalone web shops outside China, shop fronts on online malls, self-operated hypermarkets, vertical specialty marketplaces, flash sales sites and WeChat stores (Figure 50).

Although all of these models can be used to sell foreign products without obtaining a business license in China, some sales channels are far more well-known than others. This is the reason why candidates decided to focus the attention on four specific platforms, two for CBEC comparison, two for GT comparison, mostly belonging to the online malls' category and self-operated hypermarkets.

Candidates have chosen the most popular ones in China with the highest shares and, consequently, more potential customers at theoretical level, following the hypothesis that an entering SME could be interested in investing on these kinds of platforms. Obviously, this hypothesis could be immediately rejected if the company is more interested in investing in a smaller platform specialized in the sector's industry, and this is why this hypothesis is immediately described and used as input for the model.

Chinese e-consumers almost exclusively shop on third-party online marketplaces to buy their goods rather than on standalone websites (either domestic or foreign based). 54% of Chinese consumers want to shop on global market places in the future, 65% (also) do so on the global channels of Chinese e-commerce sites[56].

Differently from domestic Chinese websites that require a business entity in China, there are separate markets for products which are imported or sent from abroad. Indeed, many domestic e-commerce platforms have a section, or entirely different website, for products coming from outside of China. If a company owns a Chinese entity, it can open a store on regular B2C platforms, while cross-border platforms are available only for those companies with a foreign legal entity.

In this context anyway, Chinese third-party CBEC platforms come in a variety of models. As these platforms offer a lot of business potential for foreign merchants, it is essential to have a good overview of the possibilities, requirements and costs that come with each of the two models adopted.

Online Malls Model

Online malls are large and well-known marketplaces where e-customers can roam around to select items from different independently operated shopfronts (stores). Differently from websites like Amazon.com, they provide a centralised platform (similar to an offline mall) where goods from a variety

天猫国际 TMALL GLOBAL

Tmall Global (www.tmall.hk), the sister-website of China's leading online marketplace Tmall, is China's first and largest official cross-border B2C platform, and therefore its most famous. Owned by Alibaba Group, it was launched in 2014 and sells imported merchandise only via foreign merchant's stores hosted on Tmall's website. At the end of 2015 Tmall Global offered more than 5400 international brands in various categories. As mentioned above, Tmall opened various country pavilions, which bundle products of different merchants from the same country on one page (see Figure V.).

The Netherlands held a 6th spot among the 53 countries Tmall Global shoppers ordered from most. It uses Alibaba's online payment escrow service, Alipay, to complete transactions in a preferred currency.

京东全球购 JD Worldwide

JingDong (JD) Worldwide (www.jd.hk) is the largest competitor of Tmall Global as China's second largest online mall. Moreover, JD is China's largest (direct sales) hypermarket, with a 54% market share. JD dominates in home appliances and consumer electronic goods. Direct sourced foreign products are shown on JD's domestic website (www.jd.com) and indicated by a special sign.

JD has seven fulfilment centres and 200 warehouses across China. Furthermore, it operates with more than 5000 of its own delivery and pickup-stations. JD launched its cross-border website, JD Worldwide, in 2015. For its hypermarket model JD Worldwide purchases inventory from overseas companies and resells it to Chinese consumers. For its online mall model JD Worldwide hosts foreign brands' flagship stores similar to Tmall Global. JD uses Tencent's online payment escrow service, Tenpay, to complete transactions in US Dollars.

Figure 51, CBEC platform comparison: TMall Global vs JD International general characteristics (Source: CBEC Guidebook for Dutch companies)

of individual shops can be purchased from a merchant directly with a single transaction via the overarching marketplace checkout system. Famous online CBEC malls in China are TMall Global and JD Worldwide. Moreover, on several platforms, the shopfronts are branded according to country of origin, such as TMall
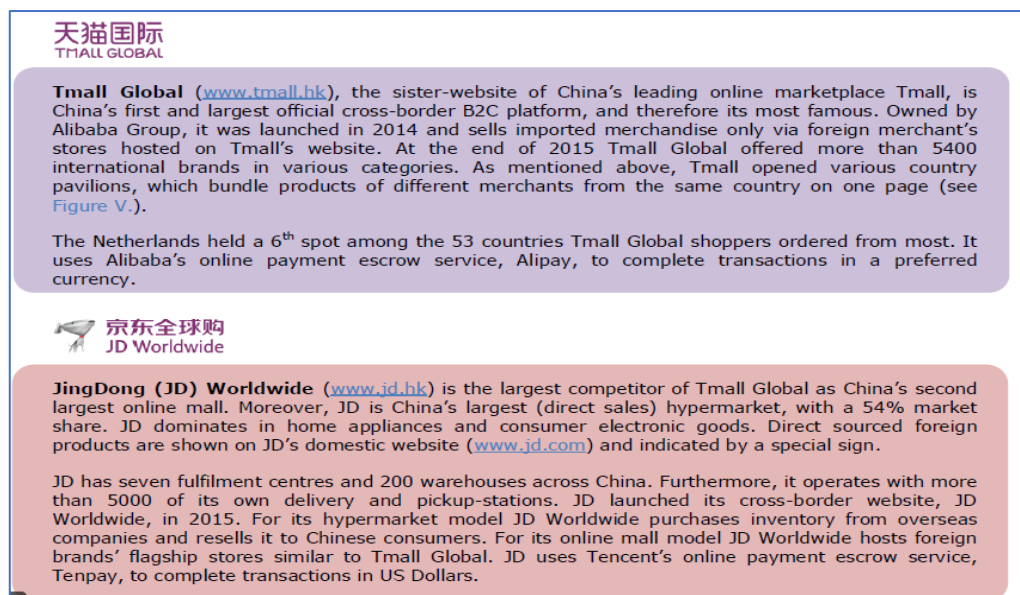
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[56] iResearch 2016/Ecommerce Foundation

Global's and JD Worldwide's country pavilions. Also, in the Figure 51, it is possible to spot the main differences between the two CBEC platforms chosen by candidates.

Hypermarket Model

The other model previously underlined is the hypermarket model that, differently from the online mall model, is based on B2B2C CBEC. Therefore, Chinese e-customers are reached indirectly by overseas suppliers. The intermediary is the hypermarket marketplace that charges a mark-up from the wholesale price to retail prices on their online platform. 'Pure' hypermarkets, such as Kaola and Jumei, purchase a great variety of popular goods directly from overseas companies and adds them to their own product assortment. As a result, they only have one shopfront, and not countless individual brand shops.

In turn, products are stored and delivered through their own online platforms and distribution centre and this could represent a core and critical element in the platform choice. Foreign companies in fact, are not required to manage distributions of operating shop fronts. Companies can sell to a hypermarket via a procurement manager with whom they negotiate the price. Consequently, the trade channel seems more to be similar to a distribution channel through agent, common way for a company of facing the internationalisation challenge. Furthermore, popular brands and high-turnover items may find it easier to sell their products because hypermarket platforms are more confident to bare the risk of storing and distributing these items.

Many CBEC platforms currently offer both the online mall and the hypermarket model to foreign merchants. However, for direct purchasing, these hybrid platforms tend to focus on certain categories and brands for overseas products, which they exhibit on either their domestic or CBEC platforms. For example, JD concentrates its overseas' products on domestic www.jd.com to categories like wine, watches, handbags and milk powder.

For both of the previous models there is the alter-ego platform available in mainland China, thus the Chinese version accessible only through legal Chinese entity, such as TMall Classic and the above cited JD.com, which still keep similar differences as the two CBEC platforms. Before entering into details of the model, there should be a clarification to better describe the two platforms chosen, independently from the e-commerce focus they have for CBEC or GT.

Platforms Information&Comparison

Merchants are considering more and more JD.com and Alibaba for China market entry as critical levers for success. China's ecommerce market surpassed America's in 2013, $298 billion to $263 billion, and has robust growth characteristics, especially in demand for western goods, in most consumer categories, including Fast Mover Consumer Goods (FMCG) as already described into the introduction chapter. Also, big ecommerce retail platforms make an ever-more compelling case for China online sales than a stand-alone website. Sunk costs in hosting, Content Delivery Networks (CDNs)[57], and implementation put the benefits of standalone in perspective. Add to that the high costs of driving targeted traffic to a stand-alone site, as big platforms increase advertising spends to monopolize that traffic. Factor in lower conversion rates for visitors who don't trust your site as much as the big platforms, and the case for whale-riding becomes clear.

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[57] A content delivery network or content distribution network (CDN) is a geographically distributed network of proxy servers and their data centres. The goal is to distribute service spatially relative to end-users to provide high availability and high performance. CDNs serve a large portion of the Internet content today, including web objects (text, graphics and scripts), downloadable objects (media files, software, documents), applications (e-commerce, portals), live streaming media, on-demand streaming media, and social media sites. CDNs are a layer in the internet ecosystem. Content owners such as media companies and e-commerce vendors pay CDN operators to deliver their content to their end users. In turn, a CDN pays ISPs, carriers, and network operators for hosting its servers in their data centres. (Source: Wikipedia)

It aas been described as TMall and JD have 57% and 27% respectively of all China B2C online market share. While the latter has more than 300 million registered users, TMall has access to over 500 million, largely because it is the B2C sister of monster C2C platform Taobao. Alibaba created TMall as a brand-verified alternative to the rampant fakery and low-price leadership of Taobao, which is not a viable choice for building a brand and sustainable profits[58].

Consequently, looking back to TMall and JD as primary choices, given that other players hold less market share, it is important to understand the two platforms' primary distinctions. TMall is aptly named, a vast collection of individual stores in one place, a reflection of Alibaba founder Jack Ma's commitment to empower the vendor in building loyalty, and the consumer in having full transparency as to the vendor's quality. JD is more of a massive online department store, offering a wide array of goods, but all under the JD imprimatur of guaranteed quality and terms.

Therefore, TMall leaves vendors in driving sales, who, after registration, design and implement their stores, and are responsible for promotion, service, and delivery. Of course, Alibaba offers a host of services to help with these tasks, and allows for ever-expanding user experience capabilities.

JD, on the other hand, does not require any such effort from a company. JD will buy the product wholesale, and take care of everything from there, including the rapid delivery which is a key factor in driving its growth and, as it has been described in the logistics paragraph, it represents one of the hardest challenges for a company exporting toward China. Some statistics of JD are self-explanatory: more than 170.000 merchants, 521 warehouses and 3.539 delivery stations, such as distribution centres.[59] As a result, the brand has no say in its pricing, positioning, or promotion. It is the online equivalent of that oft-sought Chinese distributor, who will buy product in volume and do all the heavy lifting.

Finally, the entry procedures should be compared. For any kind of platform there are the so called "Entry Requirements" to be fulfilled in order to start the business on them. These requirements are similar and well detailed on the websites, especially on the TMall one. Candidates have reported them in order to provide indications on this topic.

Entry requirements for TMall are subdivided for TMall Global and Classic. For the first it is required presence in Mainland China from 0-2 years and operations location in Mainland China or abroad, as well as stock location.

Special attention is focused on CBEC, where it is required:

1. Registered corporate entity outside of Mainland China;
2. Overseas retail and trade license;
3. Own the brand or be an authorised distributor;
4. Chinese customer service must be provided;
5. Product returns should be handled in China.[60]
6. Since March 2015 companies are required to use authorised third-party service providers, so called 'TPs'.

For TMall Classic, presence in Mainland China should be 3 years or more or sufficient expenditure to gain traction in China's market, adding on top operations location and stock position in Mainland China. Moreover, in order to correctly approach to Chinese business, it is required the comprehension of Chinese language to further and fully understand all the requirements[61].

A company which wants to join JD Worldwide (International), on the contrary, if it has a registered entity outside mainland China, should respect the following requirements:

1. Be an overseas registered entity.

[58] https://expandedramblings.com/index.php/tmall-statistics/; https://expandedramblings.com/index.php/by-the-numbers-15-amazing-jd-com-stats/

[59] https://expandedramblings.com/index.php/by-the-numbers-15-amazing-jd-com-stats/

[60] http://img.alicdn.com/tps/i4/T1evR0FA8bXXcaspvH-1417-1196.jpg

[61] http://img.alicdn.com/tps/i1/T18ICjFgJbXXcsHGZV-1440-982.jpg

2. Have an overseas public bank account (U.S. dollar settlement).
3. Be the brand owner or possess the brand authorisation.
4. Provide the company establishment information.
5. Provide the company tax payment certification.
6. Provide corporate legal identification and appoint an authorised representative as well as a shop contact person.
7. Chinese customer service must be provided and product details page should be written in Mandarin.
8. Products must be dispatched within 72 h after order placement.
9. Product return centre must be available in Mainland China.

The JD.com version follows the same concepts of TMall Classic, a part that imposes more constraints on the logistics field because it entails the management of the downstream logistics in mainland China, thus no freedom is left on this theme. Therefore, a company is eligible to participate in the marketplace Chinese model if it is registered inside mainland China. After this requirement is accomplished, third-party sellers are able to directly sell products to Chinese online consumers through JD's channels. Furthermore, to be considered for the marketplace model, merchants must provide:

1. An official business license.
2. A general taxpayer's qualification certificate.
3. Proof of the bank account license.
4. A copy of the legal representative ID card.
5. A copy of the quality inspection report or product quality certification.
6. The trademark registration certificate.[62]

Why this detailed description about these entities? Because, in order to choose the best platform, searching for a multichannel strategy focusing on costs cannot be the only choice driver. So, in the following list, candidates reported some possible tips or benefits which are available in one or the other platform, providing to the reader a complete picture of why platforms are nowadays the real value adding channels form for selling companies.

- Become a Gold Supplier: Through this membership, a seller gets access to additional features including a buyer seller matching service. This also improves seller ranking e.g. in the Alibaba search engine.
- Proactively Approach Buyers: As a verified or gold supplier, a seller can search for the right buyers and contact them with a quote for the product that they are in the market for. This allows more power to a supplier to gain business rather than wait to be approached.
- Add Strong Photos, Add Good Descriptions, Allow Multiple Languages.
- Target Specific Customers: By targeting everyone, you end up targeting no one. So, it is a good idea to identify the right audience and sell to those people.
- List Multiple Products: More products will mean higher visibility in the Alibaba product search. Buyers also seem to be more attracted to sellers with a variety of products on offer rather than a sparse page.
- Provide Seller Description, Provide Informative Literature, Ask for Referrals
- List Certifications & Compliance Reports: Several buyers from different parts of the world specifically those from the European Union have to comply with high product standards. Compliance to these standards may seem like an additional hassle but is a sign of good quality and reliability.
- Provide Reliable Customer Service: A customer is likely to choose to buy from a seller who responds quickly, politely and helpfully to any queries pre and post purchase. It is a good idea to always be courteous and quick in responding to any customer queries. This good service could be the difference

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[62] https://www.quora.com/How-do-I-sell-on-JD-com

between a one-time dissatisfied customer and a repeat customer who turns into more of a business partner.
- Create a Desirable Product Offering: There are hundreds of sellers often selling the same or similar items. In order to differentiate yourself from them, try to offer something different from the others whether it is more information, lower prices or special offers.
- Use Special Tools: e.g. Alibaba (TMall) offers a real time statistical tool to analyse business trends. This helps manage online marketing successfully.

Lastly a special mention to the payment systems, which represent one of the core nodes for the platforms and a possible strength, as well as a cost for the SME selling on the platform, should be mentioned. In this sense candidates have found specific and detailed information about AliPay, system adopted by TMall, but also JD.com adopts a reliable and comparable payment system. AliPay is a secure system, created and managed by the Alibaba group, which has become the most popular online payment system. It accounts for a large chunk of all online transaction payments in China. The adoption of these sub-platforms guarantees the security for the money transactions and thus no frauds for the foreign company.

The model developed by the candidates have been built on the basis of information found both on platforms' and generals' websites. This is a crucial point because it is really hard to find reliable information about costs and procedures to enter into a CBEC platform without starting a real process to obtain a share on it.

The following tables show each operational platform costs in Euro, requested to sustain the business. After this quick overview, single cost voices will be described in details.

TMall Global Platform costs	Type	Amount (Euro)
Platform initial security deposit	Fixed	22.129,77 €
Annual fee - (Fashion Items)	Fixed	8.851,91 €
Annual fee - (Food Item- Fresh&Std products)	Fixed	4.425,95 €
Real time transaction fee (% price-Fashion Items)	5%	[€/piece]
Real time transaction fee (% price-Food Item- Fresh&Std products)	4%	[€/piece]
Payment system fee	1%	[€/piece]

Table 11, TMall Global Platform costs (Source: TMall site)

JD International Platform costs	Type	Amount
Platform initial security deposit	Fixed	13.277,86 €
Annual fee	Fixed	885,19 €
Real time transaction fee (% price-All products)	5%	[€/piece]
Payment system fee	0%	[€/piece]
Delivery service fee	1%	[€/piece]

Table 12, JD International platform costs (Sources: www.quora.com; http://multichannelmerchant.com/must-reads/difference-chinas-biggest-b2c-platforms; https://www.funggfobalretailtech.com/wp-content/uploads/2017/09/JD.com%E2%80%94A-Differentiated-E-Commerce-Platform-September-15_2017.pdf)

TMall Classic Platform costs	Type	Amount
Security deposit specialty store	Fixed	19.661,82 €
Annual fee (Fashion)	Fixed	7.864,73 €
Annual fee (Food)	Fixed	3.932,36 €

Technology/service fee on the China price	5%	[€/piece]
Payment system fee	0%	[€/piece]

Table 13, TMall Classic platform costs (Source: TMall site)

JD.com Platform costs	Type	Amount
Security deposit specialty store	Fixed	13.107,88 €
Technology/service fee	Fixed	1.572,95 €
Commission fee (on gross revenues)	8%	-
Payment system fee	0%	[€/piece]
Delivery service fee	1%	[€/piece]

Table 14, JD International platform costs (Sources: www.quora.com; http://multichannelmerchant.com/must-reads/difference-chinas-biggest-b2c-platforms; https://www.fungglobalretailtech.com/wp-content/uploads/2017/09/JD.com%E2%80%94A-Differentiated-E-Commerce-Platform-September-15_2017.pdf)

According to these tables, differences are clearly defined when comparing different online platforms, but also when comparing CBEC platform version (e.g. TMall Global) vs the domestic one, for the thesis' purposes the GT one (e.g. TMall Classic).

TMall Global and TMall Classic present the cost picture (and the procedure one) in a clear way throughout the website[63], due to their international dimension and the propension to open the business to foreign enterprises (obviously, remember that in GT case the foreign company opens a subsidiary and becomes statutory a Chinese one). JD International, and even less JD.com, presents more barriers, where the language translation is probably the hardest one faced, as already explained also in previous chapters.

Moreover, each platform could be more complex than the other due to the different taxes applied to goods, and in this case for instance, TMall Global or TMall Classic present a distinction for each product category when dealing with product transactions[64], while JD.com is easier to be approached. Anyway, JD.com charges different security deposits according to the product category considered, while TMall does not use this method.

TMall Global presents two fixed costs voices, named "platform initial security deposit" and "annual fee". The first cost item is fixed for any kind of company and has been set for 25.000 $ (22.197 € adopting an exchange rate of 1,1297 USD/€[65]) which represents a sort of investment for the exporting country and a warranty for the e-commerce platform. Indeed, from the platform's point of view, it is fundamental to ensure to customers reliability of the service as well as of the companies operating on it. Consequently, online platforms (observing tables above it is easy to check how all the platforms studied are adopting this kind of strategy, with the only difference in the amount of money requested as a warranty) with no distinction are charging companies for this tax. For instance, JD International, natural competitor of TMall Global, charges for 10.000 to 100.000 RMB (exchange rate used: 7,629 CNY/€, so 13.277 €) depending on the product category imported into China through the website. Consequently, as it can be easily noticed, JD charges around 50% less for this item costs than TMall. For GT the situation is quite similar, with only a slight difference (around -11% for TMall, 2% less for JD) in the security deposit requested.

Before moving on, two quick insights about this cost. First of all, the reasons behind these differences are many, but could be summarised in one concept: opening a legal entity in China, the foreign company aligns itself with

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[63] http://about.tmall.com/?spm=3.6636093.0.0.196f364eHDejJO#place
[64] http://img.alicdn.com/tps/i4/T1omlEFwtPXXaR1ePy-953-8196.jpg for TMall Global,
http://img.alicdn.com/tps/i1/T1Srg.FjXXXXaR1ePy-953-8196.jpg for TMall Classic.
[65] The conversion rate value is updated to August, 2016 (source: Banca d'Italia, Finanza Mercati, Il Sole 24 Ore, www.money.it); it should be noticed that actually it is aligned with this value. The following exchange rate CNY/€ instead it is updated to December, 2015 and for it, the actual trend is spreading the distance between Euro and CNY (7.8 CNY/€ in 2018) 2016 (source: Banca d'Italia, Finanza Mercati, Il Sole 24 Ore, www.money.it).

regulatory and law Chinese context and thus it is theoretically less dangerous and, in case of criticalities, problems or issues, prosecutable. Therefore, there is no need to ask for a higher sum of money.

Secondly, both TMall Classic and JD.com ask for money adopting the local currency (RMB or also named CNY). When dealing with the GT context (e.g. initial security deposit asked on TMall Classic is equal to 150.000 CNY, no matter the product category), Chinese online platforms show how they charge different fees, but also approach to businesses in a completely different way and, in this case, pushing for only national companies into the online domestic platform version.

The second cost element is an "Annual Fee" on TMall and JD Worldwide while is named "Technology/Service Fee" on JD.com. This represents a fee to be paid each year in order to access to all the services the platforms are providing to companies. Depending on the platform, it changes both the amount of money charged and the presence or absence of a further product category differentiation. TMall Global indeed, raises a fee for 60.000 CNY (8.850 €) or 30.000 CNY (4.425 €) if the company is handling fashion items or food items on the CBEC platform, while on the GT one annual fees for fashion and foods are -11% costly than the CBEC ones. JD charges 885 € if you are adopting the CBEC model and 1572 € when you are treated such as a Chinese company, with no significative differences for the product category. Regarding this topic, for instance, it seems immediately convenient JD, no matter the type of the business opened, but the elements are many and analyses should be done in detail.

In fact, there are the transactions fees. In this field any online platform should need a deep research, contacting directly representants from the holding company, in order to understand which are the taxes to be paid in that particular moment. Indeed, according to researches and documents, candidates understood that government changes in laws can impact especially on these fees, due to their product nature focus. When dealing with TMall, companies have to pay a transaction fee of 5% on the fashion items, 4% on food ones, charged on the Chinese price[66], and JD International applies the 5% on the Chinese price. In the GT context the situation is slightly different, with JD.com that takes in the worst scenario the 8%[67] of the gross revenues as a commission fee and TMall Classic applies the 5% on each item.

Then there is the payment system fee, not directly earned by the online platform because the payment system platform normally is a different stakeholder. TMall Global charges the 1% for all the transactions due to the partnership with Alipay, while JD International, JD.com and also TMall Classic do not figure it.

Finally, there is the delivery service fee, but this cost voice exists only for JD International and JD.com. Indeed, JD owns, as previously described, infrastructures to provide the service in mainland China. This represents a unique strength for this online platform, in order to attract companies. Logistics is a complex field, and companies, when products have been delivered to warehouses in China, have already faced challenges, problems, costs. If there is the possibility to rely on a safety, quick and reliable service already set up, this could represent a core competitive advantage. According to information found, the service is imposed in the GT context while it is a decisional lever for CBEC, even if strongly suggested. The service level imposed by the online platform is really high and for a foreign enterprise (and should be remembered that the focus is for an Italian SME) this could be a deal breaker, without forgetting the complexity and uncertainty around the Chinese logistics and organizational context.

Of course, this means less costs in negotiating with third-party Chinese companies for the local deliveries, as well as less problems or issues in gaining confirmations from the government and online platforms to ensure

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[66] It is to underline that, theoretically, the total value on which the fee is computed should be the Chinese price plus the mainland logistics costs; about this particular detail, anyway, there are no further explanations on websites, and candidates had no chance to deepen the argument.

[67] The percentage shifts from 1 to 8% according to the product category but also according the store typology and the importance of it. Store typology is an internal differentiation no further investigated throughout this thesis.

quality and safety in the deliveries. But at the same time, it could represent a constraint, where there is no freedom and no control on the final product, the delivery and the returns[68] and, moreover, no possibility to negotiate costs when the demand is increasing.

4.3.5 Fixed&Yearly Costs

The different costs that have been pooled under the voice "Fixed&Yearly" mostly account only for the two General Trade solutions and thus requiring the establishment of a legal entity in China. Indeed, the creation of a Chinese subsidiary do imply several initial actions. On the contrary, in Cross-Border E-Commerce solutions since everything is done from the central entity in Italy, which is already fully operational, the following costs are not required. Consequently, for sake of exposition, this paragraph has been structured initially presenting the costs related only to GT options, while in the end of it, those costs to be sustained regardless the alternative pursued.

First of all, some initial investments are required by the Chinese government, and these have been named as "trading company investment required" and "service fee professional agent registration".
The former consists in an amount of approximately 40.000 € (300.000 RMB[69]) and should be usually paid within one year since the new company has been created. The reason of this investment required has to be sought in the interest of China not to allow foreign businesses to open a company unless they can really afford it. Therefore, Chinese government insists on this amount of registered capital in order to be sure that there is capital in place to keep the business running, create jobs and pay employees on time.
The latter instead refers to the cost of the service fee for a professional agent in charge to accomplish the procedure of company registry in China. This procedure includes, among other things, applying for licenses, setting up corporate account, getting invitation letters and applying for business visa. The cost of the agent in charge of all these procedures is approximately of 4.500 €[70]. Readers should now be informed that, a solution in which the just presented activities are carried out without a professional agent is highly discouraged because of the complexity of the process.

Besides initial investments there are also some annual costs generated by the creation of the Chinese business entity.
Firstly, the yearly cost for renting an office within the main cities (see first tier cities in chapter 4.3.1), and from which managing all the activities, has been estimated to be approximately 21.000 € (2.000 $ is the usual rent for a month[71]). Surely, this cost depends upon the size of the business and thus the number of employees needed to run operations.
Secondly, there are several yearly administrative costs required to conduct businesses in China. The most relevant are "service fee accounting tax reports", "bank account management fee" and "operational bank documents costs", which together account for approximately 3.000 € per year.
Moreover, the two candidates assumed that a General trade solution corresponds to an enlargement of the involved company's business. Indeed, along the development of this thesis, readers will discover that this solution is justified when high demand volumes are reached. Therefore, salaries of new hired employees have to be considered. The related cost has been set approximately to 130.000 €, computed as the number of

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[68] As mentioned in the logistics paragraph, candidates have found comments on the returns policies and impacts on these businesses, but no data about it. Further explanations on hypothesis made can be found in the chapter 6.
[69] https://www.hongdaservice.com/blog/how-much-does-it-cost-to-open-a-wfoe-in-china
[70] https://www.quora.com/How-much-does-it-cost-to-set-up-a-company-in-China
[71] https://www.quora.com/How-much-does-it-cost-to-set-up-a-company-in-China

employees needed to manage all the operation within the Chinese territory, multiplied by a basic salary of around 1200 € per month[72].

It is clear that both the number of employees and the salary are specific to the single case. The former depends upon the level of demand achieved, and thus the higher complexity and number of various activities to be performed. The latter is subjective to the company policies. Once again, candidates are conscious of the impossibility to provide precise numerical results due to all the assumptions and the specificity of each single company. For this reason, the objective is to explain how all the numbers have been thought in order to make readers aware of the main costs to face. Indeed, the results paragraph will show a comparison between the eventual return on investments on the four platforms considered, according to different initial demands and diversified growths in a time horizon of five years. Moreover, all the data inserted in the model developed might be modified by a future user, and the result obtained would likely be more precise and specific.

Finally, there are some costs that have to be sustained both when approaching the online Chinese market with a CBEC and GT solutions. Initial investment for developing the online store and annual costs for its management are thus required regardless the approach pursued by the involved company.

The initial investment to develop the store on the website has been set to 120.000 €[73]. Actually, this is the value required by Alibaba platforms (TMall Global and TMall.com), datum obtained through a preventive given by the relator.

Since no data were found regarding the voice of costs for the other two platforms, the two candidates started to argue about possible connection between the different market shares of the platforms and a consequently possible difference in the investment required to develop the store. The reasonings were: on one side, the higher the market share and thus the number of customers, the higher the investment required; on the other side, the lower the market share, the lower the number of companies selling on the website, the lower the investment required. Therefore, the final decision was to apply the same value in order to not risk distorting the final results, since reliable sources were not found. In addition, the initial store development could be carried by either platform's employees or company's employees, according to the relative capabilities and competences on hand, and the ability to face additional costs for a third-party service.

Concerning annual costs for store management, same reasonings can be made. The value set was 50.000 € per year, according to different researches on the internet, for the four online marketplaces.

In addition, also estimations made by candidates have carried to 50.000 € salary every year for one own employee dealing with the platform management, feasible due to the initial effort requested. With the expected increased traffic and customers, more people there will be needed. Obviously, this is not the only possible solution, because many SMEs could not have the competencies to manage the online store, and thus they can rely on third-party companies offering this service: in order to both simplify the model computations and not to create too significant differences between the infinite possible choices, even in this case this parameter has been set for 50.000 €. These are assumption and hypothesis based on current information available and candidates' knowledge, but in the model can be modified to companies own hypothesis accordingly.

For model purposes, both the two values inserted have been thought to involve the cost of third-party actor in charge of managing all the issues related to the online store. Indeed, related competencies might not be already present in the company (it could be the first approach to foreign online channels). Moreover, as previously discussed in several parts of this Master Thesis, there exist cultural and language barriers which extend the complexity while dealing with any issue referred to the Chinese environment.

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[72] In the computation done for achieving results explained in the next chapter, 10 employees have been considered.
[73] Business plan China.pdf; see Appendix 8.5.

4.3.6 Internal&Production Costs

Within this paragraph, the costs related to the effective production of the items and the costs hidden behind starting a new business, as the one discussed within this work, have been grouped together. The reason of this choice should be sought in the attempt of the two candidates to facilitate the reading.

Production costs have been evaluated, as annual marketing costs, as an ex-post cost: a percentage of the value of the single item multiplied for the number of items forecasted to be sold every year.

A deeper explanation concerning the "value" of items might be useful now for the sake of clarity.

Hence, along this Master Thesis, it has been necessary to distinguish between the Italian value of the goods and the Chinese one. Indeed, production costs are evaluated based on the Italian value of the product. It should not be forgot thus that, both in CBEC and GT solutions, production plants are still based in Italy. On the contrary, for what concerns duties and taxes, the value used to evaluate them is different and it will be further discussed in the next two paragraphs. For simplicity, the beforehand mentioned "Italian value" can be intended by the reader as the Italian price of the related good.

The percentage value used to evaluate production costs has been set at 25% according to information gathered through interviews[74] and further researches performed. However, as already pointed out several times in the previous paragraphs, still this parameter can be modified by a future user of the model.

The attention of the readers should shift now to Internal costs. This voice has been used by the candidates, as previously anticipated at the beginning of this paragraph, as a mean to merge all the various costs that a company might face while accessing the online Chinese market. Indeed, for CBEC and GT solution, costs of accordingly 20.000 € and 30.000 € have been considered while evaluating annual cash-flows. The reason of the difference between the two solutions proposed should be sought in the higher complexity and higher number of actors involved in the latter. While evaluating the possible amount of internal costs, candidates started firstly by considering an expense of approximately 2.000-10.000 € for analyses of the market[75]. These have been thought to occur annually due to the need of continuously taste consumer preferences. Secondly, transaction and negotiation costs needed to get in touch with Chinese intermediaries have been added. However, this voice of cost above all the others has been recognized as the most subjective to the characteristics and especially capabilities of the Italian company involved. Indeed, the number of transactions and the actors engaged depend upon the knowledge of the company in terms of export activities, Chinese market and E-commerce world in general. Moreover, due to the candidates' lack of experience in the labour market, they are well aware of possible inconsistencies concerning the values set for this voice of costs. In addition, interviewers and researches have not provided sufficiently robust information. Nevertheless, the goodness and the objective of the model are not thought to be negatively influenced by these choices, especially since the value set for this cost voice is neither differential between the two platforms of CBEC (TMall Global and JD International) nor between the two platforms of GT (TMall Classic and JD.com).

Finally, a further "initial internal cost" has been added for GT solutions. This refers, in the humble opinion of the two candidates, to possible issues while establishing a legal entity in China, in addition to the standard ones presented in the previous paragraphs. Due to the complexity and the continuous evolution of the Chinese context, the time required to build up the new entity and to organize the related activities might be higher than expected resulting thus in additional costs. Consequently, SMEs interested in exporting activities towards China should consider the possibility to explore and also invest money to fully deploy and understand all the hidden costs that might be faced.

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[74] See interviews in Appendix 8.1
[75] Observatory of Politecnico di Milano.

4.3.7 Duties

From the theory, candidates know that customs tariffs for the import businesses could be different and are identified as:

- Most Favoured Nations tariff (MFN); in China case, it is applied to goods imported from WTO member countries or from those countries the People's Republic of China has signed commercial agreements with, for the application of advantageous tariffs.
- Conventional tariff rate; it is applied to goods from countries signing trade agreements with China subject to subsidized tax duties.
- Special treatment tariff rates; it is applied to goods imported from countries China has strict special tax agreements with.
- General tariff rates; to goods that do not benefit from special preferential treatment.
- Duty quota rates; it is a tax that is applied to a part of the value of the imported item, while the amount exceeding the quota is subject to the normal customs tariffs.
- Provisional tariff rates; it is applied only in certain time periods established by the authorities

For the sake of comprehension, customs authorities apply the lowest tax duty to imported goods that are subject to more than one preferential tariff. Also, when imported goods are subject to both the MFN tariff and the provisional tariff rates, this latter prevails.

The most widespread import tariff remains, in any case, the MFN tariff, whose rate varies from 0% to 65%, where the general tariff rates can even exceed a rate of 250%.

For the purpose of calculating the customs duty, reference should be made to the value of the good or the quantity of the goods subject to import (or even export, but it is not the focus of the thesis and thus candidates decided not to report information about export flows for the sake of simplicity). On this theme it is important to underline one point. For the model has been chosen the value as parameter to compute the duties, and the concept of value is not immediate. Indeed, the dutiable value of an imported good is its Cost, Insurance, and Freight (CIF) price, which includes the normal transaction price of the good, plus the cost of packing, freight, insurance, and seller's commission. In other words, when dealing with product value, candidates are referring to the Italian value of the product (all the fixed and variable costs for producing the item) which is entering into mainland China plus all the logistics costs added on top. According to Customs Order 954, the "Administrative Regulation on Examination and Determination of the Dutiable Value of Imported and Exported Goods," China Customs is tasked with assessing a fair valuation to all imports.[76]

To assess a value, all China Customs officers have access to a valuation database that lists appropriate valuations for various imports, based on international market, foreign and domestic market prices. China Customs officers check the price reported by the importer against this database. Normally, China Customs accept the importer's price. However, if the reported value is too far out of line with the database, the China Customs officer will estimate the value of the goods based on methods listed in Article 7 of the PRC Administrative Regulations. Therefore, the formulas for the calculation of the duty are the following:

$$Custom\ tax = Value\ of\ the\ asset\ \times rate\ applied\ (\%)$$
$$Custom\ tax = Amount\ of\ goods\ \times rate\ (CNY\ in\ China\ case)$$

Figure 52, Formulas to compute Custom Duties

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[76] https://www.export.gov/article?id=China-Import-Tariffs

According to the rules released on 24th March 2016 from Ministry of Finance (MOF), General Administration of Customs (GACC) and State Administration of Taxation (SAT), "Tax Policy for Cross-Border E-Commerce Retail Imports" has been defined to adjust the tax policy for CBEC retail (B2C) imports.[77]

This taxation policy has increased the benefits of the CBEC business because of the government interest and belief to push on it. But the duties framework (and also the taxation one in the following paragraph 4.3.8) represents one of the most controversial and critical issue to face when dealing with China market. Indeed, the strong centralization that the Chinese government has in its political structure, allows to change frequently and consistently many regulations and laws, also from one year to the following, thus generating uncertainty in many decisions to be taken.

Candidates started to understand the Chinese duties and taxation pictures from the guidebook cited into the "Platform costs" section, but then, understanding the dynamic context under analysis, have also tried to figure out the major changes happened from 2016 to 2018, so this Master thesis has data according to this temporal horizon.

On 7th April 2016, 11 ministries and commissions of China[78] including MOF, China Food and Drug Administration (CFDA), General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), Ministry of Agriculture (MOA), GACC co-released the "List of Imported Commodities for Retail in Cross-Border E-Commerce".

This "Positive List" includes 1142 different tariff lines covering food and beverages, clothing, footwear, hats, home appliances, cosmetics, diapers, children's toys and other items commonly purchased by Chinese consumers on ecommerce platforms. On 15th April, the "Positive List-2nd Batch" was announced. The positive lists, published in two batches, involve a total of 1293 commodity categories, categorised in 8-digits HS codes[79]. The goods included in the positive list are exempted from submitting an import licence to Customs.

Anyway, to further expand domestic demand, China reduced customs duties on 187 items as of December 1, 2017 and announced for the 2018 new changes both on the value of the duties charged and regulations for the online business.[80]

Moreover, the taxation policy impacts in a different manner depending on the product category and also on the import model that it is considered. Consequently, for the thesis' purposes, candidates had to face many possible configurations according to the trade channel (and, consequently, the logistics solution) chosen by the Italian exporting SME.

Before entering in detail with the rules and the economic impact that they have on an investment decision and on the overall business, it is important to understand the major import models of CBEC (and related GT) and how they work. For the sake of clarity, if for CBEC from this side the picture is complex, but clear, for the GT context it is quite the opposite. Therefore, candidates needed to generalize and sometimes hypothesize some parameters for the model.

Coming back to the models adoptable, to summarize, currently there are two main models of CBEC: the bonded imports and direct purchase imports, where bonded imports include bonded warehouse model (B2B2C) and direct mailing (B2C) model.

Focusing on the bonded imports, the first of the two possible options could be synthetized as 'stock first, order later' and represents the main option chosen for the model. The reason behind this choice is the dimension of

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[77] www.mof.gov.cn; www.customs.gov.cn; www.chinatax.gov.cn

[78] www.mof.gov.cn; www.sfda.gov.cn; www.aqsia.gov.cn; www.moa.gov.cn; www.customs.gov.cn;

[79] HS CODES: The Harmonized Commodity Description and Coding System, also known as the Harmonized System (HS) of tariff nomenclature is an internationally standardized system of names and numbers to classify traded products. It came into effect in 1988 and has since been developed and maintained by the World Customs Organization (WCO) (formerly the Customs Co-operation Council), an independent intergovernmental organization based in Brussels, Belgium, with over 200-member countries. (Source: Wikipedia)

[80] https://www.corriereasia.com/notizie/fisco-cinese-dazi-tariffe-doganali-cina; http://www.china-briefing.com/news/import-export-taxes-and-duties-in-china/

the company considered and the inexperience in this business: a SME could not be sufficiently prepared in managing constantly the flow of goods between Italy and China and could not have economic resources to answer to the customer needs on time without having already stocks in mainland China. Moreover, since from the logistics analyses it has been clear that the express courier is not an optimal solution, at least for the majority of the product categories and for the SMEs, direct mailing (the second option) seems to be a hard solution to adopt. Thus, from here on, the focus will be on the bonded warehouse option[81], also for the GT solutions, even if the model developed considers the differences of the B2C model. Indeed, in order to compare the more similar CBEC and GT solutions, candidates thought that the B2B2C model could be the right one also for the GT business.

Products on the two above-mentioned lists can be imported into the approved CBEC bonded warehouse zones across China already cited before. After Chinese consumers place orders through CBEC sites, these products go through customs clearance directly in the bonded area and are then delivered. Consumers will normally receive their goods within 2-3 days.

Also, on timing and type of the controls should be opened a chapter aside, to discuss about all the possible implications that these custom checks could have on the businesses, but this would be something apart from the thesis purposes.

Therefore, in the model developed, for what concerns the custom duties field, it has been considered one duty that could be requested to a possible Italian SME that is importing into mainland china its products: Import tariff.

Despite of in many documents candidates have found references on the import tariff set to zero for increasing CBEC trade between 2016 and 2017, in the last year, since December 1, 2017, it seems that Chinese authorities have released again the import tariff, but a levied one, both to stimulate the internal demand and to collect money from an increasing phaenomenon.

In this way, candidates have found a list[82] of products that have been included in the last released law and, according to it, have set two different import tariffs. If the product imported was a fashion item, the import tax is charged for 10% of the product value, while if it is a food product, it is the 6%, with a general cut off of the 50% with respect to the import duty imposed before the CBEC diffusion.

Finally, a small open point it has been considered. As the online platforms ask for a warranty through an initial security deposit in order to cope with eventual issues coming from the importing company, also customs adopt a similar approach. Indeed, into the model has been used a cost voice in which customs are charging foreign companies for 25.000 $ (22.197 € into the model have been considered) of security deposit at the beginning of the relationship. In this way, if the company is found guilty on some issues, or does not respect some regulations and thus has to pay fares for illegal actions against the Chinese government and the GACC, they can withdraw the amount of the fare directly from this deposit, reducing risks of no payment. Obviously, this could represent

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[81] Direct mailing (B2C) model: 'Order first, deliver later'. After customers place orders on registered CBEC platform, the platform needs to submit the records of order, shipment and payment to customs. At the same time, the products will be shipped from an overseas distribution centre that is linked to Chinese customs. Only when these three records of a single purchase are in accordance, the parcel can be released. Bonded imports are subject to both new taxation rules and positive lists.
Instead, for online imported commodities both under the bonded warehouse model (B2B2C) and direct mailing model (B2C) import tariff, (as well as VAT and consumption tax treated in the next paragraph) will be levied upon customs clearance. In the transition period (until the 31 December 2017), temporary rates were set. Direct Purchase Imports (B2C) Products which are not on the CBEC Positive lists can also be shipped directly from overseas merchants (B2C) and individuals (C2C) to China via the postal and courier system. New rules do not affect Direct Purchase import, except for the tax rates. It is important to note that Direct Purchase imports tax will only be levied when customs check the parcel during regular checks. Unlike with the bonded imports, Chinese customs will treat the imported product as a product for personal use, thus taxed by personal tax: 15%/30%/60% depending on category, which is waved if it amounts to less than 50 RMB. (Source: General Consulate of the Kingdom of the Netherlands in Shanghai guidebook)
[82] https://corriereasia.com/wp-content/uploads/Cina_taglio-dazi-Dicembre-2017.pdf

not only an additional cost to sustain for the company exporting from Italy (or other countries), but also an explicit exit barrier for the possible future decision of no further continue with this business.

4.3.8 Taxes

All the previously mentioned actions carried by the Chinese government for custom duties are also valid for the taxation field.

Both foreign and domestic enterprises are required to pay value-added taxes (VAT), consumption tax and business taxes. VAT is assessed on sales and importation of goods and processing, repairs, and replacement services. Consumption tax is imposed for certain product categories. Business taxes are assessed on providers of services, the transfer of intangible assets, and/or the sales of immovable properties within China. For the thesis purposes, candidates have deepened the first two types.

VAT is assessed after the tariff and incorporates the value of the tariff. China is bound by WTO rules to offer identical tax treatment for domestic and imported products. VAT is collected regularly on imports at the border, even if, through the Bonded Warehouses, the situation changes (further detail explained later). Importers note that their domestic competitors often fail to pay taxes. VAT rebates up to 17-16% (a full rebate; the difference from the two percentages is due to the currently set tariff) are available for certain exports.

The Chinese Government frequently adjusts VAT rebate levels to fulfil industrial policy goals. Within the taxation field, problems are frequent and China is not a different country from this side. Exporters indeed, complain that it takes months to obtain the rebates and amounts are often miscalculated. Also, rebates are limited by local budgets and coastal provincial authorities often run out of funds for rebates well before the end of the year. The applicable rebate method varies according to the date the enterprise was established. Anyway, export is not the focus of the thesis, and importers have to pay VAT according to the current laws, so it is necessary to study the full picture before decide to invest in mainland China, because online commerce is subject to taxes in the same way of the normal trade.[83]

On April 8, 2016, in addition to the positive list above-described, the preferential tax policy of treating CBEC packages as personal parcels was overturned, with the so called "April 8 New Policy" (Notice on Taxation Policies for CBEC Retail Imports)[84] coming into force. According to the New Policy, consumers purchasing goods through CBEC, the electronic information of which can be accessed by the customs, need to pay import taxes including tariffs (described in the previous paragraph), value added tax (VAT), and consumption tax (if applicable), though single transactions under RMB 2.000(around 262 €) and yearly transactions under RMB 20.000 (2.621 €) enjoying a temporary zero percent tariff rate for a limited period of time, now cancelled, and reduced import VAT and CT rates charged at 70% of the taxable amount under the GT.

If customs cannot access electronic information or CBEC retail goods, such as for products purchased on overseas online shops and delivered directly to China, the goods are subject to parcel tax that is commonly much higher than others. But also, the parcel tax rates were changed to three levels (15, 30, 60 %) immediately, since April 8, 2016. According to the official explanation, the adjusted parcel tax rates would be more or less equal to the corresponding import taxes rates under the general trade model, though the exemption is still available for payable tax amount under RMB 50. Generally speaking, the overall tax burden is higher for consumers after the switch to the new CBEC tax schemes, especially for transactions that were tax exempted previously where payable tax amount was below RMB 50. Anyway, this may be not true for transactions of certain types of goods. For instance, a bottle of wine bought through CBEC platforms at RMB 300 (around 40 €) would be subject to parcel tax at rate of 50 %, or RMB 150 (20 €), before April 8, 2016. No exemption was available since the tax amount was over RMB 50 (6,50 €). Nevertheless, after the New Policies set up, the picture has been changed.

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[83] https://www.export.gov/article?id=China-Import-Tariffs
[84] Cai Guan Shui [2016] No.18

The same bottle of wine, immediately after the release of the new regulation, was subject to imported taxes for 56,7 RMB (around 7,50 €, due to import tariff at zero for that moment and actually charged again, VAT = RMB 300 × 17% × 70% = RMB 35,7, and CT = RMB 300 × 10% × 70% = RMB 21), which means the tax burden in this case was actually lower under the new CBEC tax scheme. After one year, as previously described, regulation changed again.

The trend towards a fairer CBEC tax system is inevitable, as authorities wish to balance the competitive advantage of CBEC over traditional general import business. With the abolition of the price advantages, investors that want to engage in this sector should focus more on the quality of their goods and services, the management of their supply chains, and customer satisfaction.[85]

Therefore, on 28 March 2018, China's State Council announced that the levied 17% and 11% VAT rates applicable to the supply of certain goods and services would been reduced with effect from 1 May 2018 to 16% and 10% respectively. This change has certainly brought welcome relief to businesses and goes a step further in ensuring the international competitiveness of China's VAT system. While this change may not seem significant from a tax implementation perspective, there are many issues for businesses to consider when policies are changing such this one.

In addition to the rates change announcement, the State Council also announced changes to VAT registration thresholds which seek to align those used for goods with those used for services. New incentives were also announced for businesses engaged in advance manufacturing and research and development (R&D) activities. These announcements have affected businesses in all sectors in China, e-commerce ones included.[86]

On top of the VAT tariff, consumption tax applies to prescribed nonessential and luxury or resource-intensive goods (including alcohol, luxury cosmetics, fuel oil, jewelry, motorcycles, motor vehicles, petrol, yachts, golf products, luxury watches, disposable wood chopsticks, tobacco, certain cell and coating products), and it mainly affects companies involved in producing or importing these goods. The tax is calculated based on the sales value of the goods, the sales volume or a combination of the two. The proportional consumption tax rate is from 1% to 56% on the sales revenue of the goods.[87] During the previously mentioned changes in regulation, consumption tax has been modified as the VAT, so it has been subjected to firstly a levied impact, then a general decrease on the total percentage applied, but with full impact.

All these information want to provide to the reader the complete and more recent taxation framework but have also, as the main objective, to alert the interested SME to do not underestimate the taxation field when approaching Chinese market. The laws and regulations change from one year to the other, and the impacts of the tariffs could reflect completely different behaviour and, thus, changing also the projected possible earnings coming from the investment.

Therefore, the model has been set trying to cover all the possible more recent decisions taken by the government. For this reason, candidates have adopted different consumption taxes and different percentages according to the recent rules and the same VAT imposed for any kind of channel adopted and for all the products considered, due to the fact that those products charged with a lower percentage are not considered into the model. The tables below summarize the variables and the percentages set up.

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[85] http://www.china-briefing.com/news/cross-border-e-commerce-china-regulatory-updates-trends/
[86] https://home.kpmg.com/cn/en/home/insights/2018/03/china-tax-alert-09.html; http://taxsummaries.pwc.com/ID/Peoples-Republic-of-China-Corporate-Other-taxes
[87] https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-chinaguide-2017.pdf?nc=1

CBEC Taxes	%
Consumption tax (% price-FASHION)	21%
Consumption tax (% price-STD FOOD)	11%
Consumption tax (% price-Wine)	42%
VAT (% price) B2B2C	16%
VAT (% price) B2C-FASHION	16%
VAT (% price) B2C-STD FOOD	16%

GT Taxes	%
Consumption tax (% price-FASHION)	30%
Consumption tax (% price-STD FOOD)	15%
Consumption tax (% price-Wine)	60%
VAT (% price) B2B2C	16%
VAT B2C	16%

Table 15, CBEC and GT taxes

When the product category changes into the model through an option filter, also the tax computation changes, charging a different tax for the final computations of NPV. As it is possible to see in the tables, there are slight differences between the CBEC channel and the GT one, but these differences could be really heavy in economic terms. According to data and information found on different sources, in fact, VAT is not differential in any case (even if in CBEC have been highlighted that changes could impact with different weight the category product), but consumption tax on the contrary could be the element that changes the balance. In CBEC trade consumption taxes are levied, thus there are the 70% of the total fare, due to the willing from the Chinese government to favour, at least partially with respect to the first years, this kind of trade. GT instead, has full fares to be paid and thus is more expensive from this side.

Consequently, if from an organizational and uncertainty perspective the CBEC is more complex and could face frequent changes in the framework the GT is more expensive, thus justifying the great interest in the first typology of trade.

A further observation is needed in order to complete the taxation framework. Since this moment have been described all the taxes that occur when the product is entering into mainland China and thus the custom, at the moment of the import or as in the cases analysed after the storage into the Bonded Warehouse, is charging the importing company. But then there is a fundamental distinction to provide to the reader.

The thesis topic is to provide to the reader NPV and PBT reliable in order to estimate money and time that should be invested in order to open a new trade channel. But of course, any kind of assumption behind the model moves the result toward a specific direction, thus entering into details not useful from a theoretical and wider perspective, such as comparing different demands, NCFs or logistics trends.

Finally, there is a last topic to cover in order to close the taxation field, and it regards a final cost voice that affects businesses such as the online e-commerce. Indeed, when online transaction happens, money is transferred to the company through a real-time movement, normally through third-party platforms as the already-cited Alipay, that are ensuring the correct resolution of the transaction. But candidates have deeply investigated this business side because, if the legal entity of the company is in a foreign country, of course some differences have to incur.

Therefore, the income tax has been studied in order to spot main differences and, at the end, the percentage to apply to the money earned from online e-commerce, depending on the nationality of the company. If the Italian company has its own reference legal entity in Italy, the company is a foreign company from the Chinese perspective and thus, money flow is an international flow, that moves economic resources from China to Italy.

This means that the income tax could be not applied in China, because money from revenues at the end of the process is collected in Italy. Business is made in China, and indeed as previously described, company (or the customer, depending on item and situation) pays VAT for it. But the physical transaction to some extent happens into the digital world and so the money does not flow physically in China.

On the contrary, if the Italian company opens a legal entity in China, it has to establish a bank account, provide many documents and the company itself is then legally recognized from the Chinese government. At that point, it is possible to collect money in China and then leave it into mainland China. Obviously, money in China is taxed as in Italy because it represents an income, but the two levels of taxation are different.

Without exploiting all the subtleties, in Italy income tax reaches really high levels, with SMEs that are suffering, especially from the born of the economic crisis until now (2008-2018), one of the highest taxation pressures in Europe. Depending on the source, the percentage of income taxes applied to the gross profit changes, but it is well known that it is around 43%-45%, considering all the different aliquots and sectors. In China, despite of a present taxation for any kind of business, consequently also the GT through online platforms, the tax pressure is lighter and it accounts for more or less the 25%-28%. The spread is thus significant, and generates between CBEC and GT a differential cost item which is taken into account in the computations for the NPV. To summarize, CBEC is taxed for a 20% more than the GT, due to the fact that money in the first case flows towards the headquarter in Italy and then suffers a higher taxation percentage than the GT one, but of course, as well-explained in previous chapters, a legal entity in China is not a simple task to complete.[88]

So, to summarize, this 20% of differential taxes that candidates have evaluated as significant difference between the two countries analysed, is imposed on the gross profit gained through the CBEC platform and consequently, the reference is to the following list in Figure 53 and to the next paragraph for further explanations.

There should be also a final open point in which are described all the possibilities to turn money from one subsidiary to the Italian legal entity as well as discussions about transfer prices and similar issues in the CBEC and GT world. Indeed, a part from the CBEC model, it is really hard to perform business into China and then come back to its country of origin with the money earned, because in that case taxation is really heavy in China. The reason behind is quite simple: Chinese government does not want that economic resources flow outside their country, and thus it tries to discourage this behaviour with the highest taxes possible. CBEC is admitted because, as stated into the introduction chapter, this trade boosts consumptions and raise the lifestyle and the quality requested by citizens. In this way China keeps a high growth rate and increase standards of living. However, entering into further details it would be a discussion on a too far topic from the core analysis of this Master thesis.

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[88] http://www.fiscooggi.it/dal-mondo/schede-paese/articolo/scheda-paese-la-cina;
https://www.studiocataldi.it/guide_legali/fisco/imposta-sul-reddito-delle-societa-ires.asp;
https://europa.eu/youreurope/citizens/work/taxes/income-taxes-abroad/italy/indexamp_it.htm;
https://www.ilsole24ore.com/art/mondo/2017-11-23/ocse-fisco-italia-43percento-pil-sesto-piu-pesante-mondo--125335.shtml?uuid=AEdETzGD;
https://www.ilsole24ore.com/art/commenti-e-idee/2015-11-20/tasse-imprese-italia-maglia-nera-073112.shtml?uuid=ACWqk0dB

Revenues
Store management + Store Development
Marketing Initial
Initial Internal Costs to enter the market
Trading company invstment required
Service fee professional agent registration
Security deposit specialty store
Technology/service fee + annual fee
Production costs (% value)
Marketing costs (% revenues)
Rent office (yearly)
Service fee accounting tax report (yearly)
Opening bank account (yearly)
Operational bank cost/document (yearly)
Management operations (yearly)
Duties
Taxes
Logistics cost
Internal Costs
Taxes IT
NCF
PV
NPV

Figure 53, Income Statement adopted to compute main model's elements

4.3.9 NCFs, PVs and NPVs

In the figure besides, candidates report the list of cost items and the main elements used to compute the final Net Present Value (NPV) stemming from the Net Cash Flows (NCFs) for each year considered and, in the specific case, for GT. In particular, it is highlighted the voice of "Taxes IT" (coming from the previous chapter) that from a conceptual point of view charges, once all the costs have been cut off from the initial revenues, the amount of money that the exporting Italian company has to recognize, with respect to China context, to the Italian government.

Figure 53 reports a sort of income statement adopted by candidates for tracing all the variations, formulas and data used to obtain results. Once also the income taxes have been payed, each NCF's year needs to be calculated. Finally, in order to find out the final NPV for the specific scenario under study, it is necessary to discount money gained from the ecommerce transactions. This could be done imposing both a general percentage, taken from market researches, or through the Weighted Average Cost of Capital (WACC). For model purposes, it has been imposed the first option into the model charging the 6%[89], (a quite high percentage, in order to get from scratch worse results, following the idea of worst scenario results every time). Nevertheless, the use of WACC would better represent the money discounted in the time horizon considered for the involved company. Indeed, it does depend upon firm's characteristics such as equity and debt levels.

Present Values (PVs) in this way represent the final amount of money gained each year and, summing the 5 PVs to the initial (negative) investment of year 0, NPV for the 5-year horizon chosen is computed. In the image below are reported the NPV formula and the PBT one.

$$\sum_{y=1}^{5} \frac{Net\ Cash\ Flows_y}{(1+i)^y} \quad - \quad Investments_0 \quad = \quad Net\ Present\ Value$$

$$\sum_{\tau=0}^{PBT} NCF\ (\tau) = 0$$

Figure 54, Formulas of NPV and PBT, according to the academic theory (Source: "L'Impresa", G. Azzone, U. Bertelè, Politecnico di Milano professors, ed. 2011)

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[89]As it has been discovered during the academic path and also through internet websites, the discount rate depends on the subject that is evaluating the investment project. Thus, the 6% rate is a candidates' realistic assumptions
(Source: https://en.wikipedia.org/wiki/Present_value)

4.4 Insights and Observations

In the previous chapter candidates have presented the model from the theoretical point of view, trying to underline each step, each analysis and reasoning made in order to determine all the parameters and computations to use at the end of the model (see chapter 4.5). Obviously, going through elements, voices, details and data, candidates understood the complexity of the topic and, even if they tried to be perfectly adherent to the reality, in some cases they needed to adopt some assumptions or to create some hypothesis at the basis of the model in order to solve some issues.

In the methodology part has been described how it was hard to find out reliable data, even investigating through interviews with people working in the same industry or context. Indeed, due to the already described complexity of the Chinese framework, dealing with topics regarding any field of this culture and society represents a real challenge, also when the objective is deciding which percentage should be put into the model because a more trusted one than another.

For these reasons, this paragraph aims to clarify some points in order to conclude the picture of the modelling part before moving on with the practical outputs of the model and, then, results obtained and conclusions.

First of all, candidates want to underline the theme of the uncertainty. Uncertainty is strongly present for different reasons. China is a huge country where all the critical decisions, from the economic, cultural, societal, regulatory point of view are taken by the central government and this, despite of a possible great efficiency from an external standpoint, results to be a dynamic, but also chaotic reality. Fast bureaucracy implies numerous and frequent changes, in different sectors or fields, and the consequent difficulty to be aligned with them.

Moreover, this Master Thesis tries to build a model able to cover a quantity of scenarios that is valuable, covering mostly the majority of the topics needed to implement a new trade channel towards China from a SME's perspective. Therefore, despite of the maximum precision researched by candidates, hypotheses and assumptions had to be made to overcome some insuperable doubts created during the working path, especially due to the lack of interviewers able to provide complete data or information. And assumptions, or hypotheses are, as per definition, created on uncertainty. For what concerns demand scenarios for instance, uncertainty is present because they have been built following the principle of covering mostly all the possibilities both for the initial demand and the related 5-years growth. But also, for logistics part, all the computations or linkages made are based on theory, both studied during the master degree or through external sources. And logistics in the reality is done case by case, thus spreading the model from the reality pushing toward uncertainty.

Secondly, it should be highlighted the theme of complexity and completeness against the generalization need of the model. In order to provide a full picture of the Chinese online commerce, also highlighting and differentiating online e-commerce into the CBEC and GT trade, candidates have faced the need of compromise, also due to the lack of previous studies or literature, about the theme. Compromise was the only way to challenge the trade-off between completeness and generalization required to model a wide theme such as this one. Compromise was necessary when choosing the right number of demand scenarios to cover the widest range of options, or in choosing the growth rates. Compromising was needed when working on the logistics part, because generalization was the objective without losing the importance of details to provide realistic data.

Compromising was necessary both for the taxation and duty field or the more legislative part of the fixed and yearly investment required, because in these cases information is not fully displayed on internet sources.

4.5 Outputs

Apart from the insights provided in the paragraph above, before moving to results determined by the model, candidates want to provide also a general picture of how effectively the model works on Excel.

In the previous chapters have been described the reason why candidates have worked on this theme, due to the lack of academic works in this direction, and all the elements that form the building blocks of the mode, but only from a theoretical perspective.

In the following image, instead, it is represented more or less the same structure depicted into the Figure 30 but from a more practical perspective.
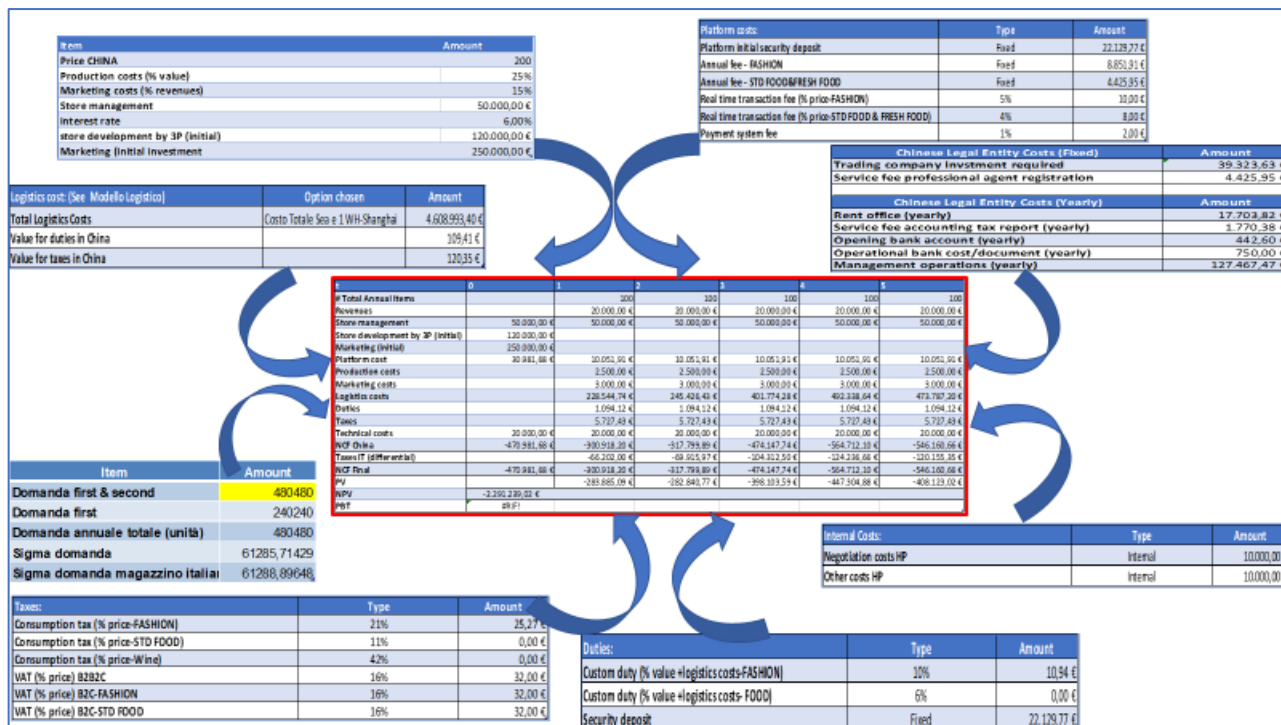

Figure 55, The excel model from a practical point of view: excel tables converge into the NPV e PBT final central table

The central table is the core of the thesis, through which all the results have been summarised, analysed and finally projected through graphs and tables, as it will be depicted in the next chapter. The table is built with costs voices listed and with time expressed in years from 0 to 5 on top (year 0 into the model represents an entire year: the assumption at the basis is that, to establish the necessary relationships, links or structure, or to simply open a legal entity, it is required more than some months and thus, to round the time to 1 year). Following the formulas and the logic explained of the chapter 4.3.9, NPVs and PBTs have been computed easily each time that candidates changed one or more parameters.

But in order to obtain the numbers that populate the central table, formulas have been built to collect data with other tables. These tables are the reflection of the conceptual nodes of the Figure 30 which have been developed and detailed in the previous chapters.

As it is possible to notice, there is a yellow cell into the table on the left, which represents the demand input for each reiteration of the model. In the first Excel sheet, all the requested elements should be defined:

1. Product category, to choose between those already listed at the beginning of chapter 4;
2. Production cost as percentage of total costs;
3. Value of the product (sum of all the Italian costs and value-added activities);
4. Chinese price (set up after all the expected expenses, price on the online platform);
5. Number of units per carton, Number of cartons per pallet, Weight of the carton chosen and target service level (it should be intended that the company is aware of basic logistics information needed to export products also at the international level)

Then, through six different simple lists, once the initial demand has been analysed and determined by the interested SME, the 5-years annual demands are returned, so that from a practical point of view, the user of the model should upload only the initial demand. At that point, all the logistics computations are carried on and,

according to the preference expressed by the user, the solution is returned into the page where are activated also all the other costs, from the marketing standpoint to the taxes and duties, according to the product category chosen at the beginning.

At this point, there are the 4 e-commerce platforms considered. Each one has a different logic and reason behind, as it has been analysed in previous chapters. The 4 platforms are providing to the reader a wide range of possible solution, comparing also two different trade channels. Differences are many, with the most visible conceptualized by downstream logistics operations, which, in the JD's case are managed by the platform itself while in the TMall case is left to the company, that can rely on a third-party service provider. These 4 platforms create 4 different basic scenarios independently from the demand scenarios, category products and other parameters. This is the reason why candidates created 4 different working sheets on Microsoft Excel in order to analyse separately, at each reiteration of the scenarios, all the data and numbers coming from the model. Moreover, the adoption of different working sheet for each platform has allowed an easier identification of outliers and errors during the own validation of the model.

Finally, all the other tables are replicated into the four sheets in order to provide to future users of the model the possibility to modify data according to the specific case situation. For instance, in case of changes in the regulatory, duty or taxes Chinese system or in case of great changes in the logistics field, the model will be still robust and coherent, because it will be able to be adapted easily by the user.

5. Results & Sensitivity

Finally, results produced by the model developed by the two candidates are presented within this chapter.

As earlier illustrated in the chapter 4.3.1., in order to overcome the "senselessness" of predict a five-years horizon demand for a hypothetical company willing to access the Chinese online market, a range of ten different initial demands and six possible distinct paths of growth has been designed. The effect was the creation of sixty specific cases analysed per each category of products considered in the model. Hence, hundred and twenty standalone cases. Consequently, it is clear that not the all of them can be displayed. Readers will have to trust the judgment of the two candidates, that after the analysis of the whole set of results obtained, decided to focus the attention on three out of six patterns of growth. The selected scenarios have been: Scenario 1 (constant demand), Scenario 4 (exponential growth) and Scenario 6 (logistics growth 2). The reason for this choice has to be sought right in the declared objective of this work. Indeed, the existent differences in the behaviour of the mentioned curves, displayed here below again, allow to provide to the readers the widest generic overview on theoretical situations that might be faced when the decision of opening the "Chinese channel" is taken.
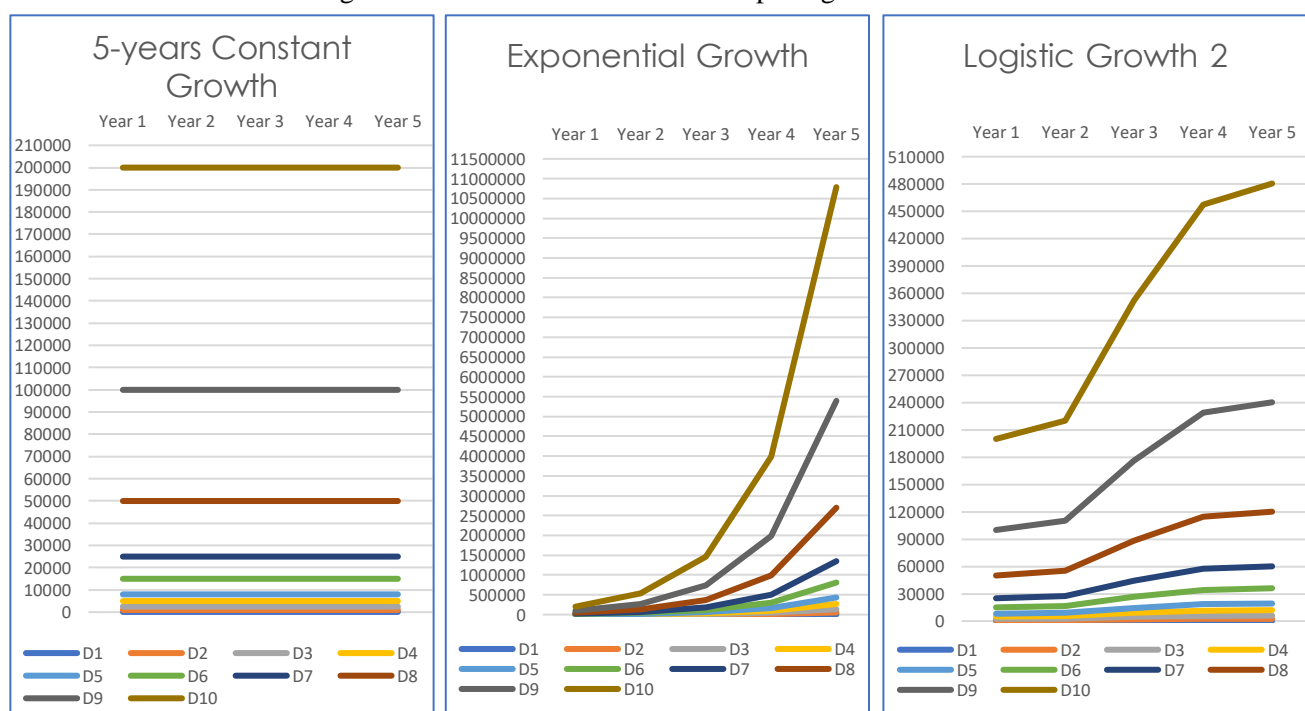
Figure 56, Scenario 1, Constant demand; Scenario 4, Exponential growth; Scenario 6, Logistics growth 2;

The first scenario proposed depicts a situation in which the demand achieved during the first year remains consistent during the whole time-horizon considered. It is clear that the level of demand of the first year does depend upon the notoriousness of the brand and the perception of related products in the Chinese market[90]. The flat behaviour of the following years could be explained either with no interests of the company involved to further penetrate that market or with its inability to increase sales. As already mentioned in the related paragraph within chapter 4.3.1., indeed, there are several issues that might arise and thus postpone or even cease the success of this type of business.

The second growth pace, on the contrary, represents a extremely successful scenario, hardly ever realizable. In order to hope for a similar trend, strong marketing investments are necessary to boost sales and the products involved must conquer the "veneration" of customers. Despite the evident very low likelihood of obtaining this kind of growth rate, some disruptive companies such as Apple, had the merit to reach it.

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[90] This statement is valid in all the scenarios considered.

Finally, the third scenario selected is typical of new products development. It faces an initial introductive phase with low increase of sales, followed by a steep growth phase till reaching the maturity, which still assure satisfactory sales but coincides also with the decrease of growth rate. Surely, it is a desirable pattern for neophyte companies.

The range of ten demands considered, even if it was already presented before, is here below reported again in order to allow the readers to have a quick view on them when cited in the development of this chapter.

Demand 1 (D1) = 100 units
Demand 2 (D2) = 1000 units
Demand 3 (D3) = 2500 units
Demand 4 (D4) = 5000 units
Demand 5 (D5) = 8000 units
Demand 6 (D6) = 15000 units
Demand 7 (D7) = 25000 units
Demand 8 (D8) = 50000 units
Demand 9 (D9) = 100000 units
Demand 10 (D10) = 200000 units

At this point, for the sake of exposition, candidates decided to divide fashion and wine products in order to provide to the readers the clearest possible view on the results obtained. Indeed, these two categories of products are characterized by completely different features and consequently are worthy of two distinct analyses. Nevertheless, at the end of the chapter, a macro-comparison between them will be proposed in order to explain how the involvement of different goods influences business decisions.

The criteria used for the results' analysis of the single product categories has been to start from Demand 1 and up to Demand 10 analysing, for all the three scenarios selected the following points:

- Change in the logistics means of transportation;
- Investment evaluation and platform choice;
- Platforms NCFs and cost structures.

5.1 Fashion products results

First of all, before presenting and discussing results, it is necessary to define some parameters, specific of this product category. Indeed, Italian value and Chinese price of the goods have a high influence over the numeric outputs of the model. The former has been set at 100 € while the latter at 200 €. Similarly, to all the numeric values inserted in the model, these are estimates coming from the different interviews and researches carried by the two candidates. As readers can imagine, yearly revenues and costs of duties and taxes highly depend upon these two values.

5.1.1 Logistics means of transportation in fashion sector

Starting from the logistics mean exploited to perform the international shipment of goods, as already discussed in the Logistics cost chapter and emerged in the literature review, the preferred mean of transportation for fashion items is usually the airplane. And this is reflected by the outputs of the model. Indeed, for the considered scenarios, in almost all of the cases, air transportation has been identified as the most economical in terms of total logistics cost. The sole exception is represented by Demand 1 cases.

Here besides, the effective Demands 1 for the five-years horizon is reported. Both Scenario 1 and 6 entail the use of express couriers for the whole time-horizon, while Scenario 4 only for the first three years. Consequently, it can be stated that the change from courier to airplane solution seems to be justified by a minimum annual demand of approximately 1000 units[91].

Scenarios	Demands	Year 1	Year 2	Year 3	Year 4	Year 5
Scenario 1	D1	100	100	100	100	100
Scenario 4	D1	100	271	735	1992	5399
Scenario 6	D1	100	110	176	229	241

Table 16, Demand 1 growth in the 5-years horizon for Scenario 1, Scenario 4 and Scenario 6

Moreover, in the computations for the logistics alternative characterized by minimum costs, also the number of warehouses opened in China is considered. The model suggests most of the times the opening of a single warehouse for air transportation solutions. However, for the highest initial demand cases (D9 and D10), logistics solutions involving the use of three warehouses appear to be more efficient.

5.1.2 Investments evaluation and platform choice

Concerning investment decision, which is somehow the first point to be analyzed, Net Present Value and Pay Back Time for the three scenarios involved will be considered one at a time for the sake of exposition. Reader should be reminded that, for all the analyses performed, the time horizon of reference was always five years.

Scenario 1, Constant Demand in fashion industry
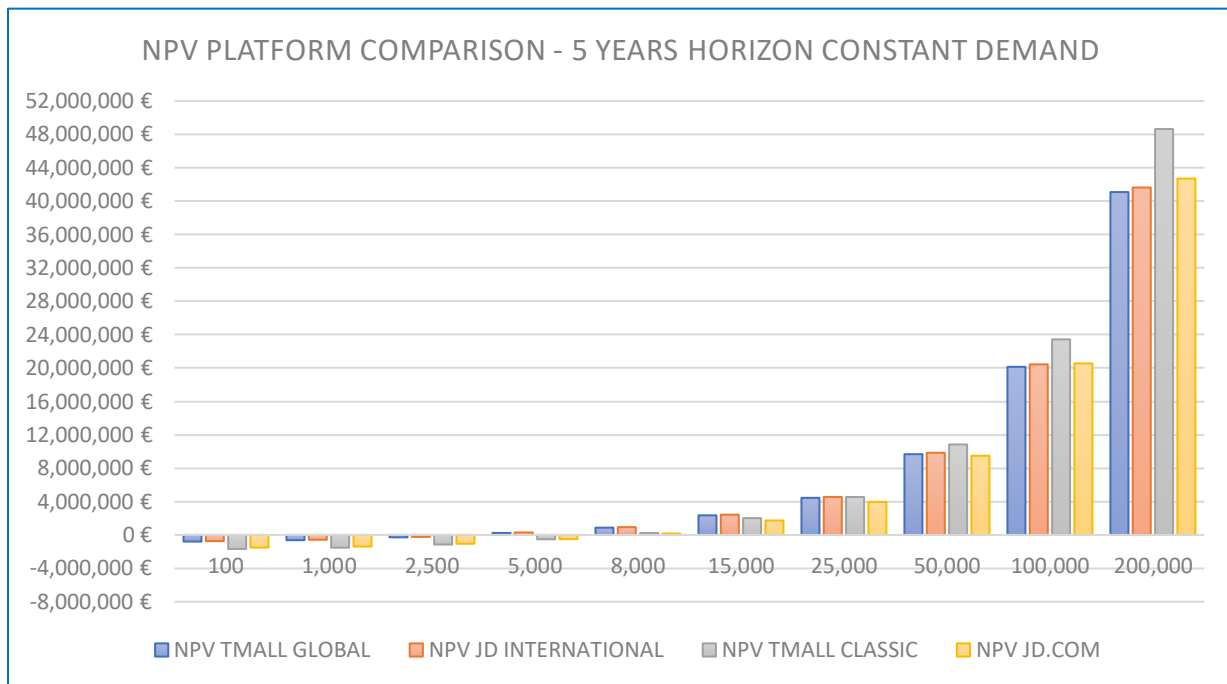
Figure 57, NPVs platform comparison for the 5-years horizon, constant demand scenario in fashion industry

In the figure above, NPVs results for the four Chinese online platforms analysed through the model developed are displayed. Readers can notice how values are negative both for 100, 1000 and 2500 as initial annual demands (D1, D2 and D3) for all the platforms. Therefore, a company forecasting similar selling trends should be discouraged from accessing the market.

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[91] Demand 2 cases do indeed entail airplane as preferred transportation mean.

NPVs of TMall Global and JD International turn positive with D4 (5000), while those of TMall Classic and JD.com with D5 (8000). This is the first hint of the existent differences between CBEC and GT approaches. From D5 up to D8, returns are always positive and JD International seems to be the best option. Nevertheless, TMall Global shows competitive results. Just to provide an insight about the NPV values for these two platforms, 15.000 units as entry demand give rise to returns of 2.426.958 € and 2.345.448 € accordingly. Starting from D8, with an increasing trend, GT platforms outperform the others with TMall Classic resulting as the best one providing with D9 23.439.980 € and D10 48.646.631 €.

To summarize, results of the model for this particular scenario suggest that an expected initial demand lower than 5000 units is not justified by a positive NPV value and thus the decision of entering the market should not be taken. Moreover, CBEC platforms appear to be a better option compared to GT ones for levels of initial annual demand lower than 50.000 units. Despite the fact that constant demand scenario is the most pessimistic between the three analysed, results seem to be satisfactory due to the high mark-up which characterized fashion items. And this is noticeable from the table below.

	100	1.000	2.500	5.000	8.000	15.000	25.000	50.000	100.000	200.000
NPV TMALL GLOBAL	-794.662,24 €	-632.418,97 €	-286.127,41 €	239.387,61 €	870.057,32 €	2.345.448,37 €	4.444.195,64 €	9.677.554,74 €	20.146.966,80 €	41.091.123,92 €
NPV JD INTERNATIONAL	-744.074,28 €	-578.887,43 €	-236.154,15 €	295.667,96 €	933.908,80 €	2.426.958,52 €	4.550.939,83 €	9.847.374,21 €	20.442.935,48 €	41.639.398,79 €
NPV TMALL CLASSIC	-1.682.398,10 €	-1.531.238,66 €	-1.153.353,28 €	-520.618,58 €	238.735,34 €	2.015.690,76 €	4.542.173,27 €	10.840.236,50 €	23.439.980,80 €	48.646.631,89 €
NPV JD.COM	-1.513.692,03 €	-1.389.918,02 €	-1.057.850,61 €	-501.479,34 €	166.241,77 €	1.729.378,15 €	3.950.414,11 €	9.484.848,68 €	20.557.333,98 €	42.709.476,78 €

Table 17, NPVs comparison for scenario 1: model outputs in fashion industry

Before moving on, candidates want to point out an important observation that readers should notice from the graph and table above and then in all the other following figures, the initial investments required. The initial overall investment required, indeed, represents a possible great barrier for any SME interested in this trade channel, due to the great financial exposure that the company should face in the first years. This is true for fashion items as well as wine products described in the next chapter, for any demand level and for any growth rate adopted. Thus, this detail assumes a crucial importance.

Scenario 4, Exponential growth in fashion industry
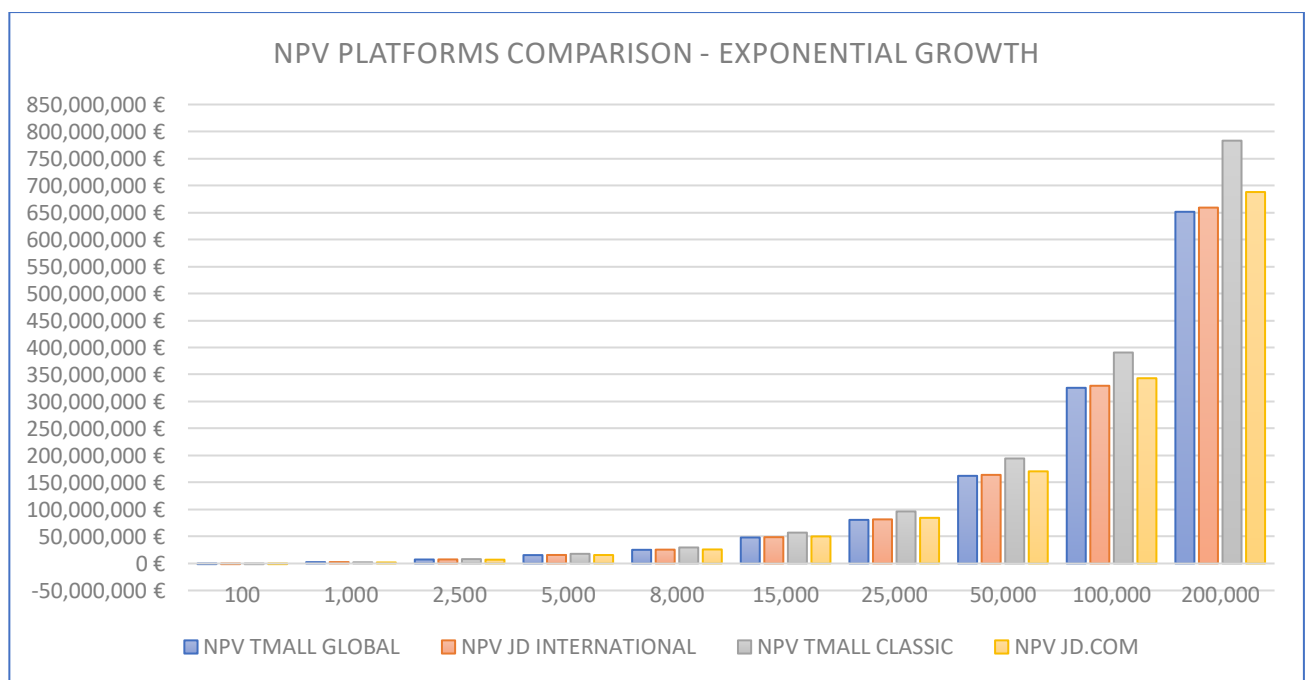
Figure 58, NPVs platform comparison for the 5-years horizon, exponential growth scenario in fashion industry

From Figure 58, and more easily from Table 18, it can be seen how, for this type of scenario, NPVs assume a negative value only when the initial annual demand set is D1. Differently from the previous scenario indeed, 1.000 units appear to be the threshold initial demand from which the investment is recommended. The reason of this behaviour is easily understandable. Exponential growth is the most optimistic scenario desirable. Indeed, already with 1.000 initial units, 84.903 units are sold in 5-years thanks to the pace of the growth, thus guaranteeing optimal revenues since the first demand received.

Moreover, according to the faster growth of the demand, the switch between CBEC and GT platforms in terms of best results achieved already occur with D3 (2.500) as initial annual demand. Before this point the preferred platform is still JD International while after it, TMall Classic confirms to guarantee the highest returns.

	100	1.000	2.500	5.000	8.000	15.000	25.000	50.000	100.000	200.000
NPV TMALL GLOBAL	-489.417,16 €	2.457.884,12 €	7.358.583,97 €	15.511.703,93 €	25.295.084,48 €	48.135.511,43 €	80.742.621,51 €	162.287.526,20 €	325.308.169,79 €	651.312.326,49 €
NPV JD INTERNATIONAL	-437.654,88 €	2.542.485,41 €	7.500.468,97 €	15.751.801,90 €	25.627.918,44 €	48.721.366,82 €	81.659.227,00 €	164.077.064,65 €	329.109.564,80 €	659.079.529,54 €
NPV TMALL CLASSIC	-1.351.822,31 €	2.160.759,41 €	8.050.840,68 €	17.863.167,52 €	29.637.419,33 €	57.126.303,36 €	96.368.573,63 €	194.508.159,49 €	390.700.861,22 €	783.039.842,06 €
NPV JD.COM	-1.227.798,53 €	1.856.952,74 €	7.033.610,07 €	15.656.930,74 €	25.972.952,58 €	50.105.027,39 €	84.513.523,60 €	170.626.289,21 €	343.097.740,90 €	687.921.852,63 €

Table 18, NPVs comparison for scenario 4: model outputs in fashion industry

Scenario 6, Logistics growth 2 in fashion industry

Figure 59 displays the behaviour of NPVs for probably the most realistic scenario considered.
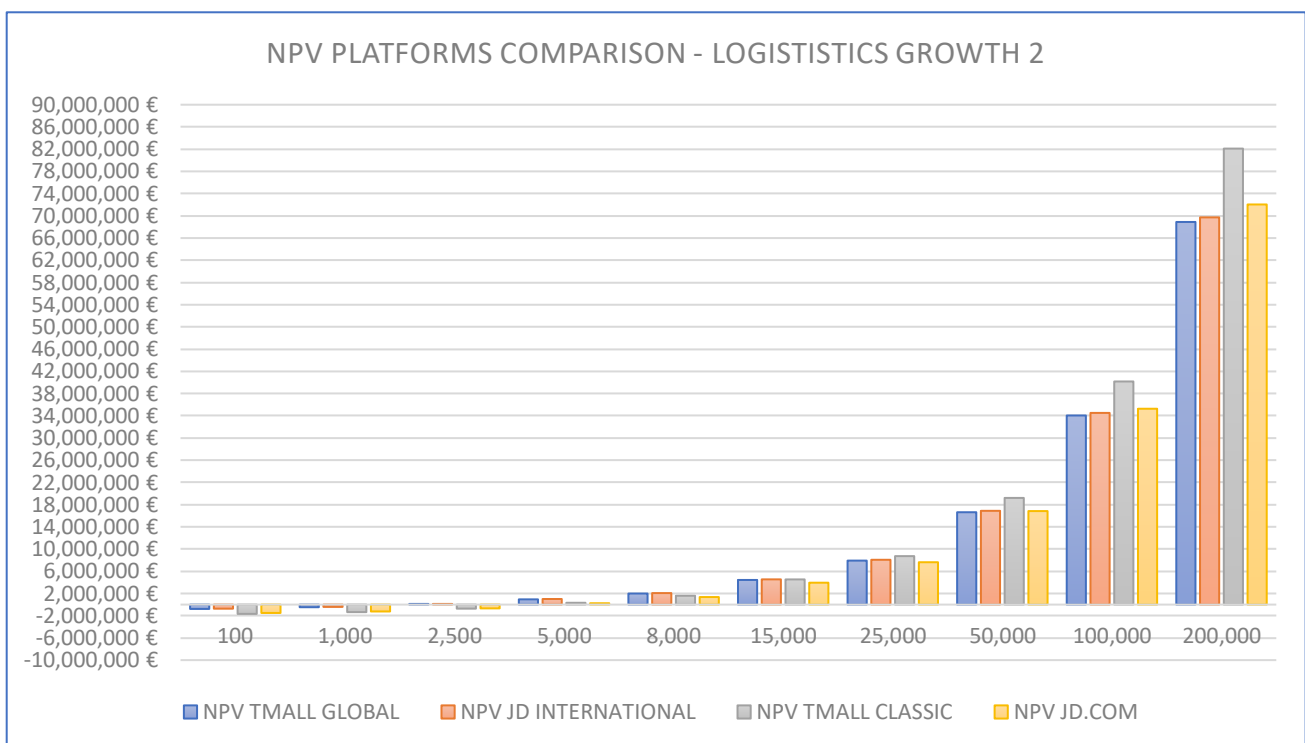
Figure 59, NPVs platform comparison for the 5-years horizon, logistics growth 2 scenario in fashion industry

D1 and D2 cases provide negative values for both CBEC and GT while D3 case depicts the situation in which NPVs of CBEC platforms are positive and NPVs of GT ones are negative. Therefore, investments in the Chinese market are not encouraged when the company is expecting an initial demand lower than 2.500 units.

	100	1.000	2.500	5.000	8.000	15.000	25.000	50.000	100.000	200.000
NPV TMALL GLOBAL	-785.501,62€	-470.498,92€	65.696,20€	940.977,31€	1.992.270,58€	4.434.559,53€	7.918.484,78€	16.627.122,15€	34.046.953,81€	68.886.085,24€
NPV JD INTERNATIONAL	-734.773,54€	-419.427,58€	119.853,69€	1.005.630,37€	2.069.515,19€	4.541.185,83€	8.067.084,56€	16.880.654,06€	34.510.350,04€	69.712.997,14€
NPV TMALL CLASSIC	-1.674.416,62€	-1.359.115,13€	-728.442,62€	325.639,75€	1.591.721,20€	4.531.108,13€	8.723.914,84€	19.204.722,95€	40.169.591,71€	82.098.149,64€
NPV JD.COM	-1.507.812,45€	-1.238.068,68€	-683.615,31€	243.433,61€	1.357.066,23€	3.940.756,90€	7.625.418,80€	16.835.862,97€	35.260.003,89€	72.036.839,95€

Table 19, NPVs comparison for scenario 6: model outputs in fashion industry

The entry level of demand, which indicates the suggested change from CBEC approach to GT one, is in this scenario represented by D7 (25.000). Indeed, as depicted in Table 19, TMall Classic shows a NPV of 8.723.914 € against 8.067.084 € of JD International. As similarly seen in the previous two growth-rate scenarios, from this point on, TMall Classic and JD.com ensure higher returns for the investment. Just to provide some numbers of comparison to the readers, the difference of NPVs value between TMall Classic and TMall Global, using D10 as entry demand, is approximately 13 million €.

5.1.3 Platforms NCFs and cost structures in fashion industry

For the sake of exposition, candidates had thought to structure the present paragraph with analyses of the platforms in pair. Therefore, TMall Global in connection with its GT version, and thus TMall Classic. Accordingly, JD International compared with JD.com. In this way it would be possible to highlight the main differences between CBEC and GT online websites.

However due to the extreme similarity of the existent differences between CBEC and GT versions of the two parent platforms (TMall belonging to Alibaba group and JD), candidates decided to present the comparison of TMall versions in this paragraph. Accordingly, analysis of JD versions will be presented in the twin paragraph belonging to the wine products results (paragraph 5.2.3)[92].
Readers should notice that figures reported within this paragraph and thus also within its twin, does refer to Scenario 6. Indeed, as already mentioned beforehand, logistics growth 2 scenario is presumably the closest path to a real situation.

Finally, cost structures of those platforms that resulted to be optimal in the previous sections will be deeper analysed in order to provide a complete overview on the main voices of cost.

Starting from the comparison between TMall Global and TMall Classic, in the following page, figures representing cumulative Net Cash Flows (NCF), year by year and for all the ten initial demands, are provided.

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[92] For readers willing to spot also the cumulative NCFs behaviors of JD international and JD.com for fashion products, the related figures are reported in Appendix 8.8.

First of all, it can be noticed from both Figure 57 and Figure 58 that at year 0, NCFs are around zero. In the reality, they are all negative due to the absence of sales and the initial investments required to start the business, as already discussed in previous chapters. Values are thus the same, within each platform, for the ten different demands. TMall Global has a NCF equal to -470.981 €, while TMall Classic to -561.942 €. The reason for these different values has to be sought in the higher economic effort required by the usage of GT platforms[93].
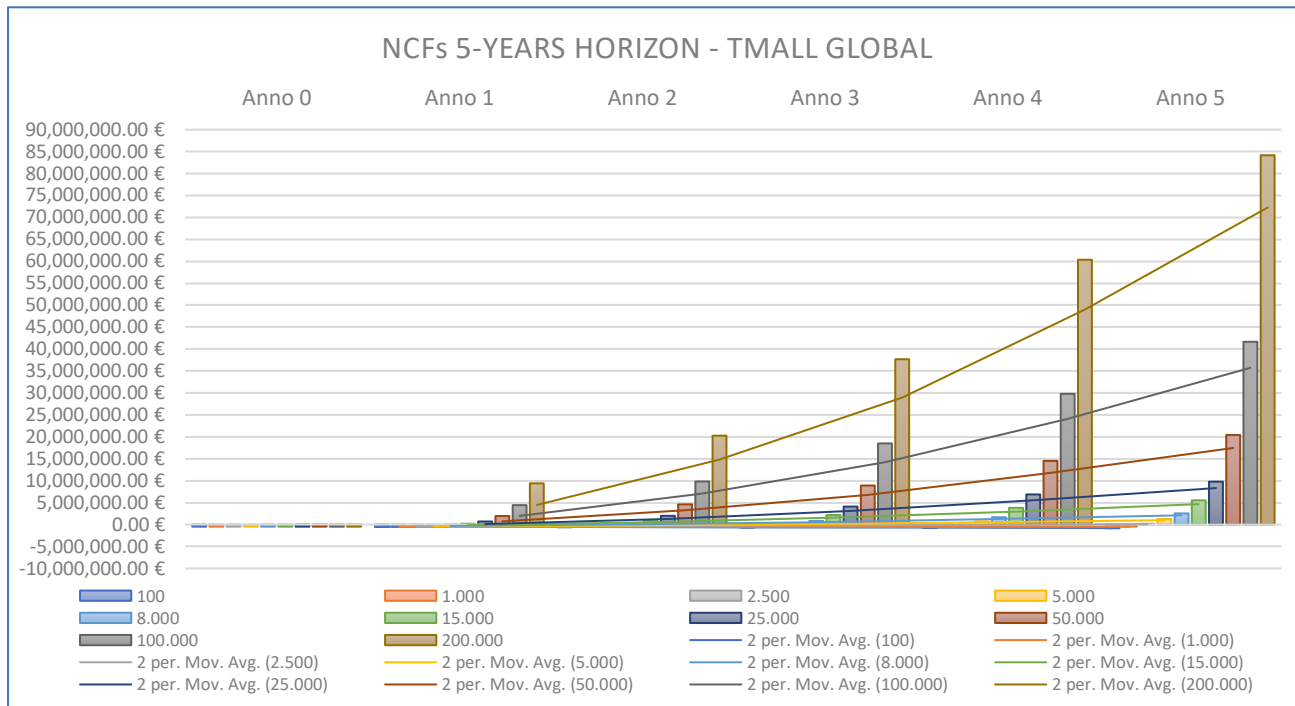
Figure 60, TMall Global cumulative NCFs in the 5-years horizon for all the ten demands in fashion industry
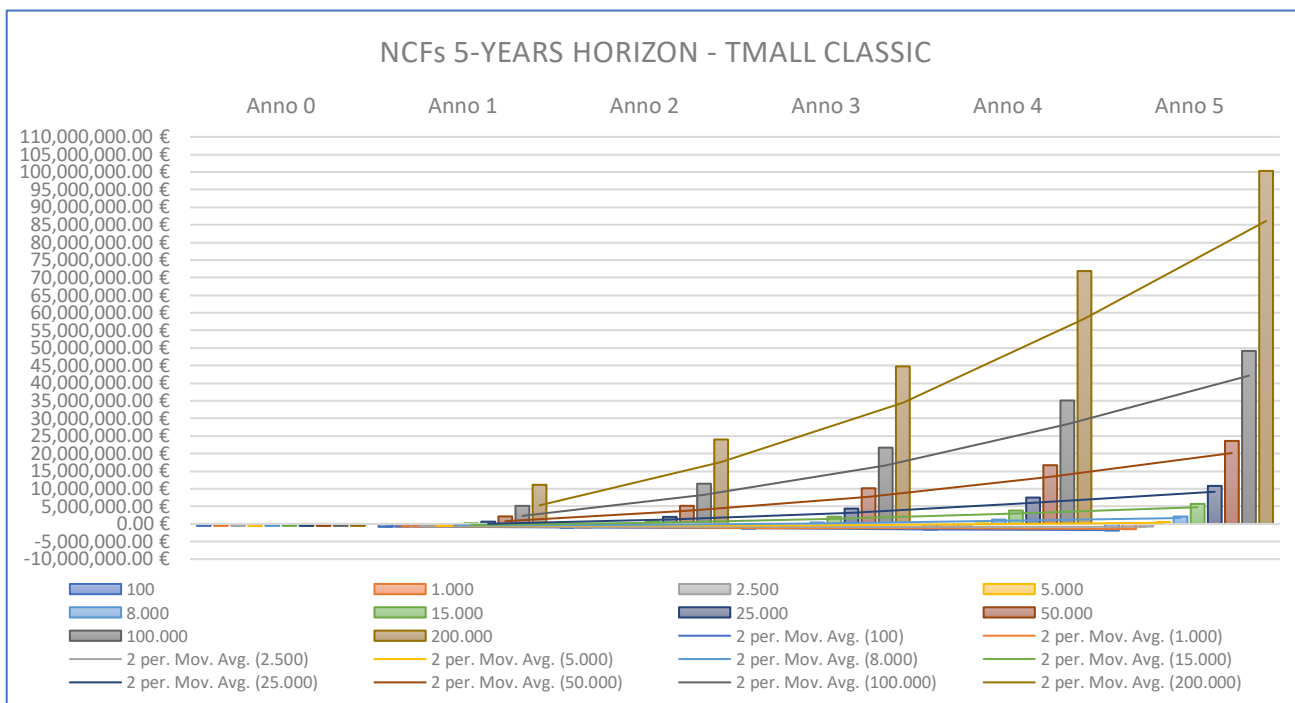
Figure 61, TMall Classic cumulative NCFs in the 5-years horizon for all the ten demands in fashion industry

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[93] See paragraph 4.3.5. Fixed&Yearly costs.

For what concerns the following five years, the more we go closer to the last year considered, the more NCFs specific of single cases (initial demand) increase. This trend can be easily explained considering that every year, whatever initial demand inserted in the model, the growth rate (in this case Logistics growth 2) implies the enhancement of revenues.

Demand	Units	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
D1	100	-470.981,68 €	-76.674,03 €	-76.383,84 €	-74.405,99 €	-72.766,11 €	-72.390,41 €
D2	1.000	-470.981,68 €	-36.633,68 €	-30.470,27 €	7.789,85 €	33.319,45 €	39.114,50 €
D3	2.500	-470.981,68 €	45.300,74 €	57.646,30 €	139.418,65 €	204.648,88 €	218.768,65 €
D4	5.000	-470.981,68 €	170.121,68 €	194.972,01 €	359.027,22 €	490.574,25 €	519.118,45 €
D5	8.000	-470.981,68 €	319.910,03 €	359.740,85 €	623.286,91 €	834.132,24 €	879.545,67 €
D6	15.000	-470.981,68 €	669.573,35 €	744.526,41 €	1.236.681,59 €	1.630.057,41 €	1.715.260,63 €
D7	25.000	-470.981,68 €	1.167.498,39 €	1.291.657,23 €	2.111.292,61 €	2.767.168,33 €	2.909.227,54 €
D8	50.000	-470.981,68 €	2.410.001,59 €	2.658.463,07 €	4.298.458,67 €	5.610.775,52 €	5.895.106,12 €
D9	100.000	-470.981,68 €	4.895.509,96 €	5.392.684,79 €	8.674.005,98 €	11.298.449,93 €	11.867.071,70 €
D10	200.000	-470.981,68 €	9.867.281,18 €	10.861.469,43 €	17.422.715,41 €	22.673.430,62 €	23.812.002,41 €

Table 20, NCFs comparison for differential Demands in TMall Global: highlighted the switch towards positive cash flows

As noticeable from Table 20, TMall Global shows the first positive NCF of 7.789 € at the third year, starting from an initial level of sales equal to 1000 (D2) and corresponding thus to a yearly demand of 1760 units.

Demand	Units	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
D1	100	-561.942,92 €	-265.775,63 €	-265.535,01 €	-263.884,27 €	-262.507,06 €	-262.190,84 €
D2	1.000	-561.942,92 €	-227.910,61 €	-222.014,30 €	-183.569,54 €	-153.067,80 €	-146.131,15 €
D3	2.500	-561.942,92 €	-138.097,67 €	-123.277,48 €	-25.099,66 €	53.208,04 €	70.157,89 €
D4	5.000	-561.942,92 €	12.217,74 €	42.097,82 €	239.360,10 €	397.548,52 €	431.875,60 €
D5	8.000	-561.942,92 €	192.598,70 €	240.518,94 €	557.620,84 €	811.312,95 €	865.940,57 €
D6	15.000	-561.942,92 €	613.484,73 €	703.688,47 €	1.295.864,29 €	1.769.169,56 €	1.871.683,78 €
D7	25.000	-561.942,92 €	1.212.759,17 €	1.362.156,94 €	2.348.416,01 €	3.137.632,52 €	3.308.570,44 €
D8	50.000	-561.942,92 €	2.708.095,79 €	3.007.092,61 €	4.980.658,97 €	6.559.912,51 €	6.902.078,23 €
D9	100.000	-561.942,92 €	5.699.404,51 €	6.297.735,35 €	10.246.678,04 €	13.405.065,95 €	14.089.373,65 €
D10	200.000	-561.942,92 €	11.682.891,61 €	12.879.366,53 €	20.775.605,44 €	27.094.744,61 €	28.465.037,47 €

Table 21, NCFs comparison for differential Demands in TMall Classic: highlighted the switch towards positive cash flows

On the contrary, as displayed in the table above, with TMall Classic, a positive NCF of 53.208 € is achieved only during year 4 starting from the entry demand of 2500 (D3).

The logic behind the higher number of products sold required by TMall Classic in order to achieve positive cash flows lays in the highest annual costs required by solutions characterized by the establishment of the Chinese legal entity. However, at the increase of products sold, benefits of GT approach emerge. Indeed, during the third year of the case with D6 as initial demand, TMall Classic achieves fort the first time a NCF (1.295.864 €) higher than the one obtained with its CBEC version (1.236.681 €), correspondent to 26.400 products sold. From this point on, at the increase of the goods demanded by the market, the gap between NCF obtained by TMall Global and TMall Classic continues to improve in favour of the latter.

Finally, it is time to analyse the weight of the different costs characterizing the platforms. In order to do so, the choice of the candidates has been to merge cost structures of those platforms recognized as optimal in terms of NPV.
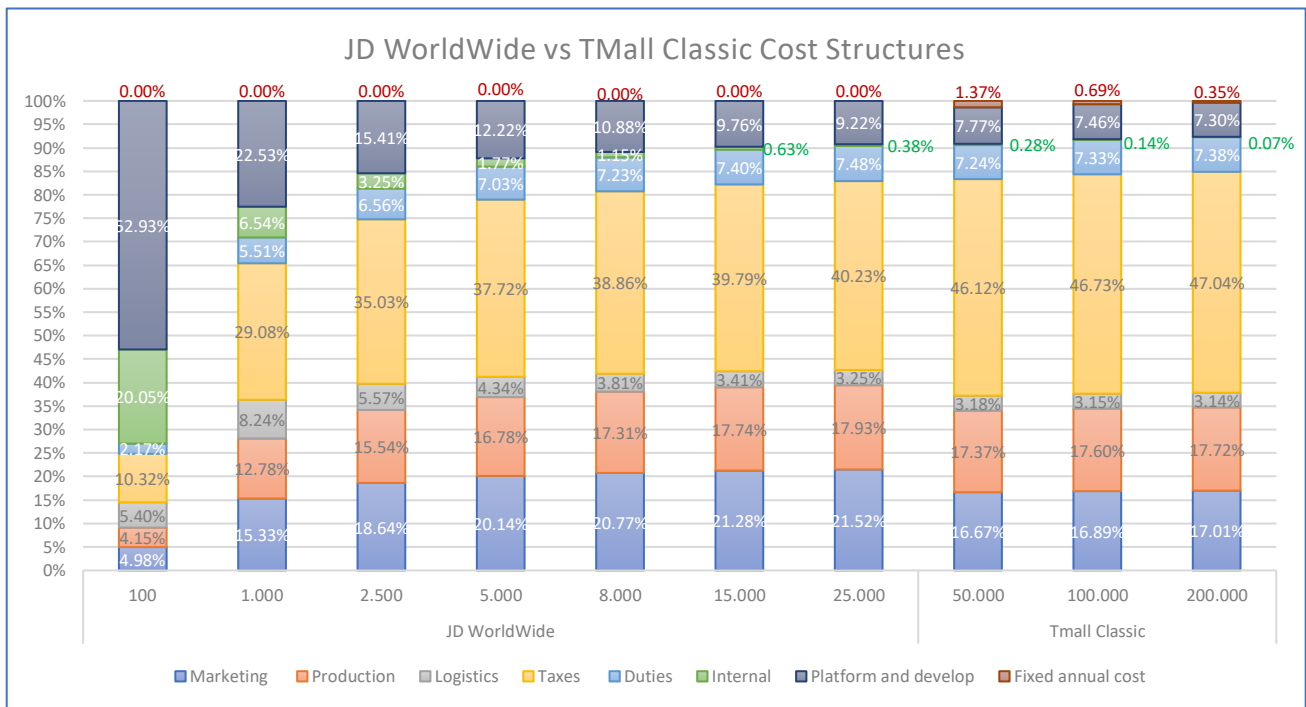

Figure 62, Cost structures of JD worldwide (from D1 to D7) and of TMall Classic (from D8 to D10) in fashion industry: best platforms compared

Therefore, in the figure above it is observable the evolution of costs coherently with the increase of initial annual demand[94]. More in detail, for each entry demand, cost structures displayed have been computed as average of the 5 years analyzed. As readers can notice, Figure 62 displays average cost structures of JD International for the first seven demands while of TMall Classic for the remaining three. The reason of this choice lays in the willingness of the candidates to discuss the relative weight of different cost voices for those platforms emerged as the preferred ones in terms of returns. Regarding the various types of cost considered, it is fundamental to distinguish between fixed and variable ones. Among the costs reported in Figure 62, "Internal" and "Fixed annual cost" are the only two voices completely independent from the annual demand faced. Indeed, the former one, which holds a weight of approximately 20% in D1, loses its importance at the increase of the initial demand because all the other voices raise their weight while its value remains fixed at 20.000 €. The latter, which as discussed in previous sections of this Master Thesis is a cost typical of GT approach, even if accounts for approximately 150.000 €, it has a very low relative importance since it appears only in the last three cases, where variable costs have already achieved very high levels.

Marketing costs show an increasing trend of relative weight even if with a decreasing rate of growth. Moreover, when switching from JD International to TMall Classic the cost percentage falls from 21,52% to 16,67% due to the higher relative weight assumed by taxes with a GT approach. For the same reason, also production costs and duties, which follow an increasing trend in the first seven cases, suffer for a slight decrease when considered for TMall Classic. Nevertheless, an increase in trend of taxes weight can be observed along all the initial demands. On the contrary, platform and develop costs have a decrease of importance at the increase of the entry demand due to the higher dependency of the costs previously mentioned on the demand level. Finally, logistics seems to have relatively low importance. In the reality readers should consider that it has always been the focus

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[94] Scenario 6, Logistics growth 2 still remains the reference scenario within this paragraph.

of cost minimization within the model developed. Therefore, taking into account also the several costs considered in the computation of final NPVs, the low percentage is somehow justified.

5.2 Wine products results

For this product category, principal parameters (Italian value and price in China) have been set respectively to 5 € and 20 € for the single wine bottle. Especially the Chinese price represents a low value if compared with some data and analyses performed by candidates. The reason why it has been chosen a low price is to research in the idea of conquering an initial higher visibility and thus market share because, even if the brand could be well known in Italy or even also in Europe, Chinese market does not follow the same logics and consequently the product could be not evaluated as in the western markets.[95]

Despite a completely different absolute value if compared with fashion items, also for the wine industry, and the food industry as a reflection, these parameters together with service level, the weight of the good and the demand, are weighting more than others. Moreover, it could be noticed that, having a lower mark-up applicable than the fashion category, in these scenarios the parameters are even more important and critical.

5.2.1 Logistics means of transportation in wine sector

Through readings and academic papers coming from different sources, it is well-known which is the more adopted transportation means for any kind of food product which is neither perishable nor in need of particular treatments, such as refrigeration. The most probable choice for international shipping is thus sea transportation. Indeed, the gross weight of the boxes, which consists normally of 6 bottles and the carton (from our hypotheses respectively 1 kg and 420 g), and the absence of an expiry date allow companies to not necessarily need a short lead time. Therefore, companies can focus the attention on the minimization of the costs as primary objective, due to the lower margin for gaining profits.

According to the model, sea transportation is effectively the most adopted solution when the demand is generally increasing within all the different scenarios. But the picture is really more critical and complex with regard to the fashion sector, as it is possible to notice through the table below.

Logistics Means	Scenario 1	Scenario 4	Scenario 6
D1	Express	Express 4th year; last year Sea 1 WH	Express
D2	Express	Express 1st year; then Sea 1 WH	Express
D3	Express	Express 1st year; then Sea 1 WH	Express 1st year; then Sea 1 WH
D4	Sea 1 WH	Sea 1 WH 4th year; last year Sea 3 WH	Sea 1 WH
D5	Sea 1 WH	Sea 1 WH 3rd year; Sea 3 WH 4th and 5th year	Sea 1 WH
D6	Sea 1 WH	Sea 1 WH 3rd year; Sea 3 WH 4th and 5th year	Sea 1 WH
D7	Sea 1 WH	Sea 1 WH 2nd year; Sea 3 WH 3rd, 4th, 5th year	Sea 1 WH
D8	Sea 1 WH	Sea 1 WH 2nd year; Sea 3 WH 3rd, 4th, 5th year	Sea 1 WH
D9	Sea 1 WH	Sea 1 WH 2nd year; Sea 3 WH 3rd, 4th, 5th year	Sea 1 WH 2nd year, 3rd 4th 5th year Sea 3 WH
D10	Sea 3 WH	Sea 3 Wh	Sea 3 WH

Table 22, Different transportation means according to Scenarios 1,4,6 and all the 10 demands considered into the model. Express stands for Express Courier, Sea 1, 2. 3 WH stands for the adoption of one port, two or three ports at the same time

Indeed, starting from the lowest demands, express courier appears as the optimal solution when dealing with D1; then depending on the scenario, until D3 (2500 units) it still remains the optimal one for the constant demand while in the exponential growth and in the logistics curve it resists only for the first year of the 5-years horizon with D3. After the first year, sea transportation with one warehouse becomes the optimal solution. Generally,

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[95] This information comes from a presentation held by Politecnico di Milano Observatory on 27th March 2018.

this solution is the optimal for the most reliable demands, such as D4 until D9, when for all the scenarios the optimal solution turns to sea transportation again, but with 3 warehouses. The reason behind this behaviour should be searched within the decreasing downstream costs related to distribution in mainland China.

Coming back to the most "realistic" and likely demands (from D4 to D8), a part from scenario 1 and scenario 6 that show the utilization of the sea mean with one warehouse, scenario 4 shows different adoptions also inside the 5-years horizon: for instance, with D5 and D6, it is suggested to use sea transportation and 1 warehouse for the first 3 years, while for the fourth and fifth it is suggested the opening of 3 warehouses. When the initial demand increases to 25.000 and 50.000, the suggested change from 1 warehouse to 3 warehouses it is anticipated one year before.

Consequently, as it is possible to see, changing the product category the context not only becomes completely different, but also, to some extent, unpredictable. Thus, the candidates' suggestion of a deep and detailed analysis of the Chinese context and especially of the logistics topic is supported and reinforced.

5.2.2 Investment evaluation and platform choice

Scenario 1, Constant Demand in wine industry

As it is shown in the Figure 63 below, the NPV platforms comparison of the wine industry is deeply different from the one of the fashion sector. Within the graph there are not only values and trends which differ from the fashion industry, but also the scale: indeed, a keen eye, can easily notice how this histogram ranges from low values with respect to fashion one, both in terms of absolute maximum value and number of demands which are not supporting a possible investment decision.
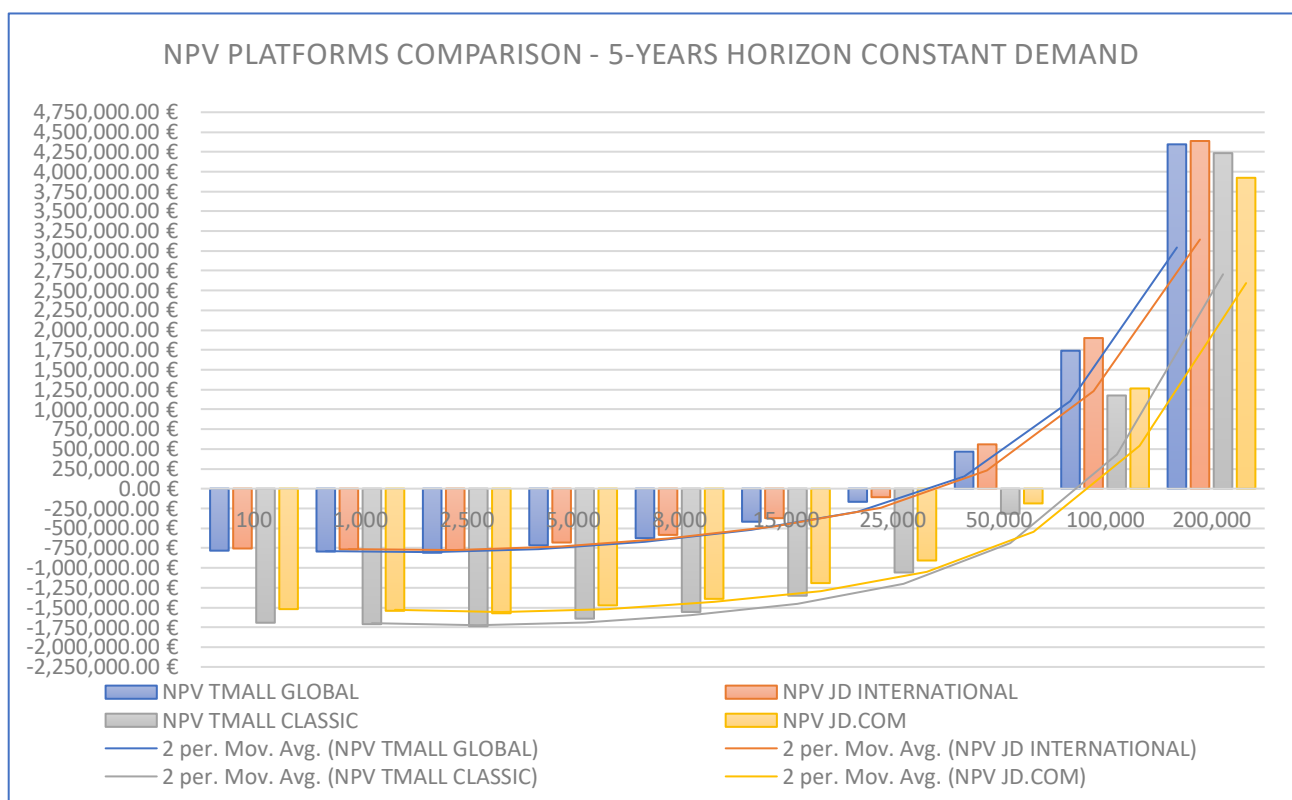
Figure 63,NPVs platform comparison for the 5-years horizon, constant demand scenario in wine industry

From 100 initial units (D1) to 25.000 units (D7), and thus from 500 total 5-years units to 125.000 units, the NPVs for this specific scenario results to be negative, for any kind of trade channel. It is clear how CBEC outperforms the GT even if the final NPV is negative. Also, when the NPV turns to positive values with D8

(50.000 initial units for a 5-years aggregated demand of 250.000 units), only CBEC solutions, both for TMall Global and JD Worldwide, provide positive returns, with NPVs equal to 466.780 € for the first, 558.956 € for the latter. It seems that JD International still remains the best solution as in the fashion case but, as the trend curve shows, TMall Global has a stronger growth compared to JD International, and for this reason it could be defined that, with higher demands considered over the D10, with same parameters, for the wine industry TMall Global will overcome JD International. GT solutions instead remain negative also in D8 and turn positive only in D9, providing good NPV results both for D9 and D10, but in this case, differently from the fashion items, they are still lower than the CBEC solutions, thus justifying the adoption of the CBEC channel for wine (and more likely food, which could have also lower margins than wine) for a really wide range of demands. Obviously, the reason has to be sought in the platforms' costs, duties and taxes which are normally lower in the food-wine case than the fashion one, apart from the consumption tax that charges more the "No positive Items" such as the alcoholic substances.

The NPVs for all the 10 demands considered into the Scenario 1 are reported into the following table.

	100	1.000	2.500	5.000	8.000	15.000	25.000	50.000	100.000	200.000
NPV TMALL GLOBAL	-782.820,22 €	-793.908,14 €	-808.898,38 €	-715.784,83 €	-624.648,55 €	-417.551,59 €	-166.475,78 €	466.780,67 €	1.740.402,96 €	4.345.118,12 €
NPV JD INTERNATIONAL	-755.575,75 €	-767.232,34 €	-783.170,36 €	-679.997,49 €	-583.767,06 €	-372.875,04 €	-108.221,64 €	558.956,91 €	1.900.420,43 €	4.387.251,94 €
NPV TMALL CLASSIC	-1.692.308,41 €	-1.710.480,52 €	-1.736.835,39 €	-1.641.012,36 €	-1.556.428,63 €	-1.351.447,39 €	-1.058.245,80 €	-316.945,29 €	1.175.725,67 €	4.234.008,35 €
NPV JD.COM	-1.520.758,98 €	-1.541.774,44 €	-1.572.868,22 €	-1.473.304,41 €	-1.391.208,77 €	-1.192.053,44 €	-907.154,06 €	-186.636,36 €	1.264.465,22 €	3.922.651,50 €

Table 23, NPVs comparison for scenario 1: model outputs in wine industry

Within the table above, it is clear how many cases present negative NPVs and which platforms turns firstly into positive values. In this case, with a 5-years constant demand in the food sector, trading wine, only high demands ensure positive NPVs, and CBEC is easily identifiable as the best solution.

As highlighted in the previous chapter, despite the deep differences between the two sectors, also for wine industry, no matter the growth scenario chosen, the initial investment assumes an even more crucial role and thus it should be considered in any kind of risk or economic analysis performed before entering into the Chinese market.

Scenario 4, Exponential Growth in wine industry

In this paragraph it will be analysed Scenario 4, with Exponential Growth for the wine sector. First of all, a general observation is needed, recovering the one made in the previous section. Due to the structure of the curve and the reason behind its adoption, the scale of the graph is completely different from the constant demand scenario or the next logistics growth scenario. Also, graphically, it is clear the absence of the trend curves which have been inserted when not compromising the view for the readers.

Anyway, in Figure 64, the exponential growth leads the NPV to become positive at 5.000 units (D4) as entry demand for all the four platforms, highlighting also the better behaviour of CBEC platforms against GT ones. However, in this scenario, from D on, GT solutions provide better results compared to CBEC one. The main reason is to be found into the total 5-years horizon demands: with an initial demand of 25.000 pieces ordered, at the end of the 5-years horizon, it will be sold 2.122.320 items for a total NPV, for each platform, respectively of 9.346.712 € in TMall Global case, 9.430.949 € in JD International case, 10.134.195 € in TMall Classic case and finally 9.397.093 € in JD.com. This quantity at the end of the horizon considered is more than 10 times bigger than the total quantity that turned to positive NPVs in the first scenario with the initial demand 8. From this value on, the growth of the NPV is remarkable, spreading the optimality of TMall Classic against JD.com.
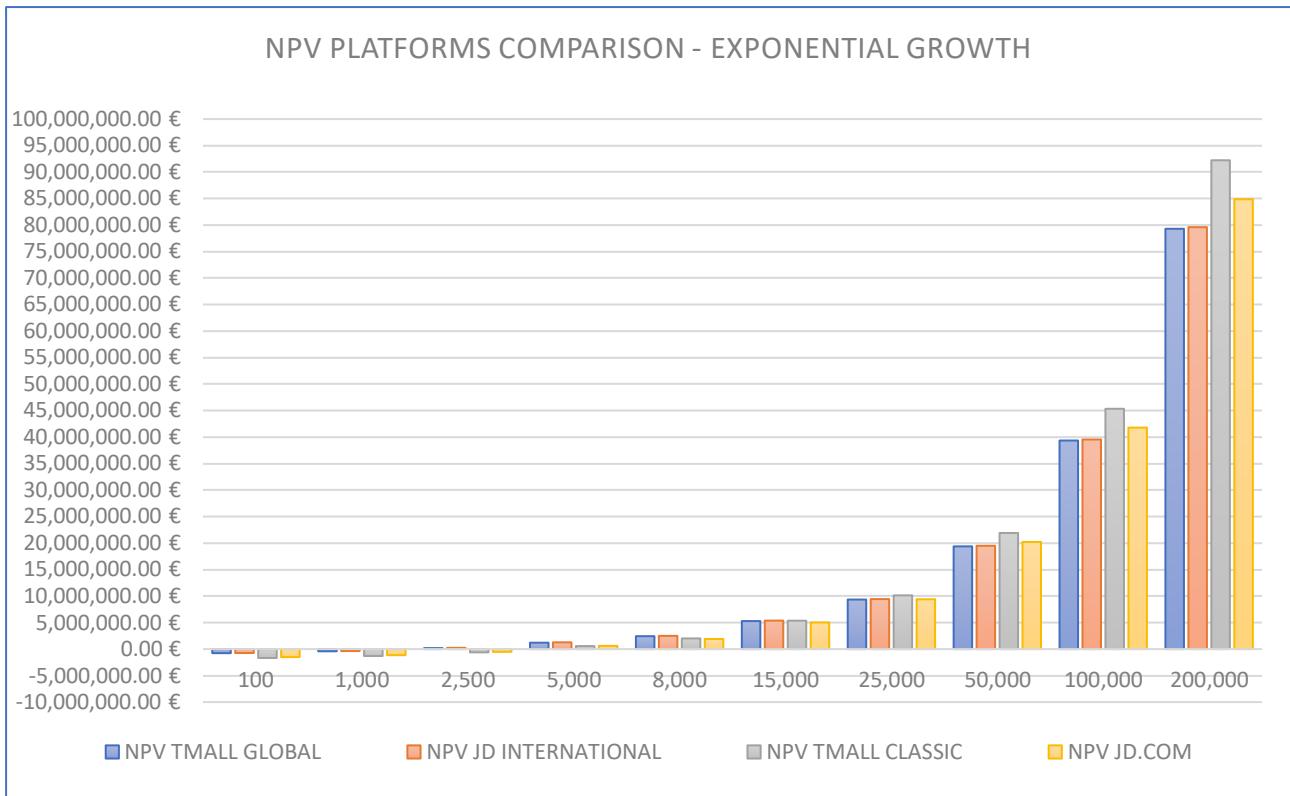
Figure 64, NPVs platform comparison for the 5-years horizon, exponential growth demand scenario in wine industry

Just a final insight should be done for the CBEC platforms: the graph shows how TMall Global and JD Worldwide are really similar, and especially for demands D8 and D9 seems to be identical. Even in this case the difference of the two is around 80.000 to 100.000 € in favour of JD Worldwide.

Again, in the following table, are reported all the NVPs found with same settings explained adopting the Scenario 4 as a reference. The great growth rate each year ensures positive and optimal results since the first demands.

	100	1.000	2.500	5.000	8.000	15.000	25.000	50.000	100.000	200.000
NPV TMALL GLOBAL	-767.246,91 €	-415.099,27 €	183.637,14 €	1.203.812,83 €	2.432.766,63 €	5.285.195,23 €	9.346.712,84 €	19.380.930,08 €	39.352.405,05 €	79.305.070,54 €
NPV JD INTERNATIONAL	-738.693,87 €	-367.503,54 €	231.125,76 €	1.274.173,53 €	2.492.389,52 €	5.373.306,94 €	9.430.949,40 €	19.488.778,74 €	39.543.775,34 €	79.606.697,36 €
NPV TMALL CLASSIC	-1.680.830,49 €	-1.302.777,89 €	-615.718,06 €	569.019,02 €	2.009.357,17 €	5.355.741,61 €	10.134.195,30 €	21.908.393,39 €	45.342.784,83 €	92.228.730,10 €
NPV JD.COM	-1.511.658,73 €	-1.144.377,38 €	-515.429,31 €	600.346,37 €	1.908.915,79 €	5.017.024,89 €	9.397.093,76 €	20.216.958,00 €	41.788.046,16 €	84.876.402,40 €

Table 24, NPVs comparison for scenario 4: model outputs in wine industry

Scenario 6, Logistics Growth 2 in wine industry

In the figure below, for the logistics growth, wine sector shows a behaviour which is in line with the first scenario, but some points should be highlighted.

Firstly, at D10, there is an inversion for what concerns the optimality between CBEC and GT approaches. TMall Classic outperforms the CBEC solutions, where JD.com keeps the lead for what concerns the NPV since the second initial demand. However, JD.com shows, even in the best possible scenario studied within this Master Thesis, a lower performance compared to all the other three platforms. In particular, it should be noticed how the grey trend curve related to TMall Classic, has a higher growth rate between the two last demands, rate which drives the platform in the first position.
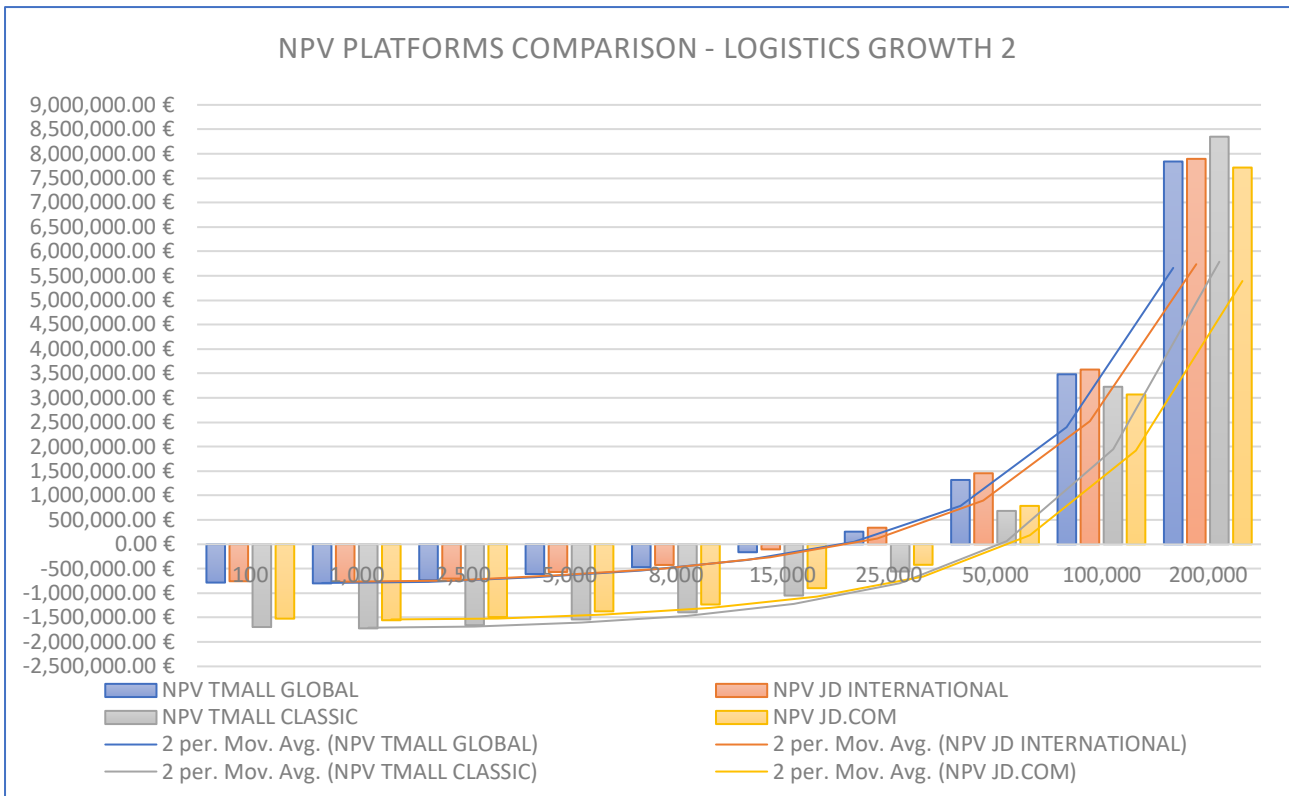
Figure 65,NPVs platform comparison for the 5-years horizon, logistics growth demand scenario in wine industry

Secondly, CBEC turns to positive values at 25.000 units instead of 50.000 as in the case of constant demand. The reason behind is again in the total number of items sold in 5 years: in scenario 1 they are 250.000 units starting from D8, in scenario 6, starting from D7, they reach 213.760 units, that from a critical standpoint are really similar. Indeed, the two related NPVs are, respectively, 466.780 € for TMall Global and 558.956 € for JD Worldwide, against 259.049 € and 339.812 € in scenario 6, thus underlining for both positive absolute values and a proximity in terms of total earnings, despite half of the initial demand set.

	100	1.000	2.500	5.000	8.000	15.000	25.000	50.000	100.000	200.000
NPV TMALL GLOBAL	-783.731,32 €	-800.212,62 €	-735.602,47 €	-608.370,93 €	-467.543,37 €	-161.895,34 €	259.049,07 €	1.317.921,45 €	3.482.005,91 €	7.840.189,90 €
NPV JD INTERNATIONAL	-756.528,89 €	-773.956,18 €	-702.547,71 €	-567.066,59 €	-422.621,54 €	-103.707,03 €	339.812,40 €	1.455.118,92 €	3.579.006,86 €	7.894.141,18 €
NPV TMALL CLASSIC	-1.693.721,49 €	-1.721.667,10 €	-1.657.207,53 €	-1.538.732,57 €	-1.393.558,87 €	-1.049.863,25 €	-557.161,42 €	684.023,89 €	3.226.076,69 €	8.348.305,22 €
NPV JD.COM	-1.522.382,26 €	-1.555.057,82 €	-1.490.106,55 €	-1.373.778,72 €	-1.232.755,63 €	-898.737,14 €	-419.862,41 €	786.750,89 €	3.068.328,67 €	7.716.286,37 €

Table 25, NPVs comparison for scenario 6: model outputs in wine industry

From Table 25, it is possible to catch a slight better trend with respect to the scenario 1 and a worse one compared to scenario 4, as in the previous chapter was mentioned. Analysing in details the NPVs stemming from the model, it is possible to notice how the NPV values are more realistic also for the highest initial demand D10, ensuring positive returns for any kind of E-commerce platform with 50.000 initial units and thus 427.50 units in 5-years.

5.2.3 Platforms NCFs and cost structures in wine industry
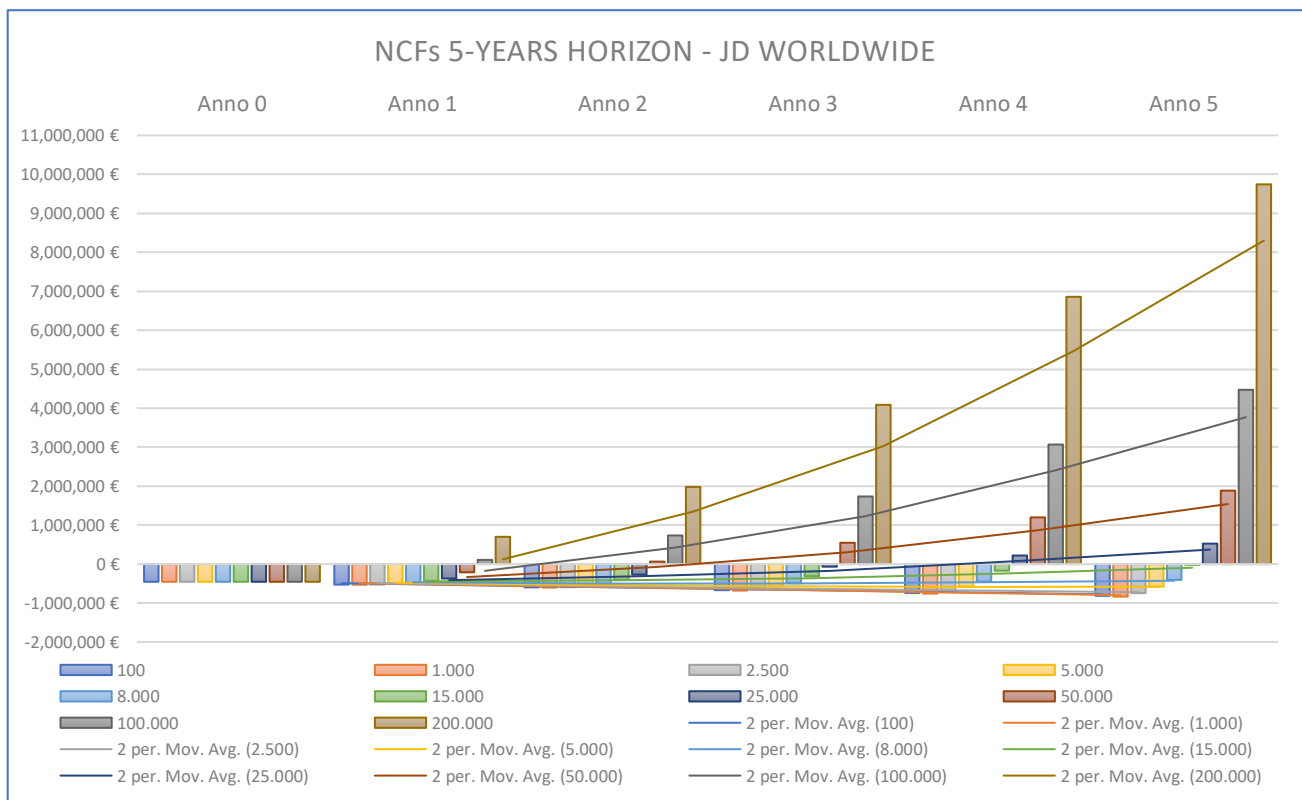
Figure 66, JD Worldwide NCFs in the 5-years horizon for all the ten demands in wine industry
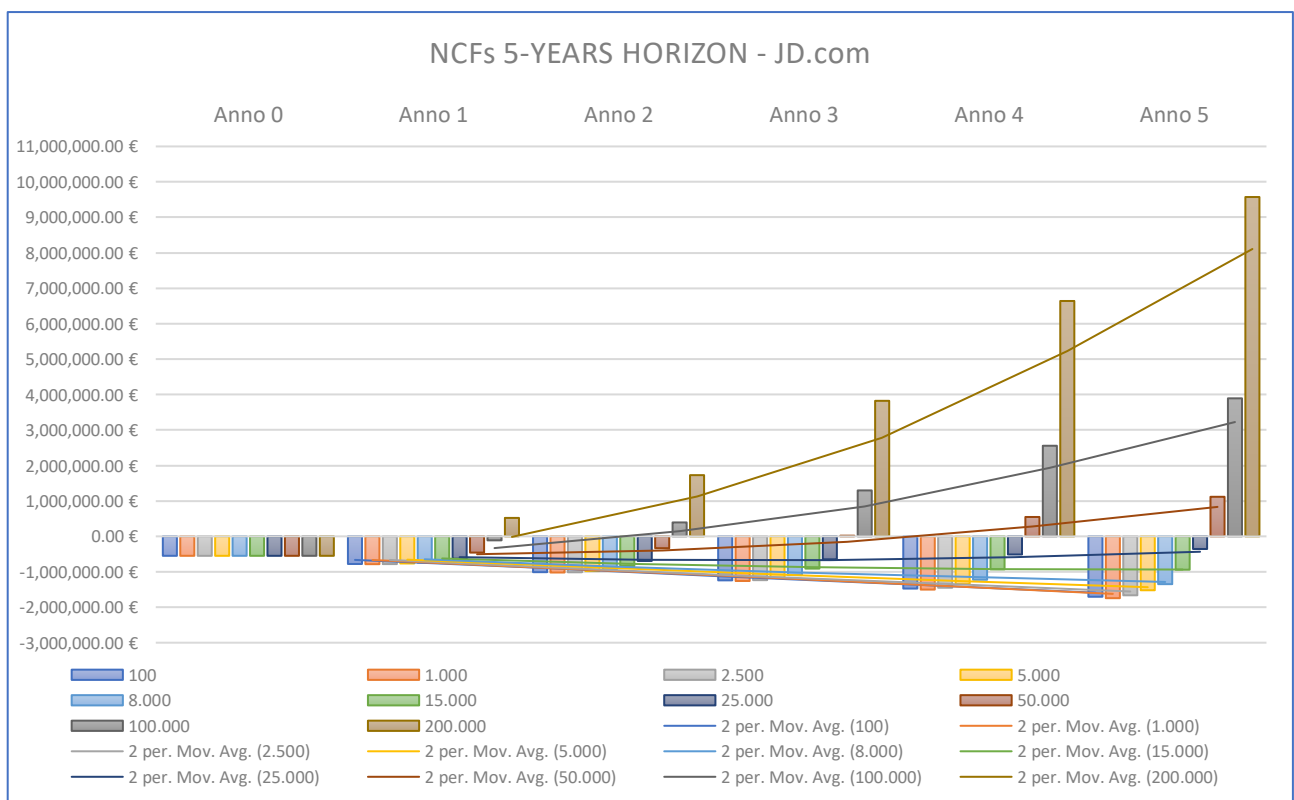
Figure 67, JD.com NCFs in the 5-years horizon for all the ten demands in wine industry

As it has already been described for the fashion cases, also in this section platforms will be compared in pairs. In this way readers can understand and see similarities and differences between CBEC and GT on the same

platforms, thus obtaining insights on the preference to choose when exporting towards China, according to the own company's characteristics. At the end of the current paragraph, cost structures of the best alternatives highlighted in the scenario analyses before will be provided, in order to understand which cost voices are weighting more in the related trade channel and, consequently, which voices should be deeply analysed according to percentages.

In the pictures provided above, as for the fashion section, the 10 initial demands' cumulative NCFs for the two platforms belonging to the parent Jingdon company, in order to give a detailed image of how cash flows vary year-by-year.

Cumulative NCFs are only used as introduction for projecting then the effective NCF and later cost structure with more information available. For these analyses, scenario 6 has been chosen as main reference for all the reasons explained in chapter 4 and in the previous section of chapter 5.

As it has been cited in the fashion section, no great differences have been found in terms of cumulative NCFs collection between the four E-commerce platforms, due to the same behaviors between CBEC and GT channels, and thus the graphs of the other E-commerce sites not analysed for this cash comparison are reported in Appendix 8.8. In the two graphs above, it is clear that, according to what has been already described in the Revenues section into chapter 4, D10 is treated as a sort of outlier between the other demands considered, both in CBEC and in GT contexts, due to its huge initial quantity requested into the Chinese market. Apart from that, other demands, excluding those that are really too low to support the idea of trade channel for this product category, have realistic trends in terms of growth, each one showing a more or less linear behaviour. More in details, from D1 to D6 in the CBEC version of JD, cumulative NCFs are negative since the first year, thus providing the negative NPV depicted in the graphs above.

Demand	Units	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
D1	100	-454.163,05 €	-71.497,93 €	-71.543,01 €	-71.826,57 €	-72.042,74 €	-72.090,70 €
D2	1.000	-454.163,05 €	-74.147,10 €	-74.422,10 €	-76.192,81 €	-77.573,06 €	-77.870,73 €
D3	2.500	-454.163,05 €	-70.841,14 €	-68.760,40 €	-57.193,88 €	-47.970,07 €	-45.953,34 €
D4	5.000	-454.163,05 €	-51.360,02 €	-47.679,20 €	-23.491,23 €	-3.473,84 €	614,16 €
D5	8.000	-454.163,05 €	-28.249,77 €	-22.280,05 €	14.474,07 €	40.089,24 €	45.652,58 €
D6	15.000	-454.163,05 €	21.410,57 €	30.638,71 €	92.178,99 €	141.355,14 €	152.058,91 €
D7	25.000	-454.163,05 €	84.499,23 €	100.087,16 €	203.441,66 €	286.408,79 €	304.454,16 €
D8	50.000	-454.163,05 €	243.254,87 €	274.801,71 €	483.579,76 €	650.913,53 €	687.334,50 €
D9	100.000	-454.163,05 €	562.389,47 €	626.079,52 €	1.001.068,49 €	1.332.489,79 €	1.404.376,93 €
D10	200.000	-454.163,05 €	1.153.734,49 €	1.280.809,81 €	2.105.968,85 €	2.772.221,40 €	2.885.064,76 €

Table 26, NCFs comparison for differential Demands in JD International: highlighted the switch towards positive cash flows

In Table 26 it is possible to catch the trends of the NCFs according to the range of demands considered for JD International. First positive cash flows occur only at the fifth year of D4 case, hence with a demand of approximately 12.000 units. The highest the initial demand, the faster cash flows become positive and thus, the

Demand	Units	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
D1	100	-549.097,20 €	-230.591,24 €	-230.663,45 €	-231.126,07 €	-231.486,02 €	-231.566,53 €
D2	1.000	-549.097,20 €	-235.416,49 €	-235.936,22 €	-239.322,19 €	-241.994,65 €	-242.573,77 €
D3	2.500	-549.097,20 €	-233.032,13 €	-231.288,29 €	-221.945,29 €	-214.500,30 €	-212.868,98 €
D4	5.000	-549.097,20 €	-216.300,58 €	-213.231,62 €	-193.081,89 €	-176.295,10 €	-172.753,52 €
D5	8.000	-549.097,20 €	-196.445,62 €	-191.413,28 €	-157.227,37 €	-130.157,79 €	-124.276,92 €
D6	15.000	-549.097,20 €	-148.996,57 €	-139.155,17 €	-73.408,75 €	-20.881,70 €	-9.439,66 €
D7	25.000	-549.097,20 €	-80.913,20 €	-64.199,81 €	46.701,28 €	135.776,56 €	155.162,64 €
D8	50.000	-549.097,20 €	90.772,03 €	124.758,13 €	349.777,49 €	530.182,16 €	569.476,48 €
D9	100.000	-549.097,20 €	436.422,45 €	505.260,77 €	902.887,00 €	1.260.275,66 €	1.337.808,85 €
D10	200.000	-549.097,20 €	1.069.154,25 €	1.206.579,21 €	2.096.661,39 €	2.816.383,77 €	2.932.934,42 €

Table 27 ,NCFs comparison for differential Demands in JD.com: highlighted the switch towards positive cash flows

be reached before.

When dealing with the GT version instead (Table 27), also D6 NCFs result to be still negative in terms of cash earned in the fifth year, supporting the idea that for the GT solution it is harder to overcome the costs to sustain in mainland China when the initial demand (and in this case, the logistics growth), is quite low. However, it should be underlined that D6 equals to 15.000 units in year 0. Therefore, it means selling from scratch 15.000 bottles of wine, for a total of approximately 130.000 in the five-years horizon. According to information gathered and basic assumptions made into the model, this seems a very hardly result to be obtained.

In these cases, as the above tables clearly show, when dealing with JD Worldwide (and the same happens with TMall Global) and 15.000 initial units considered, the cash flows becomes positive already in the year 1, while in the case of JD.com, and consequently also TMall Classic, to obtain positive cash flows it is necessary to reach a higher demand, otherwise with 15.000 units the NCFs and thus also the NPV will be negative for the whole horizon.

For what concerns the cost structure, a detailed analysis, in order to highlight all the most important insights and useful consideration to have before starting an investment in China is needed.

In the Figure 68 displayed below, it is possible to observe trends of all the cost voices from D1 to D10 on the two best platforms, that according to model results, are JD worldwide for the CBEC channel trade and TMall Classic for the GT one. Before starting the analysis, two points are needed to be refreshed:

1) The scenario considered within this section, still remains the scenario 6, logistics growth 2;
2) For each demand depicted into the graph, the relative cost structure represents the average of the 5 years in the scenario already cited, when the initial demand was the one shown on the x-axis.
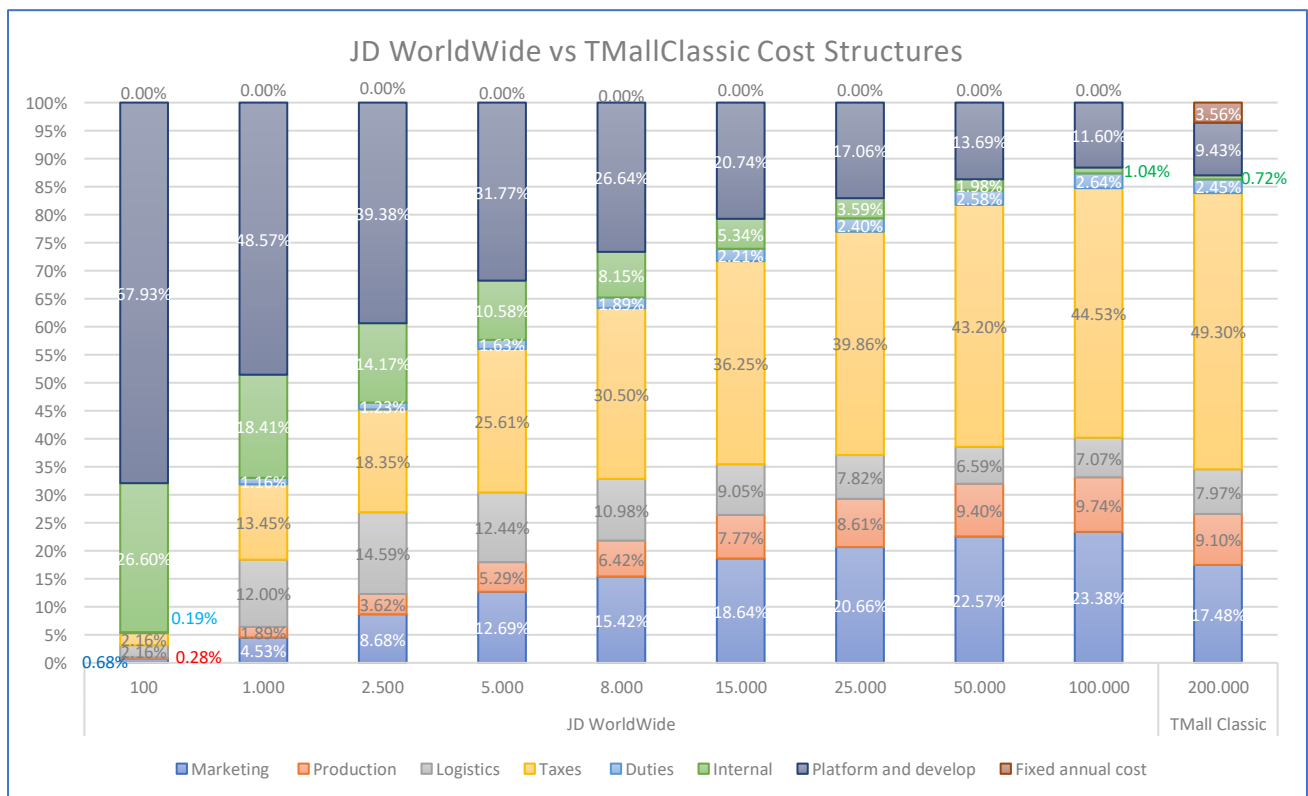
Figure 68, Cost structures of JD worldwide (from D1 to D9) and of TMall Classic (D10) in wine industry: best platforms compared

As Figure 68 shows, the platforms considered are the same of fashion industry, but this time the demands are allocated to them in a different way. The reason has been already defined: CBEC for wine products, but possibly extended also to the food industry, is more convenient also for the majority of higher demands. In other words, a CBEC approach is simply the best solution adoptable by an Italian company producing wine in order to be

positive in returns on investment in 5 years, according to the parameters set and described into chapter 4. Indeed, only from D10 GT is considered into this comparison, because for the previous demands there is no reason of adopting GT for this kind of food company.

Once this distinction is clear, it is important to analyse single voices and their relative trends in terms of percentage on the total costs in order to understand which are the most critical and which have a lower weight. When the demand is really the lowest possible, so 100 initial units, with the logistics growth 2 in the background, the 57,93% of the total costs sustained is represented only by platforms. This percentage completely changes when the demand increases. Readers can thus observe its decreases until reaching in D6-D7-D8-D9 respectively 20,74%, 17,06% 13,69% and finally 11,69% on the total. Moreover, when considering D10, the percentage decreases even more, until 9,43%. The reason behind this behaviour is that platform costs are heavy due to the fixed costs (annual fee and security deposits) that, if the quantity exported is not sufficient to obtain high revenues, are clearly impacting the total profits of the company. They could be considered as fixed costs that are not well exploited from the company who is not reaching economies of scale, and thus the costs are weighting more. When the initial demand increases, with the same logistics growth, the fixed costs are better exploited and the cost percentage shifts down.

At the same time, also internal costs are suffering for the same situation. Starting from 26,60% with D1, in D9 they represent only the 1,04% and, switching to TMall Classic for GT, even less, 0,72% on the total. Here, it should be recaptured the observation made in the chapter 4, paragraph 4.3.6: the internal costs have been defined by candidates' researches and own experience, and it has been set as a cost voice that each company can modify according to its structure, its experience and knowledge, its resources available and the effort requested to negotiate with third-parties in China.

Production and marketing costs weight grow up at a similar pace due to their dependence on the annual sales achieved by the company, respectively of 25% and 15%. Duties, similarly to fashion products, assume more important weight at the increase of the demand, until there is the switch from CBEC to GT approach.

Indeed, despite the high weight of taxes in all the cases considered, and that they show the highest percentage rate of increase compared to all the other cost voices, when TMall Classic becomes the preferred choice in D10, their values increase even more dramatically (from 44,53% in D9 to 49,30% in D10). The explanation for this last point has to be sought in the highest level of consumption taxes required by the Chinese government for the solution involving the establishment of a new legal entity. Finally, logistics cost, despite the increase of the first three cases, shows a decreasing trend for the relative weight coherent with the possible reduction of unit costs due to a better saturation in the international transportation. While the opposite trend of the first cases might be explained by the switch from express couriers and sea transportation that represent thus the least efficient point of the two solutions.

5.3 Fashion and Wine products comparison

At this point, as promised at the beginning of the results section, final considerations between the findings of the two product categories analysed will be presented. Since, along the specific analyses for fashion and wine products, there have been several references to the opposite category, candidates decided to focus the attention on probably the main result obtained concerning the type of good involved. Indeed, as readers might have realized, due to the different intrinsic characteristics of fashion and wine items, the main difference emerged has been the higher annual sales needed by the latter in order to achieve positive returns for the investment. Therefore, within this paragraph, figures representing Pay Back Times (PBT) according to the different entry demands and the three growth-rate scenarios will be reported and commented.

Scenario 1, PBT for Constant Demand

As it is immediately evident from the two charts displayed in Figure 69, the difference between the two categories of products is huge for this scenario. It can be observed how CBEC platforms (orange and blue lines) achieve PBTs of approximately 3,50-3,75 years with an initial demand of 5.000 units (D4), when dealing with fashion items. While for wine items, PBTs of 3 years are reached only when the entry demand is equal to 50.000 units (D8). Thus, with a total around 17.500 units the investment in fashion industry has its first economic return, while in the wine industry are needed at least 150.000 units to reach the break-even point.

For what concerns GT platforms (yellow and grey lines), the break-even point is reached within around 4 years starting from an initial sale of 8.000 units (D5) for fashion industry and during the third year, but starting from 100.000 units (D10), for wine sector. Again, comparing the total units, are necessary 250.000 units to found first returns on investment in the GT context for wine products, while only 32.000/35.000 for the fashion items. It is clear that, when forecasting a situation like the one depicted in Figure 69 a), companies belonging to the wine industry have to achieve very high level of sales in order to justify the entrance in the market, at least from an economic stand-point.
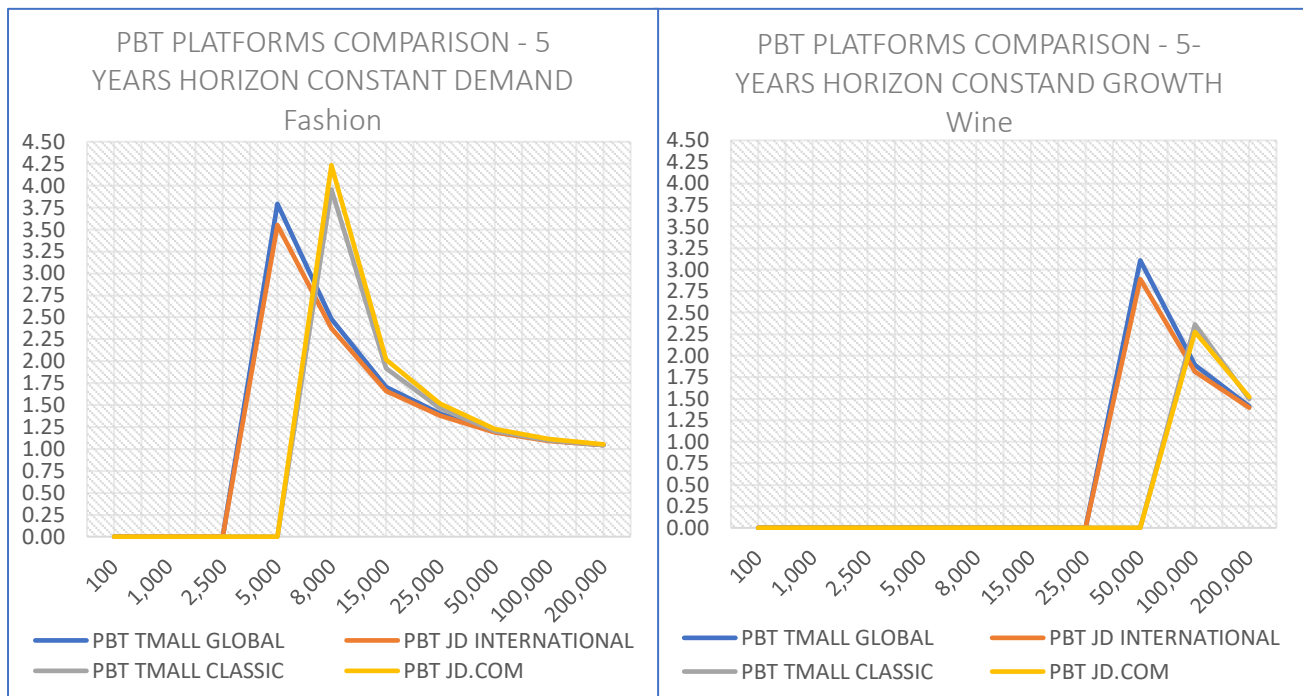
Figure 69, PBTs comparison between a) Fashion and b) Wine products in Constant Demand scenarios

Scenario 4, PBT for Exponential growth

Readers will probably notice at a first sight the different behavior of the curves displayed in Figure 70, compared to those belonging to the Figure 69.

The reason of this diversity is once again due to the almost utopistic growth rates which characterized this scenario. Indeed, for what concerns fashion products, both CBEC and GT platforms reach the break-even point with the same initial demand (D2), respectively in roughly 4 and 5 years.

Differently from the previous scenario, with this type of growth, entering the Chinese market becomes an attractive alternative also for companies selling wine products. Indeed, it can be noticed from the right part of Figure 70 how, whatever the approach used (either CBEC or GT), PBTs result to be about 5 years with 2.500 and 5.000 units as initial demands, respectively.
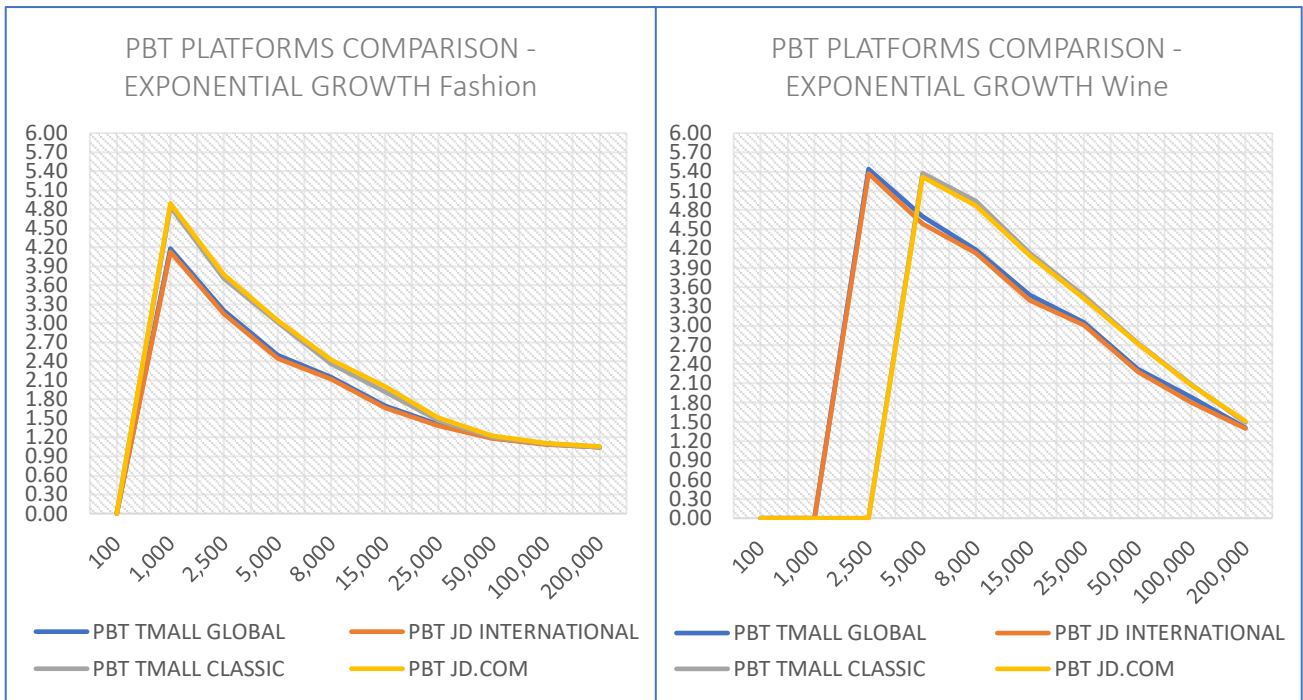
Figure 70, PBTs comparison between Fashion and Wine products, Exponential growth scenarios

The reason of course is to be researched in the high total demand reached in the horizon considered even when the initial demand is lower. For instance, taking CBEC as a reference, from the 2.500 units previously cited, in 4 years the company could reach more than 77.000 units sold, thus guaranteeing high revenues and an earlier return. GT, on the other side, from 5.000 units as initial demand could reach in 5 years, thanks to this great growth rate, around 154.000 units, more than the ones needed in the constant demand scenario to repay the investment.

Moreover, for both the two categories of products, for higher demands, the time to pay back the investment seems to decrease very fast.

Scenario 6, PBT for Logistics growth 2

Finally, as regard the scenario which has been recognized as the most close to the reality, it seems to offer a sort of compromise between the two previous cases.

Indeed, Figure 71 shows as fashion goods pay back in nearly five years, exploiting both CBEC and GT platforms, with an initial demand of 2.500 units (D3) and 5.000 (D4) respectively. Wine goods, on the contrary, show a behaviour more similar to constant growth scenario. Indeed, just over four years are needed to pay the investment back with entry demands of 25.000 (D7) through CBEC platforms and 50.000 (D8) for GT solutions. It is thus evident that even in this case the entrance in the market for wine companies results to be more complex than for fashion ones. In terms of total units sold in the PBT horizon, it is possible to spot from the two graphs how with fashion items, for a CBEC context, through 21.370 units, reaches the break even point easier than the GT one, that needs more than 42.700 units to obtain the same result.

Considering also, then, a possible probability of occurrence of the different scenarios, as already explained in chapter 4, this scenario could be one of the most feasible and therefore reliable, due to the typical and similar pace that investment show with respect to the curve trend analyzed here.
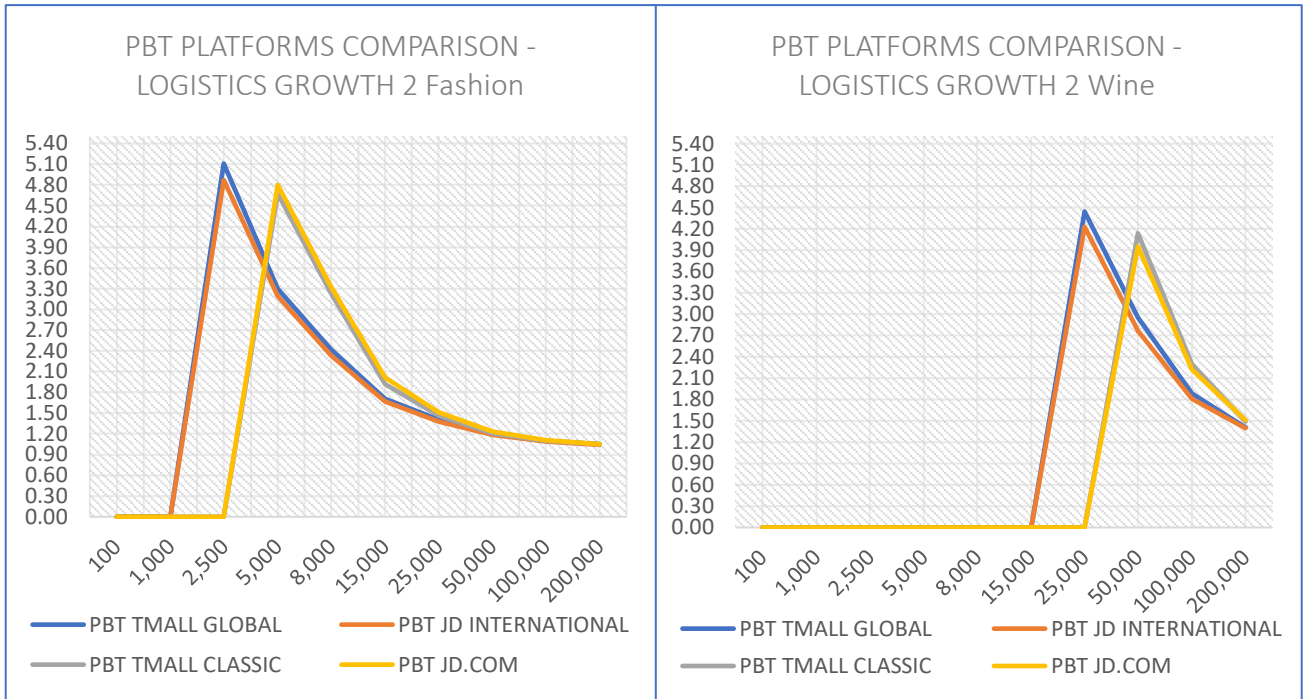
Figure 71, PBTs comparison between Fashion and Wine products, Logistics growth 2 scenarios

Just to conclude the present chapter, since readers may have noticed from the figures exhibiting PBT curves that CBEC solutions need always less time to reach the break-even point compared to solution characterized by the Chinese legal entity, an explanation is needed. Indeed, this situation occurs because the investment and costs required by GT approaches are always higher and thus, despite the higher NCFs at the increase of the demand level, the time required to pay back becomes at most the same of CBEC platforms, in the time horizon considered.

6. Conclusions

Results presented in the previous chapter have depicted a clear image of the Master Thesis' topics studied by candidates. The number of variables and parameters that an entrepreneur or a SME willing to open a new trade channel towards China, exploiting CBEC rules, is really infinite and only a detailed and specific case analysis can provide the answer to all the questions that could be raised.

However, the model developed, as it has been defined in its structure and described in the above-chapters and sections, can be seen as a useful tool to provide to the readers several insights about costs and revenues that an investment decision of this type will entail in the next future. The presented work tries to cover the lack of literature, papers and mathematical or technical models that has been identified into chapter 2 and aims to answer to all the research questions found and reported into chapter 3. According to the results obtained, observations and remarks, from a different and at the moment unexplored perspective, are provided. The above-cited structure of the model is useful to clearly depict each major topic that the opening of a new trade channel concerns. Moreover, it allows to change settings and parameters according to the needs of each specific company or also according to each change happening in all the sections described. Adopting a subdivision in different parts, supports the reader in understanding the whole Chinese context, and facilitates the complex issues faced by the decision-maker along with all the topics, sometimes too different, too wide and too hard to be faced or challenged together.

Candidates are well-aware that the model created tends to generalize in some points and, thus, spreads the distance between reality and outputs provided by running the model itself. They are also conscious of the several assumptions, hypotheses and limits that it could show when the reader studies this thesis and critically analyses it. However, the idea behind the development of this model has never been to solve any specific issue or to provide an algorithm able to check and/or consider thousands of scenarios at the same time, also because it is not the purpose of a Master thesis in Management Engineering with master specialization in Supply Chain Management. The object is to give to the readers a model which considers multiple elements and variables that affect the final decision on forwarding an investment or not, pushing towards a critical analysis and evaluation of all the possible advantages and disadvantages, opportunities and threats, strengths and weaknesses stemming from this kind of decision. To some extent, "We must not reinvent the wheel, because this would be neither efficient nor clever." Therefore, candidates tried to overcome and to cover, wherever it is possible, the lack of tools within the trade and logistics field in supporting decisions concerning different channels to export products, and that generate sometimes trade-offs, great costs, great challenges and also great risks, that could affect final results.

Main conclusions of the model presented will be reported below. However, some introductory considerations are needed. When dealing with a fashion industry, high margins normally ensure great profits, so that usually the focus of these companies is not a mass market, but a niche one, where there is the possibility to pursue a quality strategy, raising the image of the product and thus strengthening the brand. Many researches and studies have analysed these themes, but the focus of this thesis, obviously, is not this one, even if it could be affected also by these observations. On the contrary, the food industry, and more specifically the wine industry which in some way could be seen as a premium product category within the food sector and therefore more similar to fashion industry, it is really and consistently different. Food suffers more competition than the one into the fashion industry, because the competition itself is in different battlefields, larger and harder to be faced, where the comparison is mostly based on price-wars and where optimization is fundamental to survive, and not to emerge. The reason behind this quick summary about the two products categories is crucial to fully understand the model and the functionality behind it, as well as to understand why a category could find fertile ground in Cross Border E-Commerce and not in the General Trade, or vice versa. Moreover, starting from the product category, the logistics field is heavily impacted, along with taxes, duties, and e-commerce platforms chosen.

Indeed, the model designed considers as main and basic reference the idea of approaching the Chinese market from Italy only through e-commerce platforms, distinguishing then the Cross-Border E-Commerce trade, easier from many perspectives, from General Trade, adoptable when conditions of the market, volumes and surely also the product category allows this decision.

The model could be considered as a black box from the reader's perspective, which receives many data as input and as data context according to company's characteristics and preferences. Candidates were thus able to analyse, study and investigate how NPVs and PBTs change their behaviour according to different parameters and variables, providing to the reader 6 scenarios for 10 demands over a 5-years' horizon considering four different E-Commerce platforms. If, from a theoretical perspective, infinite cases could be analysed through the model, candidates focused the attention on the most immediate and spread ones. In order to get different insights and observation useful for the largest number of possible interested readers, the choice was to limit the number of cases through the two sectors selected (fashion and wine for food ones). Indeed, into the thesis results, 120 cases have been analysed in detail, allowing deep, numerous and clear case studies that might help the reader in completely understanding the thesis' direction and the idea behind the model.

When dealing with CBEC, JD Worldwide results to be a better platform to exploit than TMall Global, but the differences in terms of costs, earnings and timings are really minimal. Readers should be aware that into the model, for an easier and less differential comparison between platforms, the demand has been set equal. In reality, it is really hard to achieve the same demand with the same parameters on two different platforms and with different market shares and thus number of customers. However, in order to compare platforms, this solution was the only adoptable. Apart from this observation, JD worldwide is more convenient for a SME willing to enter into the market, even if the difference between the two CBECs' platforms is really light and candidates believe it is quite impossible to state "JD Worldwide is the best platform, choose it". Surely JD presents overall lower costs that lead down the total costs compared to TMall Global and thus higher NPVs and quicker PBTs are achieved. This result might be initially spotted also because the initial investment required to start the new trade channel on the two CBEC platforms is lower (-10.000€) in favour of JD Worldwide. In addition, even if there is an extra cost voice (the usage of the downstream JD's distribution network) that TMall does not have, this latter presents a differential cost with respect to JD which is the AliPay fee charged for the payment system, counter-balancing the cost voice. Moreover, in general terms, fees charged on products are slightly higher in TMall Global, and consequently, keeping the same parameters also for JD Worldwide, the main differences have to be searched into the platform section.

Concerning GT, the situation is deeply different. Initial investment required for opening the trade channel is higher, more than 100.000 € on top of the investment required for CBEC channel. In addition, due to higher annual costs compared to the cross-border version, a slower growth rate in terms of earnings and returns is faced. Thus, the PBTs for these scenarios will be evidently postponed and this could represent an issue for many SME. In the GT case the comparison between platforms returns opposite results. TMall Classic outperforms JD.com in terms of NPVs obtained and PBTs. Differences are more evident between these two platforms and thus candidates think that, if the company opens a legal entity in mainland China, TMall Global could be the most competitive platform on which invest.

At this point, the model allows other observations, both on logistics solutions and on product category, each one dependent upon the other.

For what concerns the first, model suggests the use of Sea transportation for the wine category and air transportation for the fashion goods, but only when a certain number of units is reached. This number of annual products is normally between D1 (100 units) and D4 (5.000 units) as maximum initial demand admitted. Indeed, for lower quantities yearly shipped, express courier results the best solution. However, once their number grows up, express courier becomes not only the not optimal solution, but the worst one. Hence, candidates believe that both the so low demand and the express solution are not to be pursued and thus the investment should not be supported. Indeed, in these cases, NPVs are heavily negative and PBTs null in the 5-years' horizon.

Once the annual units increase, different transportation means result as optimal solutions (for minimizing the logistics costs) and also configuration about the number of activated warehouses change. Normally, the suggestion is to adopt more than one warehouse if the demand is really high (D9-D10) and especially when considering sea transportation solutions exploiting all the 3 ports available (Shanghai, Shenzhen, Tianjin).

For what concerns product category instead, the model suggests, depending on the nature of the good itself, deeply changes in taxes, duties, platforms and also logistics. Fashion items are returning positive NPVs in a short period of time, even 3 years in best cases, while wine bottles require more time when dealing with medium demands and, sometimes, also not displayable in the time horizon considered.

The model, as any academic or experimental tool developed, suffers of the basic assumptions made in order to focus the attention in one direction reducing the initial infinite number of variables that, if considered all together, would prevent the development of the model itself.

First of all, it considers the e-commerce trade as the unique way of selling goods from Italy to China, but obviously, this is not true. Candidates received as input for the thesis the idea of comparing CBEC with GT approaches, and thus within the model are considered as the only options for selling goods through e-commerce Chinese platforms. However, any intermediate solution could be pursued without problems, such as the opening of a Chinese legal entity and then selling through only physical shops, or to adopt a hybrid model as discussed also in the literature review of the thesis, (Huang et al. 2017). Each solution could present advantages and disadvantages, but this Master Thesis aims to compare the e-commerce scenarios only because the e-commerce and especially the CBEC in China are reaching year-by -year stronger importance. Moreover, not only the trade itself is affected, but also other not linked fields, due to the central government awareness on the topic and thus, decisions moved in support of this movement. Moreover, Chinese people, as well as China as a country, are now reaching even higher levels of consumptions and interests on quality and well-known products and brands, and most of the times these characteristics are achievable only through the purchase of western items. E-commerce provides these products to China usually at lower costs, ensures high quality due to strong policies and claims for the greatest service level. All features requested by Chinese and that are not simple to provide, even if the company has a subsidiary and shops present and spread all over mainland China. Therefore, possible future studies can investigate also other solutions achievable to complete the picture of all the possible investment and channels that could be opened for exporting Italian products into mainland China.

Secondly, the platforms considered are only four, belonging to two parent groups. This choice could be seen as a restrictive one, but in reality, considering data gathered, candidates believe that adopting TMall and JD more or less the 70% of the total market share in China e-commerce market is covered. However, some emerging realities are strengthening their position and are thus contending the leading position of the two Chinese e-commerce giants, such as Koala, or better WeChat. These platforms have not been considered into the analysis because information were already difficult to be found for the two major platforms, and consequently almost impossible to be researched for these ones. Linguistic barriers on top, but also regulatory and the too wide context analysed into this Master thesis, have pushed candidates to reduce the spectrum of possible platforms to consider for the comparison. Otherwise, not only the analysis itself would have been harder and more complex, but it would have also requested sources probably not easily to be find, unless exploring physically China society and market. The research has been satisfactory in terms of data compared, but for sure, future thesis or case studies could include also other platforms into the comparison, so that an entrepreneur could choose between all the e-commerce platforms and thus really optimize its investment decision. It should be noticed that, anyway, some platforms are relegated in niche sectors because are specialized in selling well-defined or limited goods, thus for the aim of the thesis, (being detailed but at the same time keeping an eye on being general to provide more insights to a higher number of possible readers), not all the platforms were

suitable or interesting. This is why, into the chapter 4, only two kind of platforms have been defined and described among the six present into the Chinese context.

Thirdly, the demand considered into the model is, per definition, a hypothetical demand chosen by candidates for covering the widest spectrum of possible initial demands that the Italian company could face in the first year of Chinese operations. Then, the growth rate applied, depending on the scenario chosen, computes the following demands. But this choice leads to a subsequent limitation. Indeed, companies sell products according to the forecasted market share on hand and depending on the marketing expenses and investment performed. When considering e-commerce platforms, marketing is even more crucial because it represents a strategic lever to reach more customers and higher visibility, that through a cascade-effect, or virtuous-cycle, leads to a sort of word-of-mouth process (especially in the guanxi society such as the Chinese one). Nevertheless, in this Master Thesis, the demand is an input item, not linked to marketing investments and market share. Indeed, according to analyses and discussions also with the relator and the professor, it has been defined the lack of literature support and data to find out a clear relationship between these elements. On e-commerce platforms, the market share of the platform has surely an impact on the possible company's demand. And the initial investment is consequently probably scaled according to the platform's market share. But then, the related problem is that it is not evident, neither in the literature nor in sources found by candidates, that a smaller platform with a smaller investment would have a lower demand. This is quite simple to explain. On a lower market share's platform, the competition could be lower, with less competitors into the same company's sector, and thus the initial demand could be higher compared to higher investments on a bigger platform. For all these considerations and for the lack of clear support by previous models or works, the demand (and the relative marketing initial and annual investment) has been set as beforehand mentioned.

Finally, the last limit recognized by candidates, adding to these three also the observations made in chapter 4.5, refers to the generalization among the logistics field, with specific reference to the reverse logistics. As described into different chapters, logistics, even if not the most expensive voice when evaluating these kinds of investments, represents for sure one of the most complex and challenging contexts to be faced. In this thesis, logistics has been studied to find out Italian logistics costs, international shipping costs and finally downstream costs for the distribution of goods in mainland China, considering the adoption of bonded warehouse. What it has not been considered and that could represent a great cost when dealing with these kinds of investment is reverse logistics. Reverse logistics is the part of the logistics that, especially after the e-commerce explosion, should be worth of investigation. When a customer purchases a good on the e-commerce platform, has no possibility to try, physically see, touch or feel the good, and thus once the item arrives at destination, the possibility of refusal is surely higher than a purchase into a standard shop. In order to provide high service levels and thus conquer the loyalty of customers on the platform, a policy about returning the goods for free is always pursued by any e-commerce company. The problem related to this great offer is that, if for the direct delivery of the good toward the customer there is an optimization of the routes and, therefore, trucks are leaving the distribution centre or warehouse completely full, in reverse logistics the withdrawal is made with an empty truck that needs to arrive precisely in the point where the withdrawal will be performed. Consequently, this represents a pure cost and thus a loss for the delivering company. Moreover, in China, this issue can be managed only through a third-party intermediary, thus increasing the overall costs. This Master thesis does not consider this topic for mainly two reasons: firstly, in the literature review and in all the researches performed during the thesis' work, it was really hard to find reliable data about reverse logistics. Only few papers were found on the theme and, having no direct references most of the times with the Chinese context, have not been considered into the list of papers adopted. Consequently, the decision was not to rely on these uncertain data avoiding the possibility of adopting not verified information affecting the final output of the model. Secondly, even if returns could be an important part of the logistics field, it will not change balances significantly. Moreover, the probability of occurrence of the return is surely limited and thus candidates avoided this discussion. But despite

these assumptions, candidates acknowledge the critical importance of further investigate this logistics field and for future researches, these could be an addition for the current thesis.

Through a validation interview held by candidates at the end of their work, a country director of an important E-commerce platform has been challenged and confirmed the present Master Thesis. Moreover, he has remarked it as crucial topic in this business field, which raises up some possible future researches.

Therefore, as realized by candidates during their several attempts, predicting a possible future demand achievable in the Chinese online market and all the issues bound, without specific information on the involved company, is of little value. However, reducing the uncertainty which characterizes all the variables, parameters, challenges and actions related to the investment decision, represents something valuable and useful. This Master Thesis has thus pursued this object, with the aim of being included in the set of researches focused on similar topics that, even if with a general scope and some structural limitations, provide a supporting tool and clarify different points of complexity never investigated before.

The final aim of this work is to encourage and strengthen discussions about the CBEC or GT topics, pointing out some further critical questions for these kinds of analyses: due to the great financial exposure requested in the first year, does a SME really have interests and advantages in opening a new trade channel as the one described? Should not be better to foster the cooperation with other SMEs facing the issue all together? What if the channel is not opened and the focus is moved on other potential interesting opportunities maybe less risky? Surely the present Master Thesis has proved to the reader the possible great returns coming from this investment, but the effort requested has to be constant and strong, believing in assumptions and hypotheses made. On the contrary the results could not be achieved.

7. Bibliography and References

Papers and Thesis:

- "A Robust Optimization Model for a Cross-Border Logistics Problem with Fleet Composition in an Uncertain Environment",2002, S. C. H. LEUNG, YUE Wu AND K. K. LAI, Matematical and computer modelling;
- "Analysis of an international air-cargo hub: the case of Hong Kong", 2002, Anming Zhang, Air Transport Management;
- "Distribution and Logistics development in China: the revolution has begun", 2002, Bin Jiang and Edmund Prater, International Journal of Physical Distribution & Logistics Management;
- "E-logistics in China: basic problems, manageable concerns and intractable solutions", 2002, Shawn P. Dalya, Lindsay X. Cui, Industrial Marketing Management - North Holland;
- "Logistics development in China", 2003, Mark Goh and Charlene Ling, International Journal of Physical Distribution & Logistics Management;
- "The successful management of a small logistics company", 2003, A. Gunasekaran, E.W.T. Ngai, International Journal of Physical Distribution & Logistics Management;
- "Chinese culture and e-commerce: an exploratory study", 2004, Alev M. Efendioglu and Vincent F. Yip, Interacting with computers;
- "Logistics management in China: A case study of Haier", 2004, Jason C.H. Chen, Binshan Lin, Lingli Li and Patty S. Chen, Google Scholar;
- "Multi-agent framework for third party logistics in E-commerce", 2005, Wang Ying and Sang Dayong, Expert Systems with Applications;
- "A new location-inventory policy with reverse logistics applied to B2C e-markets of China", 2006, Ziping Wang,Dong-Qing Yao, Peiqing Huang, International Journal of Production Economics;
- "A study of B2B e-market in China: E-commerce process perspective", 2008, Jing Zhao, Shan Wang, Wilfred V. Huang, Information & Management;
- "Psychic distance and cross-border cooperation of SMEs: An empirical study on Saxon and Czech entrepreneurs' interest in cooperation", 2008, Zanger, Cornelia, Hodicová, Radka, Gaus, Hansjoerg, Journal for East European Management Studies;
- "A Survey of China's Logistics Industry and the Impacts of Transport Delays on Importers and Exporters", 2009, Zeyan Zhang & Miguel Andres Figliozzi, Transport Reviews;
- "Barriers to e-commerce policy in logistics: an exploratory study of the Pearl River Delta, China", 2009, J. M.J. Ng, International Journal of Logistics Research and Applications;
- "Third-party logistics provider customer orientation and customer firm logistics improvement in China", 2009, Yu Tian, Alexander E. Ellinger, Haozhe Chen, International Journal of Physical Distribution & Logistics Management;
- "Connecting small and medium enterprises to the global market via the global logistics service chain —Sector analyses and case studies", 2010, Jiang-Liang Hou & Charles V. Trappey, Journal of the Chinese Institute of Industrial Engineers;
- "Usability evaluation of e-commerce on B2C websites in China", 2011, Fangyu Li, Yefei Li, Procedia Engineering 15 (2011) 5299 – 5304;
- "China-based logistics research: a review of the literature and implications", 2012, Xiaohong Liu, International Journal of Physical Distribution & Logistics Management;
- "An overview of 20 years of Chinese logistics research using a content-based analysis", 2013, Abduwali Mahpula, DeGang Yang, Alishir Kurban, Frank Witlox, Journal of Tranport Geography;
- "Research on e-commerce logistics system informationization in Chain", 2013, Chen Xianglian and Lin Hua, Procedia - Social and Behavioral Sciences 96 (2013) 838 – 843;
- "Impact of information technology on the performance of logistics industry: the case of Hong Kong and Pearl Delta region", 2014, King Lun Choy, Angappa Gunasekaran, Hoi Yan Lam1, Ka Ho Chow, Yick Chi Tsim, Tsz Wing Ng, Ying Kei Tse and Xiao Ang Lu, Journal of the Operational Research Society;
- "Logistics and economic development: Experience from China", 2014, Hooi Hooi Lean, Wei Huang, Junjie Hong, Transport Policy;
- "Port infrastructure investment and regional economic growth in China: Panel evidence in port regions and provinces", 2014, Lili Song, Marina van Geenhuizen, Transport Policy;
- "The Factors Affecting Cross-border E-commerce Development of SMEs ---An Empirical Study", 2014, Jianzheng Yang, Nachuan Yang, Lifan Yang, Wuhan International Conference on e-Business;
- "Current Status and Trend Analysis of China's Import Cross-border E-commerce Development", 2015, Zhenhua Yang and Qiang Shen, International Conference on Education Technology, Management and Humanities Science;
- "Problems in Cross Border E-Commerce Export Trade in China & Countermeasure Analysis", 2015, Yang Zhenhua, Shen Qiang, International Conference on Informatization in Education, International Conference on Informatization in Education, Management and Business (IEMB 2015);
- "Research on the Impact of E-commerce to Logistics Economy: An Empirical Analysis based on Zhengzhou Airport Logistics", 2015, Lei Wang, International Journal of Security and Its Applications Vol.9, No.10 (2015), pp.275-286;
- "Distributive strategies to support online cross border sales to China in food and apparel industries: an activity based model to compare different solutions", 2015, Francesco Angelo Libera, Francesca Pagnanelli, (Riccardo Mangiaracina, Maria Giuffrida), Politecnico di Milano;
- "China's e-tail revolution - Cross-border e-commerce", 2016, Fang Megnan, Università di Padova;
- "Export to China through cross-border Ecommerce: opportunities, challenges, and operational guidelines", 2016, Chen Shan, Politecnico di Milano;

- "E-commerce Logistics in Supply Chain Management: Practice Perspective", 2016, Ying Yu, Xin Wang, Ray Y. Zhong, George Q. Huang, Procedia CIRP 52 (2016) 179 – 185;
- "Logistics Agglomeration and Its Impacts in China", 2016, CUI Yuanyuana, SONG Bingliang, World Conference on Transport Research;
- "Early-mover advantages at cross-border business-to-business e-commerce portals", 2016, Ziliang Deng and Zeyu Wang, Journal of Business Research;
- "Payment Systems in Chinese And Cross-Border E-Commerce", 2016, Jiayin Zheng, management engineering;
- "Research on Network Equilibrium Model of Online Shopping Supply Chain System in Promotion Based on Customer Behavior", 2016, Ye Zhou, Jue Zeng, Mengxiao Zhang and Hui He, Procedia Engineering;
- "Export e digitale: un binomio niente male!", 2016, Giuliano Noci, Alessandro Perego, Lucia Piscitello, Lucia Tajoli, Politecnico di Milano;
- "Study on Logistics Pattern of Cross-border E-commerce", 2016, Yinghan Liu, Advances in Computer Science Research, volume 59;
- "The influence of guanxi on physical distribution service quality availability in e-commerce sourcing fashion garments from China", 2016, Neil Towers and Kiki Xu, Journal of Retailing and Consumer Services 28 (2016) 126–136;
- "The Role of Business and Friendships on WeChat Business: An Emerging Business Model in China", 2016, Shuai Yang, Sixing Chen & Bin Li, Journal of Global Marketing;
- "Brand Protection in China in the Era of E-Commerce, 2017, Elisa Imperatrice, CA'FOSCARI-University of Venice;
- "An Investigation into critical challenges for multinational third-party logistics providers operating in China", 2017, Shams Rahman, Kamrul Ahsan, Laura Yang, John Odgers, Journal of Business Research;
- "Cross-border B2C e-commerce to Greater China and the role of logistics: a literature review", 2017, Maria Giuffrida, Riccardo Mangiaracina, Alessandro Perego, Angela Tumino, International Journal of Physical Distribution & Logistics Management;
- "Research on Logistics Mode of Cross Border E-commerce in China", 2017, Guie Sun, Fengjuan Qiao and Yongrong Li, Boletín Técnico, Vol.55, Issue 10, 2017, pp.490-497;
- "Export digitale: una sfida, tante opportunità", 2017, Giuliano Noci, Alessandro Perego, Lucia Piscitello, Lucia Tajoli, Politecnico di Milano;
- "Retailer's channel structure choice: Online channel, offline channel, or dual channels?", 2017, Peng Zhang, Yong He and Chunming (Victor) Shi, International Journal of Production Economics 191 (2017) 37–50;
- "Boundary permeability and online–offline hybrid organization: A case study of Suning, China", 2017, Jin-Song Huang, Shan L. Pan and Jie Liu, Information & Management 54 (2017) 304–316;
- "A conceptualization of e-risk perceptions and implications for small firm active online internationalization", 2011, Noemi Pezderka, Rudolf R. Sinkovics, International Business Review;
- "A model of e-commerce use by internationalizing SMEs", 2001, James H. Tiessen, Richard W. Wright and Ian Turner, Journal of International Management 7 (2001) 211–233;
- "Adaption of Logistical Distribution Networks with Complexity and Efficiency Considerations for Cross-Border E-Commerce in China", 2017, Mei LIU and Wei YAN, Transdisciplinary Engineering: A Paradigm Shift C. Chen et al. (Eds.) - China Institute of FTZ Supply Chain, Shanghai Maritime University, China;
- "Analysis on the Development and Bottlenecks of China's Cross - Border E – Commerce", 2017, Hongfei Yue, Jiani Wu and Lin Yao, Studies in Asian Social Science Vol. 4, No. 2; Institute of Economics and Resource Management, Beijing Normal University, Beijing, China;
- "Analysis on the Opportunities Brought by E-commerce for International Tax Planning", 2010, Rong Liu, Public Finance Department of Economics School;
- "Barriers to Global Electronic Commerce: A Cross-Country Study of Hong Kong and Finland", 2014, Ali F. Farhoomand, Virpi Kristiina Tuunainen and Lester W. Yee, Journal of Organizational Computing and Electronic Commerce;
- "Comparative Research on Chinese Logistics Models of Cross-Border E-Commerce", 2015, Yufen Wang and Min Zhao, International Conference on Engineering Management, Engineering Education and Information Technology (EMEEIT 2015);
- "Comprehensive Service System of Cross Border E-commerce Logistics Enterprises and Its Empirical Research", 2017, Fengjuan Qiao, Guie Sun and Yongrong Li, Boletín Técnico, Vol.55, Issue 10, 2017, pp.514-521;
- "Conception of Integrator In Cross Border E-Commerce", 2016, Arkadiusz Kawa, Wojciech Zdrenka, Scientific Journal of Logistics;
- "Cross-Border Electronic Commerce: Distance Effects and Express Delivery in European Union Markets", 2017, Thai Young Kim, Rommert Dekker & Christiaan Heij, International Journal of Electronic Commerce, 21:2, 184-218;
- "Cultural Adaptation in Cross Border E-Commerce: A Study of German Companies", 2007, Rudolf R. Sinkovics, Mo Yamin and Matthias Hossinger, Journal of Electronic Commerce Research, VOL 8, NO 4;
- "Current Situation, Obstacles and Solutions to China's Cross-Border E-Commerce", 2017, Yuye Fang, Open Journal of Social Sciences, 2017, 5, 343-351;
- "Design of Electronic Commerce Infrastructure for Cross-Border Postal Operations", 2014, Yusong Pang and Gabriel Lodewijks, Section Transport Engineering and Logistics Del University of Technology";
- "Digital transformation by SME entrepreneurs: A capability perspective", 2017, Liang Li, Fang Su, Wei Zhang and Ji-Ye Mao, Info Systems J. 2017;1–29;
- "Effect of Cross-Border E-Business Policy on the Export Trade of an Emerging Market: A Dynamic Study of Institutional Support to Cross-Border E- Business at Chinese Pilot Cities", 2017, Da Huo, Rihui Ouyang, Ken Hung & Baowen Sun, Emerging Markets Finance and Trade;
- "Empirical Analysis of E-business Credit Assessment from the Perspective of Cross-border Negotiation", 2017, Jing Xu, Shujun Yang, and Xiaolei Liu, Revista de la Facultad de Ingeniería U.C.V., Vol. 32, N°4, pp. 772-779;

- "Internationalization Process of E-Commere Enterprises - Prerequisites, Barriers and Basic Modes", 2013, Magdalena Grochal-Brejdak, Maja Szymura-Tyc, Journal of Economics and management;
- "Kansei Engineering with Online Content Mining for Cross-Border Logistics Service Design", 2016, Yu-Hsiang Hsiao and Mu-Chen Chen, 2016 5th IIAI International Congress on advanced applied informatics;
- "Key Technologies for Knowledge-Based Cross-Border E-Commerce Risk Assessment - Accurate Commodity Classification and Efficient Knowledge Acquisition", 2017, Bo SONG, Junliang HE, Wei YAN, Qi HU and Tianjiao ZHANG, ansdisciplinary Engineering: A Paradigm Shift C. Chen et al. (Eds.);
- "Logistics Solutions to Support Cross Border E-Commerce Towards China: The Case of the Apparel Industry", 2017, Maria Giuffrida, Riccardo Mangiaracina, Alessandro Perego and Angela Tumino, Business Models and ICT Technologies for the Fashion Supply Chain;
- "Mechanism of government policies in cross-border e-commerce on firm performance and implications on m-commerce", 2017, Nan Chen and Jianzheng Yang, Int. J. Mobile Communications, Vol. 15, No. 1;
- "Research on Credit Evaluation of Cross-border e-commerce negotiation based on fuzzy comprehensive evaluation", 2016, Shuling Yang, Yan Hou, Dawei Liu, Iberian Journal of Information Systems and Technologies;
- "Research on Cross Border E-commerce Logistics service based on improved AHP algorithm", 2016, Ying Liu, Iberian Journal of Information Systems and Technologies;
- "Research on Cross-Border E-Commerce Platform selection in china SME", 2015, Kejing Zhang, Liling Huang, International Conference on Service Operations And Logistics, And Informatics;
- "Understanding the diversity of final delivery solutions for online retailing: A case of Shenzhen, China, 2016, Zuopeng Xiao, James J Wang, James Lenzer and Yonghai Sun, World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016;
- "Research on Logistics Mode Selection Under the Background of Cross-Border E-Commerce based on Grey Analytic Hierarchy Process", 2017, Lili Su, Na Xu, Boletín Técnico, Vol.55, Issue 10, pp.490-497;
- "Research on the Competitive Strategy of Cross-Border E-Commerce Comprehensive Pilot Area Based on the Spatial Competition", 2016, Bo Lu, Huipo Wang, "Hindawi Publishing Corporation Scientific Programming";
- "Research on the construction strategy of cross-border e-commerce comprehensive pilot area based on salop model", 2017, Huipo Wang, Mengran Xiao,Yunfu Huo, "International Journal of Innovative Computing, Information and Control Volume 13, Number 5, October 2017";
- "Revelation of cross-border logistics performance for the manufacturing industry development", 2016, Weina Ai, Jianzheng Yang, Lin Wang, Int. J. Mobile Communications, Vol. 14, No. 6;
- "Searching for Logistics and Regulatory Determinants Affecting Overseas Direct Purchase, an empirical cross-national study", 2017, Hyuksoo CHO, Jungsun LEE, The Asian Journal of Shipping and Logistics;
- "Study of the Impact of the Cross-border E-commerce Model Based on the Belt and Road on China's International Trade System", 2017, Nian Yang, Jingkun Fu, Yan Wang, Revista de la Facultad de Ingeniería U.C.V., Vol. 32, N°8, pp. 490-496;
- "Study on Cross-Border E-Commerce Logistics Optimization Platform based on Big Data", 2017, Huiwen Zhang, Revista de la Facultad de Ingeniería, U.C.V., Vol. 32, N°4, pp. 329-335;
- "Supply chain downstream strategic cost evaluation using L-COPRAS method in cross-border e-commerce", 2016, Lipeng Feng, Jun Ma,YongWang, Jie Yang, International Journal of Computational Intelligence Systems, Vol. 10, 815–823;
- "Supply Chains of Cross-Border E-Commerce", 2017, Arkadiusz Kawa, Springer International Publishing AG;
- "Supporting retailers to exploit online settings for internationalization The different role of trust and compensation", 2010, Katia Premazzi, Sandro Castaldo, Monica Grosso, Charles Hofacker, Journal of Retailing and Consumer Services;
- "Tax competition, tax coordination,and e-commerce", 2017, Maya Bacache Beauvallet, Journal of Public Economic Theory. 2017;1–18;
- "Taxes in an e-commerce generation", 2016, David R. Agrawal · William F. Fox, Springer Science+Business Media New York 2016;
- "The Effect of Cross-Border E-Commerce on China's International Trade: An Empirical Study Based on Transaction Cost Analysis", 2017, Yu Wang (Avery. W), Yi Wang and Soo Hee Lee, MDPI Journal – Sustainability;
- "The Factors Affecting Cross-border E-commerce Development of SMEs - An Empirical Study", 2014, Jianzheng Yang, Nachuan Yang, Lifan Yang, Wuhan International Conference on e-Business;
- "The forecast of development prospects of China's cross-border E-commerce based on grey system theory", 2017, Yige Su, Yijing Wang, Chuanmin Mi IEEE;
- "The Potential of E-commerce for SMEs in a Globalizing Business Environment", 2014, Mesut Savrul, Ahmet Incekara, Sefer Sener, 10th International Strategic Management Conference;
- "The Select of Cross Border Electronic Commerce Information System modes", 2016, Xiaotong Li, Xiyan Lv, IEEE;
- "Using Complex Fuzzy Sets for Strategic Cost evaluation in supply chain downstream", 2017, Jun Ma, Lipeng Feng, Jie Yang, IEEE;

Books:

- "L'impresa – sistemi di governo, valutazione e controllo", 2011, Giovanni Azzone, Umberto Bertelè, Rizzoli Etas;
- "La gestione del sistema di produzione – pianificazione, programmazione, controllo, misura e miglioramento", 2013, Andrea Sianesi, Rizzoli Etas;
- "La gestione dell'impresa – organizzazione, processi decisionali, marketing, acquisti e supply chain", 2012, Gianluca Spina, Rizzoli Etas;

Notes:
>
> From Politecnico di Milano courses and lectures;
> A. Perego slides – Logistics course;
> M. Melacini slides – International distribution course;
> M. Arena – Accounting finance and control course;

Websites:

Platforms Researches:

- https://seekingalpha.com/article/4132604-jd-com-vs-alibaba-comparative-study
- https://www.cleverism.com/alibaba-strategies-selling-ecommerce-giant/
- https://www.bigcommerce.com/blog/alibaba-faqs-security-shipping-taxes/
- https://www.wikihow.com/Sell-Your-Products-on-Alibaba
- http://comprareincina.altervista.org/dogana-dazio-iva-spese-di-importazione/
- Documenti per informazioni e fonti di ricerca (guardare didascalie!)
- http://multichannelmerchant.com/must-reads/difference-chinas-biggest-b2c-platforms/
- https://www.fungglobalretailtech.com/wp-content/uploads/2017/09/JD.com%E2%80%94A-Differentiated-E-Commerce-Platform-September-15_2017.pdf
- https://www.pwccn.com/en/retail-and-consumer/publications/total-retail-2017-china/total-retail-survey-2017-china-cut.pdf
- https://www.mckinsey.com/~/media/McKinsey/Industries/High%20Tech/Our%20Insights/Crossborder%20ecommerce%20is%20luring%20Chinese%20shoppers/Cross-border%20e-commerce%20is%20luring%20Chinese%20shoppers.ashx
- https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/cip/deloitte-cn-cip-china-online-retail-market-report-en-170123.pdf
- file:///C:/Users/GIULIO/Downloads/IPC%20Cross-Border%20E-Commerce%20Report.pdf
- http://about.tmall.com/tmallglobal/fee_schedule?spm=3.7128685.0.0.1eef7132Qg7lwb#place
- http://img.alicdn.com/tps/i4/T1omlEFwtPXXaR1ePy-953-8196.jpg
- https://walkthechat.com/wechat-store-5-ways-to-open-one-for-free/

Opening Legal Entity in China:

- https://www.quora.com/How-much-does-it-cost-to-set-up-a-company-in-China
- https://www.chinalawblog.com/2013/04/how-to-start-a-business-in-china-the-minimum-capital-requirements-for-a-wfoe-part-ii-the-goldilocks-rule.html
- https://www.hongdaservice.com/blog/how-much-does-it-cost-to-open-a-wfoe-in-china
- https://www.healyconsultants.com/china-company-registration/setup-llc/

Italian and Chinese Taxes:

- http://www.china-briefing.com/news/2016/12/06/import-export-taxes-and-duties-in-china.html
- https://www.corriereasia.com/notizie/fisco-cinese-dazi-tariffe-doganali-cina
- http://www.infomercatiesteri.it/aspetti_normativi.php?id_paesi=122
- http://www.worldwide-tax.com/china/chi_other.asp
- http://www.digitaljunglegroup.com/a-simple-guide-to-the-chinese-leading-e-commerce-platforms-for-foreign-brands/
- http://www.china-briefing.com/news/2015/09/15/tmall-yihaodian-and-jd-a-comparison-of-chinas-top-e-commerce-platforms-for-foreign-enterprises.html
- https://www.admassociati.it/fattura-esportazione-in-cina/
- http://www.ilsole24ore.com/art/norme-e-tributi/2011-12-28/ecco-come-funziona-imposta-103916.shtml?uuid=AaSIEYYE&refresh_ce=1
- http://www.fiscooggi.it/files/immagini_articoli/fnmold/cina-it.pdf
- https://consshanghai.esteri.it/resource/2014/11/30160_f_cons97GuidaFiscaleDiacronCina.pdf
- http://www.assolombarda.it/servizi/internazionalizzazione/documenti/presentazione-a-brignoli
- https://www.albanesi.it/finanza/deducibilita_detraibilita.htm
- https://www.export.gov/article?id=China-Import-Tariffs
- http://www.emia.org/news/story/4275
- http://www.china-briefing.com/news/cross-border-e-commerce-china-regulatory-updates-trends/
- http://taxsummaries.pwc.com/ID/Peoples-Republic-of-China-Corporate-Other-taxes
- https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-chinaguide-2017.pdf?nc=1
- http://www.fiscooggi.it/files/immagini_articoli/fnmold/cina-it.pdf
- http://www.ipsoa.it/documents/fisco/fiscalita-internazionale/quotidiano/2018/01/22/imposta-cinese-sui-profitti-taglio-netto-solo-per-le-aziende-che-reinvestono-in-cina
- http://help.jd.com/epthelp/question-637.html
- http://www.pn.camcom.it/uploads/media/Il_sistema_fiscale_cinese__giugno_2004_02.pdf
- https://www.tuttocina.it/Mondo_cinese/116/116_cost.htm
- http://www.fiscooggi.it/dal-mondo/schede-paese/articolo/scheda-paese-la-cina;
- https://www.studiocataldi.it/guide_legali/fisco/imposta-sul-reddito-delle-societa-ires.asp;
- https://europa.eu/youreurope/citizens/work/taxes/income-taxes-abroad/italy/indexamp_it.htm;

Logistics, Warehouses; Free Trade Zones and Pilot Cities, Products, Boxes and Pallets;

- https://www.healyconsultants.com/china-company-registration/free-zones/

- http://www.1421.consulting/2016/08/free-trade-zones-china/
- https://www.reuters.com/article/china-trade-ftz/update-1-china-approves-7-new-free-trade-zones-in-bid-to-open-economy-idUSL3N1H83RM
- http://china-trade-research.hktdc.com/business-news/article/Facts-and-Figures/China-Pilot-Free-Trade-Zones/ff/en/1/1X000000/1X0A2V2D.htm
- http://hkmb.hktdc.com/en/1X0AA5XO/hktdc-research/China-Opens-Seven-New-Free-Trade-Zones
- https://www.globalfromasia.com/chinesefreetradezones/
- https://www.smurfitkappa.com/vHome/it/Products/Pagine/Wardrobe_Boxes.aspx
- http://www.quantopesa.it
- https://www.linescape.com
- http://www.milanomalpensacargo.eu/it/
- http://www.adr.it/fiumicino
- https://www.chinacheckup.com/blogs/articles/china-train-stations
- https://en.wikipedia.org/wiki/Rail_transport_in_China
- http://www.corriere.it/economia/17_giugno_05/via-treni-merci-diretti-italia-cina-viaggio-shangai-19-giorni-mortara-563d97ba-49e7-11e7-80a9-c638c3a4067c.shtml?refresh_ce-cp
- https://www.rbth.com/business/2015/06/16/china_launches_the_worlds_longest_freight_train_route_46921.html
- https://www.forbes.com/sites/wadeshepard/2016/01/28/why-china-europe-silk-road-rail-transport-is-growing-fast/#2fcd034659ae
- https://en.wikipedia.org/wiki/Chongqing-Xinjiang-Europe_Railway
- http://www.simardairsealogistics.com/Simard_Air_Sea_Logistics_Presentation.pdf
- https://www.kpmg.de/docs/20110826_Managing-Trade-Customs-China-201107.pdf
- https://www.freightos.com/portfolio-items/air-freight-rates-cost-prices/
- http://worldfreightrates.com/freight
- www.searates.com

Documents received:
- Business Plan China.pdf, Alibaba Group
- Slides Convegno 22 Marzo, Osservatorio Politecnico di Milano
- IPC Cross-Border E-Commerce Report

Physical Interviews:
- export operator of a famous Italian fashion brand;
- export operator of a famous company providing supply chain solutions globally;
- last mile logistics operator of a company providing logistics solution worldwide;
- Area director of an Italian freight forwarding company operating worldwide.

Phone Interviews:
- Italian junior consultant working for consultancy company supporting Italian company towards Chinese market;
- Custom operator working in Italian customs.

Images and Charts:
- www.google.it
- www.statista.it

8. Appendix

8.1 Interviews Conducted
(Source: Candidates own sources)

Here are reported the notes wrote during the interviews in order to prove and state which are the main information gathered. No structured questionnaires have been developed because the idea of this meetings was to obtain any kind of data or observation useful to build the model. As described in the methodology part of the model, no interviewee was able to provide us the complete picture of the CBEC or GT picture, thus any interview has been conducted in the most useful way according to that moment.

1st interview: introduction to the topic
Interviewee: export operator of a famous Italian fashion brand.

- *Which are the main difficulties while exporting in China?*

China is surely a country in which is particularly difficult to enter.
First of all, for what concern customs, we should distinguish between two cases: if the value of the shipment is lower than 800€ (prototypes) or higher.
In the case the value is lower, it is usually the situation in which a courier is involved, the time required for the door-to-door service is approximately 3 days because custom clearance operations are performed on the flight.

- *What happens to shipments with a higher value?*

If the value is higher than 800€, the whole procedure lasts around 7-10 days, because custom clearance operations, in this case, have to be performed in the standard way.
There exists a tool named "Carnet ATA", which has a cost of about 600€, and it is issued by the Chamber of Commerce for products with a value higher than 2000€.

- *Could you describe briefly the documentation required to export in China?*

I don't really have a complete overview on this phase.
The documents required to exports products in China are several and thus companies should consider the fixed cost to sustain for a custom operator.
In the case of my company, we have a legal entity in China, also with a logistics office and others.

- *Which is the preferred mean of transportation?*

Usually most of the demand is satisfied using sea transportation as main mean, while for fashion shows or similar events airplanes are the preferred mean of transportation.
Honk Kong represents an "escamotage" to export toward China because of the possibility to exploit then internal transfers.

2nd interview: general information
Interviewee: export operator of a famous company providing supply chain solutions globally

- *Which is in your opinion the main difficulty while exporting products in China?*

In my personal opinion, beside the huge amount of issues that have to be faced while approaching this topic, one important aspect to consider, for what concerns logistics, is the change in prices during the year.

In fact, we have to consider that during the peak period, usually from November till January because of Christmas, and in the period coincident with the Chinese New Year's Eve, prices are usually 30% higher. Therefore, company should be considered this thing in the planning of their activities.

- *How operations in China are managed?*

Actually, I do not have a full vision on this aspect, I'm in charge mostly of the air transportation. For sure I can guarantee to you that it is essential to have someone in China that manage all the issues regarding customs, logistics, and all the possible problems that might arise.

3rd interview: logistics information
Interviewee: last mile logistics operator of a company providing logistics solution worldwide

- *Could you summarize the flow of a shipment from Italy to China highlighting the main issues?*

Firsts issues are faced during custom operations in Italy. They are performed either at the airport/port of origin or in custom area. The output of this process is the emission of a custom bill.
For a door-to-door service the timing required is approximately 1 week for airplanes and 30/35 days for sea shipments. Once arrived in China, further custom clearance operations are required. There is thus the involvement of a custom broker. Custom broker might be an employee of our company or of the buying company, it depends upon the incoterms used. Once the product reaches the Chinese warehouse, the responsibility of the shipment is no more under my control.

4th interview: logistics information
Interviewee: Area director of an Italian freight forwarding company operating worldwide

- *Which is approximately the cost of the international shipment for a box 60x60x56 and a weight of 30 Kg?*

You can consider an average cost of 200 € per box for sea shipment and 250 € per box for air shipment.
In the case of higher quantities there could be lower prices for each unit shipped (unitary cost becomes lower).
The expenses described do include transportation form door in Italy till airport/port of destination. (incoterms used: CFR).
Custom costs are excluded (custom clearance and rights) as well as delivery costs from airport/port to final warehouse.

8.2 Incoterms List
(Source: M. Melacini – International Trade slides)

- EX-WORKS (EXW –name place): The seller delivers when it places the goods at the disposal of the buyer at the seller's premises or at another named place (i.e. factory, warehouse, etc.). The seller does not need to load the goods on any collecting vehicle, nor does it need to clear the goods for export, where such clearance is applicable.

- FREE CARRIER (FCA –name place): the seller delivers the goods to the carrier or another person nominated by the buyer at the seller's premises or another named place. The risk passes to the buyer at that point.

- FREE ALONGSIDE SHIP (FAS –name port): The seller delivers when the goods are placed alongside the vessel nominated by the buyer at the named port of shipment. The risk of loss of or damage to the goods passes at this moment, and the buyer bears all costs from that moment onwards.

- FREE ON BOARD (FOB –name port): The seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment. The risk of loss of or damage to the goods passes at this moment, and the buyer bears all costs from that.

- COST AND FREIGHT (CFR –name port): The seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

- COST INSURANCE AND FREIGHT (CIF –name port): The seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination, along with a minimum cover insurance.

- DELIVERED AT TERMINAL (DAT –name terminal): The seller delivers when goods, unloaded, are placed at the disposal of the buyer at a named terminal. The seller bears all risks involved in bringing the goods to and unloading them.

- DELIVERED AT PLACE (DAP –name place): the seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. The seller bears all risks involved in bringing the goods to the named place.

- DELIVERED DUTY PAID (DDP –name place): equal to DAP but with an obligation for the seller to clear the goods not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities.

- CARRIAGE PAID TO (CPT –name place): The seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination.

- CARRIAGE AND INSURANCE PAID TO (CIP –name place): The seller delivers the goods to the carrier or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for an pay the costs of carriage necessary to bring the goods to the named place of destination, along with a minimum cover insurance.

8.3 Typologies of sea containers
(Source: https://www.marineinsight.com/know-more/16-types-of-container-units-and-designs-for-shipping-cargo/)
In order to depict and deepen the sea logistics topics, candidates report a quick overview of some of the maritime containers adopted, underlining that for the model purposes, only 20ft and 40ft containers have been considered.

1. Dry storage container
The most commonly used shipping containers; they come in various dimensions standardized by ISO. They are used for shipping of dry materials and come in size of 20ft, 40 ft and 10ft.
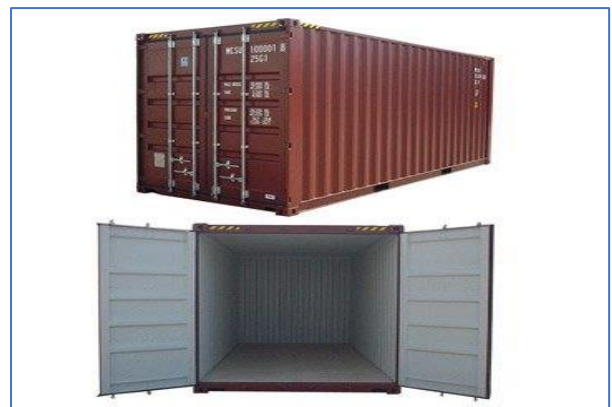
2. Flat rack container

With collapsible sides, these are like simple storage shipping containers where the sides can be folded so as to make a flat rack for shipping of wide variety of goods.

3. Open top container

With a convertible top that can be completely removed to make an open top so that materials of any height can be shipped easily.

4. Tunnel container

Container storage units provided with doors on both ends of the container, they are extremely helpful in quick loading and unloading of materials.

5. Open side storage container

These storage units are provided with doors that can change into completely open sides providing a much wider room for loading of materials.

Figure 72, a) b) c) d) e) Types of sea containers (Source: https://www.marineinsight.com/know-more/16-types-of-container-units-and-designs-for-shipping-cargo/)

6. Double doors container
7. Refrigerated ISO containers
8. Insulated or thermal containers
9. Tanks
10. Cargo storage roll container
[…]

8.4 Typologies of air pallets

(Source: https://www.rohlig.com/infocenter/air-freight/containers.html)

Also, air transportation adopts precise standard units, in this case air-pallets, for freight forwarding goods.

In this case, aircrafts have precise limitations for any kind of products to carry on, with particular awareness for the weight. Here candidates report the air-pallet standards to show the complexity of these topics in the air industry. ULD pallets and ULD containers are made from sheet aluminum and profiles/profile frames. Their standardised construction means that, for example, aircraft cargo nets snap straight into place and heavy pieces

of cargo can be secured without any problems. The different containers and pallets each have their own IATA code which uniquely identifies them. Air freight pallets and containers are designed to be suitable for different types of aircraft and this must be taken into consideration when choosing ULDs. For this reason, the compatible types of aircraft are also given on the list.
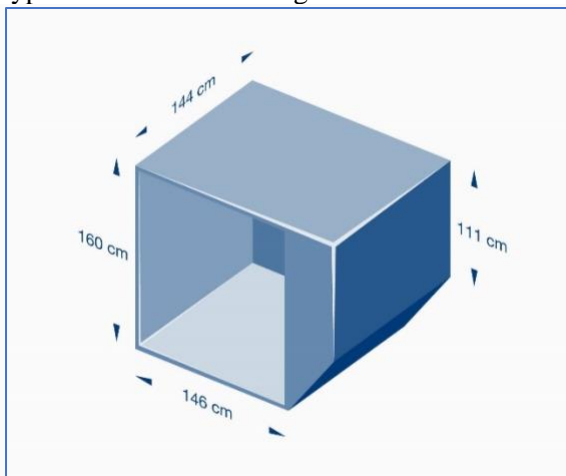
LD3 container AKE/AVE	
Type	LD3 container
Code	AKE / AVE
Base dim. outside	1,5 x 1,5 m
Height outside	1,6 m
Useable volume	3 m³
Dimensions inside	1,4 x 1,4 x 1,5 m
Acceptable for	A300, A310, A330, A340, B747-200F, B747-400, B767-400, B767(DE)
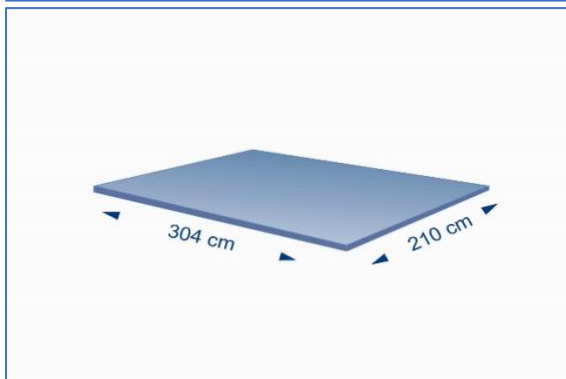
Standard pallet	
Type	standard pallet
Code	PAG, PAJ
Dimensions	3,1 x 2,2 m
Useable loading area	3 x 2,1 m
Acceptable for	A300, A310, A330, A340, B747-200F, B747-400, MD11F
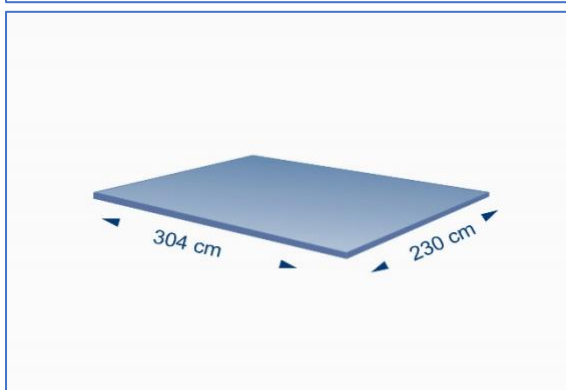
10ft pallet	
Type	10ft pallet
Code	PQP, PMC
Dimensions	3,1 x 2,4 m
Useable loading area	3 x 2,3 m
Acceptable for	A300, A310, A330, A340, B747-200F, B747-400, MD11F
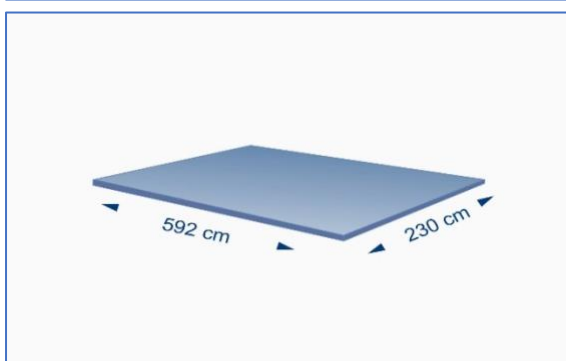
20ft pallet	
Type	20ft pallet
Code	PGE
Dimensions	6 x 2,4 m
Useable loading area	5,9 x 2,3 m
Acceptable for	B747-200F, MD11F

Figure 73, Typologies and dimensions of air pallets (Source: https://www.rohlig.com/infocenter/air-freight/containers.html)

8.5 Typologies of train containers

(Source: Wikipedia)

Here it is reported a brief description and list of the containers adoptable by companies which want to adopt the train transportation mode. The reason of this summary is to show also the incredible wide range of possibilities adoptable in each country. It should be noticed that trains are, normally, a national transportation mode. Therefore, dimensions, typologies and other parameters are different for each country and this theme underlines the importance of a common project between different countries such as the Silk Road Economic Belt.

Thus, freight cars (US), goods wagons (UIC), or trucks (UK) exist in a wide variety of types, adapted to carry a host of goods. Freight cars or goods wagons are generally categorized in a huge assortment, such as follows:

- Boxcar (US and Canada), covered wagon (UIC) or van (UIC): fully enclosed car with side or end doors. Standard boxcars have about 3.5 times the capacity of a standard Semi-trailer.
- Covered wagon (UIC), van (UIC) or boxcar (US/Canada): fully enclosed wagon for moisture-susceptible goods.
- Hicube boxcars: high-capacity high-clearance boxcar
- Refrigerator car or reefer (US/Canada): refrigerated boxcar for fruits and vegetables.
- Coil car: specialized flat or gondola for heavy sheet metal rolls
- Combine car: combined passenger car and boxcar in one wagon
- Flatcar (or flat): for larger bulky loads.
- Autorack (also called auto carriers): multi-level flat for automobiles.
- [….]
- Gondola (US): car with open top, enclosed sides and ends for bulk goods.
- Covered hopper: specialized hopper car with a cover for weather sensitive loads (grain, pellets,...)
- Open wagon (UIC): railway wagon with an open top but enclosed sides and ends, for bulk commodities and other goods that might slide off.
- Hoppers: similar to gondolas but with bottom dump doors for easy unloading of things like coal, ore, grain, cement, ballast and the like. Short hoppers for carrying iron ore are called ore jennys in the US.
- […]

Figure 74, Tank car and Boxcar adopted in the train transportation mode (Source Google images)

8.4 Weights of the items considered into the model,

(Source: www.quantopesa.it)

Weights Apparel	grams	Approximation
Shirt 150/200 g	200	
Jacket 800 g	800	
Jumper 200/250 g	250	
Trousers 100 g	100	
Jeans 350 g	350	
Woman Shoes 600 g	600	
Men Shoes 700 g	700	
Men Suit 280/400 g	400	
Woman Suit 400/600 g	600	
Avg weight	**444,4444**	450 g

Wine Bottle	grams	Approximation
Wine bottle (empty)-max	500-700	
Wine bottle (empty)-min	400-500	
Wine bottle (full)-max	1500-2000	
Wine bottle (full)-min	750-1000	
Avg weight	**1275**	1,2 kg-1 kg

8.5 Additional Tables

(Sources: Candidates researches)

Sea				
Origin -Cod. INTERCO	Destination - Cod. INTERCO	Avg Days(LT journey+dwell origin+dwell destination)	Notes	Avg Days (LT journey)
Genoa - ITGOA	Shangai - CNSHA	32,5+3+1,5	Source: Searates	38; 33; 34
Genoa - ITGOA	Shenzhen - CNSZX	30+3+1,5	Source: Searates	31;
Genoa - ITGOA	Tianjin - CNTSN/CNTXG	34+3+1,5	Source: Searates	35,5; 37; 38
Venice - ITVCE	Shangai - CNSHA	32+3+1,5	Source: Searates	33; ; 40
Venice - ITVCE	Shenzhen - CNSZX	29,5+3+1,5	Source: Searates	30,5;
Venice - ITVCE	Tianjin - CNTSN/CNTXG	34+3+1,5	Source: Searates	34; ; 49
Gioia Tauro - ITGIT	Shangai - CNSHA	31+3+1,5	Source: Searates	39; 29; 28
Gioia Tauro - ITGIT	Shenzhen - CNSZX	28,5+3+1,5	Source: Searates	37,5;
Gioia Tauro - ITGIT	Tianjin - CNTSN/CNTXG	33+3+1,5	Source: Searates	36,5; 41; 42
Ancona - ITAOI	Shangai - CNSHA	31,5+3+1,5	Source: Searates	40,5; ; 45
Ancona - ITAOI	Shenzhen - CNSZX	29,5+3+1,5	Source: Searates	36,5;
Ancona - ITAOI	Tianjin - CNTSN/CNTXG	33,5+3+1,5	Source: Searates	41,5; ; 49

Figure 75, Table used for analyses about Sea Transportation Mode

Air - Cargo				
Origin - Cod.IATA	Destination - Cod. IATA	Direct (if no, max 2 airlines)	Min flight duration	Price per j3 carton; sources <=33 kg on worldfreightrates.com, avg range
Milano Malpensa - MXP	Shangai - PVG	Yes	12 h	200,5
Milano Malpensa - MXP	Guangzhou - CAN	No	14 h	200,5
Milano Malpensa - MXP	Shenzhen - SZH	No	18 h	200,5
Milano Malpensa - MXP	Tianjin - TSN	No	17 h	200,5
Milano Malpensa - MXP	Chongqin - CKG	No	13 h 55 min--> 14h	200,5
Roma Fiumicino - FCO	Shangai - PVG	Yes	11h 25 min-->11.5 h	200,5
Roma Fiumicino - FCO	Guangzhou - CAN	No	13 h 45 min--14 h	200,5
Roma Fiumicino - FCO	Shenzhen - SZH	No	18 h 15 min -> 18.5h	200,5
Roma Fiumicino - FCO	Tianjin - TSN	No	19 h 15 min-->19.5 h	200,5
Roma Fiumicino - FCO	Chongqin - CKG	Yes	11 h 5 min --> 11 h	200,5

Figure 76, Table used for analyses about Air Transportation Mode

Train				
Origin	Destination	Days	Notes	Price (dim. 20st= 5,9m*2,352m*2,393m; dim 40st=12,034m*2,352m*2,395m)
Duisburg, Germany	Chongqin -North Railway Station	13-16 or 24	(Through Kazakhstan, Russia, Belarus, Poland)	2489$;2791$
Hamburg, Germany	Zhengzhou - East Railway Station	14-16 or 23	Not considered	
Mortara, Pavia, Italy	Chengdu - East Railway Station	17-19 or 25	(since 2017, 2 per week)	2565$;2876$
Milano	Shangai	27	1 per month	2804$;3144$
Milano	Chongqin -North Railway Station	25		2598$;2914$
Milano	Chengdu - East Railway Station	24		2553$;2863$

Figure 77, Table used for analyses about Train Transportation Mode

Truck - FTL/LTL				
Origin	Destination	Days	Notes	Price FTL/LTL <= 200kg per carton, j3 carton
Milano	Shangai	13	Door to door, Source: SEARATES	12806$/267$
Milano	Shenzen	14	Door to door, Source: SEARATES	13124$/269$
Milano	Tjianjin	12	Door to door, Source: SEARATES	12186$/236$
Milano	Guangzhou	14	Door to door, Source: SEARATES	12978$/266$
Milano	Chengdu	12	Door to door, Source: SEARATES	11903$/231$
MIlano	Chongqin	12	Door to door, Source: SEARATES	12329$/239$

Figure 78, Table used for analyses about Express Courier Transportation Mode

8.6 Business Plan China.pdf
(Source: Alibaba Document)

CAPACITA' VENDITA AZIENDALE		
(ipotesi su base **mensile**)		12
pezzi/unità		1.000
prezzo ipotizzato di vendita unitario	€	1,00
valore della produzione annuo prodotto A^	€	**12.000,00**
pezzi/unità		1.000
prezzo ipotizzato di vendita unitario	€	1,00
valore della produzione annuo prodotto B^	€	**12.000,00**
pezzi/unità		1.000
prezzo ipotizzato di vendita unitario	€	1,00
valore della produzione annuo prodotto C^	€	**12.000,00**
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto D^	€	-
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto E^	€	-
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto F^	€	-
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto G^	€	-
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto H^	€	-
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto I^	€	-
pezzi/unità		0
prezzo ipotizzato di vendita unitario	€	-
valore della produzione annuo prodotto J^	€	-
totale valore della commercializzazione	€	**36.000,00**
importo % commissione		25%

COSTI FISSI AZIENDALI ANNUI		
affitti annui (spazi produttivi, uffici,...)	€	4.800,00
spese condominiali	€	-
leasing e noleggi	€	-
elaborazioni contabili	€	5.000,00
consulenze fiscali	€	-
consulenza "partner"	€	25.000,00
spese telefoniche, energia, utenze	€	1.000,00
abbonamenti, giornali, riviste	€	-
spese promozione e marketing	€	250.000,00
assicurazioni ufficio	€	-
altre assicurazioni	€	5.000,00
cancelleria e altri consumi fissi	€	5.000,00
manutenzioni beni aziendali	€	-
pulizie uffici	€	-
altre spese fisse generali	€	5.000,00
altri servizi da specificare	€	120.000,00
altri acquisti da specificare	€	-
stipendi e salari	€	13.000,00
oneri previdenziali	€	4.333,33
trattamento fine rapporto (TFR)	€	962,96
imposte varie fisse	€	-
altre imposte da specificare	€	-
compensi ad amministratori/soci	€	10.000,00
spese fisse bancarie	€	1.000,00
totale costi fissi	€	**450.096,30**

COSTI VARIABILI					
Volume annuo prodotto A	€	12.000,00	costo unitario in valore assoluto A	PREZZO UNITARIO	1,00
acquisto materie prime e altre di consumo	0,0%	€ -	€ -		
consumi di energia legati alla produzione	0,0%	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	25,0%	€ 3.000,00	€ 0,25		
totale costi variabili A		€ 3.000,00			
Volume annuo prodotto B	€	12.000,00	costo unitario in valore assoluto B	PREZZO UNITARIO	1,00
acquisto materie prime e altre di consumo	0,0%	€ -	€ -		
consumi di energia legati alla produzione	0,0%	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	25,0%	€ 3.000,00	€ 0,25		
totale costi variabili B		€ 3.000,00			
Volume annuo prodotto C	€	12.000,00	costo unitario in valore assoluto C	PREZZO UNITARIO	1,00
acquisto materie prime e altre di consumo	0,0%	€ -	€ -		
consumi di energia legati alla produzione	0,0%	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	25,0%	€ 3.000,00	€ 0,25		
totale costi variabili C		€ 3.000,00			
Volume annuo prodotto D	€	-	costo unitario in valore assoluto D	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili D		€ -			
Volume annuo prodotto E	€	-	costo unitario in valore assoluto E	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili E		€ -			
Volume annuo prodotto F	€	-	costo unitario in valore assoluto F	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili F		€ -			
Volume annuo prodotto G	€	-	costo unitario in valore assoluto G	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili G		€ -			
Volume annuo prodotto H	€	-	costo unitario in valore assoluto H	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili H		€ -			
Volume annuo prodotto I	€	-	costo unitario in valore assoluto I	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili I		€ -			
Volume annuo prodotto J	€	-	costo unitario in valore assoluto J	PREZZO UNITARIO	-
acquisto materie prime e altre di consumo	#DIV/0!	€ -	€ -		
consumi di energia legati alla produzione	#DIV/0!	€ -	€ -		
eventuali provvigioni / sconti / abbuoni	#DIV/0!	€ -	€ -		
totale costi variabili J		€ -			
totale costi variabili		€ 9.000,00			

8.7 Logistics Tables

Città partenza	Città arrivo	Costo (RMB/kg)	Prezzo € (unità)	LT	Unità per città	Costo Totale	Città partenza2	Città di arrivo	Prezzo RMB (kg)	Prezzo € (unità)3	LT4	Unità per città5	Costo Totale6
Shanghai	Shanghai	2,4	0,332409972	0	47909	15.925,43 €	Shenzhen	Shanghai	4,6	0,637119114	2		
Shanghai	Pechino	4,6	0,637119114	1			Shenzhen	Pechino	4,6	0,637119114	1		
Shanghai	Guangzhou	4,6	0,637119114	1			Shenzhen	Guangzhou	2,6	0,360110803	1	28008	3.025,80 €
Shanghai	Shenzhen	4,6	0,637119114	1			Shenzhen	Shenzhen	2,6	0,332409972	0	26271	2.619,82 €
Shanghai	Tianjin	4,6	0,637119114	2			Shenzhen	Tianjin	4,6	0,637119114	1		
Shanghai	Chongqing	4,6	0,637119114	1			Shenzhen	Chongqing	4,6	0,637119114	2		
Shanghai	Changsha	4,6	0,637119114	2			Shenzhen	Changsha	5	0,692520776	1		
Shanghai	Zhengzhou	4,4	0,609418283	2			Shenzhen	Zhengzhou	4,4	0,609418283	1		
Shanghai	Chengdu	4,6	0,637119114	2			Shenzhen	Chengdu	2,6	0,360110803	1		
Shanghai	Fuzhou	4,4	0,609418283	1	9870	6.014,96 €	Shenzhen	Fuzhou	4,6	0,637119114	1		
Shanghai	Zhuhai	4,6	0,637119114	1			Shenzhen	Zhuhai	4,6	0,637119114	1	2157	412,28 €
Shanghai	Hefei	2,8	0,387811634	1	8432	981,01 €	Shenzhen	Hefei	4,4	0,609418283	1		
Shanghai	Wuhan	4,4	0,609418283	1	20532	3.753,77 €	Shenzhen	Wuhan	4,4	0,609418283	1		
Shanghai	Hangzhou	2,4	0,332409972	1	15467	1.542,42 €	Shenzhen	Hangzhou	4,6	0,637119114	1		
Shanghai	Wuxi	2,4	0,332409972	1	11856	1.182,32 €	Shenzhen	Wuxi	4,6	0,637119114	1		
Shanghai	Xiamen	4,4	0,609418283	1			Shenzhen	Xiamen	4,6	0,637119114	1	7181	1.372,55 €
Shanghai	Changchun	4,6	0,637119114	2			Shenzhen	Changchun	4,4	0,609418283	2		
Shanghai	Dalian	4,6	0,637119114	1			Shenzhen	Dalian	4,6	0,637119114	1		
Shanghai	Xi'an	4,6	0,637119114	2			Shenzhen	Xi'an	4,6	0,637119114	2		
Shanghai	Guiyang	4,6	0,637119114	2			Shenzhen	Guiyang	4,6	0,637119114	1		
Shanghai	Haikou	4,6	0,637119114	2			Shenzhen	Haikou	5	0,692520776	2	1602	332,83 €
Shanghai	Harbin	4,6	0,637119114	2			Shenzhen	Harbin	4,6	0,637119114	2		
Shanghai	Lanzhou	4,6	0,637119114	2			Shenzhen	Lanzhou	4,6	0,637119114	2		
Shanghai	Suzhou	2,4	0,332409972	1	18661	1.860,93 €	Shenzhen	Suzhou	4,6	0,637119114	1		
Shanghai	Kunming	4,6	0,637119114	2			Shenzhen	Kunming	4,6	0,637119114	2		
Shanghai	Taiyuan	4,6	0,637119114	1			Shenzhen	Taiyuan	4,6	0,637119114	1		
Shanghai	Ürümqi	5,2	0,720221607	2			Shenzhen	Ürümqi	5,6	0,775623269	2		
Shanghai	Jinan	4,4	0,609418283	1			Shenzhen	Jinan	4,6	0,637119114	1		
Shanghai	Hohhot	4,6	0,637119114	2			Shenzhen	Hohhot	4,6	0,637119114	2		
Shanghai	Shantou	4,6	0,637119114	2			Shenzhen	Shantou	2,6	0,360110803	1	8080	872,91 €
Shanghai	Shenyang	4,6	0,637119114	2			Shenzhen	Shenyang	4,6	0,637119114	2		
Shanghai	Lhasa	5,2	0,720221607	3			Shenzhen	Lhasa	5,6	0,775623269	2		
Shanghai	Sanya	4,6	0,637119114	2			Shenzhen	Sanya	4,4	0,609418283	2	1452	265,46 €
Shanghai	Nanchang	4,4	0,609418283	1	6013	1.099,33 €	Shenzhen	Nanchang	4,4	0,609418283	2		
Shanghai	Tsingtao	4,4	0,609418283	1			Shenzhen	Tsingtao	4,6	0,637119114	1		
Shanghai	Ningbo	2,4	0,332409972	1			Shenzhen	Ningbo	4,6	0,637119114	1		
Shanghai	Nanchino	2,4	0,332409972	1			Shenzhen	Nanchino	4,6	0,637119114	1	16311	3.117,61 €
Shanghai	Nanning	4,6	0,637119114	2			Shenzhen	Nanning	4,4	0,609418283	2	3456	631,84 €

Figure 79, Logistic table considered for downstream costs in China 1

Città partenza7	Città di arrivo7	Prezzo RMB (kg)8	Prezzo € (unità)9	LT10	Unità per città11	Costo Totale12	Città partenza13	Città di arrivo14	Prezzo RMB (kg)15	Prezzo € (unità)16	LT17	Unità per città18	Costo Totale19
Tianjin	Shanghai	4,6	0,637119114	2			Chongqing	Shanghai	4,4	0,609418283	2		
Tianjin	Pechino	3	0,415512465	1	32851	4.095,00 €	Chongqing	Pechino	4,6	0,637119114	2		
Tianjin	Guangzhou	4,6	0,637119114	2			Chongqing	Guangzhou	4,6	0,637119114	2		
Tianjin	Shenzen	4,6	0,637119114	2			Chongqing	Shenzen	4,6	0,637119114	1		
Tianjin	Tianjin	2,6	0,360110803	0	27129	2.930,83 €	Chongqing	Tianjin	4,6	0,637119114	2		
Tianjin	Chongqing	4,6	0,637119114	2			Chongqing	Chongqing	2,2	0,304709141	0	21076	1.926,61 €
Tianjin	Changsha	4,6	0,637119114	2			Chongqing	Changsha	4,6	0,637119114	2	10450	1.997,37 €
Tianjin	Zhengzhou	4,6	0,637119114	2	11017	2.105,74 €	Chongqing	Zhengzhou	4,6	0,637119114	2		
Tianjin	Chengdu	4,6	0,637119114	2			Chongqing	Chengdu	3,5	0,486549958	1	17635	2.637,92 €
Tianjin	Fuzhou	4,6	0,637119114	2			Chongqing	Fuzhou	4,6	0,637119114	2		
Tianjin	Xiamen	4,6	0,637119114	1			Chongqing	Xiamen	4,6	0,637119114	2		
Tianjin	Wuxi	4,6	0,637119114	2			Chongqing	Wuxi	4,6	0,637119114	2		
Tianjin	Hangzhou	4,6	0,637119114	2			Chongqing	Hangzhou	4,6	0,637119114	1		
Tianjin	Wuhan	4,4	0,609418283	2			Chongqing	Wuhan	4,6	0,637119114	1		
Tianjin	Hefei	4,4	0,609418283	2			Chongqing	Hefei	4,6	0,637119114	2		
Tianjin	Zhuhai	4,6	0,637119114	2			Chongqing	Zhuhai	4,6	0,637119114	2		
Tianjin	Changchun	4,6	0,637119114	2	9835	1.879,82 €	Chongqing	Changchun	4,6	0,637119114	2		
Tianjin	Dalian	3,8	0,526315789	2	12146	1.917,79 €	Chongqing	Dalian	4,6	0,637119114	2		
Tianjin	Xi'an	4,6	0,637119114	1			Chongqing	Xi'an	4,6	0,637119114	2	12600	2.408,31 €
Tianjin	Ürümqi	5,2	0,720221607	2			Chongqing	Ürümqi	4,6	0,637119114	2	5985	1.143,95 €
Tianjin	Taiyuan	3,6	0,498614958	1	6492	971,10 €	Chongqing	Taiyuan	4,6	0,637119114	2		
Tianjin	Jinan	4,4	0,609418283	2	10023	1.869,02 €	Chongqing	Jinan	4,6	0,637119114	2		
Tianjin	Hohhot	4,6	0,637119114	2	3459	661,14 €	Chongqing	Hohhot	4,6	0,637119114	2		
Tianjin	Harbin	4,6	0,637119114	2	11942	2.282,54 €	Chongqing	Harbin	4,6	0,637119114	1		
Tianjin	Lanzhou	4,6	0,637119114	2			Chongqing	Lanzhou	4,6	0,637119114	2	4911	938,67 €
Tianjin	Suzhou	4,4	0,609418283	2			Chongqing	Suzhou	4,6	0,637119114	2		
Tianjin	Kunming	4,6	0,637119114	2			Chongqing	Kunming	4,6	0,637119114	2	7050	1.519,53 €
Tianjin	Haikou	4,6	0,637119114	2			Chongqing	Haikou	4,6	0,637119114	2		
Tianjin	Guiyang	4,6	0,637119114	2			Chongqing	Guiyang	4,4	0,609418283	1	3382	618,32 €
Tianjin	Xi'an	4,6	0,637119114	1			Chongqing	Xi'an	4,6	0,637119114	2		
Tianjin	Dalian	4,6	0,637119114	2			Chongqing	Dalian	4,6	0,637119114	2		
Tianjin	Changchun	4,6	0,637119114	2			Chongqing	Changchun	4,6	0,637119114	2		
Tianjin	Shenyang	4,6	0,637119114	2			Chongqing	Shenyang	4,6	0,637119114	2	14392	2.750,83 €
Tianjin	Shantou	4,6	0,637119114	2			Chongqing	Shantou	4,6	0,637119114	2		
Tianjin	Lhasa	5,2	0,720221607	4			Chongqing	Lhasa	4,6	0,637119114	3	811	155,01 €
Tianjin	Sanya	4,6	0,637119114	2			Chongqing	Sanya	4,6	0,637119114	2		
Tianjin	Nanchang	4,6	0,637119114	2			Chongqing	Nanchang	4,6	0,637119114	2		
Tianjin	Tsingtao	4,4	0,609418283	2	12015	2.196,65 €	Chongqing	Tsingtao	4,6	0,637119114	2		
Tianjin	Ningbo	4,6	0,637119114	2			Chongqing	Ningbo	4,6	0,637119114	2		
Tianjin	Nanchino	4,4	0,609418283	2			Chongqing	Nanchino	4,6	0,637119114	2		
Tianjin	Nanning	4,6	0,637119114	3			Chongqing	Nanning	4,6	0,637119114	1		

Figure 80, Logistic table considered for downstream costs in China 2

8.8 Other scenarios and graphs

In this section are reported other graphs referred to scenarios not included into the thesis, to give the possibility to the readers to deepening the themes faced and effectively note the quantity of cases analysed. Firstly, are reported NCFs graphs for scenario 6 adopted into the thesis both for fashion sector (JD Worldwide and JD.com) and wine one (TMall Global, TMall Classic). Anyway, candidates will not report all the possible combination of graphs that it could be possible to realize, due to infinite number of configurations. Below, are reported scenarios 2,3,5 as explained into the chapter 4 with all the graphs used into the thesis.
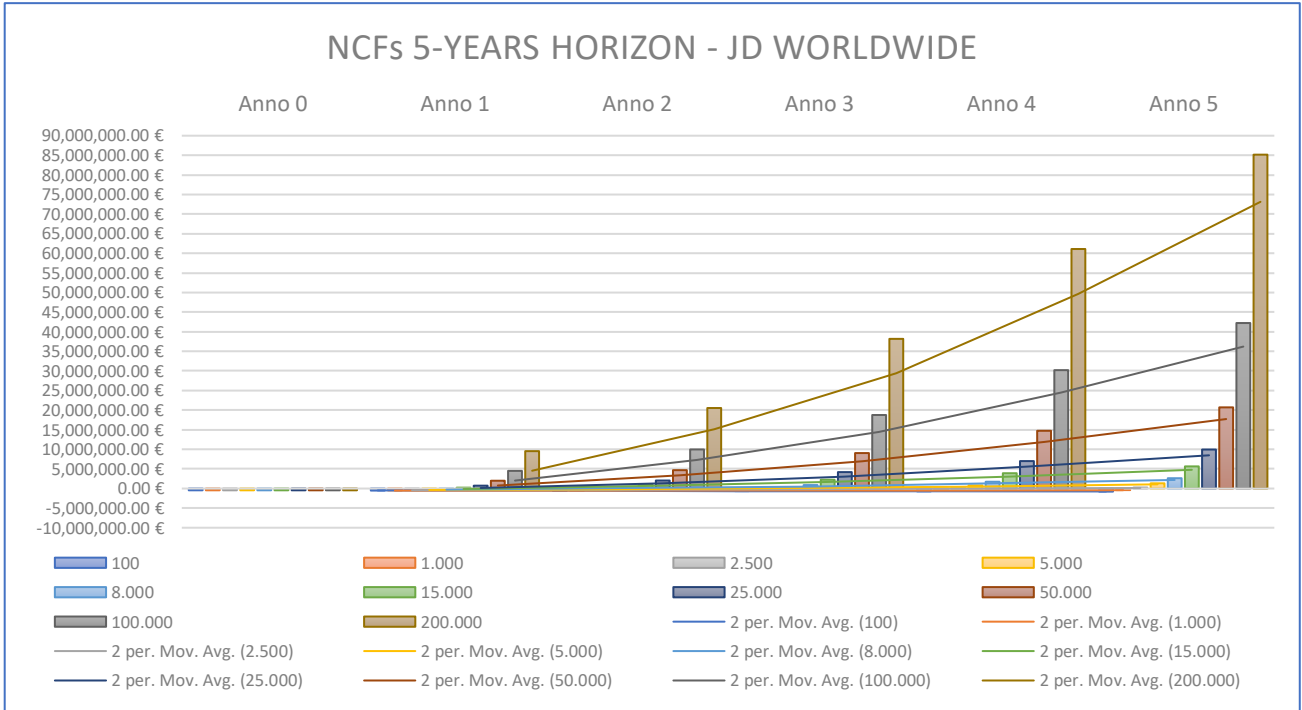
Figure 81, Cumulative NCFs in fashion industry, JD Worldwide
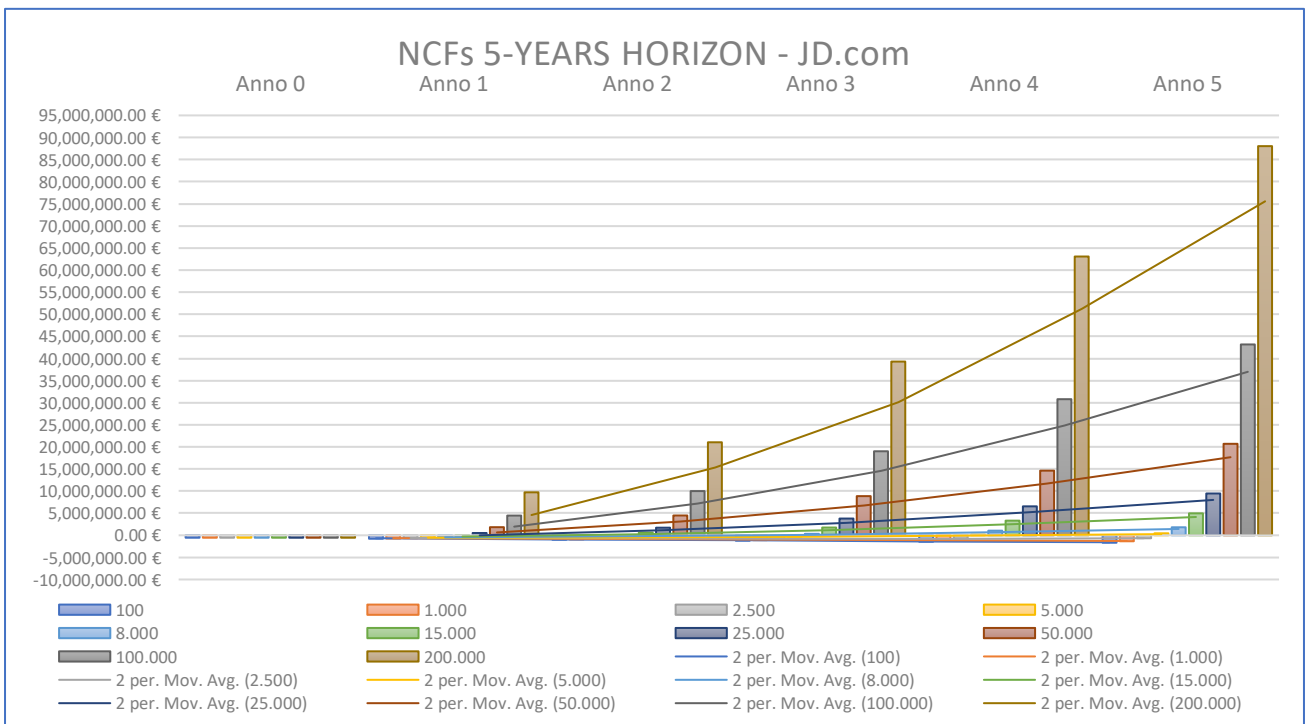
Figure 82, Cumulative NCFs in fashion industry, JD Worldwide
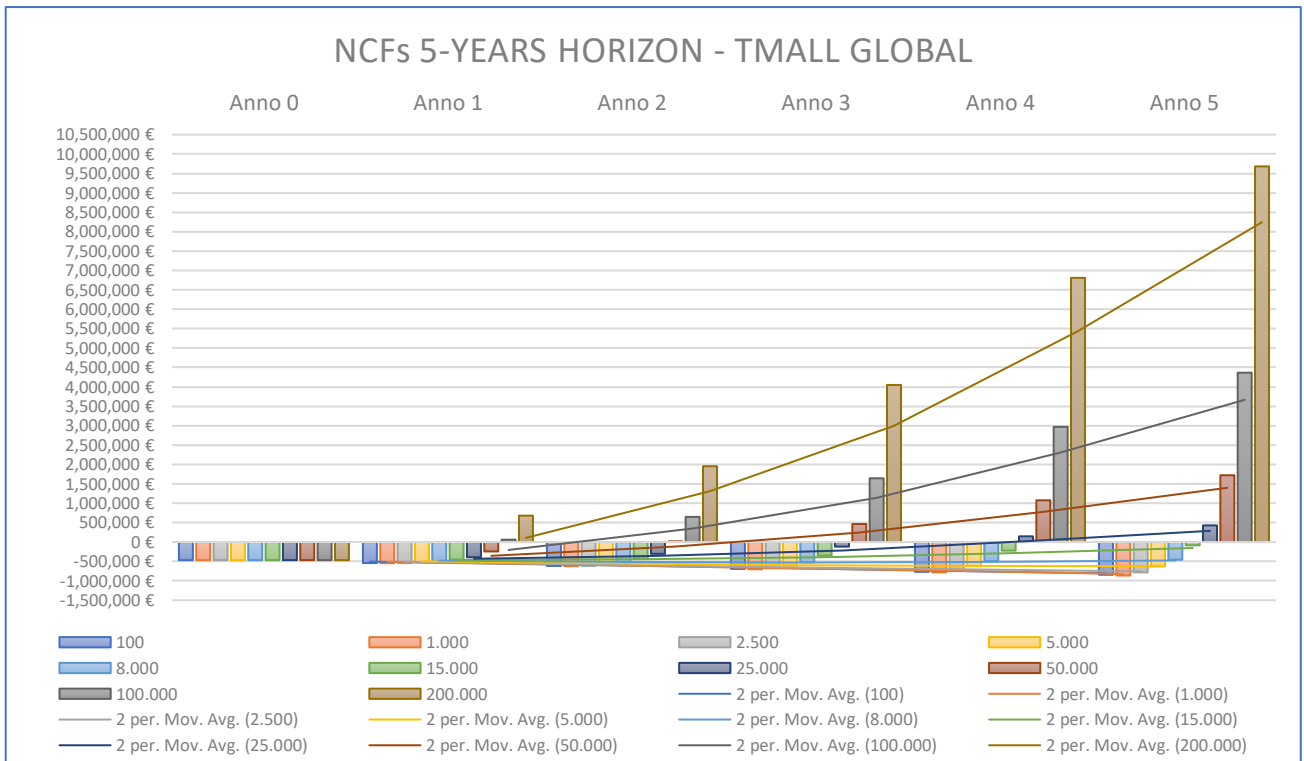
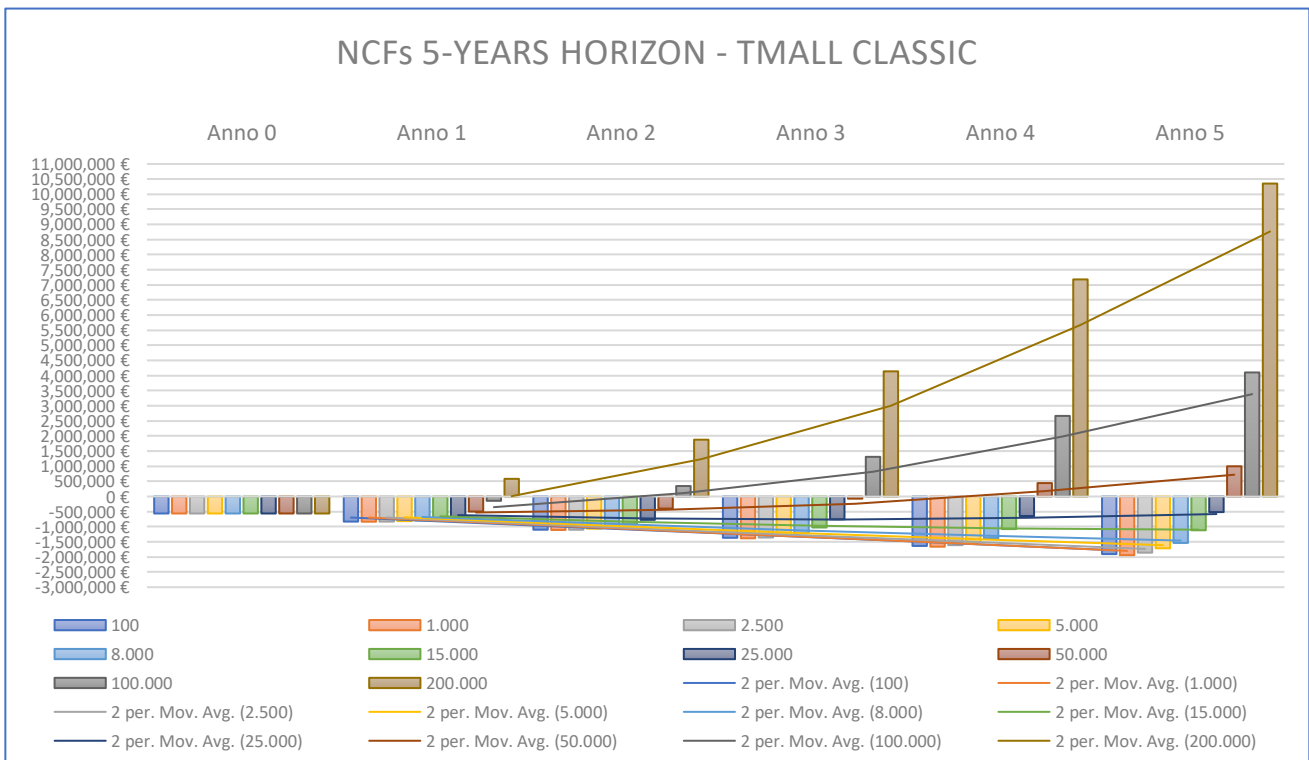*Figure 83,Cumulative NCFs in fashion industry, TMall Global*

Figure 84, Cumulative NCFs in fashion industry, TMall Classic
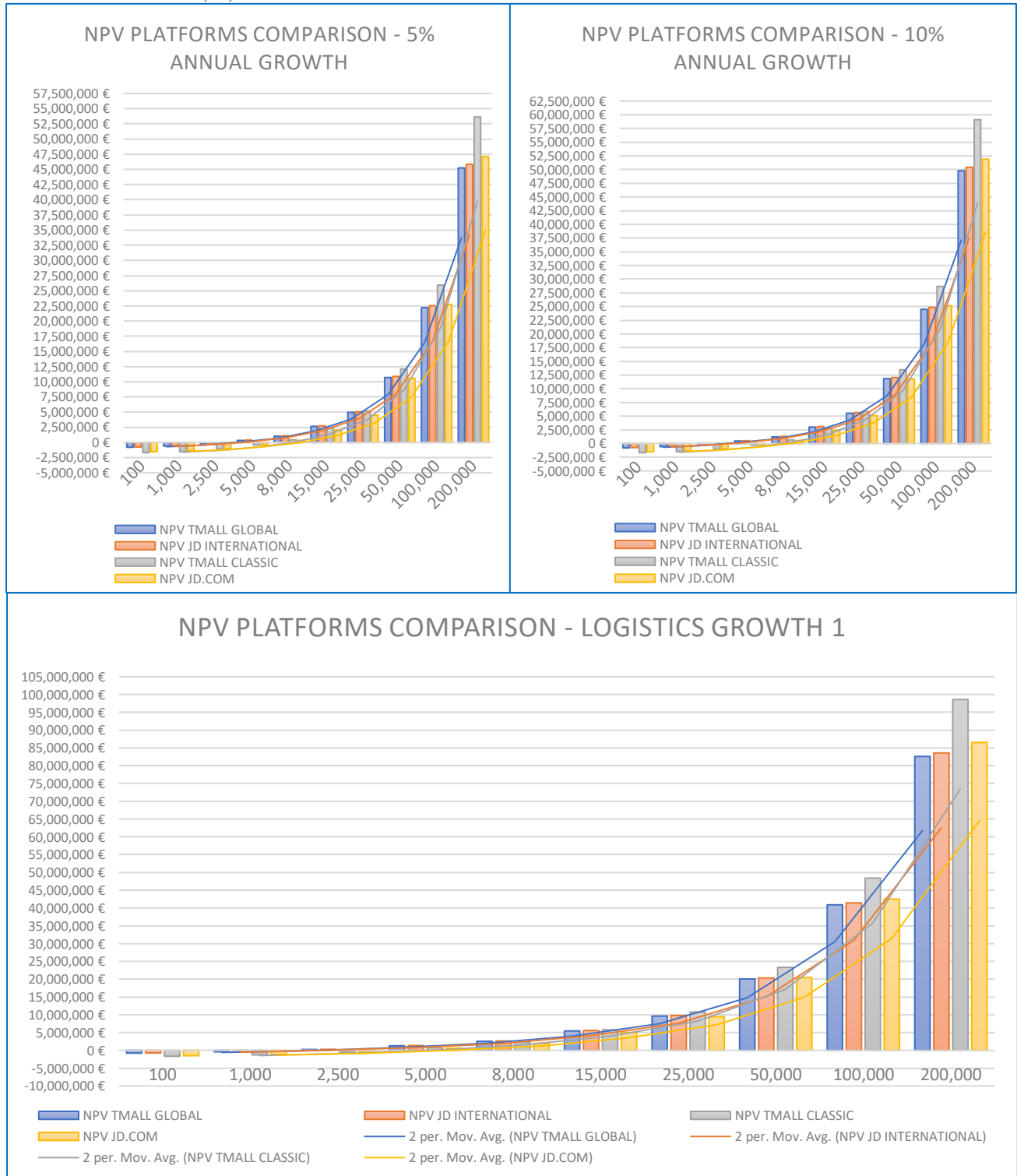
Fashion scenarios 2, 3, 5:

Figure 85, NPVs Platforms comparison for scenarios 2, 3, 5
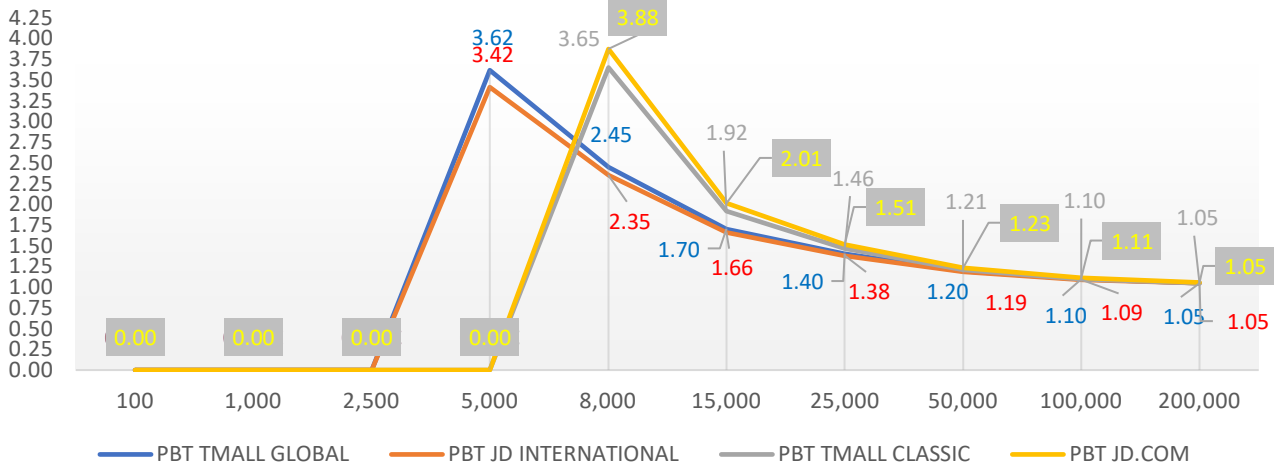
Figure 88, PBTs Platforms comparison for a 5% annual growth

Figure 86, PBTs Platforms comparison for a 10% annual growth
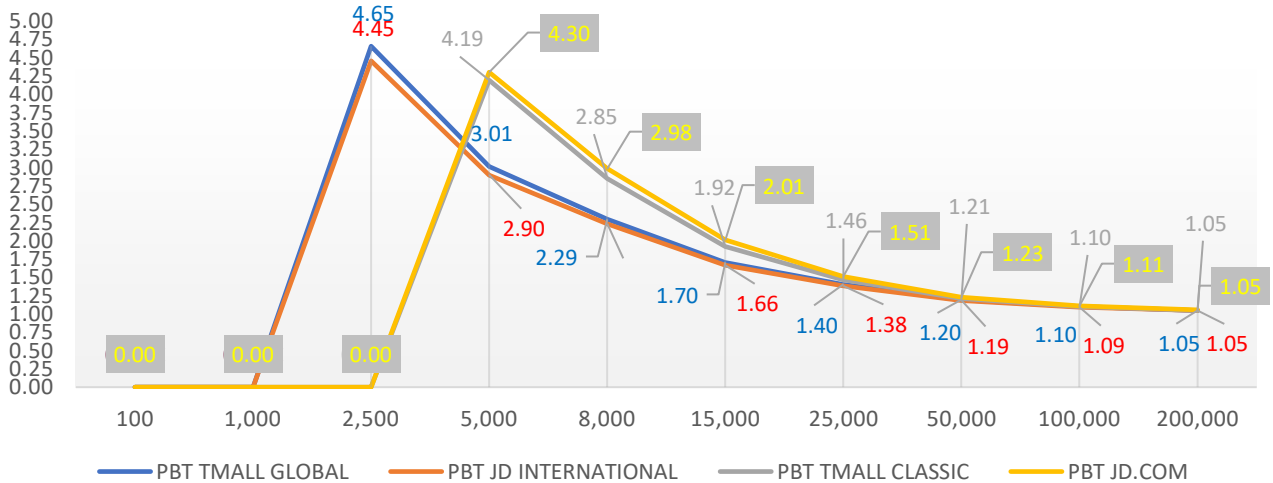

Figure 87, PBTs Platforms comparison for a logistics growth (1) annual growth
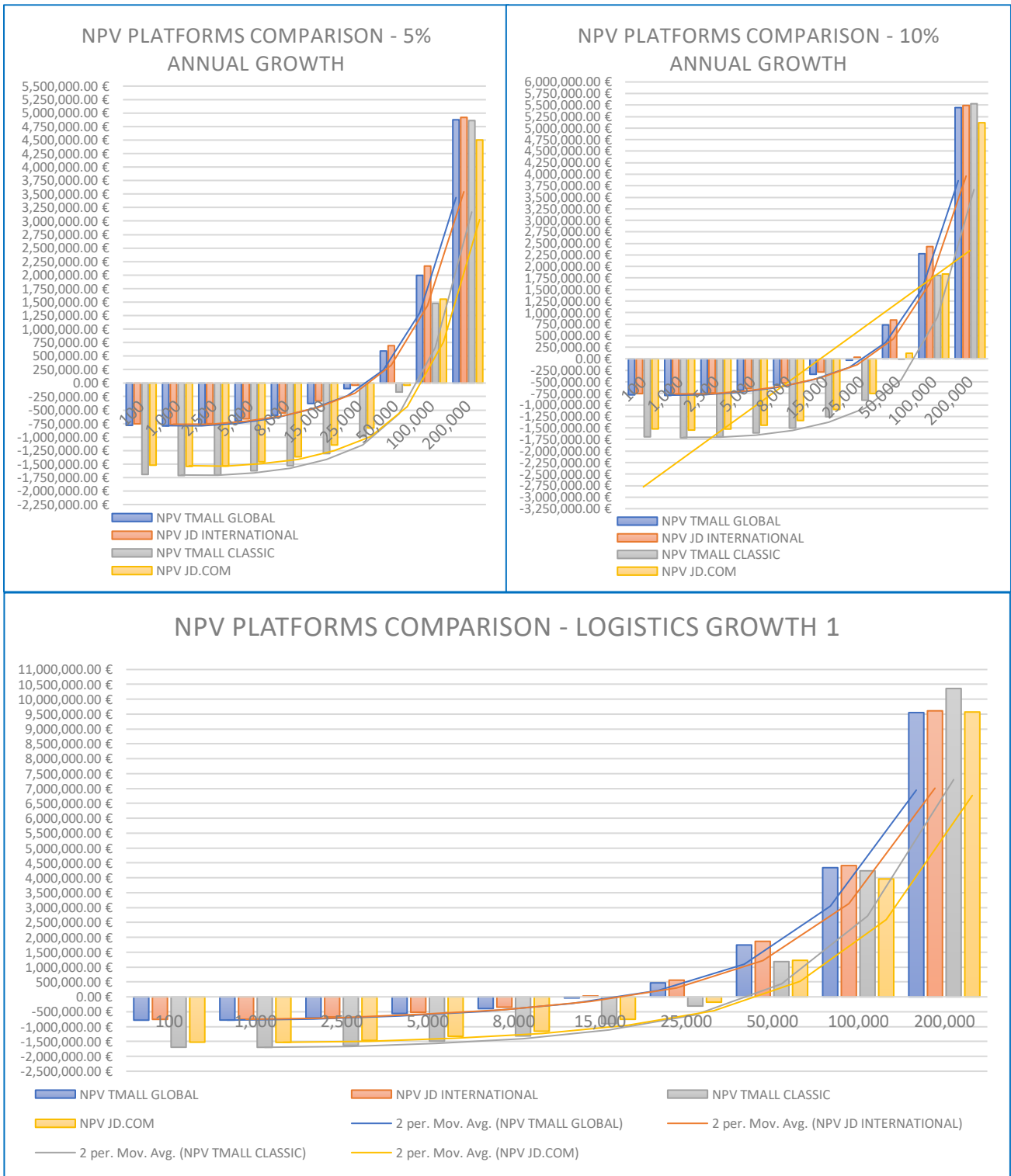
Wine scenarios 2, 3, 5:

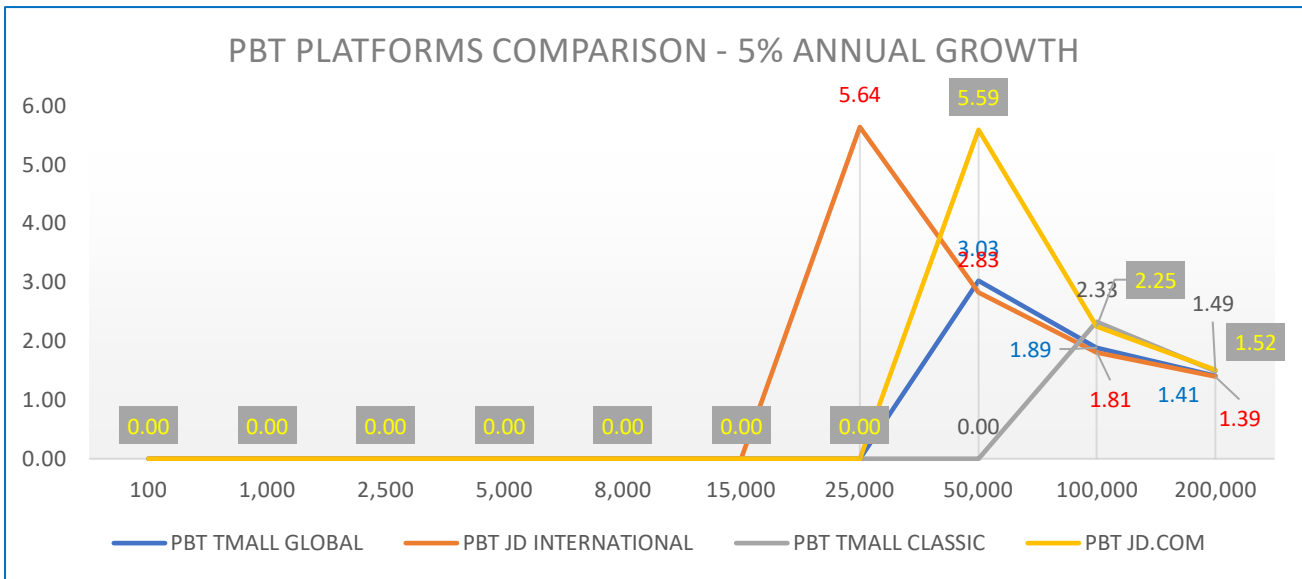*Figure 89, NOVs Platforms comparison for scenarios 2, 3, 5*

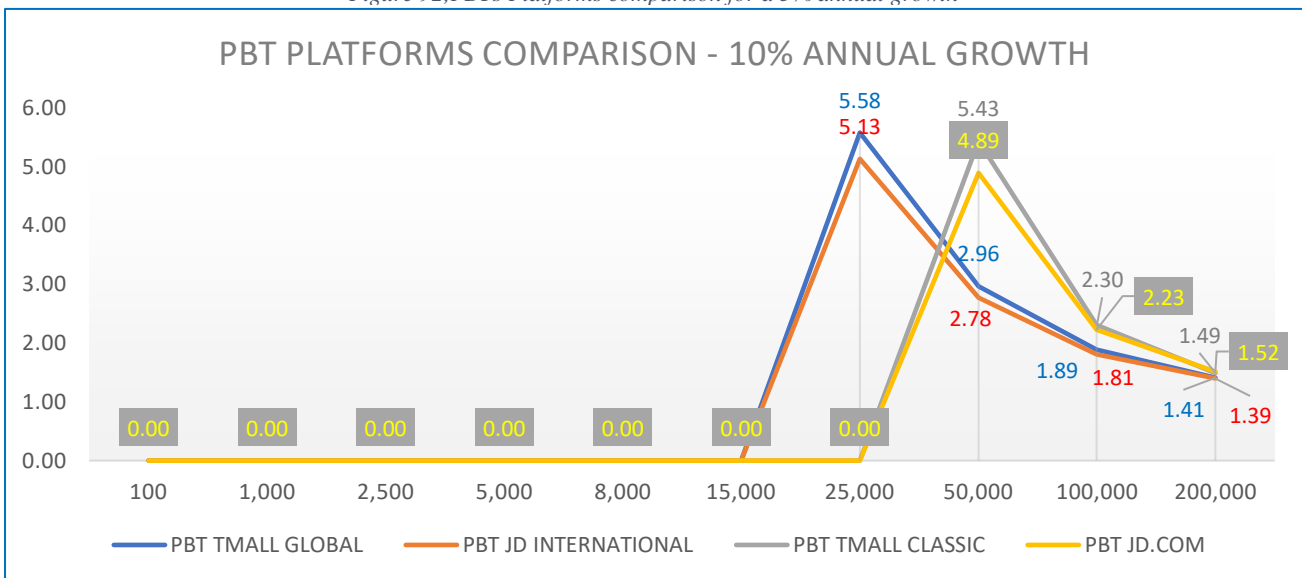*Figure 92,PBTs Platforms comparison for a 5% annual growth*

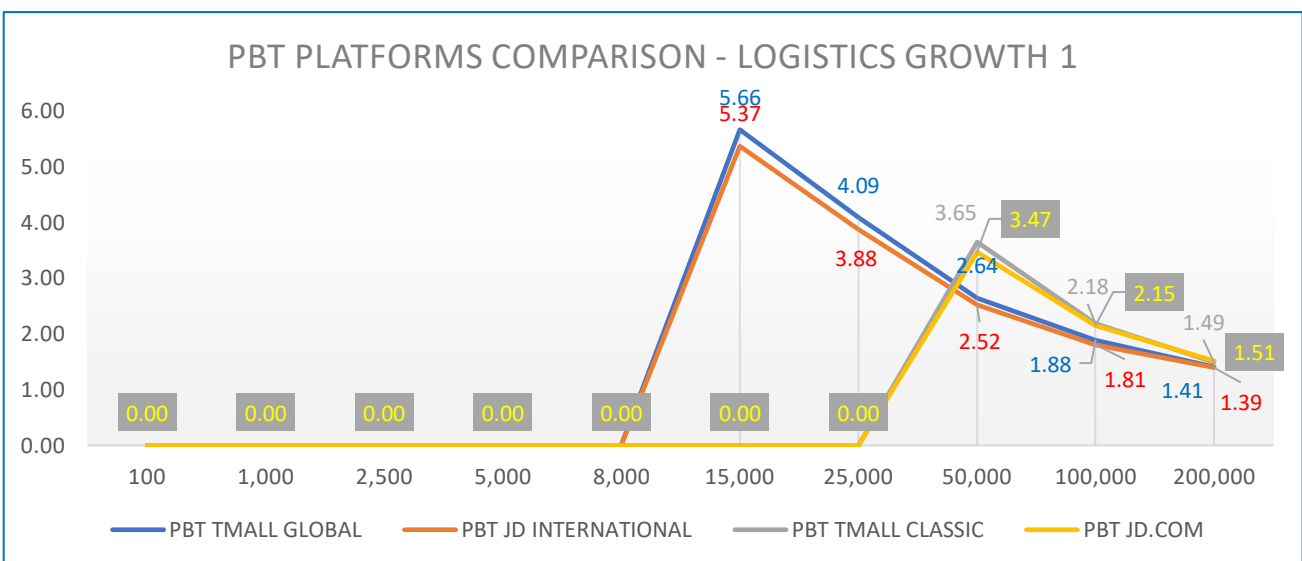*Figure 91, PBTs Platforms comparison for a 10% annual growth*

Figure 90, PBTs Platforms comparison for a logistics growth (2)

Cost Structure comparison for all the demands and platforms, S2 fashion

Stacked bar chart (vertical axis 0%–100% in 5% increments). X-axis groups by demand (100, 1.000, 2.500, 5.000, 8.000, 15.000, 25.000, 50.000, 100.000, 200.000), each with four platforms: TMall Global, JD International, TMall Classic, JD.com.

Underlying data (values in % per platform; order within each demand group: TMall Global / JD International / TMall Classic / JD.com):

Fixed annual cost
- 100: 0.0, 0.0, 51., 59.
- 1.000: 0.0, 0.0, 33., 35.
- 2.500: 0.0, 0.0, 21., 22.
- 5.000: 0.0, 0.0, 13., 13.
- 8.000: 0.0, 0.0, 9.7, 9.5
- 15.000: 0.0, 0.0, 5.7, 5.5
- 25.000: 0.0, 0.3, 3.5, 3.4
- 50.000: 0.0, 0.0, 1.8, 1.7
- 100.000: 0.0, 0.0, 0.9, 0.9
- 200.000: 0.0, 0.0, 0.4, 0.4

Platform and develop
- 100: 60., 57., 31., 21.
- 1.000: 28., 26., 22., 17.
- 2.500: 19., 17., 17., 15.
- 5.000: 14., 13., 13., 13.
- 8.000: 12., 11., 11., 13.
- 15.000: 10., 10., 9.7, 12.
- 25.000: 9.5, 8.8, 9.3, 12.
- 50.000: 8.9, 8.0, 9.0, 12.
- 100.000: 8.6, 7.5, 8.8, 12.
- 200.000: 8.5, 7.3, 7.3, 11.

Internal
- 100: 20., 22., 10., 11.
- 1.000: 7.9, 8.2, 6.7, 7.2
- 2.500: 4.1, 4.2, 4.4, 4.5
- 5.000: 2.3, 2.3, 2.8, 2.8
- 8.000: 1.5, 1.5, 1.9, 1.9
- 15.000: 0.8, 0.8, 1.1, 1.1
- 25.000: 0.5, 0.5, 0.7, 0.7
- 50.000: 0.2, 0.2, 0.3, 0.3
- 100.000: 0.1, 0.1, 0.1, 0.1
- 200.000: 0.0, 0.0, 0.1, 0.0

Duties
- 100: 1.5, 1.6, 0.5, 0.6
- 1.000: 4.8, 5.0, 2.7, 2.9
- 2.500: 6.1, 6.2, 4.3, 4.4
- 5.000: 6.7, 6.8, 5.4, 4.7
- 8.000: 7.1, 7.3, 6.6, 6.4
- 15.000: 7.3, 7.4, 6.9, 6.6
- 25.000: 7.4, 7.5, 7.1, 6.8
- 50.000: 7.5, 7.5, 7.3, 6.9
- 100.000: 7.5, 7.5, 7.3, 7.0

Taxes
- 100: 7.1, 7.7, 2.9, 3.3
- 1.000: 25., 26., 17., 18.
- 2.500: 32., 33., 27., 28.
- 5.000: 36., 36., 34., 34.
- 8.000: 37., 38., 38., 37.
- 15.000: 39., 39., 42., 40.
- 25.000: 39., 39., 44., 42.
- 50.000: 40., 40., 45., 43.
- 100.000: 40., 40., 46., 44.
- 200.000: 40., 40., 46., 44.

Logistics
- 100: 3.9, 4.3, 1.3, 1.5
- 1.000: 9.3, 9.5, 5.3, 5.6
- 2.500: 6.4, 6.4, 4.5, 4.6
- 5.000: 4.9, 4.8, 3.9, 3.8
- 8.000: 4.2, 4.1, 3.6, 3.6
- 15.000: 3.5, 3.3, 3.1, 3.4
- 25.000: 3.3, 3.2, 2.9, 3.3
- 50.000: 3.1, 3.2, 2.9, 3.2
- 100.000: 3.1, 3.1, 2.8, 3.2
- 200.000: 3.0, 3.1, 2.8

Production
- 100: 2.8, 3.0, 0.9, 1.1
- 1.000: 10., 11., 6.2, 6.6
- 2.500: 14., 14., 10., 10.
- 5.000: 16., 16., 12., 12.
- 8.000: 16., 16., 14., 14.
- 15.000: 17., 17., 15., 15.
- 25.000: 17., 17., 16., 15.
- 50.000: 17., 18., 17., 16.
- 100.000: 18., 18., 17., 16.
- 200.000: 18., 18., 17., 16.

Marketing
- 100: 3.3, 3.6, 0.9, 1.0
- 1.000: 13., 13., 5.9, 6.3
- 2.500: 17., 17., 9.7, 10.
- 5.000: 19., 19., 12., 12.
- 8.000: 20., 20., 13., 13.
- 15.000: 20., 21., 15., 14.
- 25.000: 21., 21., 15., 15.
- 50.000: 21., 21., 16., 15.
- 100.000: 21., 21., 16., 16.
- 200.000: 16., 16.

Figure 93, Cost structure comparison for all the platforms with 5% annual demand growth in fashion industry

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Cost Structure comparison for all the demands and platforms, S3 fashion

Stacked bar chart (vertical axis 0%–100% in 5% increments). X-axis groups by demand (100, 1.000, 2.500, 5.000, 8.000, 15.000, 25.000, 50.000, 100.000, 200.000), each with four platforms: Tmall Global, JD International, TMall Classic, JD.com.

Underlying data (values in % per platform; order within each demand group: Tmall Global / JD International / TMall Classic / JD.com):

Fixed annual cost
- 100: 0., 0., 51, 58
- 1.000: 0., 0., 32, 34
- 2.500: 0., 0., 20, 21
- 5.000: 0., 0., 13, 13
- 8.000: 0., 0., 9., 8.
- 15.000: 0., 0., 5., 5.
- 25.000: 0., 0., 3., 3.
- 50.000: 0., 0., 1., 1.
- 100.000: 0., 0., 0., 0.
- 200.000: 0., 0., 0., 0.

Platform and develop
- 100: 59, 56, 31, 21
- 1.000: 27, 25, 22, 16
- 2.500: 18, 16, 16, 14
- 5.000: 14, 13, 13, 12
- 8.000: 11, 11, 13, 10
- 15.000: 10, 9., 12, 9.
- 25.000: 9., 8., 12, 9.
- 50.000: 8., 7., 12, 9.
- 100.000: 8., 7., 12, 8.
- 200.000: 8., 7., 11

Internal
- 100: 19, 21, 10, 11
- 1.000: 7., 7., 6., 6.
- 2.500: 3., 3., 4., 4.
- 5.000: 2., 2., 2., 1.
- 8.000: 1., 1., 1., 1.
- 15.000: 0., 0., 1., 0.
- 25.000: 0., 0., 0., 0.
- 50.000: 0., 0., 0., 0.
- 100.000: 0., 0., 0., 0.
- 200.000: 0., 0., 0., 0.

Duties
- 100: 1., 1., 0., 0.
- 1.000: 4., 5., 2., 3.
- 2.500: 6., 6., 4., 4.
- 5.000: 6., 6., 5., 5.
- 8.000: 7., 7., 6., 6.
- 15.000: 7., 7., 6., 6.
- 25.000: 7., 7., 6., 6.
- 50.000: 7., 7., 6., 7.
- 100.000: 7., 7., 7., 7.
- 200.000: 7., 7., 7., 7.

Taxes
- 100: 7., 8., 3., 3.
- 1.000: 26, 26, 18, 19
- 2.500: 33, 33, 28, 29
- 5.000: 36, 36, 35, 35
- 8.000: 37, 38, 39, 38
- 15.000: 39, 39, 42, 41
- 25.000: 39, 40, 44, 42
- 50.000: 40, 40, 45, 43
- 100.000: 40, 40, 46, 44
- 200.000: 40, 40, 46, 44

Logistics
- 100: 4., 4., 1., 1.
- 1.000: 9., 9., 5., 5.
- 2.500: 6., 6., 4., 4.
- 5.000: 4., 4., 3., 3.
- 8.000: 4., 4., 3., 3.
- 15.000: 3., 3., 3., 3.
- 25.000: 3., 3., 3., 2.
- 50.000: 3., 3., 3., 2.
- 100.000: 3., 3., 3., 2.
- 200.000: 3., 3., 3., 2.

Production
- 100: 3., 3., 1., 1.
- 1.000: 11, 11, 6., 7.
- 2.500: 14, 14, 10, 10
- 5.000: 16, 16, 13, 13
- 8.000: 16, 17, 14, 14
- 15.000: 17, 17, 16, 15
- 25.000: 17, 17, 16, 16
- 50.000: 17, 18, 17, 16
- 100.000: 18, 18, 17, 16
- 200.000: 18, 18, 17, 16

Marketing
- 100: 3., 3., 1., 1.
- 1.000: 13, 14, 6., 6.
- 2.500: 17, 17, 10, 10
- 5.000: 19, 19, 12, 12
- 8.000: 20, 20, 14, 13
- 15.000: 20, 21, 15, 14
- 25.000: 21, 21, 16, 15
- 50.000: 21, 21, 16, 15
- 100.000: 21, 21, 16, 16
- 200.000: 21, 21, 16, 16

Figure 94, Cost structure comparison for all the platforms with 10% annual demand growth in fashion industry

Figure 95, Cost structure comparison for all the platforms with exponential growth in fashion industry

Figure 96, Cost structure comparison for all the platforms with 5% annual growth in wine industry

Figure 97, Cost structure comparison for all the platforms with 10% annual growth in wine industry

Cost structure comparison for all the demands and platforms, S3 wine

	100				1.000				2.500				5.000				8.000				15.000				25.000				50.000				100.000				200.000			
	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com
Fixed annual cost	0.	0.	54	63	0.	0.	0.	56	0.	0.	45	50	0.	0.	40	44	0.	0.	35	38	0.	0.	28	30	0.	0.	21	22	0.	0.	13	14	0.	0.	8.	8.	0.	0.	4.	4.
Platform and develop	70	68	33	22	54	52	30	20	43	42	28	19	35	34	25	18	29	29	23	17	22	22	20	16	17	18	17	16	13	14	13	14	10	12	11	14	9.	10	9.	13
Internal	25	27	11	12	19	20	10	11	15	15	9.	10	11	12	8.	9.	9.	9.	7.	7.	6.	6.	5.	6.	4.	4.	4.	4.	2.	2.	2.	2.	1.	1.	1.	1.	0.	0.	0.	0.
Duties	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	1.	1.	0.	0.	1.	1.	0.	0.	2.	2.	1.	1.	2.	2.	1.	1.	2.	2.	1.	1.	2.	2.	2.	2.	2.	2.	2.	2.
Taxes	1.	1.	0.	0.	10	11	4.	5.	15	15	7.	8.	21	22	12	13	26	27	16	18	33	34	24	26	37	38	30	32	40	42	38	39	43	44	44	44	44	48	47	
Logistics	1.	1.	0.	0.	9.	9.	3.	3.	15	15	6.	6.	14	13	6.	6.	13	11	7.	6.	12	9.	7.	6.	11	8.	8.	5.	10	6.	8.	5.	9.	8.	8.	5.	8.	7.	8.	6.
Production	0.	0.	0.	0.	1.	1.	0.	0.	2.	2.	1.	1.	4.	4.	2.	2.	5.	5.	2.	3.	6.	7.	4.	4.	7.	8.	5.	5.	8.	9.	7.	7.	9.	9.	8.	8.	9.	9.	8.	8.
Marketing	0.	0.	0.	0.	3.	3.	0.	1.	6.	7.	2.	2.	10	10	3.	4.	13	13	5.	6.	16	17	8.	8.	19	19	10	11	21	21	13	13	22	23	15	15	23	23	17	16

Figure 98, Cost structure comparison for all the platforms with exponential growth in wine industry

Cost Structure comparison for all the demands and platforms, S5 wine

	100				1.000				2.500				5.000				8.000				15.000				25.000				50.000				100.000				200.000			
	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com	Tmall Global	Internati onal	Tmall Classic	JD.com
Fixed annual cost	0.	0.	54	62	0.	0.	47	54	0.	0.	41	46	0.	0.	35	38	0.	0.	30	32	0.	0.	22	23	0.	0.	16	17	0.	0.	10	10	0.	0.	5.	5.	0.	0.	3.	3.
Platform and develop	68	67	32	22	49	48	29	20	38	37	26	19	29	30	23	18	24	25	21	17	18	19	17	16	15	16	15	15	11	13	12	14	10	11	10	13	9.	10	9.	13
Internal	25	26	10	12	17	18	9.	10	12	13	8.	9.	9.	9.	7.	7.	7.	7.	6.	6.	4.	4.	4.	4.	3.	3.	3.	3.	1.	1.	2.	2.	0.	0.	1.	1.	0.	0.	0.	0.
Duties	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	1.	1.	0.	0.	1.	1.	1.	1.	2.	2.	1.	1.	2.	2.	1.	1.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
Taxes	2.	2.	0.	1.	11	12	5.	6.	19	19	10	11	26	27	16	18	30	32	22	23	36	37	29	31	39	40	35	36	42	43	42	42	44	44	46	45	45	45	49	48
Logistics	2.	2.	0.	0.	12	13	4.	5.	15	14	6.	6.	13	11	7.	6.	12	10	7.	6.	11	8.	8.	5.	11	7.	8.	5.	10	6.	8.	5.	9.	7.	8.	6.	8.	7.	7.	6.
Production	0.	0.	0.	0.	2.	2.	0.	0.	3.	4.	1.	1.	5.	5.	2.	2.	6.	6.	3.	4.	7.	8.	5.	5.	8.	8.	6.	6.	9.	9.	7.	7.	9.	9.	8.	8.	9.	9.	9.	8.
Marketing	0.	0.	0.	0.	5.	5.	1.	1.	9.	9.	3.	3.	13	13	5.	6.	15	16	7.	8.	18	19	10	10	20	21	12	12	22	22	14	14	23	23	16	16	23	23	17	17

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10. Figures and tables index: