

The Silk Road Renaissance

Opportunities and Challenges of China's New Silk Road for PMI's Export



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This dissertation is submitted for the degree of
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Engineering master of science

Ego

Declaration

I hereby declare that except where specific reference is made to the work of others, the contents of this dissertation are original and have not been submitted in whole or in part for consideration for any other degree or qualification in this, or any other university. This dissertation is my own work and contains nothing which is the outcome of work done in collaboration with others, except as specified in the text and Acknowledgements.

Giuseppe Franza
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Abstract

The single author, with co-examiner dissertation that follows is the result of several months of work and is presented as thesis for the master degree in Management Engineering at Politecnico di Milano.

The goal of the study and its seven chapters is to understand, by analyzing both the New Silk Road offer and the PMI export necessities, the opportunities and complexities that its adoption would bring. What follows is then indeed an empirical study, based on primary and secondary data; tertiary data elaboration are also present in the PMI export evaluation.

Chapter 1 This brief section will better introduce the study goals, hypotheses and some of its frameworks.

Chapter 2 A literature review will take place, followed by a more structured definition of both the conceptual and methodological framework.

Chapter 3 In this chapter the Chinese side will be analyzed thanks to an infrastructural and managerial study of the Rong'Ou and Yi'Xin'Ou railroads inner workings.

Chapter 4 In a parallel way, this section will instead study both the PMI export situation and the logistic agents necessary to leverage the corridor.

Chapter 5 This is the core of the study, as Literature and Empirical findings from the previous chapters will be merged and analyzed. These are indeed the opportunities and complexities that sparks when an PMI is put in the same framework with the New Silk Road.

Chapter 6 What follows are the managerial implications along the export journey, focusing in particular on the promotion towards PMI aspect of the line.

Chapter 7 This brief section will conclude the study, also presenting guidelines and suggestions for the future incoming works on the same topic.

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Nomenclature

Acronyms / Abbreviations

3PL Thirty Party Logistic

APS Advanced Planning System

ATECO ATtività ECONomiche

B2B Business to Business

B2C Business to Consumer

BM Business Model

CBE Cross Border E-commerce

CBEC Cross Border E-Commerce

CIQ China Inspection and Quarantine

CRCC China Railway Construction Corp.

DAP Delivery At Place

EPZ Export Processing Zone

ERP Enterprise Resource Planning

EU European Union

FF Freight Forwarder

FTAAP Free Trade Area of the Asia Pacific

FTA Free Trade Area

FTZ Free Trade Zone

IATA International Air Transport Assoc.

ICE Istituto Commercio Estero

IEC International Entrepreneurial Culture

ILU Intermodal Loading Unit

INV International New Venture

ISTAT Istituto centrale di STATistica

JAFZA Jebel Ali Free Zone Authority

KPI Key Performance Index

LCL Less than Container Load

LTL Less than Truck Load

MRP Material Requirements Planning

PBC People Bank of China

PMI Piccola Media Impresa ***Will be used instead of Italian SME to boost clarity against (European) SME.***

POV Point Of View

PTA Preferential Trade Agreement

ROC Rank Order Clustering

SME Small Medium Enterprise

SREB Silk Road Economic Belt

TEU Twenty Foot Equivalent Unit

USA United States of America

VAT Value Added Tax

WOD Word of Mouth

WTO World Trade Organization

Chapter 1

Introduction to the study

The goal of this brief chapter is to introduce the whole work, focusing especially on the reason why it was considered fit for a thesis and on the problem the latter tries to solve.

1.1 Problem statement

SMEs, small and medium enterprises, are the core of Europe economy. Even if usually very different from Big companies, not only in financial terms but also from a managerial point of view, the trend of international export hit them as well. Driven by both saturated local market or the new opportunities abroad, PMIs are undergoing (with a slightly delayed timing) the same transformation, with all the complexities that to become exporters brings. The lack of managerial mindset, support abroad or intercontinental logistic structures are only some of the business-changing problematics that a wannabe exporter SME faces nowadays; even in a country like Italy, where the trade balance surely shows a surplus.

Meanwhile, China is undergoing deep and never seen before transformations; from a population that is getting increasingly richer and interested in the world beyond their Republic, to a more stable economy that is finally ready to sustain free-trade. For this reason and much more nowadays the world is indeed observing a millennial shift in power between China and its usual trade partners, such as Europe or USA. Long gone are the days of the "Made In China", intended as a signal of a cheap product, as the People Republic is quickly becoming the biggest world importer of goods.

The conjunction of those two macro-trends is the revival of the New Silk Road, a conglomerate of railways that indeed connects Europe and China; how can the new Rong' Ou and Yu' Xin' Ou block-train railroads, with their transit time far shorter than sea and prices far below air transportation, fit in this world scenario and empower both actors? What will be the opportunities and the managerial implications for PMIs?

1.2 Background of the study

The thesis background is composed by three main literature topics, that together will suffice to the lack of literature on the main theme: SME export, Intercontinental logistic and China international trade. Thanks to those, it will be possible to build the knowledge to approach both the PMI export and the study of the Chinese logistic infrastructure known as New Silk Road. Here below in a top-down fashion, all the knowledge branches the study will try to address.

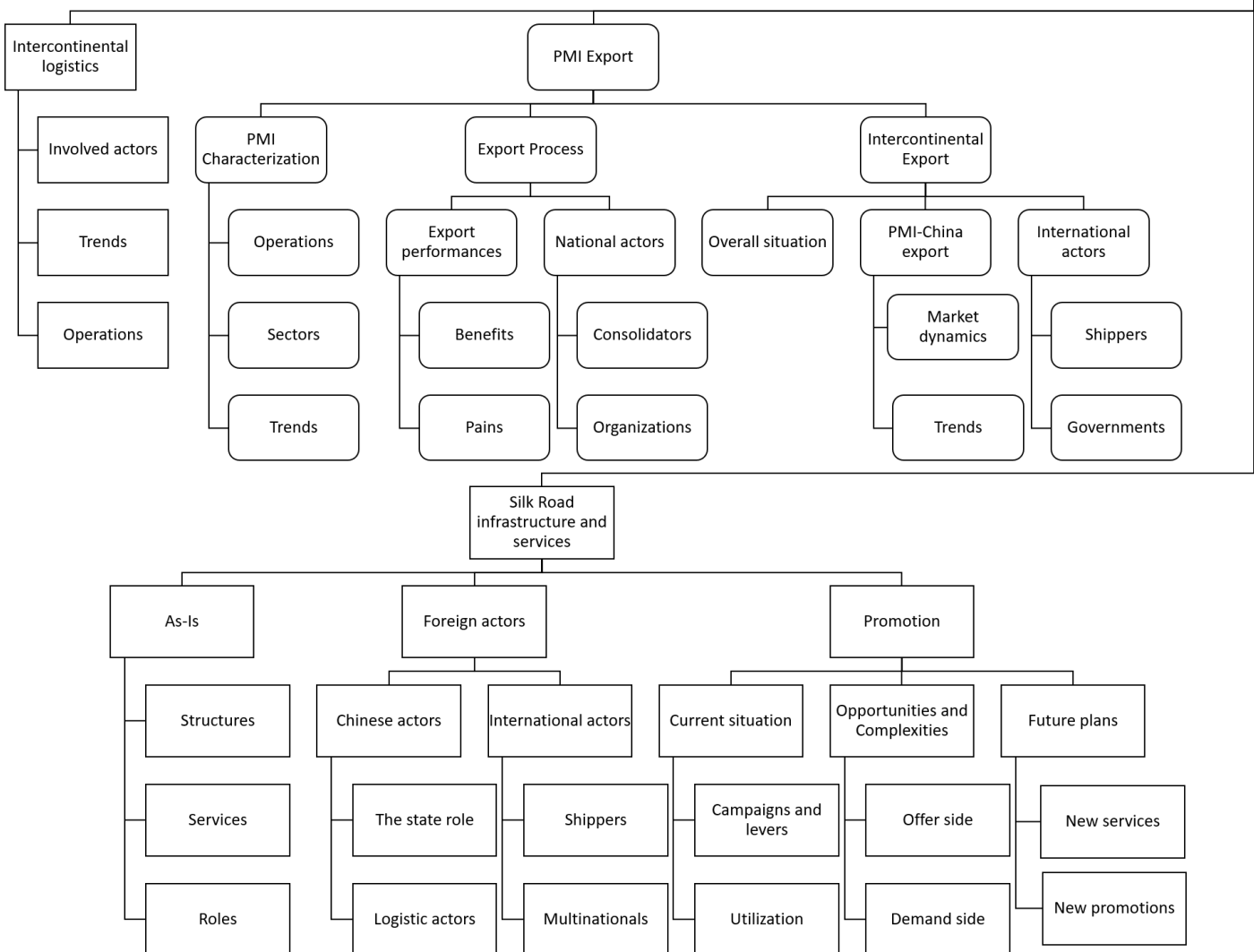
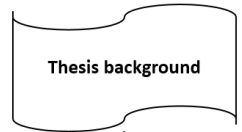


Fig. 1.1 Background of the study.

1.3 Theoretical foundation

While a more compact and refined Conceptual Framework will be presented after the literature review, here is a complete rundown of how the previous knowledge areas will be leveraged.



Fig. 1.2 Thesis overall logic flow, main areas are in black, secondary ones in gray.

The above graph does not represent the order nor the method (this will be addressed once again after the literature review, during the Methodological Framework section) but instead presents the overall logical flow of the information. First of all it's important to notice that there are two clear sides, the Italian one, and the Chinese one: the first is all about PMIs (in the graph, differentiated by regular SMEs by the nomenclature PMI, Piccola media impresa), their sector of operation, their relationship with oversea export and overall characterization. Their logistic approach will be analyzed too, along with every agent involved. The focus while evaluating the Chinese side will instead be its own trade policies, social changes and of course the New Silk Road infrastructure. The latter will have a preferential spot and will be investigated in many ways, especially regarding its inner workings and the opportunities that will unlock for small exporting companies.

Another key element will be the study of how the corridor is being promoted, in order to understand what is according to the Chinese themselves the target, the strong aspects of the line and its future developments.

The link between the two world will be indeed the promotion towards SMEs and intercontinental logistic, with all the international actors that are necessary to perform it.

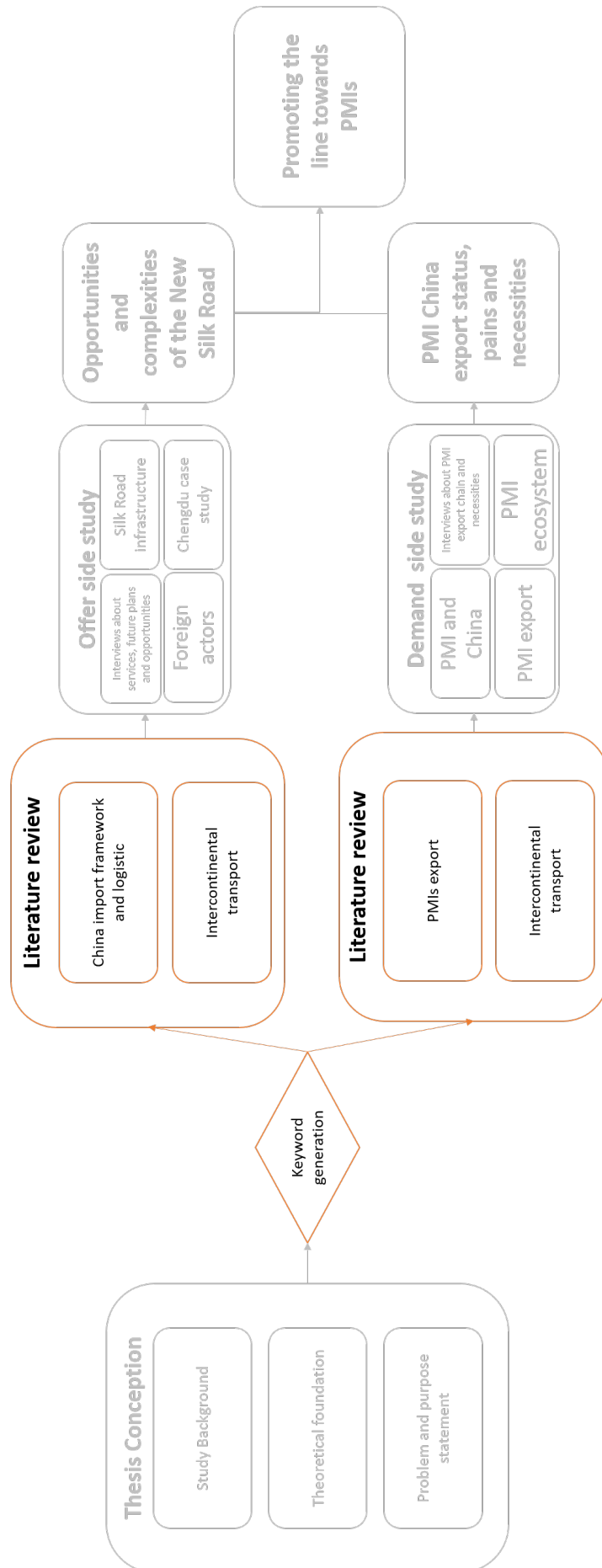


Fig. 1.3 Fraction of the methodological framework regarding upcoming Chapter 2

Chapter 2

Literature review

2.1 Introduction and methodology

A constant struggle in the whole work hereby presented is not to leave anything to chance, nor a choice nor a path to take, to prevent the outcome to develop in a random (or worse, biased) direction.

For this very reason, the literature review is organized with a top-down approach, selecting first several unstructured keywords from general concepts regarding the ultimate thesis goal, that are then filtered, joined in clusters and step by step analyzed from a point of view that takes both into account the number of valid studies that the main search engines deliver as output, and the scope of this studies.

Once that the keywords were clustered a first time, as we will see in detail in the correspondent section, a first set of considerations took place (mostly related to statistic linked to once again the output papers) to start approaching big themes of the whole thesis and current macro trends (just like the huge imbalance between studies on China import/export and Europe import/export itself).

The second struggle, still related to our desire to generate a reasoned and replicable set of keywords, is to understand when precise and relevant search results are met. Three keywords may be too few to generate a promising set of (focused) articles, but maybe five may be too much restricting; the same applies to constrictions like paper typology, year of publication and so on. Once that I managed to reach various arrays that lead to focus results; for example, if [RAILWAY or RAILROAD] and [EXPORT or IMPORT] was a keyword complex enough to generate a focused cluster of articles about rail transportation usage in import-export, when dealing with “huge” keywords like CHINA, more modifiers were to be added. To reach this final step, as we will see, I merged single keywords or pre-generated arrays with existing elements of both previous categories.

An ulterior clustering is then applied, thanks to a ROC algorithm, to create classes and main themes among the keywords. Once the keywords arrays were selected and went through a final (purely logical, based on full meaning of the set of words) clustering, I started using these strings to gather search queries and start looking for previous papers and articles. I assigned to every article that seemed valuable for my research (so just reading the abstract) a score, and finally read the ones that really seemed promising. The final selection can be observed in Table 2.1.

What follows will be divided into 4 sections , an APPENDIX walk-through of the keyword selection process (with some preliminary research on apparent trends), a first papers review about China Import, a second about intercontinental logistics and finally on PMI export barrier and performances (that is indeed the link between the two previous topics).

A brief fraction of all the discussed sections (expect the first one of course) will be dedicated to statistics that pops out from the articles themselves, such as dates, trends, typology of study; then a brief historical introduction of the topic will start the review itself.

Table 2.1 Final literature review clusters, color coded.

	6	5	7	8	9	3	4	2	1
1	Performances	Logistics							
2	Performances	Logistics	PMI or SME						
3	Performances	Logistics		Railway or Railroad or Rail Freight					
4			PMI or SME	Railway or Railroad or Rail Freight					
5	Performances				Import				
6			PMI or SME		Import				
7				Railway or Railroad or Rail Freight	Import				
8	Performances	Logistics				Export			
9			PMI or SME	Railway or Railroad or Rail Freight		Export			
10		Logistics			Import	Export			
11		Logistics		Railway or Railroad or Rail Freight	Import	Export			
12	Performances	Logistics					Italy		
13		Logistics	PMI or SME				Italy		
14	Performances				Import		Italy		
15		Logistics			Import		Italy		
16			PMI or SME			Export	Italy		
17				Railway or Railroad or Rail Freight		Export	Italy		
18				Railway or Railroad or Rail Freight		Export	Italy		
19			PMI or SME	Railway or Railroad or Rail Freight		Export	Italy		
20		Logistics			Import	Export	Italy		
21		Logistics		Railway or Railroad or Rail Freight				China	
22		Logistics			Import			China	
23						Export		China	
24		Logistics				Export		China	
25				Railway or Railroad or Rail Freight		Export		China	
26			PMI or SME	Railway or Railroad or Rail Freight		Export		China	
27		Logistics			Import	Export		China	
28				Railway or Railroad or Rail Freight			Italy	China	
29		Logistics	PMI or SME						Barriers
30		Logistics			Import				Barriers
31		Logistics		Railway or Railroad or Rail Freight	Import				Barriers
32						Export			Barriers
33			PMI or SME			Export			Barriers
34				Railway or Railroad or Rail Freight		Export			Barriers
35			PMI or SME		Import	Export			Barriers
36		Logistics					Italy		Barriers
37			PMI or SME				Italy		Barriers
38				Railway or Railroad or Rail Freight			Italy		Barriers
39					Import	Export	Italy		Barriers
40								China	Barriers
41					Import	Export		China	Barriers
42						Export	Italy	China	Barriers

2.2 China logistics and import framework

Brief introduction and literature trends

The study of the literature offerings and overall distribution of this study starts indeed from the Chinese side. In the years, the topic of China trade changed probably a lot more than the ones that follow this particular section of the literature review; this is mostly because China geopolitical role changed immensely in a relatively short period of time.

The literature trends in the 70s and 80s were all about historical studies on past China-World trade schemes, porcelain market dynamics (for centuries, one of the biggest Chinese exports, porcelain in the USA is indeed called china) and of course commentaries on the past rural economy of the country. It is possible to observe the first shift of academical interest already during the 80s and 90s as the consequences of better USA-China relationship were evaluated, along with the first trade openings; this is also the time were the topic of international joint ventures started being a very present one. This is a clear indication of how China was already starting its path toward becoming a relevant trade partner. This trend continues between the 90s and 2000 where bilateral trade was heavily studied, along with the crazily growing China export and new promising economic reforms. Nowadays, China trade literature is mostly about the ecological impact of logistic, free trade, and the new China economic position; this is indeed the beginning of the next section.

1975-1985	Historical studies	Porcelain trade	Close trade
1985-1995	Trade openings	Int. Join Ventures	USA-China relations
1995-2005	Bilateral trade	China export	Economic reforms
2005-Today	Co2 impact	Free trade	New China role

China import and logistics

China and Europe have been firmly connected since the Opium wars, but today they might stand on reverse economic and power positions. If the various studies ¹ that supports the idea that the sum of Chinese investment and spending in Europe's infrastructure, real estate, luxury products and tourism sectors is a good KPI to reflect the changed economic positions of China and Europe are right, this is indeed the case of a millennial shift in power.

The literature behind China import is incredibly massive and as we seen already not necessarily linked to very recent years. To approach in a comprehensive manner this topic is beyond this thesis scope, so we will focus on the (much smaller and recent) new Rail-economic belt in a separated section, and here just create a brief literature framework about past,

¹Jamil Anderlini (2014) The Economist;

current Import and Logistic trends in China. According to the clear majority ² of logistic and geopolitical papers read, after the 1980s, China logistics gradually shifted away from the socialist mode to the free market mode: for a big chunk of the 2000s (and partially nowadays) it was the mixture of both.

- **1980** Prior to this date, everything from production to distribution was State planned and controlled in what became known as the three-tier system ³:

Tier 1 distributors were in Beijing, Shanghai, Tianjin, and Guangzhou.

Tier 2 was composed by wholesalers in the provincial capitals and secondary cities.

Tier 3 was all about the small cities.

Distributors were not allowed to import products, as this was the role of the Foreign Trade Corporations; the latter was, symmetrically, not allowed to sell products without passing them to distributors ⁴.

1980 - 2005 This whole system started to crumble when China necessitated a faster, easier interaction with the rest of the world, but even after their entrance in the WTO (21 December 2001), the vast majority of restrictions on sales, services and distribution State rules still applied, until 2005. China's trade with the rest of the world has grown from only 20 billion at the beginning of the reforms to more than 500 billion in 2005. After this date, China's distribution system obviously started changing and getting closer and closer to an open system.

2005 - Today The WTO publishes a bi-annual review about China improvements and changes, the last available was published July 2016, where it is made clear that China current trade patterns are greatly influenced by its actual growth but also desired (slower, tech oriented) growth. One preferred way to create trade flows seems to be to create PTAs: as at December 2015, China had indeed signed 15 preferential trade agreements. China has continued its efforts to facilitate trade by launching an array of reforms to make customs procedures more efficient both for exported or imported

²Jiang, Bin, and Edmund Prater(2002)

Goh, Mark, and Charlene Ling. (2003)

Nee, Victor (1992)

Vanhonacker, Wilfried R. (1996)

Ling (2010)

³Chen (2001)

⁴Baldinger (1998)

Peng, Li, Vellenga (1993)

goods. Paperless (digital) customs clearance was implemented across China in 2014 and in 2015 an automatic import licencing system was put in place.

Goods, as of today, are still divided into three categories: not restricted, restricted and prohibited; so China charges export taxes on certain products, and applies quotas or bans on others. The biggest trends that are contributing to this shift towards a free market approach are the booming economy, entering the World Trade Organization (as we just explained) and the e-commerce ⁵.

2.2.1 The new silk road

As already pointed out in the statistical section, in the last couple of years (2013-2017) a new logistic related topic approached the minds of researchers all over China and Europe: the revival the “Silk Road”.

The most discussed points, literature wise, are surely about the story of the infrastructure itself ⁶, and the impact on China Import strategies ⁷. The official policy of creating, northern than the ancient route, a west economic corridor was communicated in 2013. According to the December 2014 Financial Review, China agreed with Hungary, Serbia, and Macedonia to build a rail corridor between Budapest and Belgrade, which will be financed by Chinese companies and completed by the end of 2017.

Strategy wise, it is reasonable to assume that all this is clearly designed to accelerate the movement of goods between china and Europe ⁸; an excellent opportunity for a European continent that is still struggling to recover from the crisis. While a trend in the reported literature seem to consider this infrastructure as a natural response to the outstanding growth in trade between China and Europe (EU is indeed China largest trading partner since 2003), others see a China maneuver to seal the shift of power that characterized the last few years. Another trend in the geopolitics literature is to classify this move from China as a way to “block” Russian attempts in cutting them off: after rejecting the Chinese initiative to create a free trade zone among China, Russia, Kazakhstan, Kyrgyzstan and Tajikistan, Russia created its own Eurasian Custom Union with Kazakhstan and Belarus. This move is perceived in

⁵Wong, Xiaodong, David C. Yen, and Xiang Fang. (2004)

⁶Li, Peiyue (2015)

Van der Putten, Frans-Paul, and Minke Meijnders. (2015)

Wang, Ziping, Dong-Qing Yao, and Peiqing Huang (2007)

⁷Fallon, Theresa (2015)

YANG, Shu, and Shu-sen WANG (2014)

Kaczmarek, Marcin. (2015)

Pelkmans, Jacques (2016)

⁸Chen, Xiangming (2015)

Beijing to have been undertaken to exclude China.

A prominent cluster of papers also analyses China effort in speeding up a number of legal issues and process in order to make everything related to the import smoother ⁹ (from free trade zones to ad-hoc laws) or try to propose some necessary ones: an overall reported incredible effort from the Chinese. The future of free trade zones deployed from China is deeply analyzed, but from few papers: overall even is the EurAsian free-trade zone would encompass an economic area that generates a significant portion of economic growth, China is already looking towards an even more ambitious Free Trade Area of the Asia Pacific (FTAAP). This economic area is supposed to encompass the Pacific Rim states but would require agreement between the United States, Russia, and China (which seems highly unlikely).

A less discussed argument, are the direct consequences to Europe ¹⁰ (surprisingly, only a fraction of those articles comes from Europe itself, the clear majority is still from China universities and institutions): overall, studies agree on the fact that this is China's most ambitious geo-economic and foreign policy initiative in decades and that a response from Europe is needed. This reply (especially on the monetary and financial aspects) is taking more than expected, just like a political discussion about having "Beijing's inroads" into Europe; security is also a concern that needs to be addressed.

2.3 Intercontinental transport

Brief introduction and literature trends

Transport system always exerted a profound effect on the development of travel from ancient times. The movement of these early travelers from origin to a destination was made possible by well-engineered road systems, organized road and sea travel. In more recent times the development of new typology of vehicles (from the steam train to the airplane) have added to humanities' ability to undertake travel to even the remotest corner of the globe.

The logistic scenario changed during the last decades, during the 70s it was mostly focused on urban planning and the warehouse's mechanization (e.g. pallets and pallet lifts) while

⁹Heilmann, Sebastian (2014)

Brugier, Camille (2014)

Kim, Younkyoo, and Fabio Indeo. (2014)

Article: "European meats are transported directly to Chengdu," The People's Daily, April 26, 2014

Jiang, Bin, and Edmund Prater. (2002)

¹⁰Casarini, Nicola (2016)

Article: "Li forges a new link in Serbian relations", The China Daily, December 19, 2014, p. 1.

Li, Yuan, Kierstin Bolton, and Theo Westphal (2016) Duisburger, Arbeitspapiere, Ostasienwissenschaften (2016)

during the 80s the first discussion about optimization models and routing flooded the scientific literature. In these years, also the topic of supply chain management became more mainstream; this led to the 90s to topics like ERP, MRP and APS systems¹¹. However, after the 2000s the most common topics of research related to transports are pollution related, especially in intercontinental matters. It is possible to identify some other modern literature clusters, such as third party logistics (3PL), optimization of routes and capillarity studies (mostly based on intermodal¹² transport).

1975-1985	Urban movements	Warehouses mechanization	Freights/trucks focus
1985-1995	Inventory optimization	Routing optimization	Supply Chain management
1995-2005	ERP systems	MRP systems	APS systems
2005-Today	Ecological impact	Third-party logistics	Intermodality

Intermodality, shipping and 3PL

Apart from ecology related studies, a significant cluster of researches focuses on a relatively new logistic trend, intermodal and multi-modal transport: the association of two or more modes of transport in a transport chain is a well-established and regular practice in the freight transport business¹³. This surely highlights the growing interest in both SME and large enterprises in constructing more efficient supply chains; intermodality indeed permits an increased capillarity and to cut costs immensely by alternating logistic solutions. Intermodal transportation is a quality factor of the level of integration between different transport modes. In that respect more intramodality means more integration and complementarity between modes, which provides scope for a more efficient use of the transport system¹⁴. In the body of literature, the emphasis has been placed on the concept of intermodality¹⁵, although cluster of studies for combined transport do exist^{16 17}.

However, at the hearth of all those transportation methods, since 1960 the backbone is surely constituted by container shipping. This global trade is deeply studied in literature and

¹¹As defined by Investopedia, Enterprise resource planning (ERP) is a process by which a company (often a manufacturer) manages and integrates the important parts of its business. An ERP management information system integrates areas such as planning, purchasing, inventory, sales, marketing, and finance

¹²In 1997, the European Commission proposed a definition for intermodal transport: "Intermodality is a characteristic of a transport system that allows at least two different modes to be used in an integrated manner in a door-to-door transport chain.

¹³Lowe (2005)

¹⁴Vasco Reis, J. Fabian Meier, Giuseppe Pace, Roberto Palacin (2013)

¹⁵Bontekoning, Macharis, Trip (2004); Janic, Reggiani (2001); Lowe (2005); Panayides, 2002; Zografos, Regan, (2004)

¹⁶Lowe (2005), for multi-modal transport, or Lowe (2006), for combined transport)

¹⁷United Nations, 2001, pp 18

estimated to account for 13% of seaborne trade in volume and 49% by value¹⁸. It is also evident from the literature that the importance for the ongoing space/time collapse relates more to cost reductions than to increased speed¹⁹. The maritime part of the intermodal transport chains trend is to employ ever larger ships to cope with increasing transport demand and for facilitating lower unit costs²⁰. With latest vessels on order reaching 14,000 TEU²¹²², progress in ports and hinterland operations must improve similarly to fully realize the economies of scale²³. Also, the transport services to the ports' hinterland, the "the interior region served by the port"²⁴, are strained by the increasing flows.

According to European Union Road Federation (2008), in the period of 1996–2006, European hinterland transport market share for road increased by about 5%; while for rail it decreased by 4%. Furthermore, road transport has the biggest market share of 76%²⁵. Besides the introduction of double-stack trains in the US in the 1984²⁶, improvements in land transports has generally not followed the ones at sea. Still, these containers are already being run on electric traction routes in China²⁷ and are being discussed in Sweden and the Netherlands. An intermodal road–rail terminal can simply be described as a place equipped for the trans-shipment and storage of intermodal loading units between rail and road; there are intermodal terminals in a great variety of shapes and sizes. Some basic functional criteria like²⁸ traffic modes, trans-shipment techniques, network position or geographical location, can be used to classify Intermodal terminals. Nevertheless, the transshipment between traffic modes is the characterizing activity.

Strategically literature wise, the globalization of supply chains implies that it is often attractive for shippers to outsource value adding services such as customs, packaging or sequencing to logistics service providers at strategically placed nodes²⁹. Big firms increasingly switch to third-party logistics (3PL) providers, to focus on core competencies; for small companies, this is instead the only way to go. Through logistics outsourcing, firms can save an average of 11.8% on logistics costs, 24.6% on logistics assets, and 8.2% on inventory costs, while

¹⁸Cullinane and Khanna (2000)

¹⁹Rodrigue (1999)

²⁰Cullinane and Khanna (2000)

²¹(World Cargo News, 2006)

²²TEU (Twenty Foot Equivalent Unit) is the unit of the capacity of a container ship, a container terminal and the statistics of the container transit in a port.

²³McCalla (2007)

²⁴defined by van Klink and van den Berg (1998)

²⁵(European Union Road Federation, 2008)

²⁶DeBoer (1992)

²⁷Cheng (2004)

²⁸Höltgen (1995)

²⁹Cheung, (2003); Notteboom and Winkelmanns (2001); Paixão and Marlow (2003); Robinson, (2002)

shortening their average lead time from 7.1 days to 3.9 days³⁰. For example, in Europe, 76% of large enterprises use 3PL, and 70% of them have more than one 3PL partner³¹. As China³² establishes its status as the world's second largest economy and number one exporter, with the logistics process as a key component of the nation's³³. On the other hand, the 3PL provider still needs to consider the reactions of the producer while negotiating on the transportation fee and other clauses with the producer. Carriers charge three types of rates: published, counter, and negotiated³⁴. However, no business firms should accept published shipping rates³⁵, and it is common that 3PL providers such as UPS, FedEx, and DHL offer shipment specific pricing contracts. Transport time variance can be very significant for long-distance transportation.

The literature about 3PL is quite vast, and it spans in both logistics and business strategy dimensions. For example, some researchers³⁶ develops a theoretical framework, including both transaction cost theory and network theory, to explain the role and motivation of third-party outsourcing arrangements. Others³⁷ study a peculiar class of freight consolidation policies of a 3PL provider that seeks to maximize the utilization of expensive transportations, or explores³⁸ the major considerations in searching for a 3PL provider and develops an evaluation framework.

³⁰Rui (2008)

³¹Li (2009)

³²An interesting amount of studies describes how the Chinese government has realized the strategic importance of logistics and started investing heavily in infrastructure, warehousing capability and distribution facilities . To accelerate the nation's economic development, the Chinese Ministry of Commerce (in 2008) removed the restriction on foreign investment in the logistics industry. Under this new policy, many state-owned, foreign-owned and private logistics service providers have been established, and the Chinese logistics market has gradually emerged.

³³Chen (2010)

³⁴ Article: Envista "Key components of parcel pricing." (2010)

³⁵Sanfilippo (2008)

³⁶Skjoett-Larsen (2000)

Shang KH, Song JS, Zipkin PH.(2009)

³⁷Tyan JC, Wang FK, Du TC.(2003)

³⁸Vaidyanathan (2005)

2.4 SME intercontinental export and internationalization

Brief introduction and Literature trend

In time, the literature changed deeply, as it went from the search of a link between financial data, company structures, country of origin and internationalization stage ^{39 40}, to more recent studies where at the very core of the internationalization and export performance is the manager attitude itself.

Export barrier research dates back to the 1970s. The majority of this exploratory or theory-setting research originates from the USA⁴¹. This early research sought to examine the influence of export barriers in a wider context, conceptualizing them as one among a host of variables which could explain the behavior of an internationalizing firm ⁴²). In recent years, studies have begun covering a broader geographic scope ⁴³ and attention has migrated from a probing to a confirmatory approach ⁴⁴.

Overall, the whole export related SME literature clearly moved from a financial/geographical approach to a deep manager centric one.

Internationalization, IEC framework and performances

With the world that gets more and more connected, and where nowadays global companies manage to sell their product even in rural areas, eradicating a good fraction of the natural small companies ecosystem, it is normal for the latter to approach export. With more and more local saturated market, where your product is even worth more as considered national and standard, SMEs are nowadays leveraging deeply export as a valve for future expansion. While an impressive chunk of the international entrepreneurship literature is closely addressing the INVs (international new ventures ⁴⁵) dynamics, the international opportunity-seeking of small firms is a lot less present topic. Research into small firm exporting has been indeed largely empirical and descriptive, lacking the kind of theoretical underpinnings that could

³⁹Alonso and Donoso (1996) Cavuşgil (1983)
Crick (1997) Czinkota (1982)
Diamantopoulos (1993) Francis and Collins-Dodd (2004)
Gençtürk and Kotabe (2001) Naidu and Rao (1993) Olson (1975)

⁴⁰Firm Size, distinctive capabilities (competitive advantage), previous expansion of the firm in the domestic market

⁴¹Alexandrides (1971)

Bilkey (1978)

Pavord and Bogart (1975)

⁴²Bilkey (1978)

⁴³Leonidou (2004)

⁴⁴Tesfom and Lutz (2006)

⁴⁵Small firms that move abroad from the very beginning of operations. McDougall, Shane (1994)

lead to the development of a substantial export strategy literature. Of this cluster the most studied and discussed parameter is the time of internalization dimension, but as pointed out by many types of research, it is extremely complex to create a common ground for that as firms are open to almost "infinite variations and disaggregation" ⁴⁶.

The problem is that there are impressive behavioral differences in the internationalization path between companies that differ even just slightly financially or economically, mostly due to what the researches call IEC, international entrepreneurial culture. Therefore, the main field of study is all about which factors or even managerial attitudinal characteristics may impact the export performances. The IEC is a comprehensive concept that pinpoints behavioral entrepreneurial aspects of the internationalized SME beyond international entrepreneurial orientation made up of pro-activeness toward competition, innovativeness and risk attitude abroad ⁴⁷, but many studies tried to expand those key characteristic, putting in the mix also background of management for example. Those studies have examined the impact of managerial attitudes, marketing mix variables, and organizational resources on a wide range of export related activities ⁴⁸. In recent years the emphasis has remained empirical, but the data sets have become larger and the methods used have become more sophisticated. Some of the factors most believed to have great influence on export are ⁴⁹

1. Management age and educational level
2. Management experience abroad and language proficiency
3. Management risk and change aversion
4. Management personal ambition
5. Management innovation and dynamism

While a lot of studies tries to link all those self-reported factors to export and internationalization performances, as we pointed out very few presents financial data backing up conclusions or even the model itself. Perceptual measures were used instead of financial measures (often in order to avoid the typical reticence of respondents who are asked to provide financial information). However, Previous research has found that perceptual measures are highly correlated with "objective" financial data ⁵⁰ and such an approach has been used

⁴⁶Mathews and Zander (2007)

⁴⁷Dimitratos, Voudouris, Plakoyiannaki, and Nakos (2012); Zahra (2005)

⁴⁸Cadogan, Diamantopoulos, and Siguaw, (2002)

Gray (1997); Leonidou and Katsike'as (1996)

Peng and Ilinitch (1998) ; Joan Freixanet (2012)

⁴⁹Sonia M. Suárez-Ortega Francisca R. Álamo-Vera, (2005)

Lance E. Brouthers and George Nakos (2010)

⁵⁰(Dess and Robinson (1994); Geringer and Hebert (1991)

in many studies⁵¹. This is why those parameters will be kept in mind during subsequent analyses.

Other aspects, not related to the management, deeply studied are the effects of export promotion programs in companies. An important part of these studies has focused on evaluating only specific programs⁵². The most frequently considered is the use of sponsored foreign trade shows. Other programs evaluated are trade missions, foreign trade offices, and information programs. But if these are the parameters that, according to researchers, mostly impact on export performances, how are these same performance defined?

Due to its complex nature, export performance is one of the least understood areas in international business⁵³. It is, therefore, no surprise that there is a lack of agreement on the conceptualization and operationalization of the construct⁵⁴ and that, until now, research into export performance has predominantly focused mainly on its financial outcomes. For example, measure export intensity⁵⁵ (i.e. export-to-total production or export-to-total sales ratio), use export sales volume⁵⁶, export market share, and profitability⁵⁷.

Also, relationships with different stakeholders should be considered when measuring export performance. For example, shareholders and managers may have differences of opinion on export performance, making it difficult to reach a consensus concerning the operational measures to be used⁵⁸. Further, the relevance and importance of performance dimensions may also vary across other stakeholder groups, such as employees and customers.

In conclusion, there is no universally accepted criterion for export performance: firms measure and judge export performance on various dimensions. Export barriers are instead clear and very coherent among literature.

Export barriers can be defined as “all those constraints that hinder the firm’s ability to initiate, develop or sustain business operations in overseas markets”⁵⁹. For non exporting firms, barriers are considered prohibitive and may be one of the reasons for non-internationalization⁶⁰.

⁵¹Brouthers and Xu (2002); Luo, Shenkar, and Nyaw (2001)

Nitisch, Beamish, and Makino (1996); Woodcock, Beamish, and Makino (1994)

⁵²Spence (2013); Brouthers and Wilkinson (2006)

Davar and Wheeler (1992)

⁵³Leonidou, Katsikeas, and Piercy (1998)

⁵⁴Cavusgil and Zou (1994); Shoham (1998)

Sousa (2004); Coelho (2008)

⁵⁵Zhao and Zou (2002)

⁵⁶Morgan, Kaleka, and Katsikeas (2004)

⁵⁷Bilkey (1982), Cavusgil and Zou (1994) measure export profitability; and Shoham (1998) uses change in export profitability over a five-year period

⁵⁸Madsen (1998)

⁵⁹Leonidou (2004)

⁶⁰Pinho and Martins (2010)

These can be classified as either internal or external challenges ⁶¹.

Internal barriers arise from resource-, managerial-, marketing-, and knowledge-related constraints. Resource-related barriers encompass physical productive capacity constraints, labor skill shortages, and limitations pertaining to short-term financing.

The most frequently researched resource limitations include insufficient productive capacity, cost, and availability of labor skills, working capital financing, securing export credit, and obtaining adequate insurance ⁶². Managerial-related factors remain a key driver or impediment to firm internationalization. There are two subclasses of managerial-related barriers. Managerial orientation encompasses aspects such as focus, ambition, commitment, and effort towards internationalization ⁶³.

Perception of export market attractiveness refers to risk and return expectations or preferences regarding international operations⁶⁴. Managerial-related barriers can also be explored in the context of rationalization mechanisms⁶⁵, mental modes⁶⁶, and cognitive styles⁶⁷.

⁶¹Tesfom and Lutz (2006); Pinho and Martins (2010)

⁶²Arteaga-Ortiz (2010); Crick (2002) Suarez Ortega (2003)

⁶³Silva and Rocha (2001); Hutchinson (2009)

⁶⁴Julian and Ahmed (2005); Moini (1995)

⁶⁵Eshghi (2002)

⁶⁶Yannopoulos and Kefalaki (2010)

⁶⁷Zahra (2005)

2.5 Conceptual framework

In a nutshell, as no previous studies or thesis have been found on the subject the conceptual frameworks has been defined from scratch, mostly trying to both fill literature gaps and to join those in an added value manner; leveraging our Italian point of view.

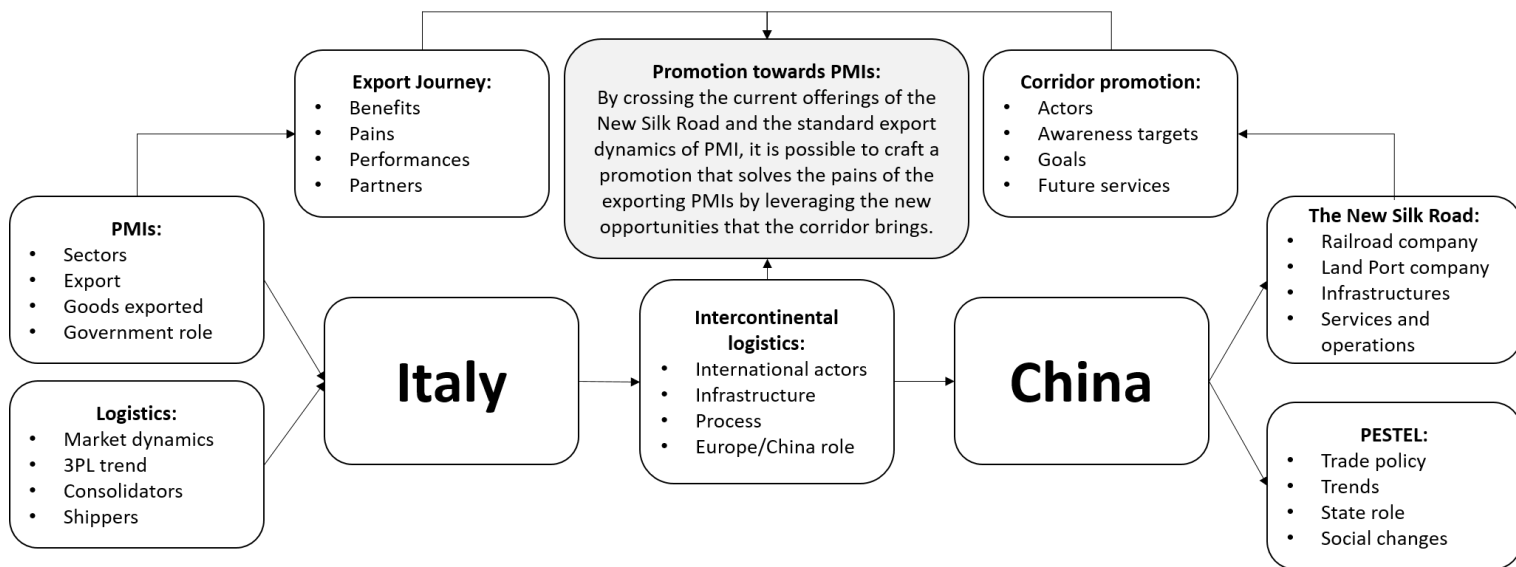


Fig. 2.1 Thesis conceptual framework.

In order to reach the study goal, study opportunities and complexities of the corridor for the PMIs adoption and set the base for a promotion, it is necessary to move across a series of concepts. Logically, the PMI ecosystem must be approached at some point and in the same way the Chinese offer side must be analyzed; the common denominator is surely operational. The gate to China for PMIs is indeed intercontinental logistic and the New Silk Road is indeed a new resource is a much grander flow scheme. This infrastructure surely presents agents and those agents are certainly already promoting the line, while the country itself posses trade policies and sociological trends. At the same time, PMIs presents logistical and export schemes that have to be evaluated in order to understand what are the needs of this actor. The promotion will indeed spark leveraging the intersection of what are the pains and gains in PMIs current intercontinental export system and what the new China trade opening and Silk Road revival has to offer.

From the literature, it is clear that there are some topics that do not need to be studied any deeper, at least for the level of detail wanted in this thesis; the main logistic trends, scenarios and geopolitical factors are known for example, and thus the study will only deepen the key logistic actors and not the ecosystem they find themselves in. Another variables that

do not necessitate further deepening are the Chinese trade policies and social trends; there is a good amount of literature on both and (as presented in this very chapter) it is enough to both understand the social change that is undergoing in China and the gradual trade opening.

What instead has to be deepened is the description of the infrastructures, services and future developing that the New Silk Road has to offer, as no data has been found literature wise at the beginning of this thesis process, October 2016. For the same reason, another variable to deepen and include in the study is the current status of promotion from China itself. On the PMIs side, the literature is lacking Italy specific (not just SME) export studies, so it will be necessary to build a solid set of analyses in this sense.

2.6 Methodological framework

What follows, is the result of some consideration about the overall literature distribution, previous studies and academical requests. The offer side (related to the infrastructure) and the demand side (related to PMIs) will be separately evaluated, and then all the findings related to strength, weaknesses, dynamics and overall possible promotion insights will be joined in the final chapter. This is also the map that will guide the reader along the study.

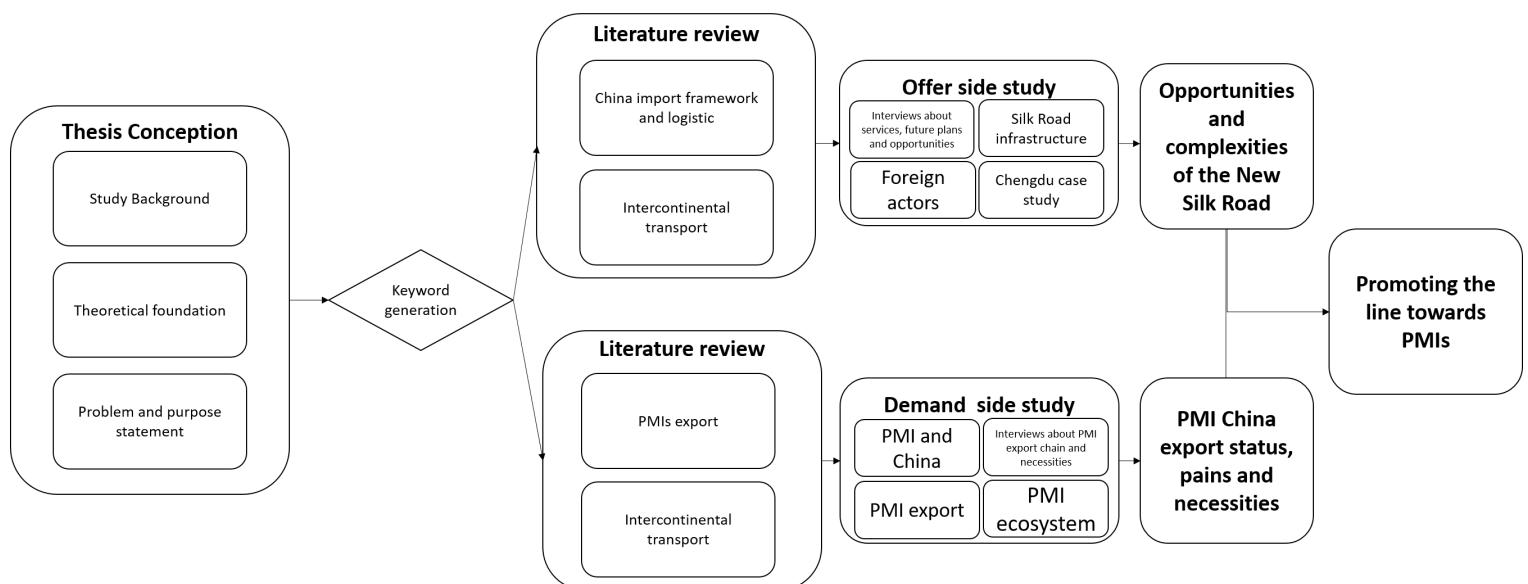


Fig. 2.2 Thesis methodological framework.

2.6.1 How the Chinese side will be studied

The study will start with a comprehensive study about the as-is infrastructure regarding the new silk road ecosystem, as next to no material has been written about structures and service offered, this will be what we will focus on in the beginning. After this as-is study, a case study will be crafted from scratch and showcased, focusing on one of the main logistic parks on the New Silk Road. Some interviews will be conducted in China, to key actors in the logistic center in order to better understand the system as a whole and to highlight problematics and insights about the project: this material will be used to craft the current business model (BM) of the whole service.

The pillars of the discussion will be those highlighted by the literature: China and Europe new relative power position, China approaches to a free market and especially the complexities that these factors bring. One example is what is left by the tier system we learned from the literature: even if China is indeed moving towards a free market, there are still banned goods and goods with quotas on them. About the history of China import/export, and impacts on the European ecosystem of said behavior the study will not focus, as the literature is already crowded with that. For the same reason a pure geopolitical study will not be approached.

2.6.2 How the Italian side will be studied

It is worth mentioning explicitly, in order to not create confusion, that "PMI" and "SME" are NOT used as synonyms in the thesis, "SME" with no attributes encompass the whole European ecosystem; PMI only the Italian SMEs. Moving to the demand side, after a brief introduction on the PMI (*piccole medie imprese*, literally Italian SMEs, small medium enterprises) will be followed by a series of interviews with the key two actors for a PMI exporting to China: National Freight Forwards and Shippers. As the literature is already presenting many and many models that try (and often succeed) to related managerial attitudes to the internationalization tendency of a company, no such general path will be taken. For the same reason to try to develop a model to track export performance will not be considered.

Instead, it was possible to learn from the Logistic branch of literature research that pollution related impact study would not be unique, nor would be a deep analysis of the 3PL Italian ecosystem. For the same reason, intermodal transportation structures and solutions will not deepen, while a focus will be granted to the railway structure and its export potential. A classification of the typology and journey of PMIs that export to China nowadays will be presented, also encompassing the POV of the previous actors and overall of the whole chain. The heart of the chapter however, will be a series of analyses based on tertiary data (elaboration of secondary and primary data) on PMI related topics (characterization, export relationship, etc) that will then be merged first in a deeper ATECO based study about PMIs that exports in China, their sector and best performing goods and finally into a index of adoption for the solution based on the current way of selection PMIs to which propose the corridor.

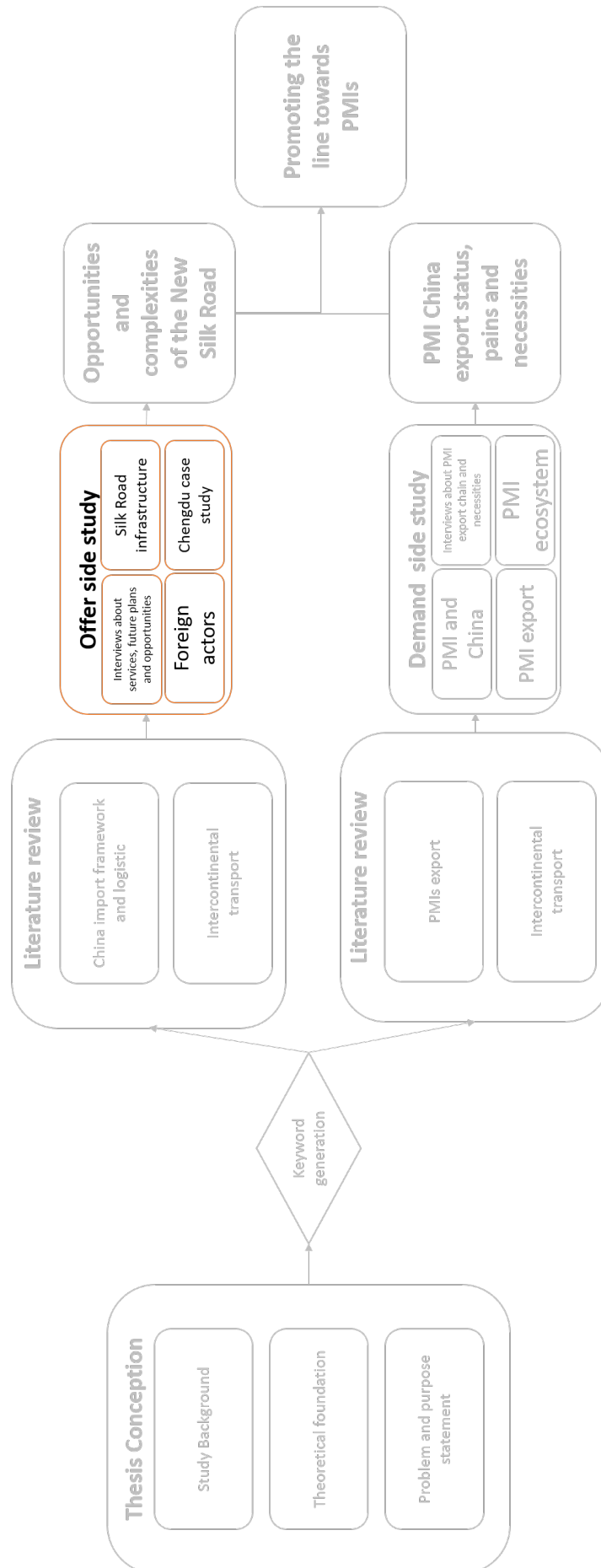


Fig. 2.3 Fraction of the methodological framework regarding upcoming Chapter 3

Chapter 3

China's import: policy, infrastructure and services

3.1 Framework and methodologies

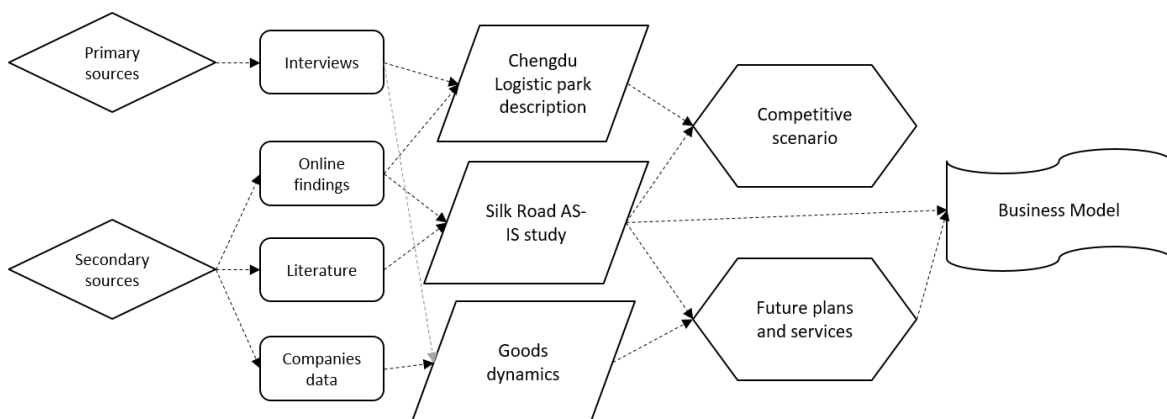


Fig. 3.1 Chapter 3 structure

In order to know how to promote the corridor, it is necessary to understand what opportunities it brings and consequently its inner workings. The information source on an infrastructure and service sides are surely Secondary ones: the topic is relatively new and the vast majority of official information online are available in Chinese only, but new reports and articles are coming every day. The idea is to merge in a structured template all the findings and data about the corridor and craft both a general view and a specific case of a key logistic park; another focus will be done on all the goods related dynamics and other players involved. In order to deepen the strategic view and to possess a primary data source, some interviews will be conducted to key people working across Chinese Logistic agents.

Although the scope of this section is to move from a general point of view (the history behind and the goals of the new silk road) to a more specific one (the Chengdu case study and Management committee interviews) in order to address the desired dimension to discuss about the PMIs roles in the framework; its goal is somewhat more complex.

This is indeed one of the two main arteries of the presented work: in this chapter the different agents, actors, companies, infrastructures and even ministries will be presented and linked together. China is an incredibly complex object (wrapped in a layer of political and legal aspects, with apparently infinite chains of power) that necessitates the correct key of reading ¹, this is why this section has been conceived and written (or better, reverse engineered) starting from the very bottom: the interviews conducted in the Qingbaijiang district, China, by Professor Song Guang for my research group lead by my supervisor; those have been kindly afterwards translated by a colleague of mine for the purpose of my understanding.

From the information contained in these interviews, a case study has been conceived, regarding the Chengdu international Railway port of the Rong'Ou block train, and from that (well representative) shard of the 900 billion dollar infrastructure a comprehensive thus general description of what the New Silk Road today is.

¹I would like to point out that the research on this chapter was very challenging, and the work of Wade Shepard (author of the majority of Forbes paper mentioned in this paper) was of extraordinary help in understanding such complex topics.

3.2 Abstract

These abstracts, that the reader will find at the beginning of every chapter, serve as summaries of the main findings or information in the chapter itself.

The offer study begins with an infrastructural analysis of the New Silk Road corridor, that happens to indeed be a conglomerate of routes, but for this study purposes can be reduced to two main lines: Rong'Ou and Yi'Xin'Ou. These are the main Europe-China arteries; Ou stands indeed for Europe. Along with many aspects regarding these lines and the goods transported, one very important problematic is introduced: the problem of the returns (Europe-China) runs emptiness; this will be a key problematic that will characterize a great deal of the study.

The chapter then "zooms in" and moves to its second section, the Chengdu Logistic park case study; this study was built from scratch in order to showcase this pioneer Railway Port, that indeed well represent both dynamics and strategies of the whole corridor. Starting from the role of the park and of its block trains for the Rong'Ou line, the study focuses on services offered, key customers and overall its inner workings. This is very important, as it is indeed creating the basis to understand what services or new opportunities could be offered to PMIs. After that, agents of the park itself are searched and analyzed, and three, in particular, are indeed interviewed.

The study payoffs in interviewing these Chinese logistic actors are several: these testimonies indeed give the key to understanding the infrastructure strategy (both domestic and oversea) and most importantly current dynamics regarding the corridor limits/current status: even financial, like the lack of LoadBills. These players, turn out to be indeed the ones that every company that is willing to use Rong'Ou will interface with, in a way or another. Key aspects for wannabe exporting SMEs like customs, foreign customer promotion and return runs are also discussed. Cross border e-commerce is also introduced.

Finally, both as a recapitulation and especially simplification, a Business Model canvas of the logistic park is presented. The main insights that will reach Chapter 5 however, are mostly linked to the agent's strategies and limitation of the infrastructures, and less on the logistics aspects itself; expect when the latter influences indeed strategy (e.g. lack of cold chain).

3.3 Brief History

The Silk Road, differently from what many believe, was a network of routes and not a single two-way path connecting east and west. The main trade routes were established during the Han Dynasty² golden age, that also brought the Chinese history, art and “technology” to its peak; the trade with the west was opened from 130 BC and stayed like that until the 1453 CE, when the Ottoman Empire boycotted trade with the west and closed the routes³.

While a wide range of sorts of stock went along the Silk Road, the name originates from the prevalence of Chinese silk with the west, particularly with Rome. The Silk Road courses extended from China through India, Asia Minor, up all through Mesopotamia, to Egypt, the African landmass, Greece, Rome, and Britain.

The northern Mesopotamian region (today, Iran) turned into a key China's exchange partner, starting cultural and economical trades. Paper, which had been designed by the Chinese Han Dynasty, and black powder, another Chinese development, had a substantially more prominent effect on culture than silk did. The spices of the east, likewise, contributed more than the fashion which grew up around the silk business. Still, by the time of the Roman Emperor Augustus (27 BCE – 14 CE) silk was the most sought-after commodity in Egypt, Greece, and, especially, in Rome⁴.

The best aspect of the Silk Road was the trading of culture. Craftsmanship, religion, theory, innovation, dialect, science, design, and every other component of human progress was traded through the Silk Road alongside the business merchandise the vendors conveyed from nation to nation. Along the system of courses ill people voyaged likewise, as proved in the spread of the bubonic torment of 542 CE which is thought to have touched base in Constantinople by method for the Silk Road and which devastated the Byzantine Empire.

The end of the Silk Road constrained merchants to take to the ocean to carry out their trade, hence starting the Age of Discovery (1453-1660 CE) which prompted overall collaboration and the beginnings of the global community.⁵

² The Han Dynasty (206 BCE-220 CE) was one of China's most significant administrations. As far as power and renown, the Han Dynasty in the East equaled its practically contemporary Roman Empire in the West.

³ Based on the researches of historian Joshua J. Mark

⁴ Hansen, V, *The Silk Road* (Oxford University Press, USA, 2012).

⁵ Scarre, C. & Fagan, B.F, *Ancient Civilizations* [Paperback] (Pearson/Prentice Hall, 2011).

3.4 The New Silk Road

It is time to define what the New Silk Road is; unfortunately, this is already a quite articulated task as the "road" is actually an agglomerate of courses that right now contains the Trans-Siberian Railway, which goes through Russia (called the Northern East-West Corridor), and the New Eurasian Land Bridge or Second Eurasian Continental Bridge, going through China and Kazakhstan.

The focus of this study will indeed be the latter continental bridge, along its new main corridors Rong'ou and Yu'Xin'ou; that was indeed introduced recently in order to push China role in global affairs with a China-centered trading network. These two railways are of our interest as they connect Europe and China in a new and potentially value added way, by the mean of direct block-trains.

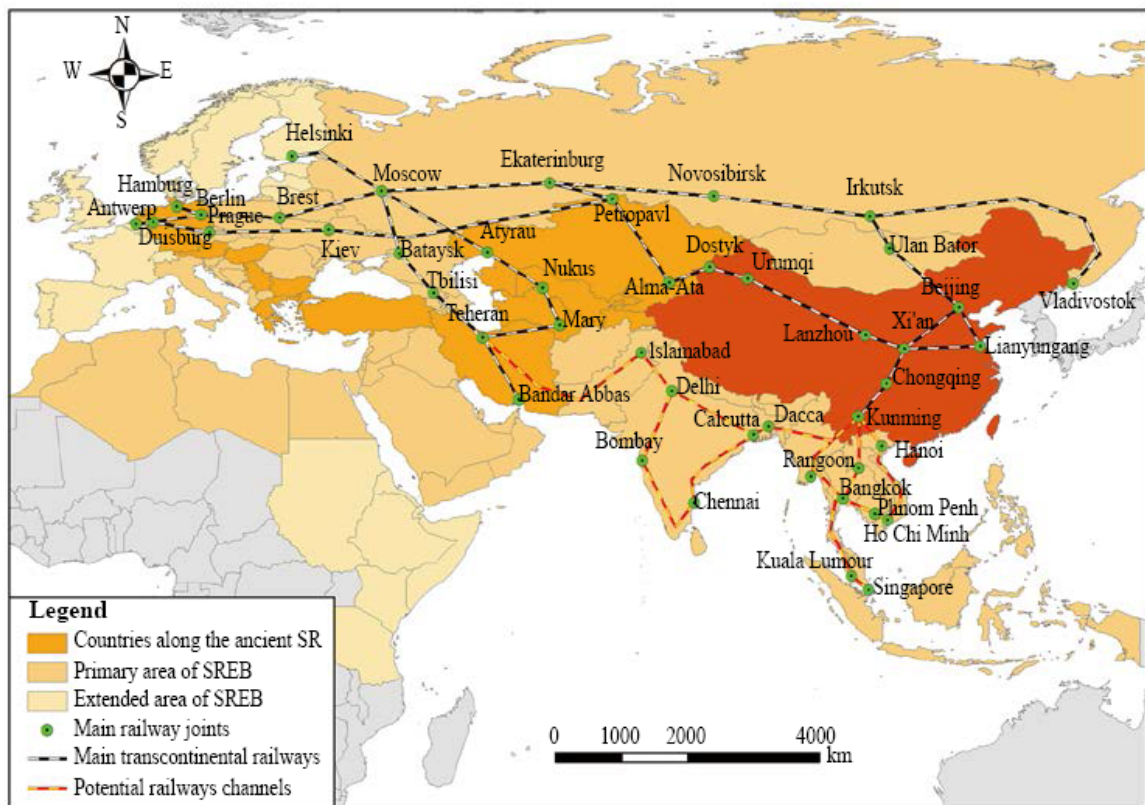


Fig. 3.2 A complete view of the main SREB arteries before the introduction of the Roug'ou line, courtesy of Cheng Hao. Chengdu is located left to Chongqing.

3.4.1 Nodes and paths

Proceeding step by step, is it possible to group two main railways, if we fix as problem boundaries West China and Central Europe.

Yu'Xin'Ou Railway The name is an acronym, consisting of Yu (Chongqing), Xin (Xinjiang), Ou (Europe). From March 19th 2011, is a cargo rail course connecting the southwestern Chinese city of Chongqing with Duisburg, Germany. Focusing on the end goal to meet the necessities of developing Asia's biggest tablet creation base in Chongqing⁶, the Municipal Government has put Chongqing-Xinjiang-Europe International Railway into service through further enhancement and optimizations of the first Eurasian Land Bridge.

With the substantial support of National Ministries and Commissions, the new Eurasian Land Bridge begins from Chongqing Tuanjiecun, passes Alashankou, Kazakhstan, Russia, Belarus and Poland, lastly arrives Duisburg, Germany covering 11,200 km.

The Yu'Xin'Ou railway has not yet developed its full potential. In particular, demand for outbound freight from Europe to Chongqing is low. Therefore, the Chongqing government has decided to set up European front offices in Dusseldorf, Antwerp, and Rotterdam to promote the Railway and to secure eastbound cargo back to Chongqing. According to Maxxelli consulting, the overall journey takes about 16 days and is expected to reduce to 12 days in the future.

Compared with sea based intermodal alternatives, the Yu'Xin'Ou Railway is able to shorten shipping times by less than half. Compared to the trans-Siberian railway, the distance covered is at least 1,000 kilometers less; while still connecting to Belarus, Poland and Germany. In a nutshell:

Table 3.1 Yu'Xin'Ou Railway highlights

Since	Starts in	Node	Node	Node	Node	Node	Ends in	Length	Time
2011	Chongqing	Alashankou	Kazakhstan	Russia	Belarus	Poland	Germany	11.179 Km	16 Days

Rong'Ou Railway This time the name consists of Rong(Chengdu) and Ou (Europe). It operates from Chengdu, in China's Sichuan province, to the city of Lodz, in central Poland. This block train crosses countries such as Kazakhstan, Russia and Belarus, during its 10,000-kilometer journey; containers can be unloaded at Khuzestan, Russia, Belarus, and can reach Poland in 10-11 days.

⁶Germany Plans to Expand Chinese Rail Link as Xi Visits Duisburg". Bloomberg Businessweek. 2014-03-28. Retrieved 2014-03-29

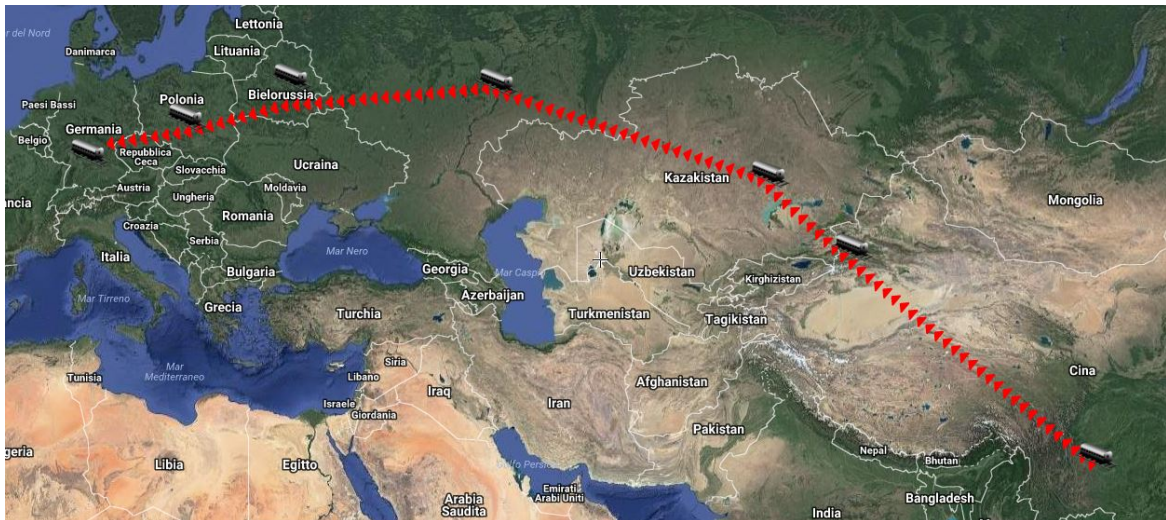


Fig. 3.3 Yu'Xin'Ou Railway

The decision for Chengdu as the takeoff point of the railway is not random. The city and its environs have risen as a noteworthy place for car producing, with Volkswagen and Volvo being among the organization's show. Chengdu likewise hosts a group of IT hardware and electronics firms. Rong'Ou Railway's return trip was in trial run for a few years. The main difference with the Yu'Xin'Ou line is that Rong Ou reaches Lodz and Kutno (Poland), Nürnberg (Germany) and Tilburg (Netherland). Meanwhile, the other line reaches Duisburg and Hamburg; goods need to wait there for 2-3 days: this combined with a faster railway change in Alashankou creates the 5 days saving that is the core advantage of the line.

3.4.2 Moved goods

While discussing the topic of what goods actually travels across the world that to this railways, it is vital to introduce another topic that has been briefly addressed in the previous section: there is a great unbalance between the goods traveling China-Europe and Europe-China. This unbalance is so big that return runs so far have been branded as "test runs" and as said, is the major factor that marks the whole silk road corridor as a question mark in the investor's minds all over the world.

The problem of empty return load will be deepened later in this chapter, and right now is it sufficient to say that to split the flows (China-Europe and Europe-China) is a must for a coherent good-flow analysis.

Europe to China: return goods

Starting from the most interesting and discussed "return" goods, is it possible to find some records of what the return test runs were indeed carrying. It is worth to point out that usually in Logistics the typology of good to ship with a certain solution is deeply related to its "density", intended as volume occupied and value over that volume; this usually creates clear cluster of goods for each logistic solution (rail, sea, road etc.) but in this case the products are extremely heterogeneous.

Luxury cars and parts As BMW is already shipping cars to China by rail from Duisburg (Germany) (with a different kind of train, as cars do not travel in containers) one of the first return runs was all about FORD car parts.

Alcohol and soft drinks A good fraction of the test return runs from London was filled with water, drinks and a touch of alcohol! In the aftermath of Brexit, the UK is fully linking in with this potentially game changing endeavor, and actually became a key player in the New Silk Road project.

The very first test of wine and alcohol transportation was conducted from Spain in 2015 (Madrid to Yiwu) and Quartz media reported that Spanish producers discovered that they needed to wrap bottles in thermal blankets to protect them from the cold of the Russian tundra; else their products would freeze and explode. The rail line used to be only an option in the mild weather of spring and autumn. ⁷.

Drugs and vitamins Thanks to China's expanding health consciousness, this market grew immensely; but there more as according to Forbes, from zero, the ratio of non-Chinese ingredients in drugs and vitamins rose past 50% in December 2010 and is now more than 70%. Even if this unavoidably brings a higher price for the final customers, they are willing to pay for it. As China's population grows wealthier, Western-style health food supplements have joined meat and dairy products on the shopping lists of middle-class families. The value of vitamin sales on the mainland has more than doubled during the past decade to more than \$17bn ⁸.

Sweets and dairy products Poland tests runs were of a much different nature: milk based. China's imports of whole milk powder growth about 13 times in the last decade, prices rose from USD 1,851 for the metric ton in February 2009, to over USD 5,000 for the metric ton in 2013 and 2014. This is actually a very promising product, as it possesses

⁷The train carried more than 30 different wines from 18 wineries for the first time in February 2017.

⁸Rebecca Urban, "Vitamins to China trade"

the right value density to be shipped avoiding Air solutions (too expensive transport) but an expiry date that necessitates a solution faster than Sea based ones.

However, these are just examples of what has already been shipped to China; but what about the future; what could be the products next in the Europe-China export list? The answer could come from the Chinese most imported product (Table 3.2) during the last year ⁹.

Table 3.2 China most imported products

Goods that China imports	Value in 2016	Percentage of total Chinese imports
Electronic equipment	431.6 USD billion	25.70%
Electrical machinery, equipment	414.3 USD billion	26.10%
Mineral fuels including oil	175.8 USD billion	11.10%
Machinery including computers	147.8 USD billion	9.30%
Ores, slag, ash	93.2 USD billion	5.90%
Technical and medical equipments	92.6 USD billion	5.80%
Vehicles	71.5 USD billion	4.50%
Plastics, plastic articles	61 USD billion	3.80%
Organic chemicals	43.9 USD billion	2.80%
Oil seeds	38.3 USD billion	2.40%
Copper	33.2 USD billion	2.10%

China to Europe

Even if according to Yiwu, train departs for London once a week transporting household items, garments, bags, and suitcases etc¹⁰, the core of the goods flow is certainly another ¹¹. The problem here is that it's very difficult to discern what shipments (such as the latter) are created for the sole purpose of Marketing and what not. For example, an Hewlett-Packard train departs thrice a week from Chongqing to Germany with reportedly the only reasonable goal to show that the Yiwu-London route exists ¹².

Obviously China is the world top exporter, and to draft a comprehensive summary of such flow of goods is beyond the scope of this thesis; it is not really about what China exports, but what kind of goods can work well with a less expensive than air and faster than sea solution.

⁹ data from WorldExports, tradeMap and the World factbook database.

¹⁰According to logistics expert Alexei Bezbodov from InfraNews, the main purpose behind the opening of this route may be to get publicity, because household products and clothes do not need to be shipped on an urgent basis.

¹¹China shipped USD 2.119 trillion worth of goods, globally, in 2016; International Monetary Fund, World Economic Outlook Database (GDP based on Purchasing Power Parity).

¹²Bezbodov, RBTH

3.4.3 Free trade zones

Free Trade Zones are going to be a key economical building block of the new silk road, let's start with some definitions.

The World Bank defines free trade zones ¹³ as "small, fenced-in, duty-free areas, offering warehousing, storage, and distribution facilities for trade, transshipment, and re-export operations."¹⁴ Free-trade zones fundamentally are geographic ranges where merchandise might be landed, put away, dealt with, fabricated, or reconfigured, and re-sent out under particular customs regulation and for the most part not subject to traditional customs obligation.

An export-processing zone is a specific type of FTZ, set up generally in developing countries by their governments to promote industrial and commercial exports: China has specific rules differentiating an EPZ from a FTZ. For example, 70% of goods in EPZs must be exported, but there is no such quota for FTZs. In what follows, especially the interviews, the study could refer to bonded logistic ¹⁵ also: China's bonded logistic parks have similar rules to free trade zones except for export VAT refund, according to Ernst & Young GL (2011).

So far, there are four main FTZs in China: in Shanghai, Tianjin, Fujian and Guangdong; sadly none ¹⁶ are relevant to this study, because of their geographic position, as it is possible to observe from Figure 3.4.

As of April 2017, a new trade zone has been announced to be set up in Southwest China's Chongqing. What follows, is a direct paraphrase of a translation of a Chinese State Council publication. Basically, Chongqing's pilot free trade zone will serve as a major pivot to interconnect the Belt and Road Initiative and the river economic belt. As indicated by the arrangement, in light of joined transportation of China-Europe universal railroad, clearances dynamics will be enhanced between the pilot free commerce zone and customs offices; the FTZ will offer trust and flexibility by strengthening investor protection through the creation of international arbitration centers ¹⁷.

¹³According to Wikipedia, the world's first free-trade zone zone was set up on the Greek Island of Delos in 166 BCE. It kept going until around 69 BCE when the island was overwhelmed by pirates. This fact is reported as considered hilarious.

¹⁴Akinci, Gokhan; Crittle, James. 2008. Special economic zone : performance, lessons learned, and implication for zone development. Foreign Investment Advisory Service (FIAS) occasional paper. Washington, DC: World Bank.

¹⁵Logistic that takes in account areas where goods may be stored, manipulated without payment of duty.

¹⁶In August 2013, Shanghai was the first city to be given the chance to trial a free commerce zone; with fewer limitations it was trusted that it would bring more remote venture into China and remove the concentration from Hong Kong, where the state has less control. But Shanghai fits perfectly the start of the Sea route, so it is not relevant to our study.

¹⁷According to an interview to the Commerce Ministry of China, operations may be even be conducted in different foreign currencies.

Being philosophical for a moment, it is clear that The Silk road and the new FTA share more than mere geographical arrangements, as both clearly move against protectionism: the idea of building a China-European Union free trade area is certainly interesting. According to the president of the China Institute of Reform and Development, "under high-standard free trade agreements the EU's export to China could increase more than 110 percent by 2030; a China-EU free trade area, if set up, would be a game-changer for China's economic transformation and Europe's pursuit of sustainable growth".



Fig. 3.4 Present FTA positions in China, quite far from the beginning of the railways (Chengdu and Chongqing).

3.4.4 Key companies involved

If in its initial stages the New Silk Road was an endeavor spearheaded by big governments and big international development banks, in more recent times the private sector is actually approaching this enormous opportunity.

In time, this project interested more and more (even oversea) companies; while many became simple costumers and users of the solution, some corporations are actually investing or at least pushing the growth of both the Rong'ou and Yu'Xin'ou. In no particular order, is it possible to identify some that made it to the papers:

China Merchants Port Holdings China Merchants Port Holdings, the largest public port operator in China, has been actively extending its reach down the tendrils of the Belt and Road. "Our development plan mirrors One Belt One Road and this is the primary driver of our expansion strategy," their managing director, Bai Jingtao, recently stated¹⁸.

China Railway Group (CREC) and China Railway Construction Corporation (CRCC)

Both are two of China's key players when it comes to Belt and Road construction and other development projects. According to Forbes description, both companies engage in many different activities and investments around the world that range from building rail lines, roads, bridges, and other core pieces of transportation infrastructure to developing property and operating mines.

DP World The Jebel Ali Free Zone (JAFZA) in Dubai is unequivocally the model that a considerable lot of the extensive New Silk Road ventures are planning to imitate. It is accordingly no incident that DP World — the organization that created JAFZA — is unimaginably dynamic along the different new corridor constructions that are being built between China and Europe.

DHL The German cargo forwarder has been very active in deploying or using new multi-modal transportation courses which traverse crosswise over Eurasia, including different China-Europe rail lines, the new Southern rail hall which interfaces China with Turkey, the hooking of Japan, Korea, and Taiwan into the Silk Road Economic Belt, and a current under development new rail terminal on the Poland/Belarus outskirts. More will be said about DHL, later while analyzing Chengdu Logistic Park main customers.

HP While a significant part of the discussion about the quickly developing system of China-Europe coordinate payload trains has been fixated on the endeavors of the Chinese government; these trains were in reality initially began by an American organization:

¹⁸Marine Link, China Merchants Mulls Further Expansion By Aiswarya Lakshmi

HP. In 2011, the organization began sending portable workstations and LCD screens from Chongqing in south-west China to Duisburg in Germany via rail instead of sea shipments, pioneering the entire Silk Road idea.

General Electric According to their vice chairman, "GE hopes that the New Silk Road will boost their third-party country sales from 1 billion USD to 10 billion USD per year", as the company probably looks for improved collaboration with Chinese organizations that are working on the different courses. Along with GE, a handful of Western players such as Deutsche Post's, DHL Group and Caterpillar have identified opportunities from the initiative.

3.4.5 Future plans and services

Both Yu'Xin'Ou and Rong'Ou are still under development, and still facing challenges and improvements. In order to make both more competitive solutions, is it possible to sum up already some new macro services and policies that will be (or have been very recently) put in place? These are intended as for the whole railroad, and not only for specific branches or logistic parks.

Temperature control next step: Cold chain As it was pointed out already, there is a huge demand for temperature sensitive product, especially on the way back (Europe-China); countries like Spain and Poland already tried some shipping and tried to arrange expedition in a way to both survive the cold tundra and preserve the product. There is a huge difference however between a sporadic solution (like thermal wrapping) or even better performing cargos temperature wise and a full-fledged cold chain.

An unbroken frost chain is a continuous arrangement of refrigerated creation, stockpiling and distribution activities, alongside related hardware and logistics, which keep up a coveted low-temperature run. It is utilized to safeguard and to broaden and guarantee the shelf life of realistic usability of items, for example, new agrarian delivers, fish, frozen foods, photographic film, chemicals, and pharmaceutical drugs¹⁹. To achieve such level of uninterrupted cold, a series of infrastructures and gadgets are necessities, from refrigerated trucks to temperature data loggers for each unit (in order to track the temperature history and localize a possible moment when the goods got thermally damaged); documentation is also critical, as each progression of the custody chain needs to follow protocols and to keep up legitimate records.

As the product that most would benefit from this technology are also some of the most

¹⁹Definition of cold chain from Canadian Transportation Logistics

desired by China (food and pharmaceutical), this is certainly a logistic scheme of great interest for the New Silk Road ²⁰.

Unified customs and governmental policy As of now the disarranged rivalries between two courses and international railroads outside of China prompt the circumstance of higher cost and fewer operations. China's regional governments should cooperate with countries along the route and hope to reach the linkage mechanism of unified resources sharing, market, price – setting and customs clearance.

A unified customs would be an incredible feat both politically and logistically, as the simplest railroad crosses as many as 5 countries; it would be a dream for both freight-forwarders and shipping companies to fill papers only once, and obviously have their goods reaching faster their destinations. The solution of this bureaucratic conundrum, could actually come from the digital world.

The e-road, a digital revolution Finally, the whole Silk road could take very soon a slight digital turn. China is surely undergoing an incredible growth digital wise, which may eventually come to replace Silicon Valley as a barycenter of the innovation universe ²¹. Additionally noteworthy is the viral rate of progress that has happened in China, moving the nation into the digital era ²²; but what about the digital technologies used along the New Silk Road?

Lu Wei, director of the Cyberspace Administration of China, told the China-EU digital cooperation roundtable that, “We can build a digital silk road, a silk road in cyberspace”; this is intended as a set of action plans related to e-commerce, smart cities, technology parks and overall digital economics that will take place. While it is true that the construction of the railroad is heavily followed by digital infrastructures (a fiber optic cable network connectivity is being extended and a set of satellites launched, for example) this intent of creating a parallel infrastructural “data belt” does not necessarily improve the service in the eyes of the freight forwarders or shippers.

What is really interesting, is that giants like Alibaba are actively working to create a series of “digital-free trade zones” along the route, where logistics and fulfillment

²⁰DHL just announced (01 June 2017) that the launch of a temperature controlled rail service on Rong’Ou Railway will happen in the coming year. This gives a lasting and all-year round multi-modal delivery solution for temperature sensitive items that in the past were not able to use the quick and less expensive trans-continental West rail passage, during cruel winters and sweltering summer months.

²¹China’s Huawei is presently the world’s biggest media communications maker and has begun to enter Europe and Canada with its eyes now on the U.S. Tencent’s WeChat has kicked onto the social network scene. Facebook, Google, Amazon, GE and any company with a digital strategy are likely looking East for their next big idea.

²² According to Forbes until 2017 China’s cellphone and Internet penetration practically exploded, now up to more than 600 million cellphone subscribers, 250 million of which are already on the 5G network.

capabilities as well as an online services platform will be offered. Digital technologies could also help to unify the custom system, or even create a never seen before common IT platform for all the over 100 countries involved in the New Silk Road project. From unified and integrate warehouses management systems, tracking and customs clearance the sky is certainly the limit for all the possible digital applications along the route. These are complex data sets that can be collected and analyzed (Big Data) for insights that may be utilized as a starting point for improving everything, from operations to the development of services; with the right IT in place, the sharing economy will also blossom as on-demand manufacturing and warehouse management platforms could connect all the main agents. ²³.

3.4.6 The Europe-China Load challenge.

Even if the more than 100 China-Europe runs were smooth in 2014, and many times this number until now, a challenge that was never managed to get addressed is that there have been a lot fewer return trips from Europe back to China. In a nutshell, upwards of 90% of the containers making the return trip are empty. This is a common problem in logistics, and is usually the main factor when evaluating the success of a business plan of a shipment company.

Is it possible to identify a series of factors that may create this imbalance in the New Silk Road; once again, the focus will be on the two main lines that have already been introduced.

The supply of goods is sensibly onefold So far, is literally hard to find goods to ship back. New proposals are getting tested every day, but so far, the trial runs were done with containers filled with Ford auto parts. If this seems a solution, it is not as Chengdu, for example, is not the appointed import port for foreign cars. To send something from Europe to China, is not just about cost of shipment, demand for the product and overall shipment time: in China, every port (rail or sea based) has to be appointed for a certain set of goods ²⁴. Obviously, this affects costs, reducing enterprises motivation to perform the switch from Sea based transportation.

Costs are too high in respect to all Sea based solutions Even if the rail solutions are faster, they are also more expensive than the default sea shipment.

²³This particular idea is taken from April 2017 BAIN Insights publication, By Mark Gottfredson.

²⁴As of 2017, the port is temporarily an open port which gets the approval from the state. The railway port now has gotten approved to be the nominated port to import finished automobile and meat, the pilot port for parallel-import cars (got approval in September by the Department of Commerce). Currently, it is applying for being the nominated port to import fruits, grains and woods.

Table 3.3 Transportation solutions, Rail Vs Sea, for a 40 feet container. It is clear how a multi-modal based solution is basically almost three times more convenient than a Block train one. Data from Maxxelli Consulting.

	Chongqing-Germany	Chengdu-Poland	
Rail	6400 $\frac{USD}{Cont}$	8501 $\frac{USD}{Cont}$	
	Versus		
Road	Shanghai-Chongqing (or Chengdu)	Shanghai-Germany	
	160 $\frac{USD}{Cont}$	-	
Sea	-	2400 $\frac{USD}{Cont}$	Total=2560 $\frac{USD}{Cont}$

The solution is not widely promoted One of the biggest reasons for the lack of return trips loads is also deeply related to the fact that SMEs all over Europe still do not comprehend the advantages, time-savings and overall benefits of the Europe-China railway line. Obviously to shift transportation method is a tough choice, that can bring both risks and credits.

Obviously, there are other challenges common to the China area also, that are particularly being worked on. The Investment Promotion association of Chongqing list three in descending importance order:

- 1 In 2013, the national government issued a new tax policy for the transportation industry. It demands companies to pay VAT instead of paying business tax. As a result, small and medium-sized companies have to pay relatively high taxes.
- 2 Chinese logistic giants are state-owed, and these companies benefit significantly from the government policies, resources and capital. They have little motivation to innovate and to bring their business and management model to a higher level.
- 3 A large number of logistic zones are currently not (yet) being used. Many zones have only just been built; it will take time for them to develop. Some of these zones are not professionally managed, and logistics companies have difficulty to enter them.

Overall, the whole new silk road infrastructure is relatively new and still presents flaws and complexities; it is clear however that China government is pushing extremely hard to create an efficient and successful model. It is needless to underline that challenge likes the lack of a unified customs system, will need the efforts of many different countries altogether.

3.4.7 Russia role on the selection of goods allowed for transit

While the list of countries crossed by the China-Europe railway is certainly long, one of those brings a particular set of dynamics: The Russian Federation.

First of all, the New Silk Road plan has already brought Russia a substantial income, as all freight trains from China cross Russia either through eastern Kazakhstan or via the Russian Far East and the Trans-Siberian Railway ²⁵. In 2016, the transit cargo flow via Russia amounted to 205,000 containers (an increase of 36 percent year-over-year) and earned the Russian Railways 6 billion rubles (\$100 million)²⁶. The problem is that while Russia and China relationships are quite straightforward and at their "best time in history", according to President Putin, the same cannot be said for EU related ones.

After the Ukraine crisis, the EU imposed economic sanctions on Russia's banking, oil and defense sectors over its annexation of Crimea in 2014, and support for eastern Ukrainian separatists. Russian state banks are currently rejected from bringing long-term loans up in the EU, export of double utilize hardware for military use in Russia are restricted, future EU-Russia arms bargains are prohibited and the EU won't be able to export an extensive variety of oil industry infrastructures and machiner ²⁷. Dozens of senior Russian officials and separatist leaders are also now subject to Western asset freezes and travel bans.

The impact that this tense situation has on the Silk Road is to be found in Russia retaliation against this policies, because in response Russia banned a significant number of EU food products from entering its market. As a result ²⁸, trade between Russia and the EU dropped by over \$180 billion between 2014 and last year. Together with slowing down Chinese demand, Russia's embargo has clearly already put enormous pressure on an the struggling EU agricultural markets. The sectors that most suffered form the Russian ban are indeed the dairy, pork, beef and fruit and vegetable sectors: as a main vertical of transport planned for the railroad is, precisely, European dairy and meat products, this already became an issue as will be shown in the interviews.

Obviously, this is not the only geopolitical aspect that comes in mind while analysis the railroad; for instance, a portion of the key ocean courses are viewed as controlled by the Americans. On the off chance that there were a war and a barricade, China would need to depend on the trains.

²⁵The demand for rail transportation through Russia is also fueled by the devaluation of the ruble, according to Political Journalist Bezborodov.

²⁶From "Russia beyond the headlines": January 13, 2017 Kira Kalinina

²⁷Three major state oil firms are targeted: Rosneft, Transneft and Gazprom.

²⁸Data from EurActive association: a European media platform specializing in the online publication of articles focusing on European policymaking.

3.5 Chengdu Railway Port case study

As Rong Ou railroad has already been introduced, it is given for granted that the reader knows about it. In this section the paper will focus on the Chinese end of the Rong Ou : Chengdu and its International Railway Port. This was chosen as a case study, as the China-Europe lines are not just present here, but also backed up by a Logistic park thus makes Chengdu a pioneering example, as it will be shown in the next section. Chengdu is also very close to the already cited Chongqing, and thus developing interesting competition schemes.

3.5.1 The role of Chengdu

Chengdu is a sub-provincial city and one of the three most populous cities in Western China (the other two are Chongqing and Xi'an): as of 2014 the administrative area houses 14,427,500 inhabitants.²⁹ After the fall of Nanjing to the Japanese in 1937, Chengdu even served as the capital of China for a brief period of time.

It is currently a standout amongst the most essential monetary, money related, business, social, transportation, and communication centers in Western China. Chengdu "Shuangliu International Airport" is one of the 30 busiest air terminals on the planet, and Chengdu Railway Station is one of the six greatest in China. Chengdu also has numerous worldwide organizations and more than 12 consulates.

Chengdu is ranked first in the Fortune "fastest growing mega-cities of the next decade" and ore than 260 Fortune500 companies have established branches in Chengdu.

Table 3.4 The three main lines sharing Chengdu as node

North Line	Mid Line	South Line
Alashankou	Alashankou	Alashankou
Moscow	Russia	Istanbul
	Belaurus	
	Lodz (Poland)	
	Kutno (Poland)	
	Nurberg (Germany)	
	Tilburg (Netherlands)	

Currently in China, many trains connecting Chengdu with the other 9 cities are being opened, such as Shanghai, Guangzhou, Wuhan, Shenzhen, Xiamen (the most well-developed one), Ningbo, Kunming, etc. The city is also a node of the three most important (Table 3.4)

²⁹<https://en.wikipedia.org/wiki/Chengdu>

Rail Lines in the country³⁰. This creates a huge advantage LTL wise, that will be examined later. Chengdu is also fabricating another airplane terminal to make it the third Chinese city to have two business air terminals, along with Beijing and Shanghai.

Overall, leveraging on the newly opened Rong Ou, Chengdu strategy is to set-up a logistic structure that will withstand the major fraction of China-Europe transports, thanks to its block train system. Since April 2013, companies are able to ship goods three times a week (initially it was one train a week) to Europe by trains originating at Chengdu Qingbaijiang Station with the final destination of Lodz, Poland. It is the first express load cargo connecting China and Europe, with a transit time of 12 days.



Fig. 3.5 The geographical positions of Chengdu, the other newly developed and emerging block train stations and the common first gate towards Europe, Alashankou

³⁰These all exits China from Alashankou now, because, as reported from the interviews, the negotiations between Khorgos and the foreign country didn't go very well.

3.5.2 The block train

The Rong Ou block train is the core of Chengdu operations, since its opening (Table 3.5) the number of block trains kept increasing³¹.

This typology of train, also called a unit train³², is a "train in which all cars (wagons) carry the same commodity and are shipped from the same origin to the same destination, without being split up or stored en route".

This spares time and cash, and also the bother, postponements and perplexity related with assembling and dismantling trains at rail yards close to the starting point and destination. It likewise empowers railroads to compete more successfully with street and internal waterway transport frameworks. Still, block trains are economical only for high-volume customers, since unit trains often carry only one typology of commodity³³.

Table 3.5 Number of block trains for the Rong Ou line in Chengdu, once again the data is taken from the interview that took place in Qingbaijiang.

Year	Number of block trains
2013 (opening of the Rong Ou)	31
2014	43
2015	103
2016	458
2017	1000 (planned)

The delivery time of Rong Ou (10 days) is much shorter than that of ocean shipping (50 days) and even than the Yu'Xin'Ou line (15 days). The price of Rong Ou ($2 \frac{\text{rmb}}{\text{kg*km}}$) is only $\frac{1}{10}$ of the price of air transportation³⁴ and its possible to load up to 42 containers for each train; these containers since few months ago (first successful shipment is dated December 2016 by the director of Rong Ou management committee) the option to maintain a cold chain is available.

Overall, thanks to this railway line, industrial products are now sold to foreign countries gradually, which promotes the industrial development in Chengdu.

The common problem for Rong Ou and all the other block trains nationwide is that the supply chain is not uniform worldwide. If the logistics within China are by definition integrated and aligned with Chinese standards, the logistic system in foreign countries can present different arrays of weaknesses. This is an expected problem surely, while crossing different territories

³¹Promoting the development of railway is based on the positioning that the state has set for Chengdu, and the Three-Year and Five-Year plan (vision and expectation) both have been designed.

³²wikipedia.org wiki Unit_train

³³Cars are of all the same type for example, and sometimes the cars are all identical, possible variations accessory wise excluded.

³⁴Chinese Renminbi, known as Yuan.

that span in development and laws schemes from Germany to Kazakhstan.

The main idea behind the biggest difference with the Yu'Xin'Ou line is that Rong Ou reaches Lodz and Kutno (Poland), Nürnberg (Germany) and Tilburg (Netherland). Meanwhile, the other line reaches Duisburg and Hamburg, which results in busyness in the stations of said Duisburg and Hamburg, that are extremely crowded and saturated, goods need to wait there for 2-3 days: this combined with a faster railway change in Alashankou creates the 5 days saving that is the core advantage of the line.

3.5.3 Ministry, customs and Block Train Operation Company

So far, everything is quite straight forward: Chengdu is clearly, thanks to its history, position, economy and state backup playing not only a key role in the China-Europe logistics, by means of block trains, but also act as transit point that links domestic and overseas logistics.

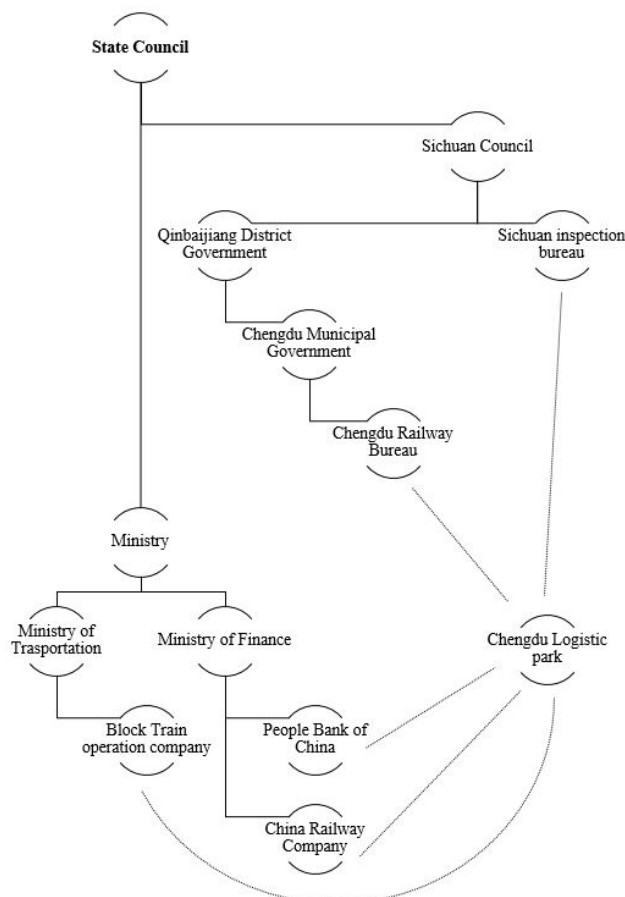


Fig. 3.6 The shareholders and agents behind the Chengdu logistic park.

However, Chengdu decisional power and shareholder structure is quite complex. Is it possible to distinguish all the agent "above" the park itself, and all the sections the park

itself is divided. Starting from all the agencies behind, is it possible to identify five main shareholders-decisional figures:

The China Railroad company China Railway or CR, is the national railway operator of the People's Republic of China. Under the egida of the ministry of Finance, it resembles the no-longer existing Ministry of Railways, since 2013. This object is a company by all means ³⁵, since its re-foundation 4 years ago: with almost 2 million employees, 6.3 Trillion Yuan ³⁶ and almost 1 trillion yuan revenues.

As of 2017 China Railway reached with its good services 15 European urban areas, including courses to Madrid and Hamburg and a trial East Wind run to London to test demand.³⁷

The Block train company A conglomerate of private or state owned unit trains companies. These are the vectors actually moving the goods along those routes.

The People Bank of China The People's Bank of China is the "central bank of the People's Republic of China with the power to carry out monetary policy and regulate financial institutions in mainland China". As of July 2017, the People's Bank of China has the largest financial asset holdings of any central bank in the world ³⁸. The top management of the PBC is composed of the governor and a certain number of deputy governors. The governor of the PBC is nominated, approved, appointed into or removed by the Ministry of Finance.

The Chengdu Railway Bureau Chengdu Railway Bureau is a regional bureau, also affiliated to the China Railway Corporation (old Ministry of Railway as already pointed out). It is in charge of 9 primary railway routes, with operating length of 4,460 kilometers. It controls the railway networks in Sichuan, Chongqing and Guizhou.

The Sichuan Inspection Bureau Basically a custom, but it reports to the Entry and Exit quarantine bureau, to the National bureau of quality inspection and to the Foreign bureau of quality inspection. It was mentioned during the interviews because of its central role in all the food related dynamics of the Logistics center.

³⁵This is very interesting, and similar to what happened in Italy with the privatization of ferrovie. It is also interesting to point out something that will be addressed in a different part of this study, that is the slowly beginning of a branding initiative for this Railroad company. Citing a 2017 Forbes interview, "[These containers will travel] thousands of kilometers through Europe and everybody is looking, 'China Railways, here in Europe,'" said the intermodal freight manager in Małaszewicze. "It is a smart idea as to how to promote and develop a network, which is very important for the Chinese government — to be everywhere, to show that we are strong."

³⁶ That is roughly 940 Billion Dollars, in 2017.

³⁷The guardian, 2017, "China trade train rolls London"

³⁸Global Economic Briefing: Central Bank Balance Sheets, 2017

Moving onto the description of the offices of the Chengdu logistic park itself, it is possible to find three; each management committee works separately and will be interviewed in detail in the next section.

The Railway Port Company Dealing with the international side of transport that leverage Chengdu as a node, this office is the core of the operations. It possesses its own infrastructure, known as Container Center, which is the foundation of the Logistic Park that will be discussed in the next section. Overall, The logistic park covers an area of 21 square kilometers, which includes 2 stations, 2 smaller parks and 3 function areas: Chengdu Railway Container Center, Chengdu Railway Bureau Dawang Goods Station (bulk cargo station, which is complementary with Chengdu Container Station), Chengdu International Container Logistics Park, Chengdu Qingbaijiang Bulk Cargo Logistics Park, E-commerce and Logistics Distribution Core Area, Logistics Headquarters and Port Supporting Service Area, Big Commodity Business Area.

The Land Port Company The Land Port Company is in charge of domestic railway lines, while the Railway Port company runs the international lines.

The nature of the company since 2015 is basically to be a platform: they are not in charge of the carry, but just provide information exchange. For example, if a company necessitate linking its transports this is the office where they get all the information to transit from an international view to a purely national one. Right now this is done no-profits³⁹, in order to boost confidences of the oversea clients and freight forwarders: this office is indeed the gate for the domestic lines. They not only leverage rail transportation, but also recently promote a series of single document multi-modal domestic transportations.

The freight forward Company Just like any other logistic consolidator, this office deals in contracts with a carrier or quite frequently multiple carriers to move goods. Obviously a forwarder does not directly move the goods but acts as an expert in the logistics network. This office is the one that results particularly focused and close to the Europe-China return load problem, as it will be showed in the interview with its committee.

Finally, an important section of the Chengdu inner workings is indeed the customs; Chengdu Customs administrates all areas of Sichuan province⁴⁰. Currently, there are three main entry/exit ports in Sichuan: at the Shuangliu International Airport, the Chengdu International

³⁹Operation cost is paid by Government.

⁴⁰It has four offices: at the Shuangliu International Airport in Chengdu, in Mianyang, Leshan and in Panzhihua. Apart from these four bureaus, Chengdu customs has also set up representative offices in several other cities in Sichuan.

Container Logistic Zones and at Luzhou Port. Chengdu Customs provides companies with one-stop clearance services. In addition, fast track procedures have been created, allowing imported goods to be transmitted to bonded zones directly after a one-time customs clearance at Shuangliu Airport.

Table 3.6 A comparison between Chengdu customs 2016 report and the Shanghai one.

	Total I/E value	Total Volume of I/E goods	Total I/Ex Volume
Chengdu customs	48 billion USD	2 million ton	122.000 TEU
Shanghai customs	416 billion USD	750 million ton	46 million TEU

Chengdu \$/Ton value	24000 $\frac{\$}{Ton}$
Shanghai \$/Ton value	555 $\frac{\$}{Ton}$

It is interesting to compare some data that the Chengdu customs publish, to the Shanghai one; the latter mostly receives good by sea, and thus if we calculate the average $\frac{\$}{Ton}$ is indeed a lot lower than the Chengdu one, where as it has been said the Import and Export are basically all about Rail and Air. Obviously the absolute quantity of goods is still vastly superior in Shanghai, but Chengdu is rapidly gaining importance among the key Chinese Hubs. Also thanks to its infrastructures; the railway container center and the logistic park is indeed unique in the whole province.

3.5.4 The Logistic Park

Logistics storage facilities in Chengdu consist of general storage facilities, special storage, and private storage. Special storage includes bonded storage, cold storage, oil storage and dangerous chemicals storage. By the end of 2013, general logistics storage facilities made up the majority of the market, accounting for about 90% of overall market volume.

Cold chain logistics is developing rapidly in Chengdu due to growing consumer requirements for healthy and safe food products. Here is a brief rundown of the main and most promising logistic areas in the park.

Bonded storage Bonded logistics refers to a special logistics need resulting from the imported or exported goods that enjoy the treatment of "inside China but outside the customs" in a specific area set aside by the Customs.

This shift in the moment of tax paying brings a considerable amount of advantages for example as your goods are not technically in China yet, no duties have to be paid on re-exported goods (drawback). There is more, as goods can also be consolidated

and assembly-based manufacturing is allowed within those zones; this means that you are indeed able to take different goods in a bonded zone and (maybe by means of e-commerce) sell a set of those and create a custom shipment.

The e-commerce distribution area These bonded dynamics brings indeed the e-commerce topic on the floor. The idea is to create amount of stocks oversea to back up the presence on some Chinese e-commerce platform of your product. After Chinese consumers place orders through cross- border e-commerce 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 domestically", according to the Shanghai consulate report on cross border bonded e-commerce. Also, if a normal Italy-China single item shipment would be put in place by a random PMI that is indeed selling to China thanks to a proprietary online website, 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.

Cold storage Cold has been one of the focus for Chengdu management for a while, and the park is finally ready to move goods that necessitate thermal protection, but can resist brief periods of non-freezing environment. Although supporting policies are in place and cold chain standards recently adopted, in Western China cold chain development has been lagging. With only 20% of Chinese food products entering the cold chain (compared to 80% in Europe), China do not possess the same diffusion level of Cold-Chain in its logistic historically.

3.5.5 Key Customers

Even before the Road initiative Chengdu still was an important logistic center, mostly because of its story and geopolitical position.

The key asset was not about trains however, but instead all about Air transport; in particular almost all the goods were transported via Chengdu Shuangliu International Airport (its throughput capacity ranked fourth in China). A new large scale airport is also currently under construction and is estimated to become operational by the year of 2018. With 5 runways it has the ambition to become the largest airport in western China and the fourth largest multi-modal international hub airport in China ⁴¹.

It should not surprise then that, in years and years of activities, Chengdu logistic center acquired an impressive number of customers (Table 3.7) that are now based in some form in

⁴¹It is expected to handle 80 million passengers, 6 million ton of cargo and to operate 850,000 flights annually.

the logistic center. A great deal of the before-mentioned are freight forwarders, shippers but also B2C giants like Amazon.

Shippers In the Chinese ambassate repository where the table was found, there is still no direct mention of who uses the railroad too (in addition or substitution of Sea, Road and Air) but it is possible to know for sure that some of the shippers in particularly does. This category also presents some of the most "known and prestigious" names in the list. FedEx, UPS, TNT and DHL are all active in the Chinese territory, and DHL, in particular, was one of the first companies to fully believe, support and participate in the Rong'Ou railroad project. According to Forbes, DHL got in on trans-Eurasian development in 2008, when the international trade network was still named "the Eurasian Land Bridge". What DHL management found was that they had a lot of clients who needed to deliver their load amongst China and Europe quicker than ocean cargo yet would not like to pay the costly expenses related to sending it via air; that, as is clear so far, is indeed the main advance of the New Silk Road.



Fig. 3.7 DHL is the only overseas company that is actually pushing marketing wise its involvement in the railroad project.

Table 3.7 Chengdu Logistic park customers and users, courtesy of China embassy.

Company	Type of service
<i>FedEx</i>	Express / Air
<i>UPS</i>	Express / Air
<i>TNT</i>	Express / Air
<i>DHL</i>	Express / Air and Road
<i>MAERSK</i>	Supply chain solutions / Ocean and Air
<i>CMA CGM</i>	International Freight forwarding / Ocean
<i>ProLogis</i>	Real estate logistics
<i>AMB</i>	Real estate logistics
<i>KWE</i>	Storage, freight forwarding / Air
<i>Bax Global</i>	International freight forwarding / Ocean
<i>EXEL</i>	International freight forwarding / Ocean
<i>APL Logistics</i>	International freight forwarding / Ocean
<i>Kuehne + Nagel (China)</i>	International freight forwarding / Ocean
<i>ITOCHU</i>	Integrated trade/ multimodal
<i>YCH Group</i>	International freight forwarding / Air and Road
<i>Hanjin Shipping</i>	International freight forwarding / Ocean and Air
<i>NYK Line (China)</i>	Transportation and storage / Road
<i>“K” Line (China)</i>	Container transportation / Road
<i>Amazon</i>	E-commerce / Road
<i>DB Schenker</i>	Comprehensive logistics solutions / Air
<i>SCHNEIDER</i>	Comprehensive logistics solutions / Air
<i>P and O Nedlloyd</i>	International freight forwarding / Ocean and Air
<i>PANALPINA</i>	Comprehensive transportation business / Road
<i>DACHSER</i>	Food supply chain management / Ocean and Air
<i>Korea</i>	Express International freight forwarding / Ocean and Air
<i>Kerry Logistics</i>	International freight forwarding and distribution / Ocean and Air
<i>WAL-MART</i>	Commerce and city distribution / Road
<i>CEVA</i>	Supply chain solution / Road
<i>OOCL</i>	International freight forwarding / Ocean
<i>HP</i>	Commerce / Road

According to their own campaign, DHL is one of the most active international players along each of the three China-Europe overland exchange passages, with courses shooting north from China to Russia's Trans-Siberian railroad, across Kazakhstan, and in addition another one which crosses the Caspian Sea on the way to Turkey, while nations like Japan and Taiwan have been connected into these courses via ocean.

B2C Even if even in China an increasing number of people are buying from online websites due to lower prices and fast delivery, the presence of an American giant ⁴² like Amazon in the list is certainly interesting. The truth is that China has become one of Amazon's most important markets, both in terms of number of shoppers and in terms of money spent ⁴³ and that a lot of goods that Amazon ships to American, European and Japanese customers are indeed made in China.

Another American giant, trying to conquer a slice of this market, is Walmart that according to Chengdu local news announced (May 2017) to open, as planned, six more shopping malls in Sichuan, including two in Chengdu in 2017. This retailer is already quite present in China, with over 200 stores; it is interesting to notice that so far (according to Walmart 2016 China branch report) 95% of what is sold in its Chinese stores is indeed locally sourced. It will be interesting to see if the New Silk Road manages to change this Walmart necessity.

Finally, the HP case was already previously introduced: after years of testing and development, in 2012 HP started the first regular China-Europe direct blocktrain. This rail line (beginning in Chongqing), at first gave HP a major favorable position over their opposition however in the end the organization understood that on if they really wanted to enhance this corridor (meaning more frequent departures) that they would need to open it up to other companies and, literally, allow their competition to get on board.

⁴²In this huge market however, Amazon is a relatively small player. According to McKinsey as of 2015, Amazon's Chinese market share was only about 1.1%, ranking fifth.

⁴³Amazon taps Chengdu operation center, Shanghai Daily

3.5.6 The competitive scenario

15 years ago, block trains could only run between Chengdu and 3 other cities (Shanghai, Guangzhou, Wuhan) bilaterally. This situation changed and in 2017, there were 6 cities newly added, reaching 10 cities in total as it has been pointed out already. This, added to the overall growth of the solution, created up to 27 cargo trains between China and Europe, as of 2017.

It is believed to be of great added value (mostly because these informations are quite complex to gather) to give a list of the most important ones, for future reference (Table 3.8); then, the most relevant to compare Chengdu with will be further analyzed.

By looking at Table 3.8, it is very interesting to notice a series of things; first of all the real differences between players clearly stands in the number of runs per week and (apart from Yifu) not really in what destinations are reached⁴⁴. The number of runs per weeks, seems also correlated to the age of the center itself as the older ones seem to generally be able to deploy more runs; this is a clear indication of that the more a center is renowned, the more the customers and thus the goods. Another trend is that every year new centers are appearing, probably if this study is done once again in a couple of years, the centers opened in 2017 will figure among these central ones.

Table 3.8 Chengdu and the others China-Europe ready logistic parks. Pure Block Train comparison.

Departure	Active Since	Travel days	Reaches	Per week
Chongqing	2011	15	Germany	3
<i>Chengdu</i>	<i>2013</i>	<i>10-14</i>	<i>Poland-Germany</i>	<i>3</i>
Zhengzhou	2013	13-15	Poland-Germany	2
Wuhan	2014	13-15	Poland-Germany	1
Changsha	2014	11	Poland	2
Hefei	2015	13-15	Poland-Germany	1
Yiwu	2015	20-22	London-Madrid	1
Xiamen	2015	11	Poland	1

Guangzhou While not included in the table, as no Europe line currently passes from Guangzhou, the Chinese government is working on it very hard. Three decades of domestic and foreign investment have produced widespread prosperity in Guangzhou, which is one of China's most important consumer markets; moreover, demand for

⁴⁴This is only partially true however, as this analysis was simplified by merging various German and Poland cities under the naming "Poland" and "Germany".

consumer goods and e-commerce is spurring development of industrial property and warehouses. Guangzhou is a center of manufacturing for a range of products, especially automobiles⁴⁵. The grouping of manufacturing plants in the region has driven Guangzhou to end up plainly a standout amongst the most essential and active center points for exchange, logistic and distribution on the planet.

Zhengzhou Zhengzhou is situated in central China, which is exceptionally advantageous for consolidating load from neighboring territories on its rapid cargo rail to Europe. The first cargo train from Zhengzhou to Europe dated back to Jul 18th,2013⁴⁶. On Zhengzhou-Europe block train we have three LCL takeoffs for each week to Warsaw (Poland) and Hamburg (Germany). Hefei's first regularly scheduled freight piece prepare to Europe was dispatched on Jun 26th,2015. As of now, Hefei has weekly departures to Europe, that manages to reach Poland in 13 days and Germany in 15 days.

Hefei Hefei, capital city of Anhui Province, is located in the eastern part of China. Hefei is 460km from Shanghai and is considered the most cost-effective cargo block train for cargo originated in Shanghai, where a lot of factories are located.

Wuhan The first regular cargo train from Wuhan,China to Europe was dispatched on Apr 23rd,2014. This route ranks first in growth among all the cargo trains between China and Europe. In 2016, Wuhan expects to operate 300 trains between China and Europe and as 2017 presents weekly departures.

Xiamen: the most developed logistic park Xiamen opened freight train services to Lodz, Poland, Moscow and Almaty in Kazakhstan. The park has four sections: a Free Trade Zone, an industrial airport,a Free Trade Logistics Park and a Port Zone. Over 1,000 companies from 21 countries have launched businesses in this zone. Major investors include Micron, Baxglobal, Maersk, YCH, New World, Sinotrans and Kerry EAS.

Chongqing: the main competitor Active since 2011, the one from Chongqing was one of the first China-Europe block trains. Actually, this city is the start of the previously introduced main artery, the Yu'Xin'Ou Railway (YU means exactly that: Chongqing, in Changi of course), and thus extremely relevant.The logistic center in this city is so big that it's official name is: The Chongqing Logistic City. This city also holds three more records, it is the largest city in the world, with a population of 30 million, the

⁴⁵Automakers such as Honda and Toyota, have established joint ventures in Guangzhou. Prologis, 2017

⁴⁶Hltbn News, a Chinese rail related news provider.

most dangerous in China (criminality wise) and also host the most influential wine festival in the whole Asia.

Advantages of Chengdu

During the previous description of the various logistic hubs, there are not lists of services or infrastructures; the reasons is that they are basically offering very similar things, just in different geographical positions and backed by different industries. According to the committee that leads the rail section of Chengdu ⁴⁷, the real advantages and point of differences of Chengdu stands in the following aspects:

- 1 Not the nature or size of the industries close to the logistic center, but their stage of development in the Chinese environment.
- 2 The ability to offer all-in-one pricing and to craft interesting offers that simplify the life of customers: for example Chengdu all-in-one offer contains also on-site operating costs, temporary parking, 2 days of free buffer storage and a unique integrated custom service ⁴⁸.
- 3 The demand in the consumption market for the imported goods is important, but must be also joined by a constant struggle to import new goods. For example Chengdu was the first to manage to import Meat from Germany by coming in agreements with Russia bureaucracy.
- 4 A large population live in the areas around Chengdu (2.3 billion people, in Xinjiang, Tibet and Southwest cities), so there is a big market potential for the B2C goods also that are being transported, and for future e-commerce focus.
- 5 Finally, the aspect that really seems the key in succeeding are the government supporting policies. Even if basically every single logistic center is state owned, this doesn't imply that every single one of the gets same founding or even help at all. Government subsidies are not permanent in China, and they get canceled (and moved) every day. The real goal is to create an ecosystem of companies, clients and operations that can be one day sustained without the government; in this way, when the help will be over, the market will not collapse and the logistic center keep its role.

⁴⁷Ergo, the committee our research team interviewed.

⁴⁸Once again, let's remember that Chengdu customs is the one in charge of many in the area, such as the Chongqing one.

3.6 Qingbaijiang International Railway Port interviews

The goal of this section of the work is to both conclude the analysis of the Chengdu International Railway port and report the POV of key agents.

The goal of the agents is that companies should only need to book the warehouse and receive the goods, other affairs are all solved by the Freight Forward Company, the Railway Port Company and the Land Port Company.

In the case analysis, knowledge from these interviews was also applied, and thus problematics that have already been discussed will not be presented again. I would like to personally thank Professor Song Guang for conducting these interviews on behalf of the research group I am part of.

3.6.1 The interviews framework

These are the first interviews presented in the thesis, some other will follow on the Italian side of the study. The interview will be discussed and commented grouped by arguments and not interlocutor.

The actors interviewed have already been described in the previous section, as part of the Chengdu Logistic center, here a brief recap before diving into the interviews:

The Railway Port Company Dealing with the international side of transport that leverage Chengdu as a node, this office is the core of the operations. It possesses its own infrastructure, known as Container Center, which is the foundation of the Logistic Park.

The Land Port Company The Land Port Company is in charge of domestic railway lines, while the Railway Port company runs the international lines. The nature of the company since 2015 is basically to be a platform: they are not in charge of the carry, but just provide information exchange.

The Freight Forward Company Obviously a forwarder does not directly move the goods but acts as an expert in the logistics network. This office deals in contracts with a carrier or often multiple carriers to move goods.

The interviews transcript, originally in Chinese, have been translated as literally as possible and attached as an appendix.

3.6.2 Goods and market dynamics

Goods moved and the food situation

One of the most important aspects for the well being of the railroad initiative, and thus of the logistic center that relies on it, is the typology of goods that is possible to load and ship on it. The reason is quite obvious, as more types of good unlocks new potential clients and more word of mouth; but certain types of goods also presents complexities.

This is why when asked about this topic, the committee answered talking about what the state permits them to move and what nominate them to move: currently, the railway port got approved to be the nominated port to import finished automobile and meat-based products. This is actually an impressive feat, because as it been showed some barriers exist in importing meat, since there are geopolitical problems between Russia and Europe. When fast moving consumer goods, meat, agricultural products that imported from Europe pass by Russia, Russia would discourage them. On 9th December 2016, after making great efforts the center finally managed to import a batch of meat from Germany.

Foods related dynamics are very interesting as China has a great demand for imported food; for this reason the committee leverages the Trans-Asian Railway, which helps their clients to import fruits and foods from Thailand and Southeast Asia.

Another key product that this particular center move is wood, as the area around them has great demand ⁴⁹ for imported wood (in order to make furniture) but China lacks forest resources.

A couple of days before the interview took place, flowers and plants from a nearby province where transported to Europe, thanks to the newly installed refrigerated cabinets and thermostat cabinets. These are just some of the many products that "suffers" from another dynamic: seasonality; the demand (particularly the most delicate one, the Europe-China returns) insulate strongly during seasons and festivals, like Christmas.

To counterbalance the seasonality is a common problem in both logistic and production, and is usually fought by searching products with demand-schemes that are in anti-phase between each other, to level the demand ⁵⁰. Right now, due to the high complexity of finding products for the return routes however, no solution has been found.

⁴⁹The consumption of wooden products is large in Chengdu, the amount of imported wood reached 70-80 million cubic meters annually.

⁵⁰A classical example, is the common knowledge that brands producing Panettone, also produce Colomba during the Panettone production downtime.

Overall China import dynamics

Apart from CBEC, China is also a standard importer of course, and so has needs; the most valuable import flows of China have already been discussed, but the precious information stands deeper: the real need to satisfies lies in the exports from China that result in negative net exports or product trade balance deficits.

Table 3.9 Chinese negative trade balance products, WorldFacts 2016 data

Goods China imports(-) and exports(+)	Trade unbalance	5 years trend
Mineral fuels including oil	-149 USD billion	Up by 43.8%
Ores, slag, ash	- 92.9 USD billion	Up by 33.9%
Oil seeds	- 35.6 USD billion	Up by 85.6%
Copper	- 27.4 USD billion	Up by 5.7%
Optical, technical, medical apparatus	- 24.8 USD billion	Down by -11.8%
Aircraft, spacecraft	- 19.4 USD billion	Up by 102%
Woodpulp	- 17.1 USD billion	Up by 62.3%
Pharmaceuticals	- 13.7 USD billion	Up by 428.3%
Vehicles	- 11.1 USD billion	Up by 2461.5%
Meat	- 9.4 USD billion	Up by 898.1%

These (Table 3.9) negative net exports reveal product categories where foreign spending on home country China's goods trail Chinese importer spending on foreign products. Is it possible to identify two cluster of products, by observing the reported trend. There are some products (mostly the ones at the peak of the table, the more massively imported) that while representing the biggest chunk by relative value, are not growing as an absolute. Instead some of the products that are (for now) less relatively imported, are the ones on which China rely on import so much more during the very last years. To provide an example, Minerals are surely an import of China interest, but the real market to hit (even if smaller) could be the staggering meat request.

3.6.3 Logistic park dynamics

The role of the platform

The Land Port company is basically a 2015 state owned⁵¹ information platform, this is quite rare⁵² and as far as the spokesman knew, in other cities the railway bureaus do not become a shareholder of the Land Port company, they are the wholly-owned subsidiaries of the local governments at most. This extremely relevant state participation is considered one of their biggest competitive advantage, as it translates directly into support from the whole system of railway actors.

“Platform”, it is to be intended in its purest meaning: they are not even in charge of carrying the goods domestically, they only deal with information exchange: they don’t communicate with owners of goods and Freight Forward Company directly, but with the block train company, then the latter will contact owners of goods and Freight Forward Company.

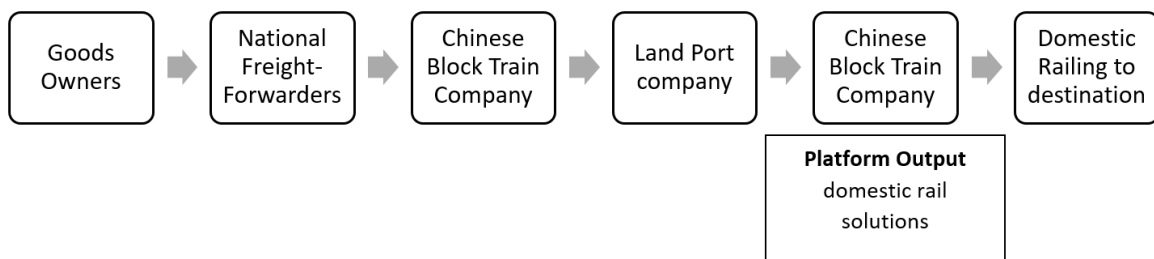


Fig. 3.8 The scheme shows the chain of information where the Land Port Companies act, while helping the (international focused) Block Train company in setting up the Europe - Everywhere in China shipment.

In a nutshell, the operative role of this platform is to provide the Block train company with the best set of solutions to move the goods domestically: the same goods that the Block Train company is in charge of moving internationally. This may seem quite complex, but let’s keep in mind⁵³ the only step for international freight forwarders is to tell the Block Train Company about point A and B of their goods shipment; even if the Block Train Companies only directly controls the railing up to the ports like Chengdu or Chongqing. This platform basically allows the BTC to arrange the whole shipment for the international client.

This is also why the Land Port companies operate in a non-profit scheme, as it is a state owned company helping another state owned company. Goods owners only need to book a

⁵¹In particular, the three shareholders are the Chengdu Municipal Government, Qingbaijiang Distric Government and the Chengdu Railway Bureau

⁵²Even in China, where state participation in companies is extremely common

⁵³as it will be showed in the Italian Freight Forwarder interview

Chinese warehouse and receive the goods wherever they desire, other affairs are all solved by their forwards, Block Train Company and Land Port Company.

This “one stop” scheme for clients it's very effective, and according to the spokesman generates both a decrease in costs and shorter operations; only two hours are needed for both international goods inspections and declaration, as the Land Port Company work started before the shipment even began. The spokesman also added that they are even working at a one-stop multimodal solution (so dealing with a single document).

The domestic side, and the problems it carries

In China, domestic fast railway lines concern a lot of different administrations and transportation prices and negotiation among those is a very complex problem.

Railways in China are defined into three main legal categories: national railways, local railways and designated railways. National railways are managed by the State and account also for the bulk of railways in China this study is about. According to the ministry of Railway, sixteen major rail corridors consisting of eight running north–south, called verticals, eight running east–west, called horizontals, connect 81 major cities. As the administrative division of China is extremely complex and not in the scope of this study, it is enough to point out that these cities spread among many different provinces and while those are all under the state control, transportation fares are allowed to change and get selected by municipalities. This can create prices insulations and additional complexities impossible to manage without a Chinese partner. China's high-speed railway network is in continue expansion, helping far off urban areas to frame financial ties with their further developed partners, and closer ones to shape their own monetary clusters, so every day new bulk routes are introduced.

Another dynamic is that from October 2016, there was a dramatic increase in the number of railway lines that entered Chengdu. On the one hand, it is resulted from the road overloaded control, the consequence of the railway transportation transferred from road transportation. On the other hand, it is resulted from the increasing transportation amount of coal⁵⁴, which led to weak transportation ability, problems in unloading and load limitation.

Customs supervision

For ocean transportation, after the goods are loaded, the shipping company will send a manifest to the custom: if the information in manifest matches the declaration, the customs supervision is finished, then the domestic companies can ask for tax refund, it is an

⁵⁴ Coal accounts for more than half of total rail freight tonnage. In 2013, 2.322 billion tons of coal were shipped on trains in China, about 58% of the total rail freight tonnage of 3.967 billion. Data from China bureau of statistics



Fig. 3.9 The scheme shows the complexity of Chinese domestic railroad system; this explains why a decoupling platform is indeed needed.

automatically data matching. In railway transportation, after departure, the railway will align a number to each container and finish the customs supervisor manually, the level of informatization is low.

This check is needed, because if the number of an imported goods vary, also the taxes and fees do; as reported by the spokesman, in China even if the number of some imported clothes is 2 or 3 higher, the goods will be transferred to Smuggling Investigating Office, which will become very troublesome. Both buyer and seller are asked to provide a clarification, and the goods will be detained for a long time.

The custom checks for the return goods happens at Chengdu and if they find variances in the goods they will investigate if there was or not the fraud intent. All the actors are convocated and all the documents and all the email exchanged should be provided to the customs, the judgment is based on them. If the amount of value reaches a certain level, even it is non-subject intent, the goods will be transferred to Smuggling Investing Office as well. "Strict entry and tolerant exit" is the motto of the Chengdu customs, the examination of imported goods is strict, but there will still be a distinguish between subject intent and non-subject intent.

Empty return loading

While this problem have already been discussed, the interview with the Chinese FFC presents some extremely interesting and new information with respect to the case.

They are searching for new models, apart from agent procurement, in order to create awareness in Europe and meet the Chinese demand of product. One is to build a digital data warehouse, in order to let Europe knows our needs, and build several (physical) exhibition centers in Europe. The idea is to show in the database all the products that surely would perform well if exported in China, as there are companies actually looking to buy some; in this way every single company in Europe could lookup if they product is of interest and move it to China with null risk of it being not absorbed by the market. The exhibition center will be instead specular to the one built in Chengdu recently, where good European produces are presented to passing by Chinese investors; those will be selected solely by Chinese agents traveling abroad, in this way the trust of Asian entrepreneurs will be total.

3.6.4 Overseas dynamics

Getting foreign customers

Obviously, the Chinese freight forward company (FFC) not only craft shipments outbound, but is also quite often the core for many Europe-China transportations. As often contacted by

foreign companies and customers, one of its main goals nowadays is to technically improve, smooth and lower the price of the return trips; as it was already discussed before, this is also a key issue for the very foundation of the New Silk Road.

The best way to find new goods to move east-bound is clearly to find customers in Europe that are willing to switch from sea transportation to rail or willing to start exporting at all; but how can foreign companies find the Chinese FFC is a quite complex matter. At this stage, we are told by the spokesman of the FFC, a very limited fraction of potential customers is reached as the FFC has offices and representatives only in Italy and warehouses in Germany and Poland (clearly because of the railroads ending destinations). The main tool to gather new costumers is then Word of mouth, sometimes sending representatives in offices in foreign countries. The Block Train Company is usually the first one contacted by potential customers, as it is the first that shows up from basic researches on the line; subsequently they introduce customers to the FFC. The stations themselves (Lodz in particular) introduce customers as well, thanks to the huge economic impact that the growing hotspot can have for them. Generally speaking still, the business is from customers' recommendations among each other⁵⁵. Another very interesting way to promote the use of the railroad and thus connect to the Chinese FFC could be coming from financial or political organizations, under the shape of incentives; so far, not even from Europe, something like that has been conceived.

The great problem is that even if a railroad based solutions presents many advantages for your type of goods and company, overall ocean shipping is more mature which results in lower risk for companies.

Italy focus and the Load Bill issue

In Italy, the attention to the service is high, but the real core of possible customers (PMI, Italian version of SMEs) is very complex to reach effectively, and not just because they simply do not know the solution; the main issue is that the international trade transportation has got used to ocean shipping system, while railway transportation shows too many differences. Still, 70% of the goods that come by Rong' Ou from foreign countries are from Italy, mainly including wine, oil, high-end furniture, ceramic tile and construction materials.

Right now the FFC is cooperating with Italian Consulate. For example the consulate introduces local enterprises to the FFC that then visit these enterprises: on the one hand, the consulate brings purchasing groups from Italy in China to purchase goods, on the other hand, the consulate also introduces the situation of block trains to these companies, trying to discover potential customers.

⁵⁵As it will be shown in the Italian side of interviews, actually the customers are told by other FFC that try to propose this service as a competitive advantage versus the provider they are using at the moment.

One of the biggest difference between sea and rail transportation framework, that is reportedly impacting on the acquisition of customers, is the existence of a particular document of ownership. The marine bill of loading⁵⁶: once the goods are loaded on the ship, the bill of loading can be sold for some financial services such as mortgage. In this case, the capital turnover rate of the company will be much higher; however, in railway transportation, there is no such bill of loading, but only waybill⁵⁷. Since the railway always transports high value-added goods, the owner of goods for sure have the demand for financing. This problem limits the settlement of exchange with letter of credit for high value-added products. Railway transportation only provides waybill; everyone can pick the goods with just a waybill at the station, banks are not able to control or intervene.

There are not particular laws preventing a Railway bill of loads happens, but it is just about high risk. During ocean transportation, bank detains the bill of loading in hand and only when the receiving party pays the bill It will be provided. However, in the railway transportation, goods can be picked without the original documents of waybill, banks cannot control the process. Because once the goods arrive at the oversea station, the local station will call receiver to pick up the goods, no matter the receiver has paid or not. According to the FFC spokesman, the companies who choose railway transportation know the risk, so usually the owners would transport after the payment is received.

Overseas economical and financial complexities

While some problems are merely related to a low pool of customers or novelty in the solution, some other are more complex to solve as related to the differences between China and target countries and even more to pure financial instruments.

The block trains are currently in a financial dilemma to some extent. Though faster and cheaper than sea, the perspective of companies is not limited to pure operations. They not only concern logistics cost but the overall cost of the whole company, such as the turnover rate of capital and financial cost. Basically, a block train without any financial instrument is not cost efficient.

Oversea warehouses For a freight forwarder, a warehouse is a key logistic item; without one you cannot receive the goods from all your various customers, consolidate them and subsequently ship all in a single solution. From a Chinese point of view, the cost to build an oversea warehouses is shockingly high. In China, a warehouse can serve a wide range of area, but virtually the same warehouse however, if built in Europe, could

⁵⁶Bolla di Carico, in Italian

⁵⁷The waybill is not a document of ownership and cannot ask for financial service.

serve a single country only as the territorial area of foreign countries is relatively a lot smaller; this results in a higher number of oversea warehouses needed.

One solution is to get support from the local government obviously, another one is to rent the warehouses.

The lack of Loadbills financial impact As a matter of fact, even if railroad transit time is considerably shorter, the financial risk will increase if companies change from ocean shipping into railway transportation.

Due to the absence of a waybill, the only reasonable thing for buyers is to pay when the goods arrive, producers obviously do not like that at all. This is why the payment is to be sent before the goods are loaded in the block train, or soon after, and this creates a series of problems. For example, when the goods arrive at Alashankou, if the payment is not received, the block train company will not transport goods to foreign countries and temporarily stops. But the Alashankou port doesn't allow goods to stay there for long, otherwise the port will send a formal notice to the railway bureau that sent the goods. In the future, if the FFC ask for the railway bureau to transport goods again, the FFC will get a great fine from the latter. In the previous period, there were four containers that didn't get the full payment, so the FFC didn't dare to transport the goods in order not to risk a stop.

No railway bill of loading not only leads to pressure for the owners of goods, but also results in inconvenience for FFC. If the bill of loading exists, FFC can detain the bill of loading of the unpaid goods, engage in finance activities as well, such as receivable payment, and generate some financial instruments.

Foreign countries dynamics and CBE

Russia is not the only country that presents challenges, as a relevant fraction of the railway infrastructures are indeed technically abroad! The cost for opening offices and oversea warehouses are reportedly very high, and a fraction of this cost is paid by partner foreign companies.

The common problem for Rong' Ou and all the other block trains nationwide is that the supply chain is not completed. The rail line within China is "good", according to the committee, but the logistics system in foreign countries has many weaknesses, mostly related to sales and distribution (management wise) and warehouses construction (operation wise).

Luckily, the new trend of cross-border e-commerce⁵⁸ is actually improving both of those

⁵⁸The term cross-border e-commerce generally defines international online trade. It involves the deal or buy of items by means of online shops crosswise over national fringes. Purchaser and dealer are not situated in a

aspects as a side effect: this e-business in China reached 6.5 trillion yuan (1.02 USD trillion) in 2016, with an increase of 30% growth rate, according to Chinese Ministry of Commerce. Although traditionally China provided the world with its manufactured goods, in recent years e-commerce developments allowed Chinese e-customers to purchase and import goods from other countries directly: this makes China a target for the first time for many companies; as Domestic markets have become mature and saturated CBE is a very logical way to boost growth, especially from the point of view of European SMEs. According to Table 3.10, that lists the most bought online goods (by Chinese costumers, in foreign e-commerce websites, in 2016), PMIs, in particular, could surely compete in many of the top categories.

Table 3.10 Ranking of the 2016 most popular products that Chinese customers buy by Cross Border E-commerce. Top 90% is presented.

Source: iResearch 2016 / Ecommerce Foundation.

Product	Percentage on total Chinese CBE
Cosmetics	13.1%
Food and Healthcare	11.1%
Mother and Child	10.8%
Clothing	10.5%
Computing and Communication	8.8%
Household articles	7.7%
Sports Supplies	7.4%
Travel Bags	7.1%
Appliances	6.8%
Toys	6.6%

According to the Shanghai Consulate e-commerce guidebook, "several factors contribute to the willingness of Chinese e-consumers to buy products from abroad. The (upper-)middle classes seek to pick up the niche and newest items, not (yet) available"; while the main purchasing factors for Chinese consumers to buy via cross-border e-commerce platforms are "product quality"⁵⁹ and "product price". Besides availability, and a more trustworthy image, to Chinese customers the price of imported goods via CBEC is one of its biggest pull-factors. Due to the exemption of import taxes under certain conditions, the retail price of CBEC goods can be significantly lower compared to the same goods imported via traditional trade.

similar nation and are frequently not managed by a similar purview, utilize diverse monetary forms, and talk different languages.

⁵⁹Chinese consumers often feel that products purchased via cross-border e-commerce platforms guarantee a higher level of quality and protection against counterfeit goods.

3.7 Current Business Model

To conclude this section about the Chengdu Logistic Park, a Business Model canvas has been drafted; a BM Canvas is a strategic management for developing new or documenting existing business models. The goal of this tool is to compactly represent the four main elements of a firm strategical structure:

Infrastructure :

Key activities To execute the company value proposition, to correctly leverage distribution channel or revenues streams some activities are indeed needed. These could be production based, network based or even pure problem-solving.

Key resources These are the needed assets that are necessary to accomplish all above. Could be human, financial or even intellectual.

Partner network Joint ventures, alliances or even buyer-supplier relationship: all part of a company partner network that has the goal of reducing risk and optimizing operations.

Offering The offering core is the value proposition of the company itself; according to Osterwalder(2004), a company's value proposition is what distinguishes itself from its competitors.

Customers :

Customer segments To identify which customers the company is trying to serve, is key to building an effective business model; from mass market to niche markets.

Channels There are various ways to reach customers, ranging from owned channel and partner ones.

Customer Relationships The relation between the company and the customer can vary greatly, from automated service to one to one personal assistance.

Finances Cost structures and revenues streams are two of the most fundamental aspect of any business model, together they define greatly what the company does and how. This section is also where economies of scale,scope and different typologies of cost kick in. Revenues streams are also extremely characteristic to the business, ranging from sale of asset, to subscription fees.










<p>Key Partners </p> <p>State related: from the Railway bureau to the very bank of China or Ministry of railways, the Chinese state has a clear influence on Chengdu operations. This certainly grants economic advantages and reduces risk and uncertainty for the project. Under this category, also the Land Port and Rail Port company stands, with the key activities of supporting domestic and international operations.</p> <p>International: the more the park and its operations grows, the more they attract foreign shippers, freight forwarders or multinationals companies.</p>	<p>Key Activities </p> <ul style="list-style-type: none"> • Logistics • Warehousing • Customs • Promoting park, corridor • Support for non-Chinese partners and clients • Scouting new partners • Stay competitive <p>Key Resources </p> <ul style="list-style-type: none"> • State financial support • Land port platform • Territorial know-how • Logistic infrastructure • Strategic position • Custom duty • Bonded logistic • International Customers 	<p>Value Propositions </p> <p>The goal for the park goes beyond their grounds, as Chengdu is indeed a key player for the whole New Silk Road. The park value proposition is not then to just become a better logistic spot, but also to help its foreign customers in approaching China and its Chinese clients in presenting their essence to the world. There are two parallel services offered: one is purely infrastructural, the other is indeed a no-profit support platform. Overall, the goal for this park is to indeed help the New Silk Road breach in the current world logistic scenario, not only the domestic one.</p>	<p>Customer Relationships </p> <p>In both the logistic park, platform and vague train owner aspects of the BM to every client is assigned a Chinese worker as reference and the support is even dedicated personal assistance in case of large costumers. To boost WOD is key to satisfy customers and partners.</p> <p>Channels </p> <p>In this moment channels present some limitation. The awareness is generated basically by WOD and after than the whole evaluation and purchase are done via email, as it is still too expensive to build more oversea officer. For big clients or partners, a spokesman reaches them.</p>	<p>Customer Segments </p> <p>Due to the international nature of the corridor, the logistic park surely interfaces a lot with foreign agents. These agents can vary greatly in nature and dimension, from shipping giants to small partners Freight Forwarders and from multinationals to SMEs looking for an e-commerce support. While the park customer base is quite diversified, the platform is not really multi sided as it only helps international shippers in selecting the best domestic travel option. An interesting segment could be formed by all the oversea companies contacted directly, as those are treated differently.</p>
<p>Cost Structure </p> <p>It is kind of hard to correctly define the cost structure of the Park and platform, as it is not clear the role of the Ministry of Railways and their infrastructure. For sure the more trains and goods the more the fixed costs for the park itself can be absorbed. Other big costs may reside in the continuous improving of the infrastructure and overall facility (for example the creation of a cold-chain able zone in the future). Another huge cost is related to promotion of the oversea warehouses strategies, that serve as base for the Chinese FF.</p>	<p>Revenue Streams </p> <p>Even if presenting some no-profit aspects, mostly due to the Land Port company operations (basically a support platform for domestic movements) and some extremely relevant state incentives, the main revenues streams of the logistic park are still the ones to be expected; from renting warehouses space and machinery. Not clear is instead where the Freight-Forwarding revenues stream goes, or if the park possesses some actual trains (just like shippers). Prices surely present no fixed scheme, and are usually per-case.</p>			

Fig. 3.10 Chengdu Logistic park Business Model canvas.

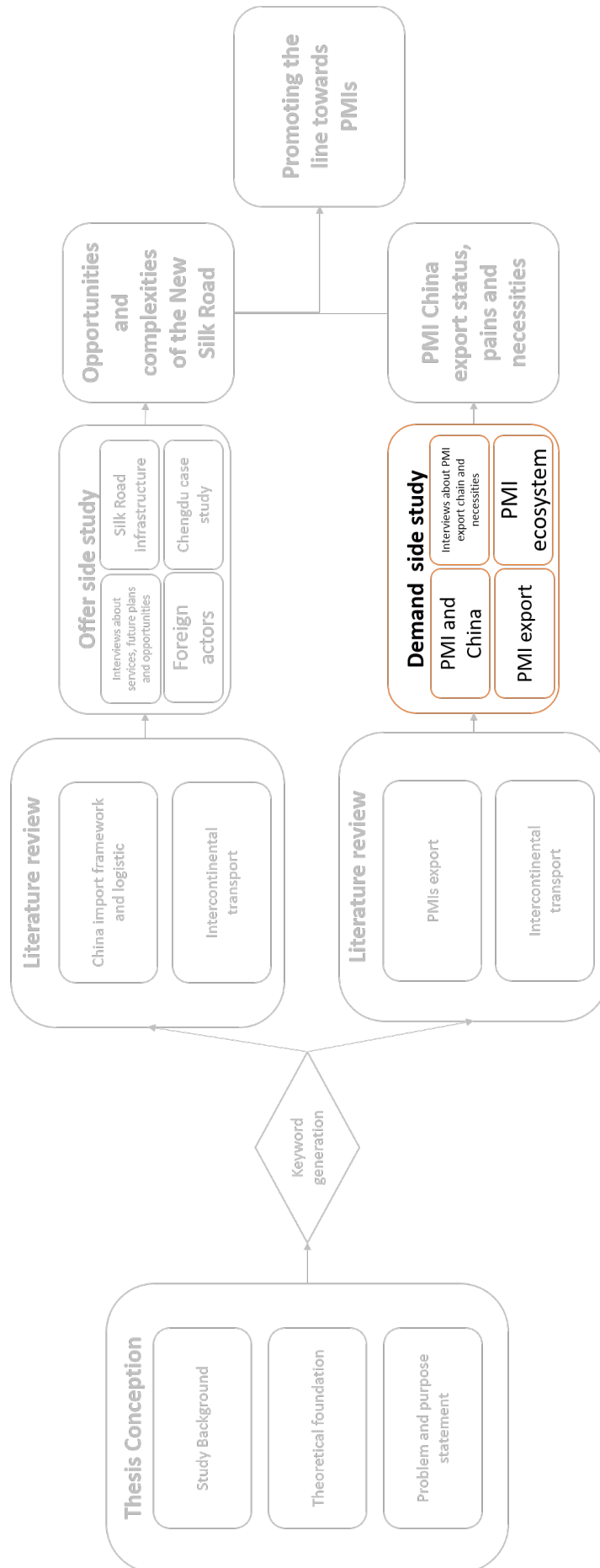


Fig. 3.11 Fraction of the methodological framework regarding upcoming Chapter 4

Chapter 4

PMI's export: agents, sectors and intercontinental dynamics

4.1 Framework and methodologies

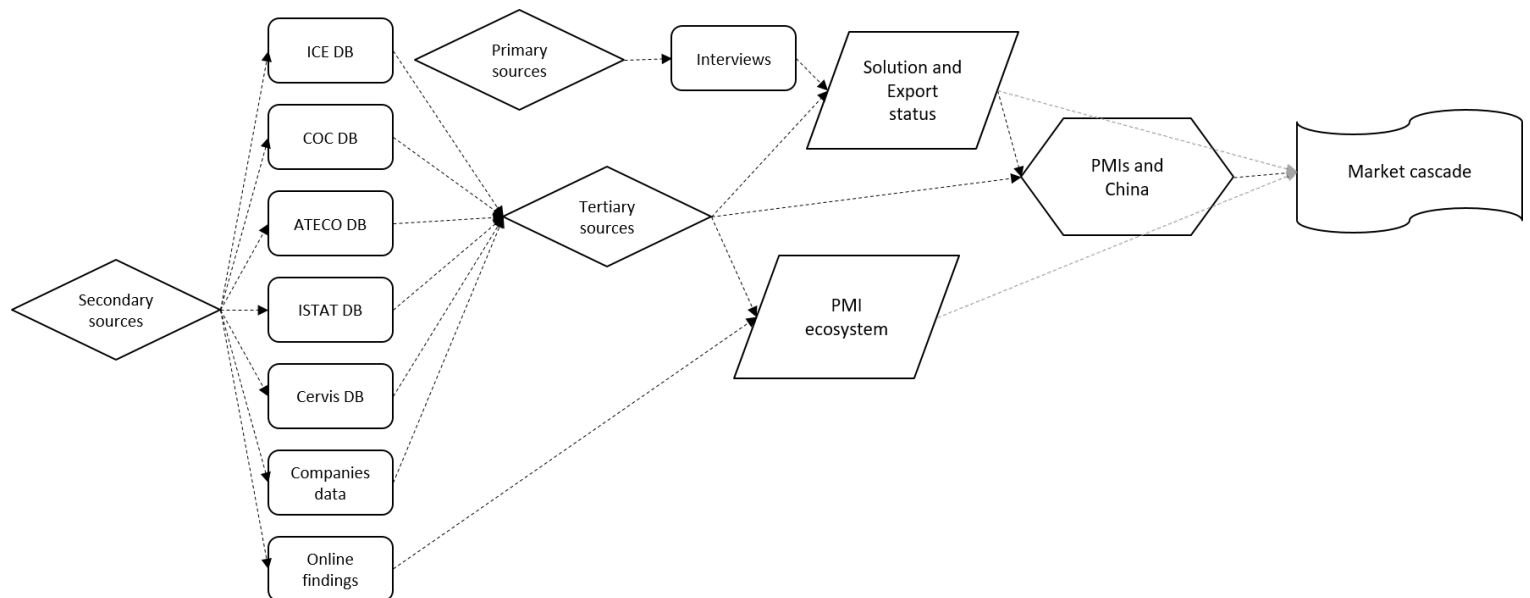


Fig. 4.1 Chapter 4 structure.

As introduced in the methodological framework section at the beginning of the study, to understand what to leverage in a possible promotion, both the PMI ecosystem and their China-Export journey must be studied. The methodological way these two pillars have been approached is indeed systematized in the graph above: starting from interviews to all the logistic supporting actors, an overall status of the relation between the corridor and the PMI

will be crafted. If this will deepen the knowledge about the solution, more has to be learned of PMIs intercontinental export itself and this is why thanks to an elaboration of secondary sources, the trends and dynamics of this phenomena will be unconverted. Finally, by merging the knowledge of both PMIs export, PMI ecosystem itself and the status of the Silk Road solution, a market cascade will be developed.

The goal of this chapter is to introduce and analyze the specular side of actors involved in the New Silk Road ecosystem: the client companies. As the full supply chain ecosystem is quite complex, the scope of the thesis is to focus on a particular one, the Italian SME (from now on PMIs).

In order to effectively link a small Italian company to a far warehouse in China, pretty much a whole supply chain is involved: it starts with the company itself, the freight forwarder they contact and continues through the shipper, the foreign agents, the customs, the Chinese partners and finally the Chinese warehouse. As in this study a good chunk of the Chinese agents have been already analyzed, this chapter will report by the mean of interviews the experiences of Italian Freight Forwarders and foreign partners, in order to move towards the PMIs dimension.

After gathering the knowledge of these professional actors, the focus will be moved to the PMIs; after a brief introduction of this particular Italian ecosystem, the study will deal in particular with the ones belonging to the industrial sectors that (both according to public data and the interviewed experts) are leveraging this new logistical solution with particular interest and positive results.

The study on the exporting journey of those PMIs will be conducted in two ways: on managerial side, the pains of those companies will be discussed along with the steps necessary to establish a robust export stream; from a more quantitative point of view, a potential market cascade analysis will be conducted in order to leave to the next research group a rough idea of how many PMIs could effectively be interested in exporting at this stage of the infrastructure.

Thanks to this new knowledge about the overall PMI export process, the next chapter will be indeed able to start linking all the (Chinese, offer side) opportunities and awareness plans to the (PMIs, demand side) dynamics, barriers and perceived benefits; this will indeed be the basis for future studies and the promotion of the line.

4.2 Abstract

The chapter starts with interviews to Italian and international logistic actors. These were selected with the intent of covering the whole chain, so at the end it was necessary to interview both an Italian Freight Forwarder and an international shipper.

This duality is key, as it was discovered that the PMI initially talk to a national FF, and then the latter contacts the shipper (usually a block-train owner). These shippers are indeed the ones the Chinese agents interface themselves with. One of the first findings of this section was indeed the "other half" of a logistical and managerial journey that makes over-sea export possible to SMEs, thanks to 3PL. The interviews critical analysis proceed with the pains and problematic (both domestic and international) that are still present on the (relatively new) corridor: while the agents never incurred in remarkably bad experiences (reportedly, the Chinese agents are very focused on the railway success) there are still barriers. Here another key aspect of the study appears, the huge cost difference between the corridor and main alternatives, reportedly so big to delete any good aspects of it right now. These are all interesting insights, but probably the best ones come from the discussion about Italian clients of those actors and their approach in promoting the line: they started proposing the line with ease very recently, and only to precisely targeted companies.

This set of characteristics that a PMI should have in order to be considered a good fit for the corridor, lead to the second section of the chapter, dedicated indeed to PMI characterization; another key focus of the section is PMI export (in particularly towards China). In order to understand and find the most interesting companies (goods and sectors), it was necessary to deep dive in the ATECO database and cross it with ISTAT and ICE export data.

By crossing this new quantitative knowledge about PMI China export and the previous qualitative one about Agents promotion (eg. only propose the corridor at this stage to high-value PMI that already exports to China), a index of solution penetration was crafted, in order to understand the magnitude of PMIs currently leveraging this solution. In a nutshell, it was discovered that due to the very low percentage of PMIs exporting (17%) and the even lower fraction of those that exports in China (13% of 17%, so 3.3% of the total PMI pool) and to a series of other Cascade factors, the penetration of the solution is still extremely low.

4.3 The Italian logistic chain actors interviews

4.3.1 The interviews framework

The idea behind this second interviews section, is to complete the logistic chain picture that was started by interviewing the Committees in Chengdu; with the final goal in mind of crafting the whole sequence of steps (not directly related to a single actor) that begin when a PMI decides to use the New Silk Road.

Another goal, is to understand the Italian demand for the infrastructure thanks to the customer bases of the interviewed logistic provider and draft a list of sectors, commodities and ,overall, goods that PMI are already exporting towards either Chengdu or Chongqing by leveraging the New Silk Road.

In order to do that, it was necessary to reach and question international shippers and Italian based freight-forwarders that already export by this mean.

All the interviews were done by means of Skype, none of the interviewed knew the questions beforehand (only the general topic) and a simple recorder was used. The set of questions for each type of agent was similar and coherent, but after a while every interview took a different, natural course.

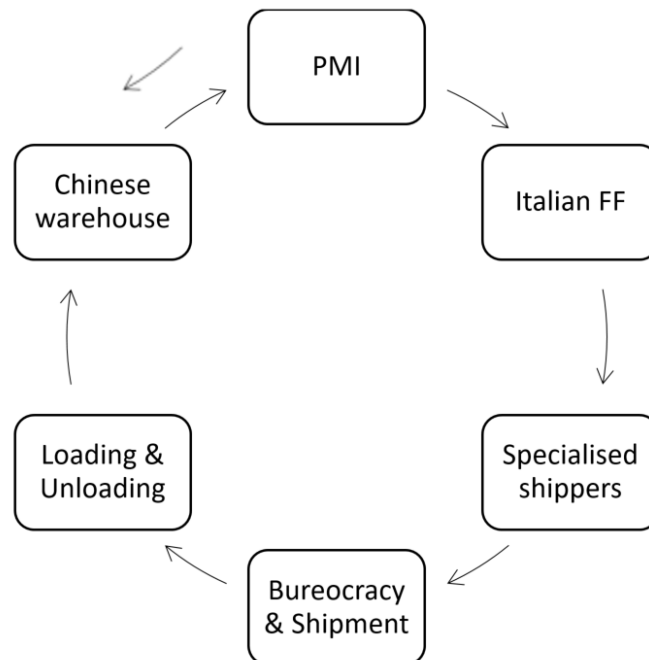


Fig. 4.2 The scheme shows the other side of operations. In the previous chapter it was shown what happened on the Chinese side, now the POV is the PMI one.

4.3.2 Freight Forwarders and Shippers

Introducing JAS

JAS is a privately owned international freight forwarder, consolidator and logistics provider. The company was founded in 1978 in Milan, Italy. By 1988 JAS became the first ranked IATA¹ Freight Forwarder in Italy. Now its mission flows globally through its vast global network of 47 subsidiaries, hundreds of official agent locations, and 4,000+ employees across more than 100 countries. With 400 Million Euro revenues, JAS is among the biggest player operating in Italy, right after UPS (450 Million Euro revenues), TNT and BRT (800 Million Euro) and DHL (1.4 Billion Euro).

JAS is a traditional freight forwarder in the sense that forwarding services are the foundation of the group and the reason behind its growth.

JAS less-than-container-load (LCL) service brings economies of scale, and the cost benefits of full container load (FCL) shipments, to shippers of LCL cargo.

As confirmed from our interview, JAS was one of the first Italian actors to engage in the railroad eastbound route (Europe to China), with great success; by leveraging both the new silk road and the trans-Siberian route.

Introducing FELB

After our interviews to freight forwarders, it appeared clear that very few shippers (intended as actual train owners) are indeed key players along the corridor. One is certainly FELB, a 75% Russian Government owned company, that since 2007 is indeed investing and exploiting the New Silk Road.

Their special agreement with the Russian government enabled them to commence with the first pilot shipments. Over the years FELB became owner of more than 7,000 containers and increased the frequency of train departures from 1 per week to 6 per week. As a result of this also two special train operating centers have been established, one in Asia and one in Europe. FELB is also one of the very first agent encountered in this study to possess a clear positioning for the corridor related services: The New Silk Road rail service is especially targeted towards clients with high-value goods or urgent shipments, located in areas easily connected to the rail, as congestion in and around Chinese/European ports is avoided, allowing a direct and fast door-to-door connection.

This shipper only deals with FF, not companies directly.

¹The International Air Transport Association (IATA) is the trade association for the world's airlines, representing some 275 airlines or 83% of total air traffic.

Differences between shippers and freight forwarders in approaching the corridor

If Freight Forwarders started getting in touch with the corridor in 2013 and started proposing it in 2016, the train owners and shippers were active since 2007 and immediately started pushing both marketing and operational wise; this is already a clear indication of the big difference between the parties of the logistic chain.

First of all a definitive difference is that Freight Forwarders are indeed shipper clients, just like PMIs are FF costumers; second of all, the train owners actually invested (in some way) in the corridor and thus are among the most engaged agents. While the FF must simply try to do the best for its client by selecting means of transport that are aligned with its request, a Silk Road Corridor train owner has to push a single obvious solution.

4.3.3 Status of the solution

Current status of the logistic solution

From an Italian POV the Silk Road solution is known since 2013, but the majority of freight forwarders dare to propose it with ease only since 2016. Since then, opportunities growth and prices slowly went down as this route became more mainstream. It seems that usually each agent choose to specialize either on westbound or eastbound moving goods.

The very first good that pushed the infrastructure was unanimously automotive related, but since the new Europe-China test are very well perceived by Chinese partners, many European and Italian FF and Shippers are trying to promote the railway.

An interesting trend, according to our interview is that Chinese companies that Europe interact most with are moving away from central China, towards Vietnam and Saudi Asia. Companies are shifting some manufacturing to other countries as China becomes less competitive because of incrementally higher wages, a persistent labor shortage, and a growing geopolitical risk.

This is quite interesting for the railroad, as a multi-stop and cross hubs can be easily implemented, effectively multiplying the destination of the railway.

Overall, even train owners shares partially the feeling that this is indeed (not only return rides wise) still an imperfect solution. Right now the corridor is indeed booming, this is surely good but at the same time the limitation of the "outside China and outside Europe" logistic infrastructure is showing off exponentially under the growing load. Bottlenecks are appearing especially entering or exiting Russia, as due to the relatively few compatible lines in that country many are indeed concentrated to the same bunch of logistic intersection. The biggest problem right now is that the diameter of some rail features changes, and the only

way to solve that is to switch train indeed.

Doesn't matter is along the trans-Siberian or Rong' Ou, the risk of still losing a week (basically adding +50% to the transit time) is still very high.

Pains and problematic dynamics

So far, no one of the freight forwarders we interviewed had any remarkable bad experience with the line; the general idea is that both the Chinese and the key shippers are trying very hard to make the solution work. So far, the biggest pain is the cost: it's still very hard to find a PMI that can squish between the phase that could be the anthem of the study "Cheaper than air, faster but more expensive than sea" as the 4x multiplier of the cost basically erases a great number of sectors. This is also what they actually ask on a daily basis to the main specialized shippers we spoke about. The goal, according to one of the interviews freight forwarders would be to reach (possibly thanks to European founding) a costs of maximum 2.5x the sea option: then medium to high-value goods PMI will be surely up to switch.

A dynamics that worries pretty much every agent in the chain, is that PMIs just try once or twice the solution, but do not adopt it as standard, even if everything went smoothly².

4.3.4 Italian dynamics

Italian clients and marketing

The marketing aspect is clearly very polarized, according to the typology of customers the Freight Forwarders are dealing with.

On one side multinational companies stand, those are basically always contacted by Chinese FF, especially if they already possess some kind of economical interest or movement in China; the most common scenario is that these companies already ship their goods there, but may be eligible for this new solution. These companies, after being contacted by the Chinese forwarder, ask their usual/national one if they offer the same logistic solution; this is one of the most relevant mechanic that quickly augmented the interest of national forwarder towards this solution, as the Chinese FF are indeed competitors in this scheme.

On the other side, there are PMIs: the marketing dynamic here is different as smaller companies usually chat among them (especially if reunited in "consorzi"); is not uncommon for the PMIs to directly ask their own FF about the railroad, especially after 2016. As we were told by a Branch manager of one of the FF we interviewed, is getting increasingly common for them to propose this solution, especially east-bound (Europe to China) as both so far it

²This could also be a signal of sea-based shipping companies that are willing to lower a bit their price, in order to keep the customers to the usual solution.

worked very well and there is a great demand from Chinese partners of return trips, but they do not consider this a "one stop" solution for all their Chinese movements; overall the Italian FF are carefully embracing this logistic solution, mostly by testing it each time in new ways. PMIs wise, the client base is still very heterogeneous in Italy and the interested parties span from chemical industries to alimentary³ ones and from high-value replacements parts to commodities. Overall, as the solution is very new (the same happened with last generation sea-shipments) everyone is curious and trying to understand if this can bring them some kind of competitive advantage.

Overall, for the client everything is extremely straightforward: after asking its FF about the solution, it just needs to reserve a warehouse in China; all the rest is done by the national FF and by the Chinese partners.

One thing that was heavily stressed this time, being shippers international agents (and not national, like Italian freight forwarders) is that the Italian corridor adoption rate and overall knowledge is absolutely not a good proxy for the European one. Italy is extremely behind silk road wise, but surely not the only European country where this solution is seen as a novelty. The problem is that for relatively many (2007-2016) years, the decisional power about partners was in the hands of Chinese agents; they partnered with only a few European actors in order to test the line and this is why the awareness was not able to reach a high capillarity outside Germany and Poland. Then, after 2016, the Chinese are able to support basically everyone and the line is getting tried by more and more operators.

It is clear then that is indeed the (Russian, in this case) shipper that has to reach and convince (Italian, in this case) FF that the corridor is indeed something they can propose to their (PMI, in this case) clients. FELB is doing a lot in this direction, even in Italy almost region by region, leveraging on two promotion tools: from one side they organize conventions and meetings for FF presenting the corridor, and on the other side they publish both pure advertising and Silk Road articles on specialized magazines. Italy is not really the main target however, as it's in its DNA to export a lot more than import, while for other European countries is the other way around.

³While, reportedly, some Agro-Alimentary consortium are very interested in launching a first fresh shipment from Italy, still as September 2017 not a single one was recorded.

4.3.5 Foreign dynamics from the Italian POV

The foreign actors

According to all our interviews, the partners depend on the route chosen. As it is known already, The Block Train company is a conglomerate of rail companies, that mostly operate along the New Silk Road or the trans-Siberian route. These actors (from now on, "specialized shippers"), after contacted by the (Italian, in this particular scenario) freight forwarders, takes in charge the shipment either from Poland or Germany and manage everything up to the China arrival: customs, loadings, paperwork.

Overall, the client (the PMI) will never interface with these agents, but only to its FF; in the same way, the national FF will never take contact with Chinese authorities or subsystems, but only with those rail companies. According to our interviewed, the most known agents that transport the goods along these routes, by order of the various freight forwarders, are FELB (Far East Land Bridge Ltd.) and CGM logistic; respectively a Russian and a French company. We briefly managed a contact to a spokesman of CGM Logistic, chosen because they are actively promoting the line, and we have been told that the core of their silk road marketing it to push on three pillars

Safest and most precise mode of transport While comparing it to another mean of Europe-China transportations, this is the mode that presents no weather impact, no assaults and so far basically no delays.

Ecological advantage The rail presents ecological advantage compared to other ways of transport, in particular with respect to non-methane hydrocarbon and sulfur dioxide

Tracking The tracking on the rail road is extremely precise and transparent, also the route never changes due to weather for example.

Obviously, a dynamic that is not being addressed its the movement of goods between Italy and Germany/Poland; while this is considered a quite standard task, it is also true that it presents complexities and costs. This is another task totally handled by the Italian FF, that, thanks to the creation of new logistic centers in North Italy, is getting increasingly easy.

A new foreign dynamic

While the "export journey" steps and partners were confirmed by this new set of interviews, what instead emerged is that right now promotion wise many Chinese train owners are basically "cheating". One of the huge pillars of the corridor promotion is that fact that (as a prof of convenience and correct working) every year there are more and more trains full of

goods going up and down the line. This corresponds to what we got reported by Chengdu interviews also. The problem seems to be that those trains are basically empty, and surely in no way four weekly runs are needed nor that huge number of new trains every year. Thanks to public money, it looks like the Chinese shippers are trying to prove that the line indeed is expanding at a rate that doesn't correspond to reality.

4.4 The Italian SME ecosystem: PMIs

During the previous sections, the concept of PMI was introduced but never deepened; before moving on to the Industrial sectors Chinese exporting PMIs belong too, it is necessary to introduce this fundamental⁴ Italian construct and its ecosystem.

4.4.1 Definition and trends

A PMI (or SME, small medium enterprise, in the European Law) is a typology of company that stands between precise boundaries; until recently, where very country had its own definition, and the European one was just related to the following:

Micro-enterprises have a maximum of 10 employees

Small-enterprises have a maximum of 50 employees

Medium-enterprises have a maximum of 250 employees

In the European Union the businesses defined as said account for more than half of all value added in the EU economy. According to the EU Commission's 2016 annual survey of the SME economy, these smaller companies are responsible for 67% of total EU employment, and represent over 99% of all non-financial businesses.

In time, and due to the growth of digital companies, this definition changed and became more complex (Table 4.1) in order to not include all the high turnover, low employees companies in this segmentation. For these dimensions, and also for the objective difficulties of attracting

Table 4.1 The European definition: a company is a SME if falls into the first 2 boundaries.

Company category	Employees	Turnover	Balance Sheet total
Medium	<250	<= 50 million Euro	<= 43 million Euro
Small	<50	<=10 million Euro	<=10 million Euro
Micro	<10	<=2 million Euro	<=2 million Euro

capital, states and regions usually implement support policies for SMEs (though, in fact, SMEs generally charge more income taxes than multinational corporations).

It is important to consider that small and medium-sized enterprises sometimes behave differently from the larger ones and the different types of organization (often SMEs are still managed directly by the owner), as well as the limited availability of capital and consequently different management policies.

⁴Overall, between 2002 and 2012, according to ISTAT in Italy 80% of the national jobs were from PMIs.

The picture emerging from the Cerved PMI 2015 Report indicates a group of SMEs that have shown strong resilience to the crisis and had all the cards in place to capture the recovery. In 2014 and early 2015, PMIs have signaled greater recovery from large companies. They have done better in terms of revenue growth and added value; after years of profound contractions, increased productivity, operating margin, and capital gains.

Overall, these data indicate that the crisis has severely tested our SME system, which is emerging in numerical terms but improved in terms of quality.

4.4.2 PMIs in numbers

Overall, in Italy, around 135000⁵ companies falls in the previous specification, thus acquiring the new PMI status, being both Italian and SME. The PMIs are surely relevant for whole the Italian economical ecosystem but are especially distributed in some activity sectors.

Table 4.2 This table shows the distribution of PMIs over main activity sectors, all the ATECO classification that resulted in less than 1% share have been excluded.

PMI ATECO Sector	% over total Italian PMI
industrie alimentari, delle bevande e del tabacco	1,3%
industrie tessili, abbigliamento, pelle	1,4%
industria dei prodotti in legno e carta, stampa	1,2%
metallurgia e fabbricazione di prodotti in metallo	1,7%
altre industrie manifatturiere (riparazione)	2,0%
costruzioni	13,2%
commercio all'ingrosso e al dettaglio	26,2%
trasporto e magazzinaggio	3,0%
attività dei servizi di alloggio e di ristorazione	6,8%
servizi di informazione e comunicazione	2,2%
attività finanziarie e assicurative	2,0%
attività immobiliari	5,2%
attività professionali, scientifiche e tecniche	15,7%
noleggio, agenzie di viaggio, servizi di supporto	3,2%
sanità e assistenza sociale	5,6%
attività artistiche, sportive, di intrattenimento	1,4%
altre attività di servizi per la persona	3,9%

⁵Cerved 2016 data. Out of 6million Italian companies, "only" 135k are indeed Small or Medium enterprises. The vast majority are indeed micro companies as Table 4.3 shows.

For example, as you can see in Table 4.2 the most Italian PMIs are indeed in 3 sectors that, cumulatively, accounts for more than 50% of the total.

Constructions This section includes generic and specialized activities for the construction of buildings and civil engineering works. It includes new works, repairs, additions, alterations, installation on prefabricated building sites or structures and buildings of a temporary nature.

Commerce In this section, wholesale and retail activities (sales without transformation) of all kinds of goods are classified as well as the supply of goods-related services. Wholesale and retail sales are intended as the final stages of the goods distribution chain.

Professional activities This section includes professional, scientific and technical activities. These activities require a high level of preparation and provide users with knowledge and skills, such as consultancy, r&d, accounting.

4.4.3 PMIs relationship with Export

Although it remains the case of 2016 that the majority of PMIs do not export, the category is indeed growing. According to UPS exporting SME insight of 2017, 17% PMIs export on a regular basis; the only country that exports less is Spain.

The larger an SME is, the more likely it is to export, also on an European level, as in every market surveyed by UPS the proportion of SMEs that export grows with company size. On average 36% of medium-sized SMEs export, compared to 27% of small SMEs and 20% of micro enterprises.

Table 4.4 Export target as of 2016 for the main Europe exporting countries.

	2016 export targets:		
	Inside EU	Outside EU (excl. USA)	USA
<i>Belgium</i>	91%	8,30%	1%
<i>France</i>	59,40%	33,70%	7%
<i>Germany</i>	78,40%	18,90%	3%
<i>Italy</i>	70%	19,60%	10%
<i>Netherlands</i>	79%	17%	4%
<i>Poland</i>	94,50%	3,30%	2%
<i>UK</i>	67%	17,40%	16%
<i>Spain</i>	66,40%	28,20%	5%

Table 4.3 This custom I.Stat extraction was designed with the intent to show the distribution of workers in PMIs and micro companies main activity sectors. The core of Italian enterprises is clearly all about the ones with less than 10 employees. Very few ATECO sectors presents a good percentage of companies with more than that, mostly industrial ones.

Number of employees	0	1	2	3-5	6-9	10-15	16-19	20-49	50-99	100-199	200-249	
agricoltura, silvicoltura e pesca	8,8%	54,4%	13,3%	15,3%	4,5%	1,7%	0,5%	1,2%	0,2%	0,1%	0,0%	100,0%
estrazione di minerali da cave e miniere	11,7%	19,3%	12,6%	20,4%	13,6%	11,6%	3,2%	5,4%	1,6%	0,6%	0,0%	100,0%
industrie alimentari, delle bevande e del tabacco	2,8%	23,2%	18,2%	29,8%	13,3%	6,2%	1,8%	3,4%	0,8%	0,4%	0,1%	100,0%
industrie tessili, abbigliamento, pelle	3,3%	31,8%	14,4%	19,9%	12,2%	8,5%	2,9%	5,3%	1,2%	0,4%	0,1%	100,0%
industria dei prodotti in legno e carta, stampa	2,2%	40,5%	17,1%	19,1%	9,2%	5,9%	1,8%	3,1%	0,6%	0,3%	0,0%	100,0%
fabbricazione di coke e prodotti del petrolio	11,6%	8,8%	5,0%	17,2%	16,0%	15,0%	4,4%	15,0%	4,4%	1,9%	0,6%	100,0%
fabbricazione di prodotti chimici	6,9%	16,7%	9,1%	17,3%	13,7%	12,1%	4,1%	11,9%	4,6%	3,0%	0,6%	100,0%
fabbricazione di prodotti farmaceutici	19,2%	11,5%	3,7%	6,4%	4,6%	9,0%	2,2%	15,0%	12,1%	11,9%	4,4%	100,0%
fabbricazione di articoli non metalliferi	3,9%	24,8%	13,8%	21,6%	13,0%	9,8%	3,1%	6,9%	2,1%	0,9%	0,2%	100,0%
metallurgia e fabbricazione di prodotti in metallo	2,6%	27,9%	15,1%	21,6%	13,1%	9,3%	2,9%	5,5%	1,5%	0,6%	0,1%	100,0%
fabbricazione di computer e prodotti di elettronica	6,4%	28,5%	10,6%	16,0%	11,6%	9,2%	3,6%	8,9%	3,0%	1,8%	0,3%	100,0%
fabbricazione di apparecchiature elettriche	5,3%	22,1%	10,6%	19,0%	13,7%	11,6%	4,2%	9,1%	2,9%	1,3%	0,3%	100,0%
fabbricazione di macchinari ed apparecchiature	5,2%	16,6%	9,5%	17,5%	15,8%	13,9%	4,8%	11,0%	3,5%	1,8%	0,3%	100,0%
fabbricazione di mezzi di trasporto	9,3%	20,3%	10,0%	16,0%	11,8%	11,3%	4,0%	10,0%	4,2%	2,6%	0,6%	100,0%
altre industrie manifatturiere (riparazione)	2,3%	47,4%	16,6%	16,6%	7,6%	4,7%	1,4%	2,5%	0,6%	0,3%	0,0%	100,0%
fornitura di energia elettrica, gas, vapore	52,5%	22,8%	7,1%	7,1%	3,0%	2,7%	0,8%	2,6%	0,8%	0,5%	0,2%	100,0%
fornitura di acqua reti fognarie, gestione dei rifiuti	12,0%	18,4%	11,0%	19,6%	12,9%	10,2%	3,2%	7,4%	3,0%	1,9%	0,4%	100,0%
costruzioni	6,4%	53,9%	15,0%	14,9%	5,5%	2,5%	0,6%	1,0%	0,2%	0,0%	0,0%	100,0%
commercio all'ingrosso e al dettaglio	2,2%	55,8%	19,1%	15,0%	4,4%	1,9%	0,5%	0,8%	0,2%	0,1%	0,0%	100,0%
trasporto e magazzinaggio	4,1%	52,2%	13,9%	13,7%	6,8%	4,0%	1,2%	2,8%	0,9%	0,4%	0,1%	100,0%
attività dei servizi di alloggio e di ristorazione	2,5%	29,8%	23,2%	28,5%	10,1%	3,8%	0,8%	1,1%	0,2%	0,0%	0,0%	100,0%
servizi di informazione e comunicazione	8,6%	54,9%	11,6%	13,5%	5,4%	2,9%	0,8%	1,6%	0,5%	0,3%	0,0%	100,0%
attività finanziarie e assicurative	5,2%	67,0%	10,5%	11,1%	3,7%	1,2%	0,3%	0,6%	0,3%	0,2%	0,0%	100,0%
attività immobiliari	24,9%	49,0%	16,9%	8,2%	0,7%	0,2%	0,0%	0,1%	0,0%	0,0%	0,0%	100,0%
attività professionali, scientifiche e tecniche	2,3%	79,8%	8,5%	6,5%	1,7%	0,7%	0,1%	0,2%	0,1%	0,0%	0,0%	100,0%
noleggino, agenzie di viaggio, servizi di supporto	8,7%	52,5%	13,6%	13,2%	5,0%	2,8%	0,9%	2,0%	0,7%	0,4%	0,1%	100,0%
istruzione	6,4%	56,8%	12,5%	14,1%	5,0%	2,4%	0,8%	1,6%	0,4%	0,1%	0,0%	100,0%
sanità e assistenza sociale	0,8%	74,9%	13,3%	8,1%	1,6%	0,6%	0,1%	0,3%	0,2%	0,1%	0,0%	100,0%
attività artistiche, sportive, di intrattenimento	7,1%	65,9%	11,0%	9,4%	3,0%	1,6%	0,5%	1,2%	0,2%	0,1%	0,0%	100,0%
riparazione elettrica ed elettronica	0,7%	73,8%	13,2%	8,6%	2,3%	0,9%	0,2%	0,2%	0,0%	0,0%	0,0%	100,0%
altre attività di servizi per la persona	1,5%	53,0%	23,1%	17,7%	3,0%	0,9%	0,2%	0,3%	0,1%	0,0%	0,0%	100,0%

What instead shows interesting differences, is the target of the export flow itself. Right after France and Spain, as it is possible to see in Table 4.4, Italy is the country that most exports outside the UE (and not in the USA); this is very interesting as China clearly resides in this boundary.

E-commerce role in the PMIs export

Another interesting report is FedEx's, that has been extremely summarized as follows, showing that the key to the success of Italian companies depends heavily on e-commerce:

- Almost 8 out of 10 commerce PMIs, in fact, are already active in digital commerce, representing on average 23% of total revenues.
- The report also points out that PMI's confidence in this tool is steadily growing: 3 out of 10 predict that online business will increase next year.
- A fundamental contribution will be given to the "mobile" operations from which 78% of Italian PMIs' e-commerce revenues are nowadays; 34% expect further growth for the coming year.
- Almost 70% of SMEs exporting use commercial platforms for about 20% of their revenues, a choice that has become more and more common in the last 12 months.

4.5 PMIs that exports in China

So far, it has been discussed the number of PMIs per sector, and their overall export flow on a national level. It is now time to move towards a smaller dimension and start to both reduce the export target to solely China and to analyze which precise goods are indeed moved from Italy to China by PMIs all over the year.

After that, the scope of the study will move even deeper and showcase sensitive data from one of our interviewed that actually shows a list of commodities and goods that its FF company moved thanks to the Rong'Ou railroad.

4.5.1 PMIs China export per industry, the ICE database

To get the data of what typologies of PMIs exports to a specific country can be quite tricky, for this reason the Italian ICE agency was contacted.

The ICE Agency has the task of facilitating, developing and promoting Italian economic and trade relations with foreign countries (with particular attention to the needs of small and

medium-sized enterprises, their consortia and groupings) and works to develop internationalization Italian companies and the marketing of Italian goods and services on international markets. In carrying out its activities, the agency works closely with the regions, Chambers of Commerce, Industry, Crafts and Agriculture, Entrepreneurship Organizations and Other public and private stakeholders.

Once the data was received, the following brief study started: the idea was to related and investigate a series of factors:

- Obviously, to understand which are the PMIs that export to China the most and the activity sector these belong to.⁶
- Then, by comparing mid (January to March) 2016 and mid 2017 data, create a second indicator that highlighted the most interesting (intended as growing) PMI-China export markets.
- After all this, there is still a major logical flaw: maybe a certain sector is the one that exports the most just because is also the one with more PMIs in it. To answer that, it was necessary to create a third column, that reported the previously calculated share on the total pool of PMIs.

Table 4.5 This table is the results of a crossing between I.Stat data and ICE data. It shows Both which PMIs sectors are the most active towards China, and also that 97% of this total flow is due to the 8% only of PMIs.

	% of 2016 PMIs - China Export	% increment be- tween mid 2016 and mid 2017	% of Italian PMI in this sector
Macchinari e apparecchiature	30,2%	14%	<1%
Autoveicoli	16,2%	294%	<1%
Articoli di abbigliamento e in pelle	12,5%	20%	<1%
Prodotti chimici	8,1%	35%	<1%
Elettronica, elettrici ed ottica	7,7%	12%	<1%
Prodotti farmaceutici	5,5%	9%	<1%
Prodotti tessili	3,3%	19%	1,4%
Mobili	3,1%	20%	1,2%
Alimenti e bevande	3,0%	17%	1,3%
Prodotti in metallo	2,6%	16%	<1%
Articoli in gomma e materie plastiche	2,4%	10%	<1%
Prodotti della metallurgia	2,3%	19%	1,7%
SUM	97%		8%

⁶as every time it is written PMI instead of SME, the focus is completely Italian.

Table 4.5 is the result of those considerations⁷. While the originally provided data was in KEuro, everything has been converted to percentage in order to make it easier to compare; anyway, value of goods was indeed chosen by ICE to track this data, clearly then, this is not a clear indication of tons or single objects shipped.

Starting from the first column, a list of all the activity sectors that accounts for more than 1% of PMI exporting towards China are presented in descending order. The tail of this particular dataset is quite long, as only these 12 sectors account for 97% of the total PMI-China export flow.

At the top three it is possible to find "machinery", "automotive" (that also includes parts) and as probably expected "clothing"; this is probably also due the high value of single units in these markets but, as it has been shown in the previous chapter, those are also some of the most imported products by China as an absolute.

Some personally unexpected findings in this column are the "electronic" activity sector (probably boosted by medicals objects and optics) and the low-scoring of both "furniture" and "food and beverages", but the latter may be explained due to the complexities in moving fresh goods from Italy to China.

Moving to the second column, the first three sectors are also the one that is growing more, at least during last year; in particular (as confirmed by the previous chapter about China Import and by the interviews) the demand for automotive products is skyrocketing. Another interesting trend is the one related to pharmacy and chemicals, once again as explained in the previous chapter, and furniture; overall all the sectors are experiencing a growth in China targeted export.

Moving to the final column, is very interesting to observe that "only" 8% of all Italian PMI accounts for basically 100% of the current Chinese targeted export. This may be explained by looking once more at Table 4.2 and Table 4.4: first of all, only a small percentage (19%) of total Italian export is targeted to Extra-EU countries that are not part of the USA and this could already cut the number of Italian sectors developed enough to (at a PMI level) to embrace this relatively not common export mean. Second of all, the great fraction of PMI are not at all export oriented, such as "professional services" (that accounts for almost 16% of the total PMI pool) and "constructions" (13%); the list could keep going with relatively relevant sectors, like "hospitality" (7%) or "social assistance" (6%).

⁷Once again the ATECO 2007 sectors are not translated in English mostly because of the impossibility and confusion with the NACE standards.

4.5.2 PMIs China export per goods

Moving a step forward our scope, is it possible to move towards single most exported goods (as usual by PMIs, to China). This may seem trivial, as already a lot of targeting information can be extrapolated (as the last section showed) from the activity sector itself, but the truth is different.

The problem behind the ATECO classification, is that many companies (especially small ones) choose their own without giving it many thoughts; this creates a very high level of heterogeneity in the high-level classification. Second of all, every industrial sector is incredibly branched, variegated and complex and certainly not reducible to a single product each. Finally, a cargo rail load is all about goods, their nature, density and demand; products are the gate to markets, to link activity sectors and market would be too vague. It is also arguably easier and more effective, especially for all that has just been said, to search for companies by product, and not mere industrial sector belonging.

This series of considerations bring us to Table 4.6, where entries are indeed the main exported products, that altogether accounts for 98% of the total flow; it is easily possible to observe how some of the previous remarks impacts the overall table, for example the industrial machine related sector is now obviously represented by many product categories, such as "Macchine per impieghi speciali" or "Macchine per impieghi generali" or "Macchine per formatura metalli" etc. Overall there is obviously a good correspondence between this data level and Table 4.5, more aggregated, one but it is now possible for us to focus on some key products and, for whom will carry future studies, to search for precise PMIs by product.

"Autoveicoli e parti" This division includes goods such as motor vehicles for the carriage of passengers or goods. It includes also parts and accessories, as well as the manufacture of trailers and semi-trailers.

Includes: *As for vehicles: passenger cars, freight, trailers, buses, cars etc. At the level of parts, it deals with selling (for motor vehicles) of generators, alternators, candles, wiring harnesses for ignition systems, windows and door systems, panel instrumentation, voltage regulators, ignition coils, cable sets, Windshield wipers, heat seals, starter motors.*

Not Includes: *Batteries (for motor vehicles), lighting equipment, pumps, pistons, elastic bands, carburetors, tractors, military vehicles.*

"Macchine per impieghi speciali" This group is all about special purpose machines, i.e. machines used exclusively in a specific economic activity. This group also includes

Table 4.6 This second crossing between I.Stat and ICE queries, shows what goods the PMI sent to China during 2016 and their related biennial trend.

	% on total PMI-China exported goods in 2016	% increment between mid 2016 and mid 2017
Autoveicoli e parti	17,0%	435,0%
Macchine per impieghi speciali	12,5%	-3,5%
Macchine di impiego generale	10,1%	11,8%
Altre macchine di impiego generale	6,9%	9,6%
Cuoio, articoli da viaggio, borse	5,9%	19,1%
Articoli di abbigliamento	5,1%	11,5%
Macchine per la formatura dei metalli	5,0%	33,9%
Prodotti chimici di base, materie plastiche	5,0%	45,2%
Medicinali e preparati farmaceutici	4,4%	-7,5%
Rifiuti	4,3%	62,2%
Mobili	3,8%	31,5%
Strumenti e forniture mediche e dentistiche	2,9%	26,5%
Altri prodotti chimici	2,5%	12,6%
Tessuti	2,3%	13,7%
Strumenti di misurazione	2,3%	-0,7%
Calzature	2,2%	-3,6%
Generatori e trasformatori elettrici	2,0%	31,3%
Altri prodotti in metallo	2,0%	27,8%
Articoli in materie plastiche	1,9%	3,2%

the trading of specific machinery for non-manufacturing industries such as fun park equipment.

Includes: *Metallurgy machines (Converters, ingots, casting nozzles, casting machines), mining and building related machines (manufacture of drilling, cutting, drilling, mineral processing or manufacture of concrete mixing machines, earth moving machines as bulldozers), machines for the alimentary industries (silos, dryers, dairy machines, milk processing machines, cheese making machines or machines for the production of wine, cider, fruit juices, bakery machines, Confectionery industry, beer making, meat or poultry processing, fruit preparation, and finally making coffee roasting machines), textile industries (manufacture of textile fiber- processing machines, machines for preparing, manufacturing, extruding, ironing, texturing or cutting textile fibers, washing machines, bleaching, dyeing, dressing, finishing, coating or impregnating fabrics, manufacture of machinery for the leather and leather industry), paper industries, plastic industries (extruders, printing machines, tire manufacturing or regenerating machinery and other machinery for the manufacture of rubber or plastic products), industrial robots.*

Not Includes: *Not powered tools, hand-held motor-driven tools, moldings, lifting construction apparatuses, household appliances, fitness equipment.*

"Macchine per impieghi generale e altre macchine di impiego generale" This division regards machinery and equipment that may serve in an array of industrial sectors or roles.

Includes: *Engines and turbines (marine engines, railway engines, engines for industrial applications, parts for those engines, steam turbines, hydraulic turbines, wind turbines, generators and turbochargers), fluid dynamics equipment (hydraulic pumps, hydraulic motors, hydraulic and pneumatic pistons, hydraulic and pneumatic accessories), pumps and compressors (various gases compressors, pumps for internal combustion engines), taps and valves (all typology of industrial, sanitary, heating and solenoid valves), bearings, gears and transmission (camshafts, crankshafts, crankshafts, shaft bearings, gears, gear systems, clutches, flywheels, pulleys, articulated mesh chains), manufacture of ovens, burners and office machinery.*

Not Includes: *Computers, engines for aircrafts or motor vehicles and motorcycles and overall all of under-assembled parts identifiable as parts of vehicles.*

"Macchine per la formatura dei metalli" This group includes the machines for forming metals and machine tools, for example metalworking machine tools and other materials (wood, bone, stone, hardened rubber, hard plastics, cold-worked glass) including those Which use laser beams, ultrasound waves, plasma arc, magnetic pulses, and so on. It presents one of the highest growths and thus interest; this is probably related to the need for these machine in China, that is upgrading significantly its industrial capabilities.

Includes: *Machine tools for metalworking (laser beams, ultrasonic waves, plasma arc, magnetic pulses, turning, perforating, milling, profiling, laminating, boring, grinding, stamping and pressing machines, drawing machines, cylinders or machines for processing metal wires).*

Not Includes: *Soldering apparatuses.*

"Rifiuti" This is a quite interesting section, because "rifiuti" means basically "garbage" in Italian. To understand why according to ISTAT PMIs exports more garbage (4.3%) than, for example, furniture (3.8%) was quite tricky. The key is to consider dismantling and what industrially is considered scrap; for example, in the sea navigation sector is not uncommon to buy "scrap ships" and restore them. Clearly the same can be said for a number of things, for example a damaged computer (or used/missing some parts) is indeed considered scrap even if partially working; the list could go on for basically everything.

From a legal point of view, a product should not be flagged as "ATECO 38 Rifiuti" if it regards recovering single parts, that could be sold as replacement parts for non-garbage vehicles for example; still, it might surely be the case. The growth of this sector is also the highest, right after⁸ automobiles parts export.

"Prodotti chimici di base" This division includes the chemicals in the transformation of raw and inorganic raw material through chemical processes and the formation of specific products. In this case, it is being spoken about basic chemical elements, which constitute the primary industrial group, and not the intermediate and final products obtained by further processing of basic chemical elements.

⁸Coincidence? I think not

Includes: *Industrial gases (inorganic gases for industrial and medical use, liquid or compressed, elementary gas, liquid or compressed air, refrigerant gases, mixed industrial gases, inert gases such as carbon dioxide, insulating gas, dry ice), dyes and pigments (all dyes and fluorescent and luminescent substances), inorganic chemicals (inorganic acids, alkali, distilled or demineralized water, uranium, thorium), organic chemicals (products of the sugar fermentation, essential oils, glycerol), fertilizers (fertilizers, special soil), plastics (polymers, including ethylene, propylene, styrene, vinyl chloride, vinyl acetate and acrylic polymers, polyamides, phenolic and epoxy resins and polyurethanes, alkyd resins and polyesters and polyesters, silicones), synthetic rubber (rubber and factice⁹).*

Not Includes: *Extracted gases, gases from organic wastes, pesticides, aromatic water or overall alimentary oriented water.*

"Generatori e trasformatori elettrici" This group includes power transformers, distribution; motors, generators, sets of electric motor generators. It might encompass basically everything inside this description, except units that controls industrial processes and household objects. The staggering growth that affects the export of this particular set of items is once again related to China industrialization.

"Mobili" This section probably do not need explanation: is all about furnitures. Is not a surprise to see these goods in the top growth rankings as China is getting increasingly wealthy and thus interest in high-end (or simply Italian) furnitures. Just like all the goods that posses an export directly related to the growing social status and lifestyle of Chinese people, it is very promising.

"Forniture mediche" This class includes laboratory equipment and furniture, surgical and medical instruments, surgical supplies, dental equipment, orthodontic products, prostheses and lenses. The armors for glasses of any type is also included, even for Sunglasses.

⁹Factice is vulcanized unsaturated vegetable or animal oil

4.5.3 PMI's goods already on the New Silk Road

This particular subsection went over many iterations, but ultimately got trashed. The idea behind was to list, comment and cross with the previous PMI findings the actual PMI goods that are filling the return runs right now.

This data was provided by the interviewed Italian Freight Forwarder and literally represented their most common consolidated cargo from PMIs to China, inside Rong'Ou block-train.

When the (basically completed) thesis work was showed to the FF spokesman, in order to get their permission to use the interview data, everything passed their checks except for this subsection. The interviewed FF prefer to no longer share this information, as being casually the only interviewed FF that also allowed the writer to cite the company name, it would be believed that these information are indeed coming from its company only.

What I was instead allowed to write and briefly comment, is the general answer that all the actors combined gave us (that guided the previous section). So, while the original set of goods was very specific and quite interesting indeed (mostly because of the unexpected value density), the previous sector analysis will have to suffice the reader interest.

4.6 Spread and spreading of the solution

If it is certainly true that all the previous information are surely valuable by themselves, it is also true that these become even more valuable when used all together in a single model. The final goal of this section will be, leveraging previous findings on about the PMI ecosystem and its relationship with export towards China, to estimate the current penetration of the New Silk Road routes as a mean for PMI export. This will be achieved by crossing data about PMI export and the current logic Italian and Chinese FF use to propose the solution as a sea alternative, and will represent the basis for any thought on the line promotion (that will come in the next chapter).

After the first two sections about actors insights the other side of the previous analysis (PMIs data) will be summed up as well, if concerning this section topic; this is not a complete list of insights however, as many do not regard the current pool of Silk Road potential PMIs users but the future promotion study.

4.6.1 Data and findings recap

In the few following pages, a list of insights and data-related findings is listed, mostly organized by actors or analysis that generated it. There are however some general remarks that if listed, would basically follow in almost all categories: obviously, the main promotion lever (and actually potentially the reason the line exist) is all about cost and transit time. The phrase "quicker than sea shipments and less expensive than air" almost became an anthem of the study, and to find the sweet spot of this equation is the main occupation of agents (to find companies with compatible goods or business) and the infrastructure managers themselves (constant balancing prices and offerings to keep the solution competitive).

China actors

The first insights that are relatable to how the railroad is promoted and thus the client base enlarged come from the Chinese side of the study:

1. The vast majority of users is not contacted directly, but contacts the Block Train Companies.
2. The small percentage of SMEs that get in touch with them, is mostly driven by WOD in its own sector.

3. There are some agents and partner programs from China, but those mostly contacts big companies.
4. Unexpected WOD networks and channels are spontaneously appearing, located in the main train stops and stations. For example, reportedly, Poland customs and station was indeed able to point the solution to many companies.
5. The various commerce organization, such as the Chamber of Commerce, usually organizes visits for foreign investors to the various expos that showcase peak quality Chinese goods; the other way around (show to Chinese investors international goods) is still something very hard to accomplish and not really doable, until the Chengdu expo is completed.
6. The presence of international warehouses, that also serves as "bases" for country specific promotion and such, are still a distant reality; the greatest obstacle is indeed cost, as from a Chinese POV oversea investments are really expensive compared to national ones.

Italian actors

Then, the second branch of qualitative consideration about how the companies are reached and pushed towards a shift from Sea Shipping to the usage of a New Silk Road railroad comes from our national professional actors:

1. Even if the solution has been monitored and evaluated since 2013, they feel at ease proposing it just since 2016.
2. The use of the railroad is suggested to companies that already exports to China by sea, goods with a considerably higher than average value.
3. The vast majority of companies, ask them about the solution because it was offered to them by others FF in order to make them switch provider.
4. The big companies are, as told by the Chinese side, usually contacted by agents.
5. So far, in Italy the scene among FF is quite polarized, as they tend to specialize in and propose either West-bound or East-bound solutions.
6. PMIs tend to approach and try the solution with interest, but after a test run (even if basically flawless) they do not stick to it.

PMIs export related dynamics

It would be simplistic and probably wrong to examine only half of the actors in play, so also the remarks about PMIs ecosystem and export are crucial in introducing the promotion receivers. All the following considerations are related to the reported data in this chapter previous tables.

1. In Italy there are approximately 6million registered businesses, but the vast majority are micro companies (not this study concern).
2. In fact there are approximately 135000 PMIs according to Unioncamere and Cerved, the key activity sectors are not really export related¹⁰.
3. The majority of PMIs thus do not export, according to 2017 UPS SME exporting insights this form of commerce is embraced only by 17% of PMIs.
4. Only a fraction of this 17% exports in countries different from USA and outside Europe: 19.6% (of 17%, so a total of 3.3%).
5. As this very last PMIs data may lead to some error¹¹ it is possible to borrow a SME one. On an European level (all the other data were completely generated on Italy and PMIs strictly) 13% of SMEs that exports, does it towards China.
6. China wise, 97% of the total value of 2016 PMIs export is related to 12 activity sectors only, and thus to a maximum of 8% of the total PMIs pool.

4.6.2 The market cascade

So far, it is clear that The New Silk Road is indeed, a new solution. Except very few notable cases (DHL marketing, above all) no actor started a real promotion of the solution, and the few that did surely do not target PMIs specifically.

What instead is going on is word of mouth that, while not uncommon in B2B sectors, is surely a suboptimal diffusion method, especially for a railroad that is struggling to cover return rides for the last 4 years. Focusing on SME, those can have a passive or (less frequent) active role in this scheme:

Active They can hear about the solution and directly ask their FF for it; showing uncommon dynamism and willingness to take a risk.

¹⁰Concept strengthened by entry 6 of this list.

¹¹(China) \neq (Outside Europe), even without the USA export rate.

Passive They get told by either competitor of their FF, their own FF¹², block train companies¹³ or public (commerce related) institutions. It is still complex for Chinese agents to directly scout for PMIs, and maybe impossible due to the necessary territorial presence and high number of small companies that would be required to contact to move relevant goods.

Overall, one thing is surely clear: the main (and safest) target of these test return runs right now are indeed PMIs that already have exporting affairs with China, posses goods of the correct value-density to be interested to a rail-based solution and obviously stands in activity sectors that presents growing (and already strong) Chinese export trends.

As of today, the solution (or at least, the trust in it) is still too immature to be a gate for companies that never exported to China or even posses no export experience¹⁴.

All of the above (especially the typology of companies this solution is proposed to) is why, in trying to calculate a possible penetration metric, four factors were kept in mind and applied as conditions:

Total number of PMIs: The starting point of the estimation is surely the number of PMIs in Italy, the idea is indeed to apply in a cascade fashion some perceptual modifiers to restrict each step the pool of companies, to a final user pool.

PMIs belonging to China high-interest export sectors: The second step, is to filter all the PMIs that work in sectors of great interest for China export, thus all the sectors that reportedly represent the vast majority of PMIs Italy-China goods movement. If a PMI belong to one of these sectors, is very probable to be indeed one potential candidate for the solution.

Exporting PMIs in those sectors: Then, it is to be applied the percentage of PMIs that perform exports of any kind. The hypothesis here is that the distribution of exporters is the same for all the activity sectors. This is obviously a generalization, both happen to not bee too distant from reality, as according to UPS and one to the FF interviewed the export rate is similar among sectors but the country of destination is the thing that really changes.

Already exporting to China: Applying the previous constraints, it is possible to reach a core of PMIs exporting companies, that also belong to promising sectors that are indeed

¹²Especially if they are an high-value target, thus in scope of the previous paradigm

¹³This dynamic is more common with bigger companies.

¹⁴This is obviously going to change soon, and the scope of the next chapter will indeed be to gather all the aspects listed so far in the whole study that would be useful for a future promotion of the line.

showing a growth in the very same export flow this study is focused in. The next step, is to be sure that these exporters, already exports to China; as it has been shown, this is still quite rare in Italy. The point is that, due to the current solution and promotion status, this railway is basically proposed to these kind of PMIs only.

Table 4.7 Possible penetration metric for the New Silk Road rail solution among Italian PMI, due to the current WOD and suggestion scheme of main logistic actors. All the percentages are taken from previous tables and recaps.

		% Cascade modifier	Sub-Total
<i>Potential</i>	Total number of PMIs		136114
<i>Eligible</i>	PMIs belonging to China high interest export sectors	8%	10889
<i>Available</i>	Exporting PMIs in those sectors	17%	1851
<i>Target</i>	Already exporting to China	13%	241

By applying all of the previous constraints to the total number of PMIs, is it possible to reach something that somewhat resembles a target market? First of all, the total number of PMIs is something called *Potential Market* and basically represent an utopia target, to imply that the whole potential market is reached successfully with a New Silk Road promotion would be to imply that every single (even not exporting) SME in Italy would be using the railway.

The reality is obviously different and a reasonable step is to generate an *Eligible Market*, thus a pool of PMIs that posses some key characteristic to make them eligible for this export solution; in this case, the PMI belonging to high-interest sectors has been selected.

Then, a logical step is to consider as *Available Market* all the PMIs that actually already performs exports and are thus available towards a new export tool; due to the same reasoning, the final *Target Market* are the companies that also already exports to China.

This cascade (that, once again, just showcases the small number of PMIs considered due to the novelty of the Silk Road exporting capabilities and poor promotion strategies) bring us to a core of ~ 250 PMI that should absolutely consider and evaluate their goods performances in this solution, again sea shipping; these are ready mentally, organizationally and they basically already know how to deal with China. 250 over 135000 may seem like a small fraction, but number at hands only¹⁵ around 3000 PMIs currently exports to China, is not so irrelevant¹⁶.

This finally brings the section to its initial question, and more importantly to a possible

¹⁵17% * 13% * 135k

¹⁶Is it clear that the problem here is that there are many PMIs that are not able to export right now, that was also one of the starting point of the study: to understand how this solution could help bootstrap the export capabilities of PMI, not just enhance the one of already exporting ones.

answer. Out of this 250 potential perfect matches for this early stage of the railroad return trips, how many actually leverages that? It is not possible to know for sure how many have been contacted, or how many tried the solution, for sure, but it is possible to present a final set of scenario, to have a rough idea:

	<i>Scenario</i>	2%	5%	15%	35%
<i>Penetrated</i>	Using The New Silk Road	5	12	36	84

These are the number of PMIs¹⁷ that may be actively using right now this solution; I personally believe that the number has a maximum of two digits for now.

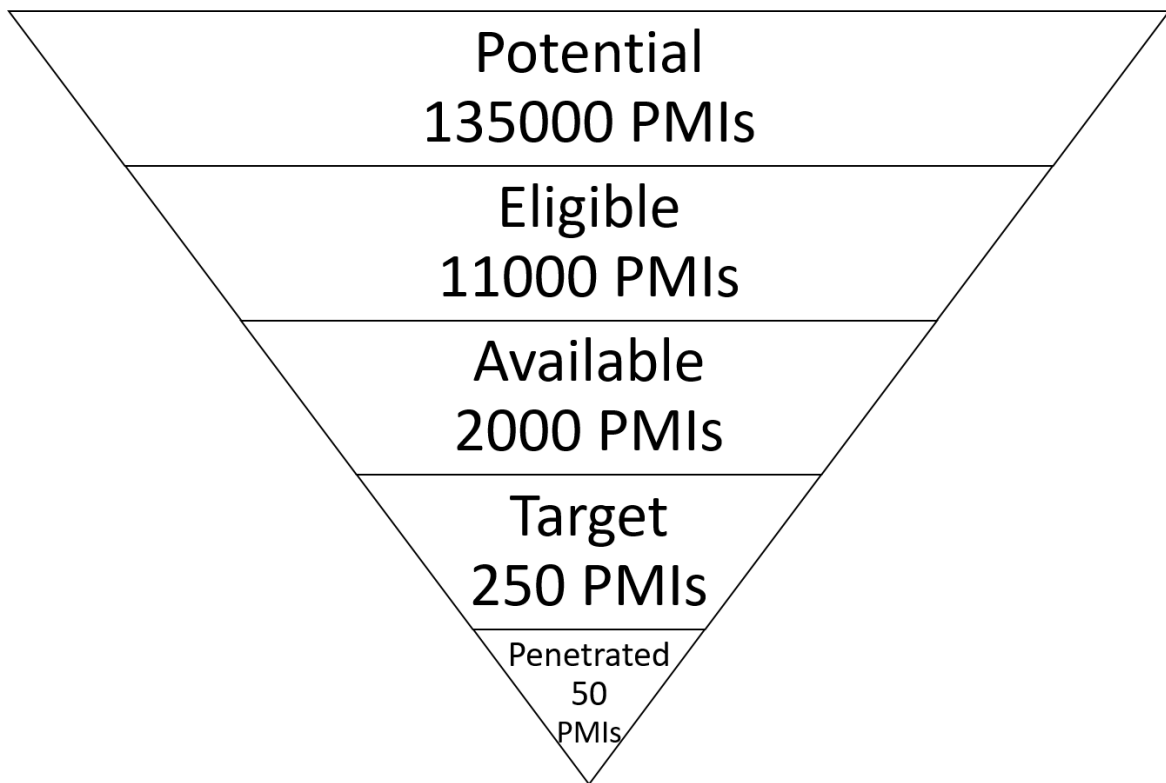


Fig. 4.3 Market cascade recap, as for this very initial stage of the New Silk Road solution.

¹⁷Let's repeat once again, as there are over 4million PMIs in Italy according to old figures, instead of 135000, that in this study the new European classification is used, just like ISTAT, Cerved and Camera di Commercio do in their studies.

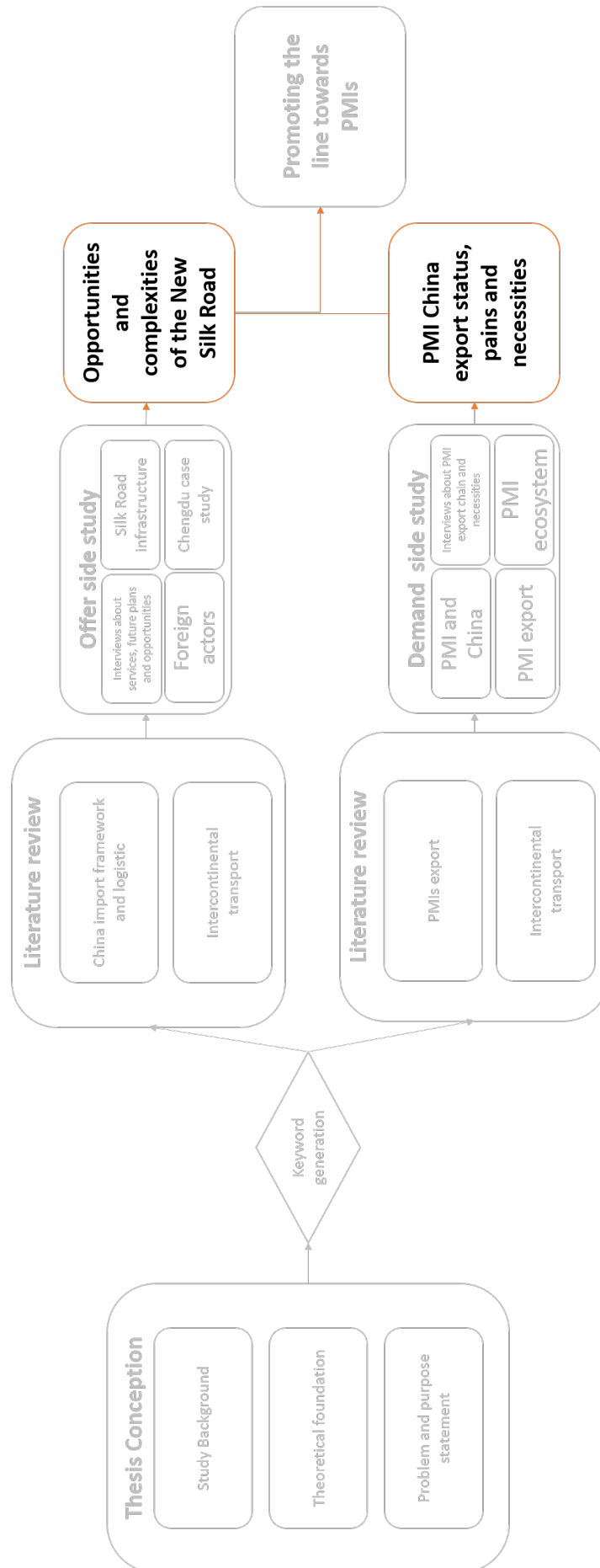


Fig. 4.4 Fraction of the methodological framework regarding upcoming Chapter 5

Chapter 5

Opportunities and challenges

5.1 Abstract

This section goal, along with wrapping up the thesis, is to reunite many loose ends and compatible findings in both the Demand side of the study and the Offer one. These links are the real added value that this document will bring to future studies, that will both deal with the promotion of the New Silk Road solution as a whole and the targeting of PMIs for said logistic mean.

The first few sections will continue in the last chapter fashion to gather and organize the many findings of the study, relating and discussing the most important ones. After that, some final remarks about the export journey of a PMI will be presented, to show the full picture (regardless of the POV actor chosen) and series of actions that happens once an export towards China using the Silk Road is engaged. The moral is that (even if as discovered, the PMI only deals with an extremely low fraction of events, due to the spread of 3PL), new possibilities are always accompanied by implications and complexities.

The trend of cross border e-commerce will be finally presented greatly, focusing especially on its opportunities and adoption methods.

The last chapter containing sets of current and suggested promotions will follow, based on both the study findings and what is currently going on across interested secondary agents. Right before that chapter conclusions, some hints on what to be expected from future studies on these very same topics will be included.

5.2 PMIs and the New Silk Road

Even if the study covered many aspects that cannot be as easily flagged like pros and cons of the current status of The New Silk Road, in this final chapter is imperative to gather and sum up all the relevant findings that may serve as basis for future promotions and communication. By opportunity, it is intended as an aspect that if leveraged correctly may boost both the performance of the line and its acquisition rate among PMIs; by complexity its opposite, barriers-to-be dynamics. The list will start with Opportunities noticed in each of the previous chapters and then move to the latter.

5.3 Literature insights

Opportunities

The geopolitical change of China and Europe positions, and its impact on I/E. The phase "made in China" is almost at the verge of changing meaning. If China used to be a pure exporter of low-cost manufacture and Europe, the usual rich buyer, along with the USA, this situation is no more. China and Chinese people are getting wealthier, and Europe is not. This creates an inverted flow of goods, Chinese people are now actually interested of buying from all over the world.

China renovated propulsion towards free market approach. This gradual enrichment, slowly created a China economy ready to abandon closed policies that were put in place to sustain itself. Every year this country gets closer to free market standards that are common in the rest of the first-world; overall the country is looking for a slow and tech oriented growth.

China trade agreements trends and free trade zone diffusion. One of the preferred methods by which China pushes its trade growth seems to be preferential market agreements, this is very interesting obviously, as China already signed 15. Another trend characterizing China trade and even logistics assets is the diffusion of free trade zone; this is bringing to light something that is defined as the Eurasian free trade zone.

Post-crisis Europe trade partners situation. Not only Europe is trying to crawl its way out of a deep economic crisis, but also lost the UK and is currently heavily internally attacked by separatist movements. This created a Europe that is indeed in search (just like the UK) of new trading partners around the world; right now the core of European Economy are SMEs, but less than one-twentieth exports towards China.

Optimal Russia-China current relationships. This is, in some ways, a golden age for Russia-China relationships, and this is actually a big plus for a railroad that indeed moves through Russia before reaching its destination. The railroad is getting major Russian help and overall support, as it already brought a significant amount of money for the country.

Intercontinental logistic increasingly easy for small companies, thanks to 3PL. One of the biggest Logistic trends of these decades is third party logistic, basically the movement or even stocking of goods outsourced to specialized actors; this unlocks infinite shipping possibilities even for less than truck load (small) goods movements of SMEs, thanks to the appearance of a new class of actors: consolidators and freight forwarders.

Complexities

Good entering China undergo quotas, categorization and bans still. China is undergoing a process as it has been said, and it's still not a completely import rules-free country. There are still banned or restricted goods categories, there are still quotas for others and the government is incredibly involved in every single import process. China is still the country where the goods that Walmart sells are 96% from China itself, but the innovation and opening is indeed in the presence of Walmarts.

Mixed and slow Europe response to China trade openings. Europe needs new trading partners, but China relations are slow and overall confused. There are currently no European helps for companies that are willing to interact more or boost their export to China.

PMIs export success deeply linked to managerial attitude According to the vast majority of literature, the export performances of export ready SMEs are not really linked to anything other than managerial attitudes. Not really dependent to available means of transports then; this could mean that a new shipping option could be useless to bootstrap a PMI export. Doesn't matter the solutions novelty, if the mindset of the owner is the same.

While Russia-China relationships are good, Russia-Eu are not. Russia-Eu relationships are very bad at the moment, but not only those; after all the recent events Russia is not even in the G8 anymore. There are currently bans on specific goods that are severely limiting the Europe-China flows, and overall political tensions that do not help the corridor at all.

5.4 Offer-side insights

Opportunities

Neither of the railroads has still reached full potential. The a number of block-trains going west and east is decoupling every year, new logistic infrastructures are being created and inaugurated constantly all over the line. No quantity constraint is in place so far, especially for the still relatively empty return trips. New services are being worked on and added on a monthly basis and a deep digitalization of the route is taking place.

The railway solution is faster than sea shipments and less expensive than air. This is one of the main selling points of the line. Rail transportation always served as a trade off between these two means of transports, but due to the necessary infrastructure needed never took really got a place in modern times, in intercontinental transport. Thanks to a huge investment international investment, companies from all over Europe and China can now leverage this mean of transport for their goods that necessitate faster delivery than the one offered by sea, but are not so precious to deserve an air solution.

Some specific products are already filling up return trips. While for sure the current flow of goods is not enough to suffice in repaying and balance the return runs, there are already some clear typologies of goods that are being transported and sold. The return trips went indeed a long way from the total dominion of car parts, and are now even moving towards fresh goods.

Free-trade zones paired with logistic parks are multiplying. Zones where bonded logistics is active are spreading in China, this could both unlock or at least make export less risky for many small companies. Taxes can be paid after the good is sold and in the hands of Chinese customers, and not right when exporting the good and stocking it in China. This is particularly interesting for cross border e-commerce.

The interest and investments of oversea companies are growing. As it is possible to understand by the list included in Chapter 3, there is a growing presence of oversea companies warehouses, offices and means in west China logistic areas; in the example provided, it was Chengdu. The truth is that basically every shipping giant is now observing the deployment of the corridor, and if it was an early mover like DHL or CMA also making a profit out of it.

The new platforms in west China brings huge advantages LTL wise. By retarding the moment of when the bulks of different goods are split and sent in different domestic

direction, is it possible to keep them merged as long as possible or even re-consolidate goods; this creates a more cost efficient logistics. Thanks to all the hubs that are subsequently being created the block train can proceed farther even from the west and gather new goods from all the intersections.

Oversea giants are starting to promote the corridor. While many are using and proposing this new solution, some like DHL are indeed promoting and marketing the corridor. Some key levers are not only related to cost advantages or such ,but also to the great side effects that this infrastructure brings to developing countries along its way. Another two levers are ecology and the lack of weather influences (especially if compared to sea shipping).

Helping mega-trends, such as CBE. One of the forces that are increasing B2C import request from China, is indeed Cross border e-commerce. Once again thanks to the increased richness and quality of life and to the spread of Internet-ready devices, to buy products of abroad companies and set up an international shipment for it by web is increasingly common in China.

Domestic railway complexities are dealt by China itself. Thanks to the creation of Land Port companies, the state is able to help and absorb basically all the complexity that would be generated by the choosing of the optimal domestic routes. This helps a great deal, as one of the biggest pains for a foreign shipping company (that already moved the goods Europe to Chengdu maybe) is to then have it shipped from the international main hub towards the specific fraction of China where its customer wants it.

New awareness-raising models, from partners to expos. The Chinese agents have in mind very interesting promotion solutions. From a state-grade database of goods wanted by Chinese people (that may serve to push an uncertain PMI towards its first intercontinental export) to a series of European expos in Chengdu paired with Chinese ones all over Europe. Another, already implemented way, to reach new users are all about partners programs; basically scouts that searches the territory close to an oversea warehouse for customers.

The deep social change in China is creating clear import patterns. Chinese people are getting richer, and this has deep repercussion on basically the whole market. Richer people are not only more interested in quality products, but also healthier and in search of foreign luxury. This created peaks in meat (the very first indicator of a richer country is meat consumption),dairy and drugs import that scaled to the Chinese market size are indeed epochal.

Key industries are moving away from central China The people getting, on average, richer also brings up the cost of labor. This is another change China is facing, that is making big industries and overall economic interest move towards outer (less industrialized) lands. Vietnam for example, will face a tremendous growth, as many industries decided to move there production facilities previously China based.

Complexities

The supply of goods is still relatively one-fold. Even if there are and especially have been many return runs, even with recurring products that are slowly becoming habituates for this kind of solution, there is still a huge difference between the flow of goods from China to Europe and vice versa. Considering that usually, when evaluating logistic solutions, the possibility of not losing money on return trips is one of the most important factors, this is certainly one of the most pressing worries for the Railroad agents.

The cost is over four times sea shipment, leading to tight goods selection. Sea became impressively cheap nowadays, mostly because of the bigger ships and a huge competitive scenario between sea giants. It is true that a railroad is faster and possibly safer, but right now the 4x multiplier on cost is just too much and many FF are struggling to find goods that value transit time so much to spend this kind of money. If expensive goods may seem like a perfect solution, those posses the third option indeed: air transport. This leaves a tight good selection indeed.

The state-controlled matrix structures is very complex and frightening. Even if in time various support structures are been generated, China very peculiar bureaucracy and law system always discouraged over-sea agents. If to this scenario are added all the complexities that are brought in by crossing many different countries and a non-integrated custom system, the result is certainly a far from simple law ecosystem.

Key logistic services are still far from fully operational. There are many services that a modern block train railroad should posses, and is definitely not all about just moving goods and present efficient customs schemes. The possibility to move goods that need a certain temperature is a good example of that but a fully functional unbroken cold chain is something else. The same goes for basic checks at certain stops, instead of a full fledged tracking system or overall all the e-services that sea shipments nowadays offer to better control the goods or even enable the transport of particular ones.

The solution is not widely promoted. When this thesis started, around October 2016, it was even difficult to find a consistent amount of information about the very existence of the line. After March 2017 everything changed and both the media and the respective governments started talking about the Rong'Ou corridor; however, even if reportedly some companies are shipping by this mean just for boosting awareness, a fully fledged oversea promotion (especially towards smaller companies) is not even remotely in act.

Sometimes there is little motivation to improve state owned businesses. It would be silly to compare this huge public infrastructure to many not really performing well in Italy or all over the world, but every public business comes with a set of, more or less reasonable, disadvantages. If a privately owned infrastructure is always in search for cost optimizations and overall new ways to beat rivals and boost profits, it is also true that state owned ones tend to react a lot slower to innovation and overall improvement related to what the sectors standards actually are. This could be a problem especially in all the logistic parks, and its one of the reasons for that state founding are not forever in China but could be gone in any moment.

Many logistic infrastructures are new and not yet being used. This is just one of the many aspects that actually spells a unique concept: the corridor is still new and relatively tested. So far the list of to-be facilities and services outnumbers the ones already implemented in basically every west China logistic park analyses; this is obviously normal, but it's still a complexity for now.

China internal railroad system is under extremely heavy pressure. Another reason for this relatively new wave of rail based support infrastructures is due to the extreme pressure that (mostly due to the coal crisis and movement) the railing system in China is suffering.

Russia role adds complexities on goods selection. The the political situation of Eu and Russia brings very concrete dynamics to the table, and not only vague politics. Russia prevents and blocks transport of food (especially meat and dairy products) coming from Europe for example, no matter who the customer is or the shipment belongs to. Every single Europe-China terrain-based corridor leverages a bit (or a lot, considering the past only option, the trans-Siberian railroad) on Russia and thus the role of this country and its customs is very central. For China geopolitical aspects are very important, as sea options right now are seen as in control of USA.

State role adds complexities on goods selection. Even without Russia in the play, the People Republic State presents very complex goods related dynamics. Not only the ones

related to goods getting inside China (Import rules have been described some point ago) but also about where the goods stop after than and most importantly gets unloaded. Every major good has an assigned port in China, and for example this set of rules makes to transport automotive finished products impossible in Chengdu, as Chongqing is the assigned port.

The offer competitive scenario is getting increasingly more articulated. As this new opportunity unfolds, also the number of Chinese logistic parks and overall players gets boosted. If the rail infrastructure is public, a fraction of the parks, freight forwarders and obviously trains are not. Even if a competitive market is also an opportunity, in a system like this where chaos (from an over-sea POV) is one of the major concerns, this certainly not helps.

The supply chain performances changes for each country visited. This may seem trivial, but if a ship is just a ship that goes places, a railroad is actually an exercise in multicultural politics and relationships. If the sea doesn't change and everything needed is the ship itself and a port, every bit of railroad is different in each country. Along with the differences in the supply chain, some different performances might get generated. If this is true on a European level (imagine a train going to Sicily to Berlin, surely many different performance levels will be encountered), just imagine when crossing dozens of very polarized countries (from Kazakhstan to Germany).

The informatization level along the line is not constant and overall low. As an extension of the previously explained change in performances along the line, another thing that insulate among countries crossed is indeed the informatization level. This is mostly about infrastructures once again, but Internet related ones of course. Even if not core for the service itself, nowadays to lack digital means is basically a no go; the desire to transform the corridor in the E-Silk Road has been expressed by many Chinese officials, but to invest and develop infrastructures for other countries is very expensive.

To develop structures oversea is extremely expensive from a Chinese POV. Even if this next sentence is becoming less and less true more times passes, to build in China is many times cheaper than building abroad; this makes direct international investments very carefully examined and often seen as complex matters. One key element in promoting the railroad will be international warehouses where to consolidate and spread the word of the service. This will take time and resources from future international partners.

Chinese partner and agent programs presents severe limitations. Right now, is it only possible to reach effectively big companies directly, mostly due to what was just said about warehouses and the correspondent lack of territorial presence. The only way to reach smaller companies is to create partnerships with foreign FF or with public agents like the Chamber of commerce.

Word of mouth is still the main promotion method. Overall, even if hidden behind partners and politics the railway is basically finding customers for its return trips by pure WOD, and so does the various logistic centers like Chengdu. Another interesting form of this happened along the main stations: for example the Lodz one in Poland is actively trying to promote the corridor.

The block-trains are currently a financial dilemma. The lack of load bill in railroad transportations, creates a big deterrent for the companies used to travel by sea and the lack of financial instruments creates a series of limitation. The problem is that overall the cost to ship something is just not about the cost to ship the good, but also the financial architecture you can build around that. For example, using ships you can insure the load-bill or even put a mortgage on it, getting a fraction of cash 60 days earlier; the load will be then paid by the receiving actor to the bank, if he wants to take posses over it. A logistic mean without valid financial behind it is actually not competitive nowadays.

5.5 Demand-side insights

Opportunities

The Italy PMI ecosystem is getting wealthier, even if less numerous. Just like the rest of Europe, Italy is trying to pull itself out of the crisis; considering that 99% of Italian business are micro companies or PMI, these are surely the engine of the recovery. According to the cited studies in the last chapter the PMI system is exiting this last phase of recession a lot smaller but of a higher average financial quality and thus able to think for the future.

PMIs are embracing very rapidly e-commerce. Another trend that the PMIs are showing, is a record fast adoption of e-commerce means. Maybe it took a while to get started, but nowadays a great fraction of PMIs have a platform where to sell. The next step is probably to create a central platform or make their own known internationally, in order to sell in a cross border e-commerce fashion.

The solution is finally being proposed to PMIs. Thanks to both the growing reliability of the services and the reducing (still not really competitive) prices, the solution is now proposed with ease by Freight Forwarders. A selection of companies should be done of course, in order to ensure a good target. Agents have a great interest in this, for two reasons: by proposing it first, you can avoid to lose customers that might get proposed by someone else, and also make very happy your Chinese partners looking for return runs.

New actors are getting very active in promoting the solution. From various chambers of commerce to cooperatives of small companies, the idea of using the New Silk Road is indeed flowing in Italy. This is not all, as even companies like DHL are slowly moving country to country with targeted communications about the line, and other players like CMA already started that. Another interesting actor already introduced before is all about the WOD created by customs and stations all over the road itself, Europe is no exception.

PMIs interest is growing. It is now almost frequent that clients ask the FF specifically for a Silk Road test shipment. While it is only possible to know what we are being told by interviews about the corridor adoption, it is instead statistically proven that another PMI's interest is surely growing: Export. Also thanks to e-commerce and even if few PMI export if compared to other European countries, the tendency to export is indeed a trend it is possible to witness nowadays, also because of the saturated home markets and a new generation of owners.

The Italian agents have incentives in proposing the corridor. As introduced already, the Chinese partners are very pleased when their return volume augments, and they are even building expos of Italian goods in Chengdu to boost request of European excellences and a database for the specific products one. This is also why International FF are sometimes invited to propose the solution, but is not the only reason. When a link like this one is created, a new set of foreign competitors appears as now a Chinese FF may directly propose this solution to an Italian one and leverage the previous introduced international warehouses to move a consolidated LTL bulk of goods. The Italian FF cannot just stay still and observe, as it is more convenient to propose the solution first, if the risk of the corridor itself is not too high.

From a PMI POV the process is extremely straightforward and hassle free. If everything goes smoothly and as intended, there are only two steps that actually need to be done by the consolidator client, the PMI in this case; one is to contact the Freight Forwarder

itself, and the second one is to have a place where to leave the goods in China. Usually, this very last step is arranged by whatever Chinese clients the PMI is indeed shipping to. All the rest is done by shippers, freight forwarders and Chinese agents.

Few really interesting sectors, and thus easy targeting. If a promotion among PMI about the corridor would start tomorrow, as showed by the previous chapter there are some Italian PMI activity sectors that are can be great targets. Just 12 sectors and 8%, PMI accounts for 97% of total PMI-China export, and some of those are clearly skyrocketing export china trade-balance wise.

These sectors, are also aligned with the logistic offering of the corridor. A good fraction of those sectors, also contains goods that are indeed aligned to the current high-value density for the Rong'Ou return trips. Some others are not really, but when prices will drop the PMI that produces it might move onto the corridor in order to leverage the fast transit time with its fresh goods.

Complexities

PMIs that tries out the solution, tend to not stick to it A really worrying dynamic that has been noticed by the interviewed Italian agents is that, even after a very good experience and even being the ones proposing it, PMIs do not adopt the solution as their regular China related one. This is first of all because of the huge inertia even small companies have to change, but also maybe to the willingness from sea shippers to lower even more prices. In particular, fresh movers are not really even trying, as they might actually lose a cargo; they will move when they really feel the solution is flawless.

There is no integrated solution to move goods from Italy to Germany or Poland. This is surely not a very game-changing complexity, but still. It adds up because there are great sea shipping docks in Italy (Genoa for example) while there are surely not shockingly well-working rail infrastructures. This makes the moving of goods not a problem of course, but surely another thing to account where changing logistic channel.

The Italian agents at the current price have troubles finding compatible PMIs. Right now, prices are too high to interest a mid value product (even if a fresh one, for the dynamic explained few lines ago) and it will be this way until the price is probably just 2x the sea one. This creates a problem in selecting PMIs that fit well in the spot created by the corridor main selling point "Quicker than sea shipping, less expensive than air",

as you cannot fill a whole train with just very expensive goods, and overall this is not really what Italian exporting PMIs are about.

PMI behave sensibly different from larger companies. If for large companies many more things tend to be just a number, for PMIs is not that easy. Many small and medium Italian companies are indeed managed by the owner (so it shares the company risk at a totally different level) and Italy is not really famous for the lack of change inertia. But that is not all, as even if very open minded, very few managers-owners will risk a delay or a problem in some intercontinental delivery just to try out a new solution that is convenient only on very strict circumstances, many would probably prefer to wait.

The majority of PMIs do not export, and even fewer does to China. Once again, this is not where Italy ecosystem shines: even if our country is surely a valuable trading partner for many countries, our SME core is one of the least export prone at a European level, as explained in the previous chapter. Another problem is the target country, China, as a small percentages of our companies export to the country, even sporadically; Italy is instead been cultivating the USA as out-of-EU trading partner.

ATECO is a complex metric to reach target PMI. This is a complexity hard to define, even if the title seems so direct, and maybe possible to understand only if the reader has actually tried to filter the Italian companies with the ATECO codes. Basically, even if this categorization is from the state and ISTAT itself, in Italy is even complex to extract a list of companies that actually produce what they say they do. The intend is not fraudulent, simply those databases are not really cared about and owners just select activity sectors that they think are right. Very few people know about ATECO in the first place, even if an Italian standard. This could create, especially when targeting small companies, a preference to pure WOD towards company that someone you know, actually knows.

The solution is not ready to bootstrap export. Right now, mostly companies that present a specific good and already export to china are contacted. This is because the corridor or the services offered are not so shockingly convenient to suddenly make a PMI start exporting; actually the goods that are a perfect match for the Rong'Ou are so few that even a second round of selection according to this very parameter is performed sometimes.

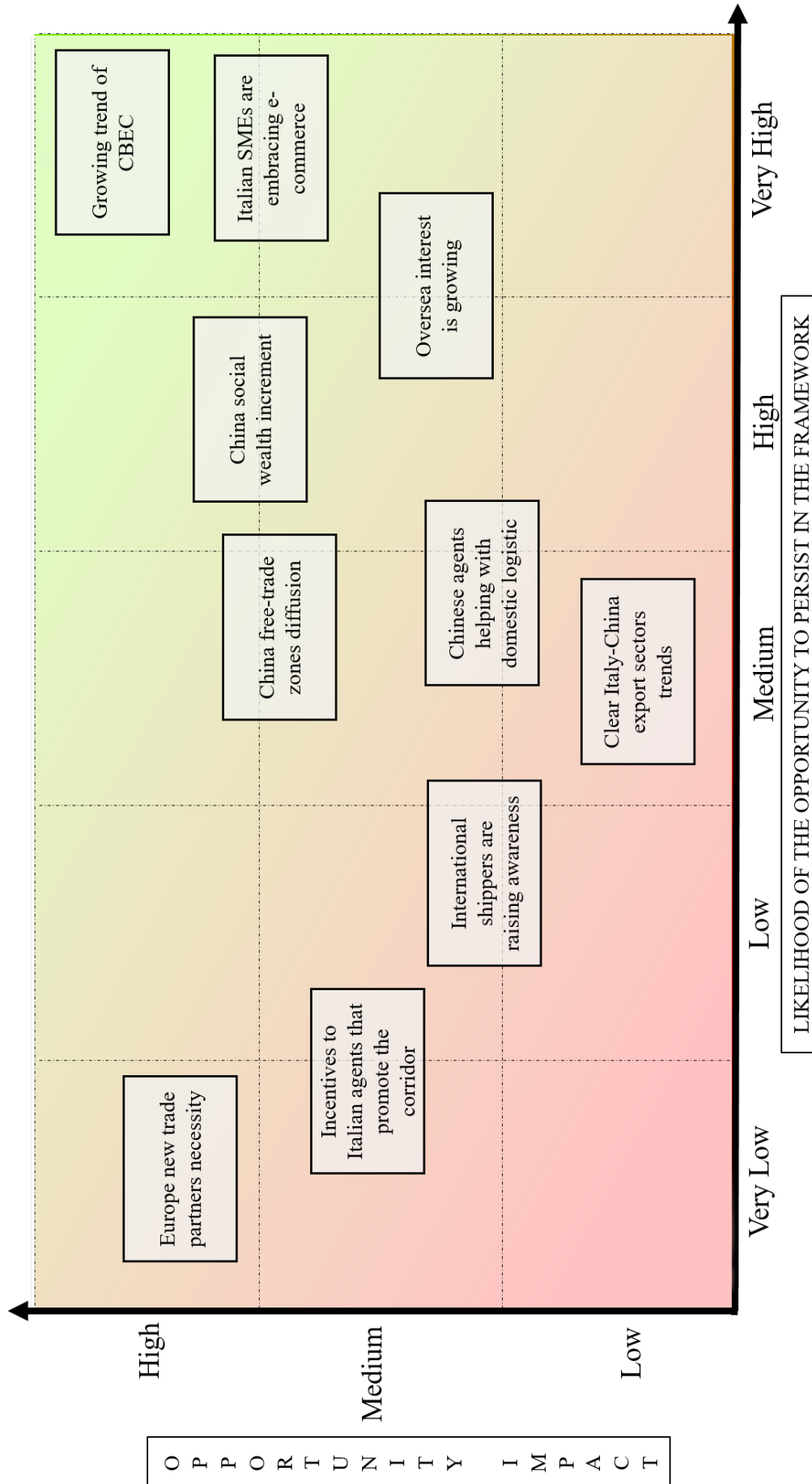


Fig. 5.1 A more visual framework, that recapitulate and classify the main Opportunities.

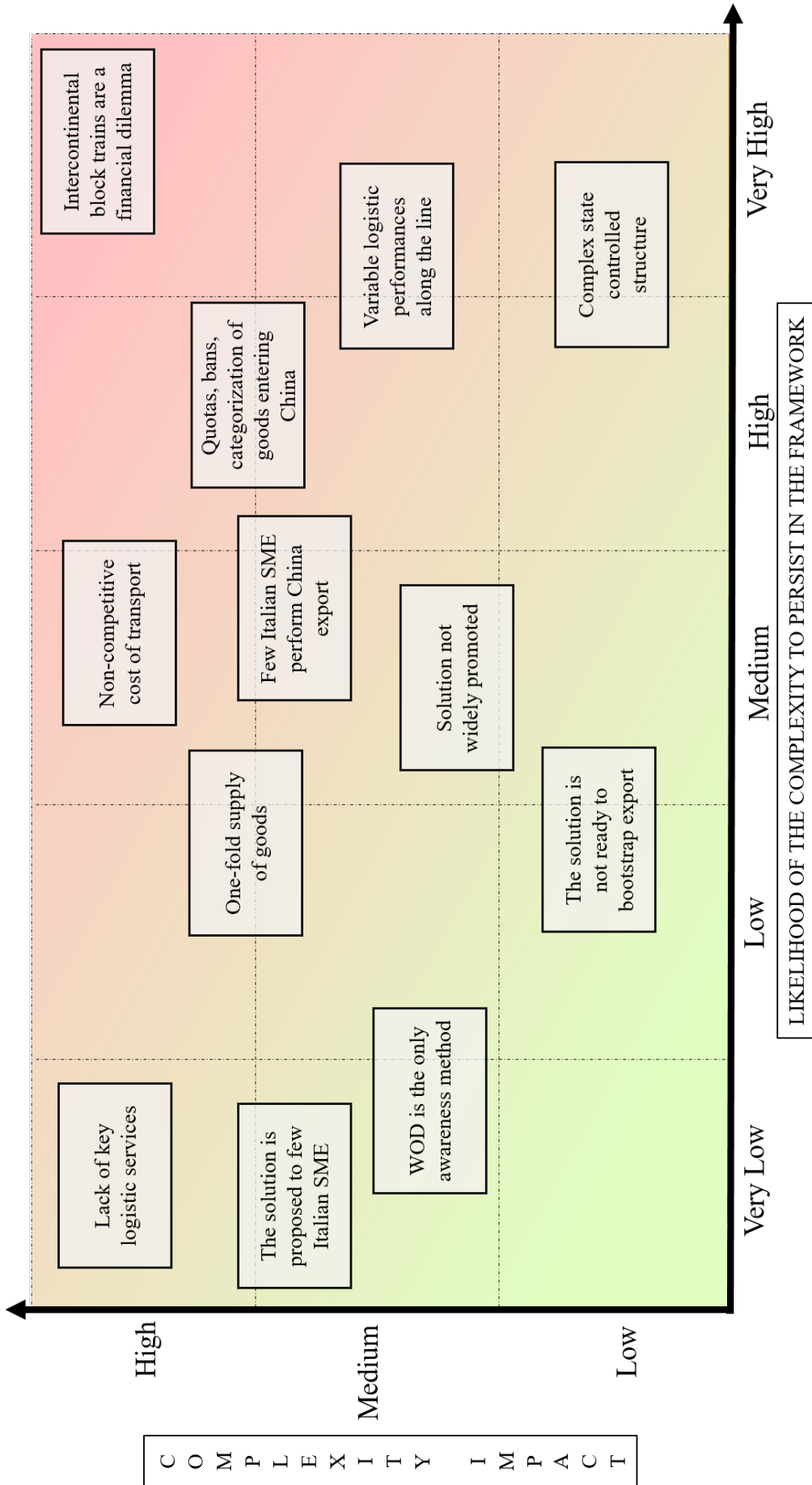


Fig. 5.2 A more visual framework, that recapitulate and classify the main Complexities.

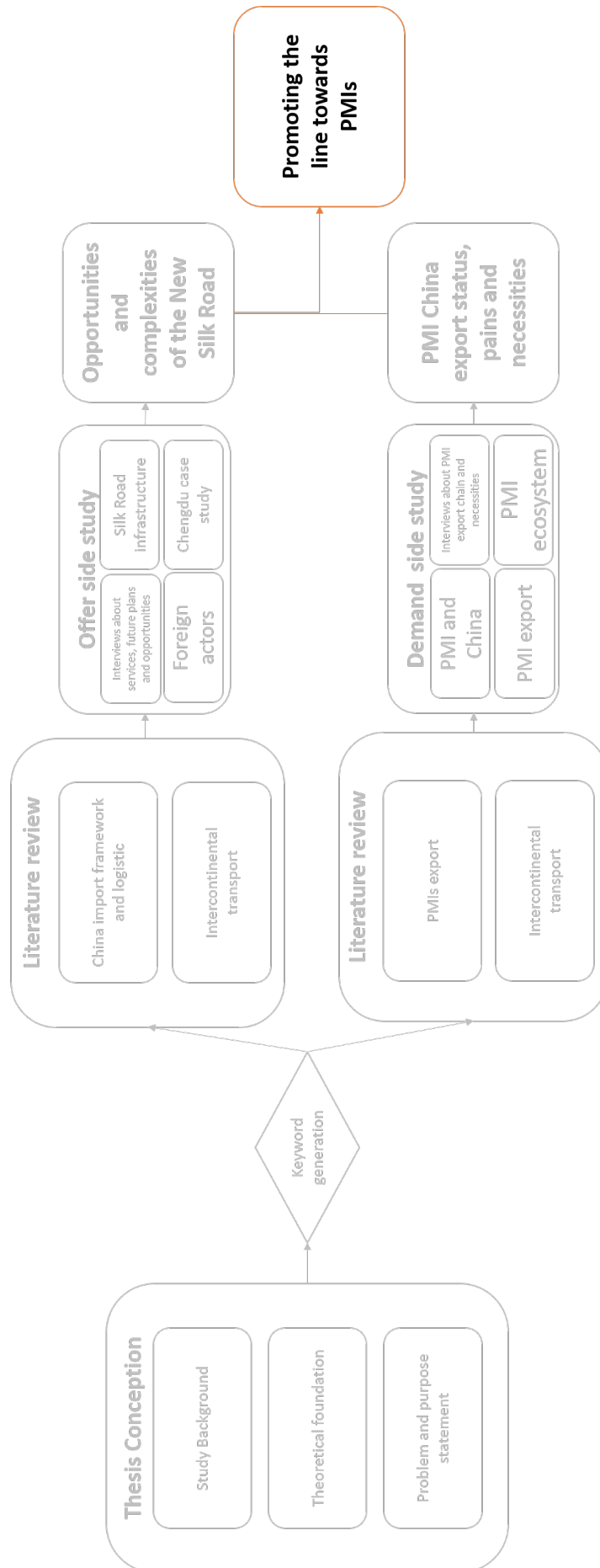


Fig. 5.3 Fraction of the methodological framework regarding upcoming Chapter 6

Chapter 6

Managerial implications and promotion

6.1 Abstract

The idea behind this chapter is, along with starting to wrap the study up, to explore more the managerial implications of a PMI approaching the corridor. This theme has been surely present in the thesis so far, but mostly in the form of response to a complexity or necessary action to catch an opportunity.

So while, as the study title suggests, the core of the presented work was indeed to show the latter dynamics, this chapter deepens more what to be done in order to both move a PMI closer to the corridor usage (eg. leveraging opportunities like CBEC or knowing the whole export process ahead) and the corridor closer to our small and medium companies ecosystem (eg. promotion).

The first high-value added highlight of this chapter is surely the export journey chart: all the POVs analyzed so far get together in a single framework, showcasing all the actors, necessary steps and interactions to move goods from the PMI to Chengdu warehouses using Rong'ou. After that, a second highlight is surely the brief description of CBEC and how it could even bootstrap international export capabilities in PMIs; in the eyes of the writer, this is indeed the best way to diffuse the solution, leveraging also the long discussed previously bonded logistic.

Finally, both as a wink to the studies that will follow and as a wrap-up, one of the most relevant managerial implications is presented: promotion. Every actor is analyzed, listing and commenting both current awareness methodologies and writer suggestions linked to the study findings.

6.2 Managerial implications

After the previous recapitulation of Complexities and Opportunities, key in understanding the results of both the literature and empirical side of research, it is finally time to dive into the managerial implications for both the PMI and the whole chain of actors that the used of the New Silk Road implies. Before moving on to promotion, one of the main implications, also the new possibilities that the corridor unlocks for a PMI willing to start export and the trend of cross border e-commerce will be presented.

6.2.1 The export journey

At the beginning of the work, one of the expected main managerial implications, was to (while studying both the infrastructure and the PMI ecosystem) to find possible new services for the corridor and the logistic parks in China. These services were supposed to have a precise target: to boost the PMI adoption of the solution.

At that time the research did not even begin, and after more than 100 pages of data and considerations is it obvious that that task cannot be performed for a single reason. The problem is that the PMI does not really never know or interact with the almost totality of actors involved in the logistic process itself.

This started to become known during the literature itself and the introduction of the third party logistic trend among small and medium companies. It became clearer and clearer during the study, especially noticing which actors interfaced with whom, that if it is true that the alpha and omega of the system is indeed the client (in this case, the PMI) it is also true that no interaction is needed between this actor and most of the others. This is actually the core of 3PL of course, to make easier and hassle free even small movements of goods; which means being the one dealing with all the infrastructures and services.

The first findings were on the offer side, where every single actor told that they basically exist to interact and solve domestic problems for over-sea shippers and consolidators, and continued on the demand side while evaluating the Freight Forwarders experience and sequence of actions. It is then obvious that, as the literature suggests, if a company is indeed not interacting with a certain structure, doesn't matter what new services that structures offer. What really matters are possible new services that those Chinese platforms may offer to shippers and consolidators, but this is beyond the scope of this thesis.

What is instead in scope and very interesting, is to finally merge all the POVs that have been acquired during all the interviews and structural studies and create a path that, even if probably more related to the goods instead of a specific actor, showcases all the necessary interactions and the system in its complexity.

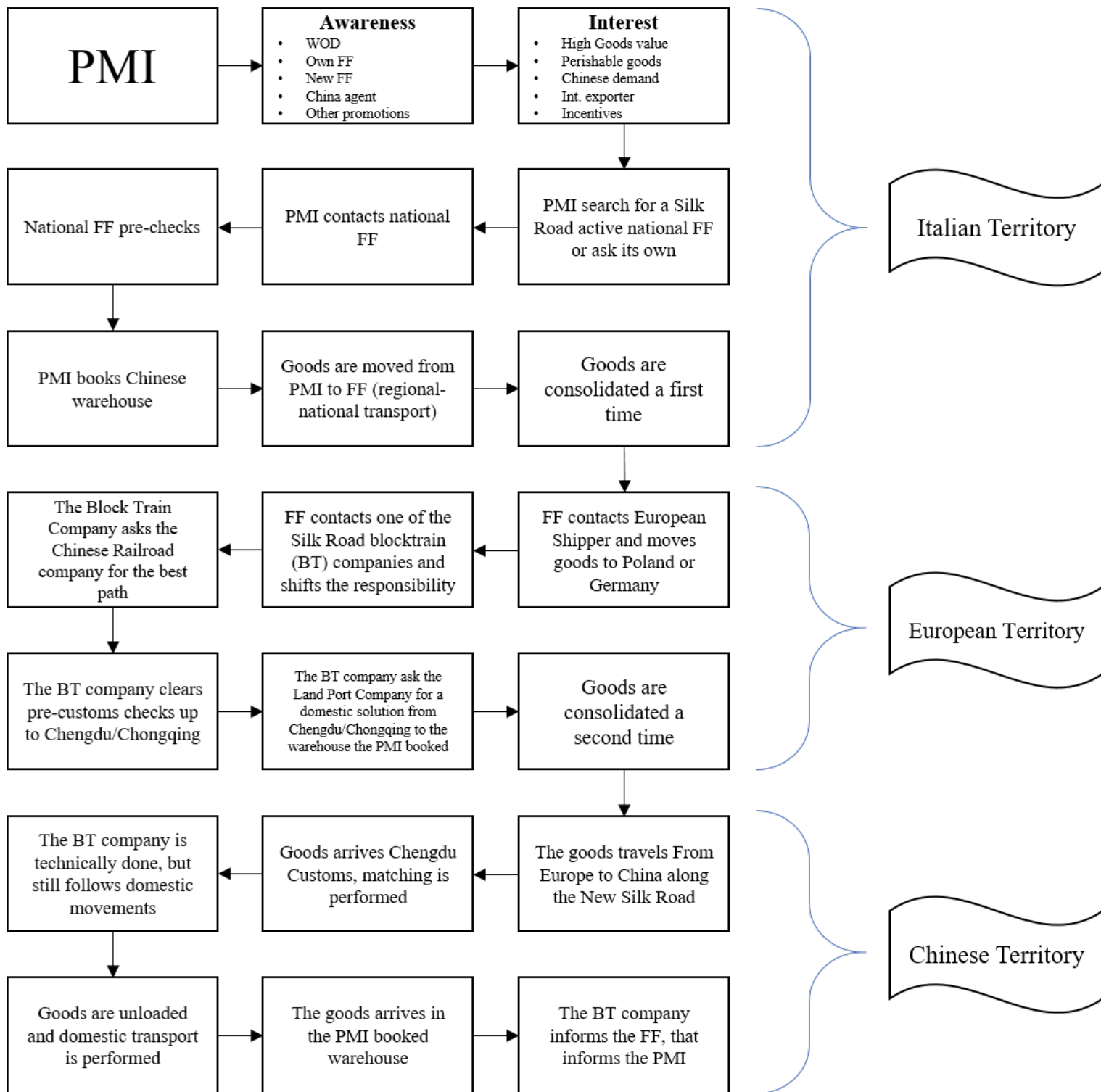


Fig. 6.1 Complete journey, obtained by merging all the POVs in the study. There are two pivotal points however: Chengdu as logistic hub in China and of course PMIs.

Observing Figure 6.1 is it possible to finally clearly see what actually takes a PMI to select this logistic mean nowadays.

The two very first steps are awareness and interest: while the first is quite self-explanatory and shown here as a mixture of the current WOD schemes, the latter is instead a gentle guess. What this means is that right now the parameters that make a PMI interested to the solution are a bit different than those (and already discussed before), for example there are no European bonuses or real ways to make the solution competitive for mid-value goods. These are surely possible scenarios and thus have been added here as near future dynamics. While the only role of a manager that usually perform export is just to follow carefully what the logistic scenario offers, a non-exporting PMI is probably unaware of the possible value of its goods abroad and lacks key, intercontinental grade, logistic partners.

It is then clear that the main managerial implication reside in both keeping an open mind, but also a very concrete knowledge of the market to hit¹.

With this key step done, a proper machine starts running and the intercontinental export starts; the PMI is essentially over and in the hands of its Freight Forwarder. They are the one in charge of first of all consolidating the goods of their multiple clients, from single company LTL into full containers with many different companies goods. At this point, the cycle that has already been described in the previous chapter starts and the Freight forwarder starts working with shippers, that start working with Chinese agents.

Overall, the lesson here is that once the PMIs knows about the value or possibility to sell their goods in China, is not even necessary for them to know about the corridor itself as the correct shipping option will be evaluated with their FF.

The interesting aspect is then to be searched in reverse, will the presence of this corridor make more PMIs aware of their possibility to export toward China, even if not enabling it directly? To be even more clear, given that a different mean of transport could actually enable the export of totally new items, a more common effect at this non-cost effective stage of the infrastructure could be pure awareness of the fact that China is indeed interested in PMIs goods. This brings the section to its third focus, about new possibilities for the (relatively few at this stage) PMIs that will see in this solution an enabler for export, and not just a more effective solution.

¹An interesting dynamics is related to the moment of sell: this can happen in two different sections of the journey, before even sending the goods (that are so shipped to a Chinese client) or after a while that the goods are indeed in China. Thanks to bonded logistics, taxes are not paid when the goods enter China, but when those leave the bonded area. This last scenario necessitates a bit more managerial knowledge, as presenting a higher risk for the goods and the booking of a slot in a Chinese warehouse.

6.2.2 New possibilities

There are also some cases where this solution might actually ignite the export potentiality of a PMI. This usually happens when the change in parameters is not only monetary, but also about the introduction of new services; a good example are fresh or chill goods, that necessitate a cold chain or else is a no go.

So far, the new services that the railway introduces are not different by their sea correspondents; being in both cases a container the shipping unit, even the same container tech can be leveraged.

The problem is that, also according to the literature, the shipping method is not one of the major export enablers at all; this is especially true with intercontinental export. If a foreign company does not have its own Chinese business license, a legal entity in China has to import the goods from abroad. This legal entity can be a subsidiary, a trade agent or the Chinese manufacturer of the goods. Accordingly, the latter clears the customs and imports successfully the goods into the People Republic; it also pays duties and taxes before any action is made (the product at this point is not sold).

As the risk of not selling is on the legal entity in China, local trade agents are usually hesitant to have unsold goods in warehouses and for this reason they ask high commission fees over the imported products. Moreover, foreign companies have little control over the final B2C part of selling their products.

However, whereas traditional (offline) channels of trade require different levels of procedures to export goods to China (e.g. CIQ compliance checks, product registrations etc.), for certain product categories the shorter and easier value chain can make the already cited Cross Border E-Commerce a convenient option for small Italian companies that have not yet exported to China. Due to this convenience and certain reduced import taxes the trial and error costs of launching (new) products to the vast Chinese market can be exponentially lower.

What about the relation between this rail corridor and e-commerce then? This is where the shorter delivery times may come in handy and the rail premium cost (versus sea) might not be a problem due to the willingness to pay from the Europe-lovers Chinese customers. Once again a logic boundary is present as if only a small number of goods is bought air is still the best option; the real deal is about using the rail corridor as a replenishment of bounded logistic e-commerce, based on Chinese online selling platforms (in opposition to a direct B2C buy) for example.

6.2.3 Cross border e-commerce

One of the most interesting enablers for intercontinental or at least international export and sale could surely be cross border e-commerce. Due to space restriction and to avoid confusion, the CBEC section in this study is just a couple of pages long, and has the main objective to quickly prove why this model is extremely interesting for the PMIs cited in this study.

According to the China CBE guidebook of the Shanghai consulate, as a consequence of the above mentioned change of wealth of Chinese consumers, Cross-Border E-Commerce's popularity is growing exponentially in China. In 2015 the annual growth of Chinese customers that purchased overseas products online was more than 70% compared to 2014.

With an eye on decelerating economic growth, the central government has released several preferential policies aimed to increase cross-border e-commerce and this unlocked novel possibilities for foreign brands to directly sell their products in China played a large role in thriving CBEC sales.

New "cross-border marketplaces" opened the door for international shopping when the biggest players, Alibaba Group and Jingdong, respectively launched Tmall Global in 2014 and JD Worldwide in 2015. These new CBEC resources offer tremendous opportunities for a new type of Italian entrepreneurs to sell their goods in China.

Traditionally, only large multinationals or those smaller companies with extensive relations and business entities in China were able to offer their products to the Chinese e-market due to the nature of general trade in China. However, via cross-border e-commerce in contrast to "regular" e-commerce brands can avoid the need to establish a legal or physical business presence in Mainland China preceding their e-commerce ventures. Nor do they have to relinquish the B2C part of selling to a Chinese trade agent (like via normal trade). As the process to establish such a legal identity is time-consuming, strenuous and a considerable margin is lost engaging a trade agent, CBEC can be a relatively convenient option to sell online directly from abroad.

The selling process for a PMI using CBEC

Cross-border sales are defined as the direct import of goods from outside the territory of Mainland China, utilising special pilot channels, known as cross-border e-commerce platforms, and based on the preferential policies of bonded zones.

In this case, an overseas legal entity exports the product to a bonded warehouse (B2B2C) or via the direct mail (B2C) model. Oversea legal entity can either be a subsidiary, partner or the own manufacturer. Accordingly, the legal entity clears Customs only when there is an

online order from an online customer. The e-consumer pays duties and taxes over the shelf retail price at the moment the product is sold.

Different taxes and duties apply to CBEC trade and products have to comply with a different set of regulations than via normal trade. Products can then only be sold on e-commerce platforms.

How to move towards CBEC

It should be clear that selling via CBEC is an entry-level strategy in order to acquire market share, brand equity, and a relevant consumer base in China. As volumes of products sold will increase, for tax and registration purposes it will become more beneficial for companies to engage in traditional trade methods. Thus, ultimately, foreign merchants may use CBEC as a stepping stone to achieve an omni-channel sales strategy whereby they sell their products via traditional channels (both off- and online).

It is very much advised that brands spend adequate time to research their target consumer base and the general demand for their products in the Chinese market, before investing in establishing an e-commerce presence. Generally, operational, logistic and legal queries can be solved (both by this report and by third parties) quite easily. Conversely, fundamental questions like “why will my product sell in China” are worth thorough consideration.

Online sales channels Currently there are six major models for brands to sell their products via CBEC to Chinese customers according to the Shanghai commerce organization: via a brand’s standalone web shops outside China, via shop fronts on online malls, via self-operated hypermarkets, via vertical specialty marketplaces, via flash sales sites and via WeChat stores.

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. Selling products directly to China via a website hosted outside of China at first hand might seem to be the most convenient and cheapest entry option for those brands that do not have a legal entity in China. However, the chances of success in China with a foreign stand-alone website are very limited. Traffic is already monopolised by big Chinese e-commerce platforms. Creating one’s own traffic is even more costly than being active on the platforms.

In sum, with CBEC the consumer takes the lead; the value chain is shorter and there are fewer risks for the overseas merchant. The lack of organizational complexity for the PMI, the possibility to leverage bonded zones and the use of online platforms makes this approach one of the most interesting to bootstrap intercontinental export and obviously sales.

6.3 Promotion

This section will finally address one of the key elements of the study: the promotion of the corridor among PMIs. Both proposal and current solutions will be listed, the proposals will be generated accordingly to the insights recapitulated early, that surely represent the raw result of the study. These will be also organized by agent and more generally country that should perform the said promotion solutions.

But let's define first what a promotion is; first of all the goals of the promotion act are to present information to consumers and increase demand. It is not just about advertising, intended (according to Surbhi, 2015) as a mean of communication that helps to communicate a single message, to a large number of people in less time. In a nutshell, advertising is nothing but "telling and selling" of commercial items, while promotion refers to the set of activities that communicate the merits of a product, service or brand to persuade target customers to buy it. There are four key activities in promotion, that will be leveraged in the next subsections:

Direct Marketing It is a technique in which companies sell their products directly to the customers, by eliminating the middleman.

Advertising As explained, is a paid announcement by which the message is conveyed to bring attention towards the product.

Public Relation It is also necessary during a promotion to keep and maintain a public image of both the product and the company.

Personal Selling It happens when all the intermediaries are cut out of the equation, the salesman sells the company's product by directly visiting and influencing them.

6.4 The Chinese side

The first side to discuss promotion initiatives of its the Chinese one. The corridor is basically their doing and stands as one of they key acts to create stronger trade bonds and re-position China from the past of world-exporter to the present of a richer, also importer, country. While it may be a stretch to assume that they are targeting PMI with their promotion, it is indeed certain that the European SME ecosystem is indeed key in the corridor plans.

6.4.1 The State

The state role in China logistic and import/export dynamics has been widely described so far, it is then obvious that this agent is indeed one of the key foreign players in promotion of the line also.

Current initiatives The People republic state is actively trying to both change the China perception in the world and to change Chinese perception of the outside world too. This is also to respond to the growing interest (both cultural and economical) of the increasingly richer Chinese people towards the outside world. This is translated in the gradual trade opening on a macro scale, but also on the new regulations for cross border e-commerce on a micro one.

Logistic wise, the state created taxfree bonded logistic zones all around China, and is currently investing directly on many logistic parks; this creates a totally new and fertile environment for all kinds of over-sea companies that are willing to get in touch with China. The Chengdu government offers subsidies in order to attract more multinational logistics companies to use the railway.

The state also created agents over agents (from new customs, to land port companies etc.) to simplify and make more efficient importing, from the POV of once again big or small international companies. Overall the promotion of the state is heavily based on public relations, making many ministers doing many statements about the corridor and its possible impacts, and dragging international public association (like chambers of commerce) to focus on the new Silk Road.

The state is also spending an incredible amount of money in international investments, especially in the countries that the railroad passes by, in order to both upgrade the overall infrastructure grade and create an even performance for the line. Finally, one of the great future plans for the corridor is to create a parallel digital silk road (both in the meaning of e-commerce friendly and highly digitalized), this is why along the corridor are (in these very months) creates long fiber optics lines, that also support nearby countries.

Proposals On a geopolitical level, the Chinese state needs to work with Russia and solve some major problems, that appears when trade in Europe is in act; this would relax both investors and shippers and overall improve the corridor adoption. One of the most interesting goods are the fresh ones, and right now due to purely political reasons those are extremely hard to work with.

According to interviews and overall studies about the offer side, what could be lacking is (direct marketing wise) a way for the state to create and manage agents that scout for new SMEs to use the railroad. The problem is that for a private company is nearly impossible to reach small companies, as some kind of territorial presence is needed and the investments to do that are too high. The state could help Chinese companies (that are usually already public owned anyway) in creating warehouses abroad and reach a bigger pool of SME; without state help, they will keep focusing partners wise in reaching big companies.

However, the huge improvement in the current corridor dynamics that the Chinese state could bring is financial. As it has been shown, an intercontinental logistic solution without financial tools is just not competitive. The bank of China, may create some kind of Load-bill, or at least act as an intermediary to reduce the financial exposure of the owners of goods. This is a great necessity, as according to the agents interviews the corridor right now is indeed a financial dilemma.

Finally, the state might even create the much-talked about database showing off all the international goods that Chinese people are really interested in buying, in this way even PMI would be pushed to start the export process, possibly leveraging Chinese online selling platforms.

Table 6.1 Recap of Chinese state initiatives in direct or indirect support in promoting the railway.

The State initiatives	
<i>Current</i>	<i>Proposals</i>
Trade openings	Russia goods ban resolution
E-commerce regulations	Agents that scouts SMEs
Bonded logistic push	Help in foreign warehouses investments
Direct investments in logistics	Financial tools
Subsidies to multinationals	Database of goods
Domestic support agents	
Public relations	
International rail investments	

6.4.2 Block-trains companies

While there are both international and national shippers acting on the railway, the Chinese players surely deserve a separated mention from the international Shippers. the reason is that the Chinese players have strict relationships with the state, and thus different dynamics; they are also been present a lot more in the corridor, and overall move a higher volume.

Current initiatives Chinese block trains giants, performed one of the most interesting promotions so far, advertising wise. After almost a year of operations, in 2016, they suddenly re-branded (Figure 6.2) thousand of mixed party containers with a fresh unified logo. This is a very powerful move, if we realize that first of all these containers will travel all around Europe by every mean of transport, and also that everybody will see them. This is basically a very strong way of saying "China is here", where "here" is intended as basically the whole Europe, and especially the central ones. This gets even more interesting the deeper this reasoning goes, for example nowadays the logo of a container is no longer useful to link a container to the owner, and instead every contained posses a unique number. This means that nowadays containers are usually exchanged among parties (So maybe MSC containers are actually carrying MAERSK goods, as they are standardized); this means that these thousands of re-branded containers will not only travel along the silk road, but effectively around the world.

In some ways, this is an extension of one of the first ideas in promoting the line, by HP, that literally reported that even if not really price competitive, many return rides where done just to show that this possibility existed.

Proposals One incredible act, that may serve both line promotion and competitive differential, would be to leverage their partially public nature, partner with the Bank of China and effectively create the financial services that have already been discussed.

According to the interviews, another suggestion would be (maybe trough state endorsements) to lower the prices for small companies that are willing to transport their goods; this is not really meaningful anyway, as first of all would create a series of pricing problems (mostly related to freight forwarders) and secondly, many believe that the prices, even if very high, are already at the lowest possible, in order to bootstrap the return rides from Europe.

Finally, what these providers are really investing on are addition to current services. During the study the theme of Chill or Frozen foods have been discussed and the importance of complimentary services like cold chains is clear by now.

Table 6.2 Recap of Chinese Block Train company initiatives in direct support of promoting the railway.

The CBT initiatives	
<i>Current</i>	<i>Proposals</i>
<p>"As Low as possible" return prices Brand and corridor awareness push Multinational companies as evangelist</p>	<p>Partnership with Bank of China Implement Cold Chain</p>



Fig. 6.2 The new China Railway Express shipping containers at the rail terminal in Poland. Image: Wade Shepard, Forbes.

6.4.3 Domestic actors

During the offer side section of the study, many Chinese actors were encountered and some even interviewed. These actors are usually put in place by the State in order to serve specific functions and streamline the domestic side of operation for international companies. Leveraging logistic parks and key intersection as operating base, agents like Land Port companies and Chinese Freight-forward companies act (sometimes even in no profit schemes) in order to promote the railway by making easier to approach to it.

Current initiatives There two currently two sides of operation: domestic and oversea. The main idea behind this duality is to both bring new users to the railroad and also support

them when its time to deal with problematics on the Chinese territory. While the domestic side initiatives are basically all targeting different actors than PMI, once again due to 3PL logistics, the core of oversea operation presents three pillars: partner programs, warehouses and word of mouth.

Partner programs are pretty self-explanatory, there is a network of Chinese professionals and spokesman that interlace relationships with companies, freight forwarders and shipper in order to promote the solution, give support and most of all be a contact point between them and China; one of the goals of these agents is indeed to boost return runs for example. The limit of all the above is that you can only reach in this way big players in the market, and surely not PMIs directly; this is why because the natural evolution is to cut the middle man and, by placing oversea warehouses allow Chinese freight forwarder to connect with PMIs.

Proposals A very interesting future plan is to create expos of goods or at least a location in every oversea country where SMEs and all the other actors may come and get in touch with both the solution and the (for example) Italian goods; this idea is symmetric to the one of building an expo of European goods in places like Chengdu.

Moving towards solutions that this study feels like proposing, a better system than WOD might be needed. It is surely hard to imagine some better channel, especially due to the strong B2B feeling this situation has, but instead of slowly partnering with many and many it would be interesting to try and directly penetrate different actors. Italy needs a special approach, and in this country to avoid public institutions and go for example towards "confartigianato" or other groups of companies might be the best solution.

Table 6.3 Recap of Chinese Domestic agents initiatives in direct support of promoting the railway.

The CDA initiatives	
<i>Current</i>	<i>Proposals</i>
Partner programs	Expos
Over-sea warehouses	New channels instead of WOD
WOD among clients	Leverage Italian organizations
	Push e-commerce zone, CBEC trend

6.4.4 Logistic parks

Finally, a mention needs to go to Logistic park themselves. While a great deal of their work is domestic only, there are also some developments that might indeed boost SME usage and so acts as promotions. They try to raise awareness in the opposite way, by showing Chinese managers results and products that are coming from Europe-China logistic operations. The goal is to create a demand of European products that would fill the return rides; this scheme presents a very low risk as the goods are already certainly sold when they are shipped to China, as domestic companies order for bulks of them. Another key feature that, if communicated correctly to PMIs would be of great interest, is bonded logistics; but the ones directly communicating to those are indeed the precedent actors.

6.5 The international side

The second cluster of actors that are indeed performing some kind of promotion towards the corridor are indeed all the ones between China and Italy. Shippers, multinational companies and European institutions: all necessary middle men for both the movement of the goods and the line marketing. These players share the highest interest in the line developing², and might even be in some kind shareholders of part of the solution.

6.5.1 Shippers

International shippers are the core of the corridor. While a good percentage of the trains and block trains are owned by Chinese, a substantial one is indeed private or at least belonging to different parties. In this study, two international shippers were interviewed and both were the only agent who firmly declared great expenses in both time and money in promoting the New Silk Road; not just an interest or a WOD scheme. There is a catch anyway, as the target of shippers (the ones that really moves the goods along the line, just to be clear, with their own means) Italian promotion are not PMIs, but the next chain agent: Freight Forwarders.

Current initiatives Similarly to what Chinese shippers did, the main goal of these players right now is pure awareness. One of the first companies that pushed very hard on Marketing was DHL, as already introduced and explained in the previous chapters; they actually flowed specialized logistic-sector magazines with publication and even catchy ads. DHL also was one of the first to try and partner with multinational companies, in order to start moving decent amount of goods and prove that the line existed.

²Together with the Chinese players of course.

Focusing on Italy specifically, the interviewed shipper had an exact awareness plan in mind. Instead of focusing on international papers, they released fact sheets and articles on smaller national logistic magazines; their goal is to push for return runs (while DHL also deal greatly with China-Europe movements) so they needed to reach a higher capillarity. They also conducted a series of presentation in Milan with the biggest Italian freight forwarders exponents in order to push them to propose this solution to PMIs (which they never get in contact with). The main promotional lever is delivery time, and not cost; but a huge problem right now is that the possibility of losing over a week entering Russia is very real, due to the rail differences and necessary switches.

Proposals Shippers are indeed doing something articulated in order to promote the line, so it's harder to propose new and better approaches. The idea of the promotion target being Freight Forwarders is totally reasonable, to reach PMIs directly would be madness³. The only suggestion to shippers, based on the study so far and the various Freight Forwarders pains analyzed, is to keep working in improving the service. This is, for example, the case of fresh goods transportation (banned right now because of Eu-Russia dynamics), if a shipper could find a way to avoid this regulation it would be of great benefit.

Pure promotion wise, as great shippers posses also great influence and power, they should work together with Italian public agents and ministry, to push this reality even further. Another ecosystem that they are kings in are ports, but due to the railroad nature to leverage this would be pointless.

Table 6.4 Recap of International shippers initiatives in direct support of promoting the railway.

The shippers initiatives

<i>Current</i>	<i>Proposals</i>
Targeting Freight Forwarders	Interact with State Organizations
Expert panels and meet-ups	Work on FF feedbacks
Articles and cases on local magazines	Improve corridor reliability
Advertising in specialized publication	

³Note that Chinese Freight Forwarders are instead forced to skip Nation Freight Forwarders, as they are indeed competitors. This is why they have so much trouble reaching PMIs.

6.5.2 Multinational companies

Even if in Europe SMEs and micro companies accounts for the vast majority of companies, when the topic of intercontinental shipping is approach big companies are surely central. During the study cases from HP or similar giants were described and overall the promotion lies on the fact that awareness is generated by them using the corridor. Their actions are observed and discussed all over their sector and even the financial world.

Multinationals have only an indirect impact then on promotion towards SMEs, and right now are mostly trying to establish influences on logistic parks around China.

6.5.3 Europe role

Europe role right now is extremely under-leveraged and according to basically every player interviewed, the EU government could play a huge role in the promotion of the corridor. In opposition to the total lack of current interest (or at least very slow response) if Europe managed a way to both create financial instruments or at least give grants and benefits to companies using the corridor, the diffusion will be very massive.

If incentives are not coming, it's probably due to factors like the sensible relationship with Russia and overall the mixed response towards China trade openings. Even great Britain government was, during this last year, more responsive than the European one; probably because the UK after Brexit is indeed looking for new strong trading partners.

6.6 The Italian side

Finally, the Italian side. PMI ecosystem in Italy is a very unique and complex one, even for SMEs parameters; still, the export trend also reached Italy and its promotion is getting more and more common, especially from the government itself. There are also other agents involved in the hoped opening of PMIs toward export, such as aggregations of companies like "conf-", PMI themselves and obviously Freight Forwarders.

6.6.1 National Freight Forwarders

Even is as just declared, Italy PMIs ecosystem can be quite unique, there are some global trends that have indeed hit these companies, such as 3PL. Third party logistic allows transporting in a LTL fashion, without possessing own transportation means. Right now, it is not wrong to assume that Freight Forwarders are the most common solution for small and medium companies logistic and thus key for the corridor promotion.

Similarly to shippers, the vast majority of data and strategies are directly taken by the conducted interviews.

Current initiatives Since 2016, FF actually started proposing the solution "with ease"⁴ to PMIs, but the problem is that they surely do not propose it to every single one of their customers. The current state of promotion, is entirely towards clients that could be a very very good match for the solution. This dynamic has already been explained greatly, and in a nutshell the result is a very slow and precise awareness generation. Single companies are carefully selected, in order to ensure that the solution is being proposed to a company that gains so much out of it that the risk of unexpected events or higher-than-average cost will not drive them away. For the same reason, is surely not Freight Forwarder work to tell strategically what a PMI should do so if their clients are not already shipping to China, to start selling their goods in China will not be proposed. Overall FF have a great role, in the sense that is one of the few actors that is actually in contact with PMIs, but also a slow and often passive (it gets asked about the solution, instead of being the one proposing it) promotion approach. This is slowly changing, the better the solution becomes, also because Chinese FFs are indeed a competitor and they are proposing the corridor to basically every single exporting PMI that they are able to get in contact with (which is, for now, not a lot).

Proposals The problem here is that, until the solution will become cheaper, there is no real reason to propose it; profit wise Sea gets them a higher cut and they are more experienced with it. The only real threat are competitors; this is the only reason the corridor is proposed, along with possible incentives from Chinese partners. The promotion should be more active and the strategic view more long term oriented; while it is totally reasonable to propose the solution to companies that have no business in China, it might be counterproductive in the long run to not even propose it to companies that do and that could actually perform a successful transfer from the sea options. This is understandable, however, as the PMI have lower risk aversion and less resilience to inconveniences. In order to secure new clients or at least connection, they should organize (just like the shipper does) panels or at least inform more actively about the solution, both single companies and confederations. There are clearly not the one able to tell a company to start exporting in China, but if some company does thanks to them is surely a benefit for both; FF should leverage their position as "PMI logistic counselors" to also guide them towards intercontinental export.

⁴Citing directly the interview: "Piú serenamente"

Table 6.5 Recap of National Freight Forwarders initiatives in direct support of promoting the railway.

The NFF initiatives

Current

Awareness towards very specific PMI
 Use the corridor as competitive factor
 Partnership with Shippers and Chinese agents

Proposals

Be less passive
 Guide potential PMI to China Export
 Present CBEC success cases

6.6.2 Government, associations and consortia

While no direct promotion is clearly done by the Italian state directly towards the new Silk Road, the government is actually quite active in boosting PMIs commerce abroad. It is possible to find [here](#) all the agevolations and incentives that share the aforementioned goal. In particular, quite a bunch unlocks when more than 35% of PMI revenues are indeed from export, thus unlocking the status of exporter.

If programs about helping current exporters and other about extra-EU participations are discarded, it is possible to list a number of incentives focus on PMIs that are indeed on the verge of starting to export, but needs a final push. However, none of them lists incentives related to shipping methods; the vast majority is focused on the creation of structures abroad. While the government obviously took a more generalized approach to export promotion, smaller organizations like Chamber of Commerce or associations like "conf-" are instead presenting more precise interests. A perfect example of what is currently the dynamic between the previous actors is what is happening in Verona. On July 2017, a couple of months ago, a Chengdu delegation along with the local chamber of commerce reached Verona and inaugurated the "Fondazione Italia China"⁵, an office that serves as a bridge between the territories PMIs and Chengdu. One of the very first moves of this office, was indeed to show the railroad solution to VeronaFiere (an expo and aggregation of close artisans and PMIs). These are incredibly smart and game changing moves, as the Chinese agents are indeed skipping all the others and market almost directly their solution and probably even freight forwarding offer; the complexity of reaching thousands of PMIs is deleted by contacting only the local chamber of commerce and (probably) create some partnership or incentive.

⁵larena.it economia "la nuova via della seta passa per verona, 23 July 2017

Chapter 7

Conclusions

7.1 Conclusions

Since the corridor conception, the point of sale of the New Silk Road new railways was that they are more than twice as fast as shipping by sea at a mere fraction the cost of shipping by air. It presents for PMIs the really sought after trade off for typically high value goods or perishables which need to make the Europe-China as fast, low risk and profitably as possible. Obviously, the reality is much more complex and presents many shades of black and white, complexities and opportunities. Everything is a trade-off, and the same goes for the current status of the New Silk Road project and its adoption.

The opportunities are many and span from the newly found geopolitical position of China to the export trends of the PMIs. Thanks to the offer (Chinese side) analysis, it was possible to discover that neither of the railroads has reached full potential, that return trips are beginning to fill up and that free-trade and bonded logistic zones in China are multiplying. The interest of oversea companies towards the solution is also growing and oversea giants are indeed starting to promote the corridor. There are also helping mega-trends, such as the diffusion of cross border e-commerce among a population that is getting increasingly wealthy and interested in European goods: the Chinese one. This is not only about B2C, but also deeply about B2B in high-value sectors like spare parts, automotive or machinery. It was also possible to discover that domestic railway complexitie are dealt by China agents themselves, and it is thus becoming incrementally easier to switch towards this railway solution. These very same agents are also the ones that are working harder to raise the awareness of the corridor and that will create expos and oversea warehouses around the world.

But those are only half of the main discovered opportunities, an the Italian side study offered even more interesting findings. The PMI ecosystem is getting wealthier, embracing very

rapidly e-commerce and most importantly began to be reached by New Silk Road related proposals. Italian public actors, logistic providers and organizations are slowly becoming more and more active in that sense; this leads to a growth of interest in PMIs, that are still sadly one of the less exporting-oriented in the Eu zone. Anyway, thanks to the export journey that Chinese, International and National logistic agents crafted (and this study re-constructed) the experience of using the corridor is extremely straight forward and hassle free.

The corridor adoption however also present complexities, that effectively might discourage or stop the usage from the exporting PMIs. First of all, the price: it may seem obvious but if the opportunities do not balance the premium price of the corridor versus the other logistic alternative, the business model is not sustainable. Right now the price is extremely high, almost four times the sea option, and during study it was discovered that Italian logistic agents are struggling to find companies (and goods) that value transit time, bonded logistic and a pivot to west China so much to spend this kind of money. Sea shipping is a very refined solution, that brings logically long due relationships and interests that would be lost after a change in the SME logistic solution. This is one of the (greatly discussed) reasons why the supply of goods is still relatively one-fold (Europe-China the trains are quite empty), along with the lack of key logistic services (cold chains for example) or financial instruments. The financial complexity (due to the lack of LoadBills) was one of the most unexpected and interesting findings of the thesis, as it showed with great power that for a company the cost to ship something is just not about the cost to ship the goods, but also the financial architecture you can build around that.

The Chinese side presents more barriers, for example the state-controlled logistic matrix can be very frightening for over-sea partners or overall slow to adapt to standards; sometimes there is little motivation to improve state owned businesses. Additionally, the fact that a great deal of the logistic infrastructures that have been put in place along the line are still very "young" (or even inactive still) and presenting extreme fluctuations in performances (mostly due to the differences in countries) surely does not helps. Russia dynamics are adding complexities on allowed goods selection and so the Chinese state; both its role and the partners one present severe limitations. Back to the Italian side, as WOD is still the main diffusion method, the solution is not well known and trusted; another interesting discovery is that PMI that tries out the solution tend to not stick to it.

There are however a set of new possibilities for PMIs that are willing to start exporting, and that leverages the bonded logistic aspect that the corridor offers; this is why the study focused briefly on Cross border e-commerce. In summary, via CBEC overseas companies get another

chance to access the Chinese online consumer market directly and quicker, running smaller financial risks.

Of course the key to boost PMIs adoption of the railway is also about promotion and the study approached this final topic by presenting a good amount of proposal based on previous insights. The general suggestion is for Chinese agents to leverage more Italian organizations, push e-commerce zones, work on Freight Forwarders feedbacks and work on the corridor reliability.

On the Italian side, promotion is also a problem, as FF are still proposing the solution to an extremely strict number of companies (as proved by the quantitative market cascade crafted) as their goal is to be certain that the solution is indeed perfect for them; shippers are instead (quite reasonably) only contacting FF, and not PMIs directly.

Closing thoughts

If to hit SMEs is really the goal, a bottom up approach should be followed. First of all it is necessary to work on the low percentage of Exporting SMEs in Italy, especially towards outside EU. The Italian government is doing its role and its current incentives are a good start to start evaluating if a company could indeed find profits in export. After that, it is necessary to clearly define target goods and sector that finds great added value in the current corridor opportunities and focus the promotion and awareness on them; this brings implication to not only logistic actors but also to public organizations like Chamber of commerce or ICE. As the literature reports, it is important to remember about oversea opportunities that SMEs are not like big companies, and the export performances greatly depends from the managerial mindset of the owner.

For the Chinese point of view, it is important to understand that making block-trains travel around the world empty in order to create awareness is surely interesting, but generates high prices that are keeping away SMEs.

The corridor surely possesses all the characteristics to be a future pivotal point of China import strategies, but the Europe-China runs right now are still a work in progress, a test focused on pure awareness.

Overall no findings or experts opinion gathered makes the writer believe that the corridor is ready to be a one-stop Europe-China logistic solution, let alone transform a Non-Exporting PMI to an Exporting one.

7.2 Limitations

The main limitations of the study are linked to three main factors. These are also the reason behind the decision to approach the topic with a Dissertation type Thesis, due to the numerous complexities and raw space needed.

Topic novelty First of all the New Silk Road construction and testing is indeed something that is going on right now, during the writing of the thesis; close to no literature was found about it during 2016 and even googling basic information about Rong' Ou rail returned no usable (and certainly not clear) information.

This brings not only a series of complexities while searching for data (basically forcing the writer to ask organizations or companies for that) but also complicate the creation of a framework to operate within. As the thesis goal is, together with future studies that will follow, to evaluate the implication for the PMI that the corridor will bring it is clearly necessary to interface with Italian agents; this indeed is the extreme novelty of the topic was a problem, as very few actors knew about it.

Deep foreign aspect While there is surely an Italian side on this side, the Chinese side is certainly present. To study dynamics of a foreign country always presents added challenges, especially if (like China) the online information flow is not a one stop solution. The vast majority of (non-obvious) information about the corridor prior to mid-2017 were found in Chinese website under the shape of official reports of the corridor agents or the state itself. After that period, following a ground breaking conference, the whole world slowly started publishing studies or articles about the corridor; making the research easier.

This is why this study was supported by Supervisor Shan Chen on Politecnico side and by Professor Song Guang on the Chinese one.

Thesis originality Finally, this being the first thesis of its kind brought some limitations too. The biggest problematic was all about what "fraction" of the overall problem to tackle: to focus on the infrastructure, or the PMIs, or both? Then, after crafting the conceptual framework, the same limitation impacted on the methodological framework even more, and this necessitated time to be constructed from zero.

It is important in this aspect to know that this is only the first of two consequent studies: the next one will be carried by two colleagues of mine, that will co-author the second step; a PMI focus.

7.3 Possible future studies

As for the last page of the study, the author would like to give his opinion about how the topic research should continue in future works.

It would be wrong to say that the New Silk Road is just at its beginning, because in the last ten years the whole world observed with wonders all the progress of the corridor and its mostly positive impact on every single state crossed. Nevertheless, especially from an Italian point of view, these new railroads (and especially their return runs) are still indeed a bet at a European level. This was indeed the awareness situation when this study started, a solution few heard of and ever fewer use or consider. Everything changed during 2016 as a boom of data was suddenly available, following the momentum of a series of Chinese state conferences; right now, one year later, the New Silk Road actually started the process of generating awareness even in Italy.

This study wanted to start a process of infrastructural evaluation, promotion and finally adoption by PMIs, and these are indeed the steps the next studies should take. If this thesis introduced the potentialities of the corridor, its inner workings and overall possible opportunities that it unlocks for the PMI logistic ecosystem, the next thesis should focus on PMI directly. Leveraging the high impact activity sectors highlighted in this study, the current promotion schemes and obviously the understanding of the New Silk Road infrastructure, a series of PMI should be contacted and interviews about their point of view about intercontinental logistic towards China conducted.

In doing this, a model for the correct selection of PMIs that presents either a potential about exporting in China or adopting the corridor solutions should be created, possibly leveraging as weight the activity sectors, the financial performance and (according to the presented literature) managerial attitudes. If such model could indeed filter a set of PMI, thanks to their ATECO codes, financial information and overall nature, it could become a very effective and surely customized way to raise selective awareness in the Italian Ecosystem; or at least an interesting instrument to select who to interview and why.

An extraordinary global trend, that should be surely proposed to high-compatibility PMIs is surely Cross border e-commerce, for all the reason listed in the study.

With these suggestions, the author concludes its work, fully believing in a world more connected every day and in all the possibilities that are indeed generated by those countless connections.

When in doubt, to commit to the world and move forward is always the best bet.

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Appendix A

China Interviews transcript

A.1 The Railway Port Company

Interview time: December 21st - 22nd, 2016

Interview location: Chengdu International Railway Port, Qingbaijiang District

The interviews, originally in Chinese, have been translated as literally as possible.

Professor Song introduction to the interview background.

Committee Introduce the basic information about Rong Ou Block Train. Since the openness in April 2013, the number of block trains under operation kept increasing. In 2013, there were 31 block trains under operation, 45 trains in 2014 and the number reached 103 in 2015. In 2017, the “Rong Ou+” strategy will be further implemented continuously, 1000 trains are planned to put into service. Some big customers have signed contracts with us, such as TCL and DHL. The outbound was 9-10 trains per week, which often overbooked, while the inbound was 4 trains per week. The LTL (less than truckload) rate is lower than other trains, which is between 60% and 70%. Nationally, the LTL of return trains is not high, Chengdu has an advantage over other cities in this aspect comparably. The above situation concerning the mid-line, which exits China through Alashankou, then passes by Russia, Belarus, Lodz and Kutno (Poland), Nürnberg (Germany) and Tilburg (Netherlands). Besides, there is north-line (from Alashankou to Moscow, put into service in November) and south-line (from Alashankou to Istanbul, put into service in July). Three China-Europe lines are running at the same time, which makes us the pioneer in China. The China-Asia block train was opened in April 2016, 2 trains per week. Before April, as a China-Asia train, it mainly ran within China. From April, it exits China from Alashankou then reaches 5 countries in middle Asia, the supply of goods is stable. Currently in China, many trains are opened that connect Chengdu with the other 9 cities, such as Shanghai, Guangzhou, Wuhan, Shenzhen, Xiamen (the most well-developed one), Ningbo, Kunming, etc. In December, the train goes between Tianjin and Chengdu was newly opened. Generally speaking, both international and domestic transportation paths are clear.

Professor Song they all exits China from Alashankou?

Committee Yes, Khorgos Port is not clear temporarily, since the negotiation between Khorgos and the foreign country didn't go well, but the railway line is ready. 15 years ago, block trains can only run between

Chengdu and the other 3 cities (Shanghai, Guangzhou, Wuhan) bilaterally. This year, there were 6 cities newly added and it reached 9 cities in total. Chengdu is a transit point which links domestic and overseas. Domestic freight consolidation network is important as well. Cooperating with 9 coastal cities and inland ports (river port) – Wanzhou Port and Luzhou Port, we made intermodal transportation come true (railway and ocean).

Professor Song the train departs from railway port?

Committee Yes, Chengxiang Station is the departure station. I would like to introduce the situation here. Logistics park, also known as Railway Port, is built according to the planning of the Ministry of Railways. The Ministry of Railway has planned to build 18 Railway Container Centers. Up to now, 9 of them have finished the construction, including the one in Chengdu. The Railway Container Center is the foundation of logistic parks. The logistic part covers an area of 21 square kilometers, which includes 2 stations, 2 parks and 3 function areas: Chengdu Railway Container Center, Chengdu Railway Bureau Dawang Goods Station (bulk cargo station, which is complementary with Chengdu Container Station), Chengdu International Container Logistics Park, Chengdu Qingbaijiang Bulk Cargo Logistics Park, E-commerce and Logistics Distribution Core Area, Logistics Headquarters and Port Supporting Service Area, Big Commodity Business Area. The railway port is located here because there is Container Center. The port is temporarily an open port which gets the approval from the state (it's almost the same as an open port). The railway port now has gotten approved to be the nominated port to import finished automobile and meat, the pilot port for parallel-import cars (got approval in September by the Department of Commerce). Currently it is applying for being the nominated port to import fruits, grains and woods. Some barriers exist in importing meat, since there are geopolitical problems between Russia and Europe who sanction each other. When fast moving consumer goods, meat, agricultural products that imported from Europe pass by Russia, Russia would discourage them. On 9th December, after making great efforts (Sichuan Entry and Exit Inspection and Quarantine Bureau reported to National Bureau of Quality Inspection, then National Bureau of Quality Inspection visited foreign Bureau of Quality Inspection and negotiated with them), we finally managed to import a batch of meat from Germany. As for wood, Chengdu has great demand for imported wood (in order to make furniture) but China lacks forest resources. The consumption of wooden products is large in Chengdu, the amount of imported wood reached 70-80 million cubic meter annually.

Professor Song Food is sensitive; will Russia discourage it?

Committee China has a great demand for imported food. We have Trans-Asian Railway, which helps us to import fruits and foods from Thailand and Southeast Asia. The functions of Chengdu Railway Port are becoming diverse, it not only has basic functions, but also provides supporting services such as international trade and custom commodity inspection. Moreover, both Chengdu Custom and Sichuan Inspection and Quarantine Bureau have set branch offices here. Furthermore, there is a bonded logistic center (type B) in the park, it began to operate on 18th November 2016. With the help of the bonded logistic center, it makes international trade possible, such as simple process and bonded area. Generally speaking, the basic functions and custom supervision are complete within the park. Then let's talk about industrial development. There is free trade zone located within the park, which covers an area of 9.68 square kilometer, relying on railway port and bounded logistics center (type B). The state has set the positioning for Sichuan: the bridge that connects China and Europe, promoting the synergistic strategy that open river-line and coastal cities to outside world. Therefore, thanks to its strength as a port, it is

suitable to develop some industries, such as high-end manufacturing and modern service industry. Based on this strategy, the general blue print has been reported to the government though it has not yet been approved. The State Council authorized Sichuan to be a free trade zone, including three areas which are Luzhou Port, Railway Port and Air Port (high-tech development zone is included), which leads to an integrative development in water, railway, airline. Promoting the development of railway is based on the positioning that the state has set for Chengdu, and the Three-Year and Five-Year plan (vision and expectation) both have been designed. Logistic Parks are now appearing in many cities, each has its own merits, the advantages of Chengdu are: 1. Associated and supporting industries are well developed; 2. Great demand in the consumption market; 3. A large population live in the areas around Chengdu (2.3 billion people, in Xinjiang, Tibet and Southwest cities), there is a big market potential; 4. Supporting policies (government subsidies won't be permanent, it may be cancelled someday, but cultivation is needed during the development process), when companies are trying to change their transportation behaviors, they need to be conducted by the government, when companies finally choose and accept the China-Europe block train, there will still be market space even the subsidies are cancelled. The delivery time of Rong Ou (10.5 days, picking and collecting goods in local areas needs 3 days) is much shorter than that of ocean shipping. The price of Rong Ou (2rmb/kg*km) is only 1/8-1/10 of the price of air transportation. Therefore, the Rong Ou block train has its necessity of existence. When the train is accepted by companies, the goods which used to be transported by traditional ocean shipping will be moved here, by that time, there would be 20% increase in rail traffic and 2 trains per week.

Professor Song How many containers one way?

Committee Around 41 or 42 containers. The year before last, I led several companies to visit the 5 countries in central Asia and found that they had a strong demand in furniture and building materials. About 2 to 3 days ago, flowers and plants from Wenjiang were transported to Europe by the Rong Ou block railway.

Professor Song how to keep the flowers fresh?

Committee we have refrigerated cabinets and thermostat cabinets; they can solve the problems. Thanks to this railway line, industrial products are now sold to foreign countries gradually, which promotes the industrial development in Chengdu and improves the consumption structure and levels. Foreign countries also have demand for Rong Ou block train, the stadholder of Lodz (Poland) have come to Chengdu for 3 times, in order to negotiate the development of the block train. Both Lodz and Chengdu should build oversea warehouses, distribution centers, international purchasing centers at two ends of the railway line. Therefore, Rong Ou block train not only promotes the development of Chengdu, but also boosts the development of the southeast of China and Europe. Though the benefit of the train itself is limited, it plays a leading role in driving export. Chongqing has a better political situation than Chengdu, Zhengzhou invests a lot in cultivating the train, meanwhile, Rong Ou is developing according to its own plan, the LTL of return trains is increasing day by day, it is also concerned with season and festivals, for example, the demand will increase in Christmas.

Professor Song Chongqing and Chengdu are very closed to each other (2 hours by high-speed rail), there would be a fierce competition in acquiring goods resource, how to tackle this problem?

Committee Yes, you are right, Chongqing is our main competitors. For example, when applying for being the port, Chongqing has a better political condition, it has more advantages compared to Chengdu. However, Chengdu has a higher frequency and gained some big customers at early stage. Moreover, Chengdu is applying for the qualification to import certain goods as well, for example, the qualification

to import meat that I mentioned before, which Chongqing didn't manage to do. The common problem for Rong Ou and all the other block trains nationwide is that the supply chain is not completed. The rail line within China is good, but the logistics system in foreign countries has many weaknesses (sales and distribution and the construction of oversea warehouse). Fortunately, it is improving, for example, distribution points are getting better, and introducing companies with oversea warehouse in order to boost cross-border e-commerce.

Professor Song where does the construction investment for foreign logistics infrastructure come from?

Committee introducing foreign companies who have already built oversea warehouses, so that we can do business directly. It costs a lot to open offices, oversea warehouses and distribution points. We are not very familiar with those working process but still trying to move forward.

Professor Song you innovate a lot, such as importing meat. As for custom's conditions for Chongqing and Chengdu, are they the same?

Committee Chengdu custom also in charge of Chongqing, but two cities do inspection and quarantine (commercial) separately. Chongqing has opened the pilot points for examining parcels trains, Chengdu hasn't, they have their own merits. Generally speaking, the main advantage of Chengdu is introducing big customers.

Professor Song how about the freight comparison (with Chongqing and Zhengzhou)?

Committee the price is similar with Chongqing's, maybe a little bit lower. For big customers, we give them an all-in rate, which is favorable.

Professor Song can local government grant subsidies in time?

Committee we cannot give an 100% guarantee, basically speaking, we did a good job compared to other cities nationwide. Block Train Operation Company signed an all-in price contract with big customers. Chengdu Municipal Government, Qingbaijiang District Government and Chengdu Railway Bureau are joint ventures of the company. Other revenue streams: on-site operating cost, transfer and LCL service charge.

Professor Song what services are provided under big customers' all-in price?

Committee except for transportation, it also contains on-site operating cost, temporary parking, 1-2 days' storage. If customs and inspection declaration go fast, it will only take 1 day or 3 days at most, no extra fee will be charged. Customs integration helps to save time. In terms of services, port services keep improving, online service window is under construction, it will be open soon. Usually, the companies who use ocean transportation prefer to outsource the whole process that transporting goods from manufacturers to foreign end. Currently, the China-Europe block train can provide such services as well which banishes companies' worries. Once the policy of free trade zone is approved, companies can get a lot of benefits. Since our plan have not yet been approved, we would like to keep the secretes temporally.

Professor Song is there any preferential policies for trading and service companies located in the park? what's the fundamental to design these policies?

Committee there are 3 policies, municipal and district policies are overlapped, reward is provided for registration, renting factories and large scale operation. The Management Committee is the one who should

implement policies rather than the one to design policies. But as far as I know, it must be based on a large amount of lateral comparison, such as growth index.

Professor Song what is the relationship between the Management Committee and the Qingbaijiang District Government?

Committee direct subjection, the Management Committee is the subordinate unit of the District Government.

Professor Song the tax in Qingbaijiang District is considerable, isn't it?

Committee the tax doesn't reach the level of the secondary industry. Logistics is a low taxation industry, commercial tax is even lower. The first reason is that its amount is small, the second reason is that we can gain only a little tax from cross border companies. The key contribution of the park is not providing tax but leading development.

Professor Song how to deal with the coordination problem with other units, such as Commodity Inspection?

Committee there is a Chengdu Port and Logistic Office, who is specifically responsible for all the logistics related work in Chengdu and then reports to the mayor directly. For example, it is in charge of coordinating for the railway line opening and the capital subsidy.

Professor Song it is very important and helpful. I have never heard before that any city has such an institution. Is there any problems remained?

Committee 1. Importing meat and food hasn't realized normalization. In the short term, each batch of imported products needs to get the transit permission from Russian and Byelorussia, it is a great difficulty for companies. 2. Foreign site construction. Block Train Operation Company is mainly in charge of transportation, but the resources in foreign countries are limited. Distribution network in foreign countries cannot be completed immediately and it will develop slowly.

A.2 The Land Port Company

Interview time: December 21st - 22nd, 2016

Interview location: Chengdu International Railway Port, Qingbaijiang District

The interviews, originally in Chinese, have been translated as literally as possible.

Land Port Company as far as I am concerned, there is no separation between the land port company and the block train company, but we separated them. The Land Port Company is in charge of domestic railway lines, while the block train company runs the international lines.

Professor Song who is responsible for the operation of block trains?

Land Port Company Rong Ou block train is operated by the block train company.

Professor Song what's the nature of the Land Port company?

Land Port Company It is a platform company. Shareholders are the Chengdu Municipal Government, Qingbaijiang District Government (owns a large amount of shares) and the Chengdu Railways Bureau. It is a state-owned enterprise. As far as we know, in other cities the railway bureaus do not become a shareholder of the Land Port company, they are the wholly-owned subsidiaries of the local governments at most. The key competitive advantage of us is that we have the support from railway.

Professor Song domestic fast railway lines concern a lot of railway administrations. It is said that the dispatch, transportation prices and negotiation among different administrations is an intractable problem.

Land Port Company Last year, we faced a lot of problems about decreasing price and dispatch. Fortunately, through the negotiation between the Chengdu Railway Bureau and other bureaus, the external request was transformed into the internal one. Therefore, the problems become easy. According to the latest new, from October 2016, there was a dramatic increase in the number of railway lines that entered Chengdu (a sudden break out).

Professor Song any reason for the dramatic increase?

Land Port Company On the one hand, it is resulted from the road overloaded control, the consequence of the railway transportation transferred from road transportation. On the other hand, it is resulted from the increasing transportation amount of coal (the increase in coke futures), which led to weak transportation ability, problems in unloading and load limitation (for example, limit the number of containers of a train from Shanghai to Chengdu). At that time, the decreasing transportation pricing policy was not effectively implemented nationwide.

Professor Song how to deal with the problem of good sources?

Land Port Company it is logistic company who should worry about this probably.

Professor Song your company is only responsible for carry?

Land Port Company we are not in charge of carry, we are just a platform, for information exchange.

Professor Song for example, owners of goods and Freight Forward Company look for block trains on your platform, just like road transportation platform, to match goods and trucks?

Land Port Company I am not very familiar with the road transportation platform that you mentioned. We don't communicate with owners of goods and Freight Forward Company directly, but we communicate with block train company, then the block train company will contact with owners of goods and Freight Forward Company. We not only serve Rong Ou block train, but the whole railway port.

Professor Song for example, a batch of goods is now located in a place domestically, then they arrive in Chengdu and they are loaded on the Rong Ou block train that heading for Russia. Can I say that your company is in charge of the whole process?

Land Port Company no, actually we are just a platform. We introduce the railway lines (for example, if you want to transport your goods from Shenzheng to Chengdu, how many lines can you choose from). Moreover, we provide you information about favorable conditions that you can enjoy, such as the decreased price policy.

Professor Song so we can say that, at one side of your platform, there are owners of goods, at the other side, there are carriers. Who are the carriers?

Land Port Company The block train company can be regarded as the carrier, but actually the carrier is the railway, not exactly which railway bureau, but the railway itself.

Professor Song what's the profit model of your company?

Land Port Company temporarily we are non-profit organization, mainly aimed at providing information. Operation cost is paid by government purchase agreement (for example, there are some policies regarding depot and custom declaration).

Professor Song domestic railway ports are all operating under this model?

Land Port Company no. as far as I know, we are the only port company that separate the block train company and land port company. Zhengzhou and Xi'an are not doing like us. Probably, a block train department will be set in the land port company in other cities.

Professor Song what's the main advantage of your model compared to the other models? What's the value you can create for owner of goods and Freight Forward Company?

Land Port Company the key advantage of international block train company is internationalization, meanwhile, the land port company has more experiences in the station operation of domestic lines. They make full use of their own strengths. The Land Port company serve not only the Rong Ou block train, but the entire railway port.

Professor Song if the parties that owns goods (Freight Forward Company or the owners of goods) choose your model, will they decrease their cost? Will the time for custom declaration and station operation become shorter?

Land Port Company yes, obviously.

Professor Song any data to support?

Land Port Company the data that published by the custom is the declaration and inspection time within 24 hours. They mainly focus and control the key domestic lines (the trains from Xiamen and Shenzhen to Chengdu). It is discovered that the declaration and inspection time of the two lines is basically 2 hours, which is much faster. The Land Port Company plays a role in unifiedly arranging and negotiating with each line that enters Chengdu.

Professor Song therefore, the function of the platform is resources integration. No matter how many lines enter Chengdu, it is guaranteed that the service level will get improved. It seems that the platform is very necessary.

Land Port Company exactly. What's more, we are trying to promote the one-stop service and the multimodal transportation mechanism (a combination of water and railway, or road and railway) with a single document. Unfortunately, they have not yet been promoted. Once the resources are integrated, we can set a unified standard, such as the uniformity of custom declaration & inspection and the transport document, which can increase the efficiency of the process.

Professor Song when is the platform founded?

Land Port Company on October 2015.

Professor Song after the platform is founded, is there any obvious increase in the goods amount?

Land Port Company definitely. We are building the channels that connect each other within the State and support the Rong Ou block train. For example, the Rong Ou block train ran 103 times in 2015, then the number exceeded 450 in 2016. The goods from Shenzhen and Xiamen also increase for several times.

Professor Song are there so many goods in the Pearl River Delta? I heard that the domestic railway lines are not very well in recent years?

Land Port Company because the Rong Ou block train is the fastest one among similar trains. For example, it takes 15-16 days for the block trains in Chengdu, Wuhan, etc. however, Rong Ou only needs 10.5 days.

Professor Song why the time is shorter by 4-5 das?

Land Port Company the custom transformation and railway changing in Alashankou City and Mala for the Rong Ou block train is within 1 day, and a great effort was made in increasing the speed. Compared to the logistics fee, companies are more concerned about time, because the fee for railway transportation is already very low compared to air transport. Rong Ou reaches Lodz and Kutno (Poland), Nürnberg (Germany) and Tilburg (Netherland). Meanwhile, a lot of other domestic trains reach Duisburg and Hamburg, which results in busyness in the stations of Duisburg and Hamburg, goods need to wait there for 2-3 days. By comparison, Rong Ou disperses its destinations, we can choose the closest destination according to the request. The fee of foreign transportation is high, the closer it is to the final destination, the lower the delivery fee will be. The frequency of Rong Ou is highest, which leads to a high flexibility. The price is favorable, and the custom environment is nice as well, which are all aimed at providing good service for companies and achieving door to door service. Companies only need to book the warehouse and receive the goods, other affairs are all solved by Freight Forward Company, block train companies and land port company. Now we can attract some owners of goods to change their transportation way from water to railway, the warehouse should be booked half a month in advanced for outward goods. Entire or bulk containers are both acceptable, the function of port is complete, custom can deal with the export and transit issues. Chengdu's Rong Ou plus strategy is setting a new structure to face the whole nation and the whole world. It is aimed at building a big logistics channel between China and Europe, rather than just opening a block train to transport goods to Europe. A good logistics channel and network building are important, and companies also value them. For example, from Shanghai to Chengdu, it needs 7-8 days in case of scattered transport, but it only takes 72 hours for a block train to arrive.

A.3 The Freight Forward Company

Interview time: December 21st - 22nd, 2016

Interview location: Chengdu International Railway Port, Qingbaijiang District

The interviews, originally in Chinese, have been translated as literally as possible.

Professor Song Let's talk about the problem of empty return loading, how can foreign customers find the Freight Forward Company of the block trains?

Freight Forward Company It is a constrain at this stage. We have a company in Italy and warehouses in Germany and Poland. Therefore, only a part of customers is able to notice us.

Professor Song How can they know about you?

Freight Forward Company Word of mouth. We have local offices in foreign countries. The Block Train Company (Ou Rong block train operation company) introduces customers to us. We have a good relationship with Lodz station, they introduce customers to us as well. Generally speaking, our business is from customers' recommendations among each other.

Professor Song do you have plan to proactively develop the business overseas? Obviously it will be hard.

Freight Forward Company the situations in foreign countries are different from what it is in our state. Railways are private overseas, section by section. Developing overseas station points is also a part of “Rong Ou+” strategy.

Professor Song it is a problem for all the block trains running between China and Europe. Do you have a proactive plan to develop overseas business, expect for recommendation? The power of recommendation is very limited. Where is the location of your company in Italy?

Freight Forward Company Perugia

Professor Song there are a lot of goods resources in Europe. There are many small and medium companies, they produce good quality products. We hope they can use our block trains to transport. How can we contact them or how can they find us?

Freight Forward Company we are now cooperating with Italian Consulate. For example, in the purchase process, the consulate introduces local enterprises to us and then we go to visit these enterprises: on the one hand, the consulate brings Chinese purchasing groups there to purchase, on the other hand, the consulate also introduces the situation of block trains to these companies, trying to discover potential customers.

As for why they do not find us. One reason is that they do not know us, but this is only a very minor factor. The main issue is that: the international trade transportation has got used to ocean shipping system, while railway transportation shows too many differences. The marine bill of lading exists, which is a document of title. Once the goods are loaded on the ship, the bill of lading can be sold for some financial services such as mortgage. In this case, the capital turnover rate of the company will be much higher. However, in railway transportation, there is no such bill of lading, but only waybill. The waybill is not a document of title and cannot ask for financial service.

Professor Song such service doesn't exist all over the world?

Freight Forward Company No, it doesn't exist. It is a very urgent problem to be solved. Since the railway always transports high value-added goods, the owner of goods for sure have the demand for financing. This problem limits the settlement of exchange with letter of credit for high value-added products. Railway transportation only provides waybill, everyone can pick the goods with a waybill at the station, banks are not able to control or intervene.

Professor Song Can Chinese banks develop this service? Is there any legal impediment?

Freight Forward Company it is nothing related to laws, but it is just about high risk. During ocean transportation, bank detains the bill of lading in hand. Only the receiving party pay the bill then will the bank provide the bill of lading. However, in the railway transportation, goods can be picked without the original documents of waybill, banks cannot control the process.

Professor Song currently there is no financial organization intervene international railway transportation, if there is, will the situation get better?

Freight Forward Company absolutely yes. Goods on both go and return trains will increase. Compared to ocean shipping, railway transportation has more advantages actually, but ocean shipping is more mature which results in lower risk for companies. Usually the goods on return trains are high value-added products, while the goods on go way trains are less expensive products such as set top boxes.

Professor Song as for oversea promotion, do you need any support from government, helping FFC to get goods resources?

Freight Forward Company the cost to build oversea warehouses is high. In China, a warehouse can serve a wide range of area, however, the territorial area of foreign country is smaller, which results in a higher number of oversea warehouse. After the connection is built, the promotion becomes necessary. Generally speaking, the cost of building oversea warehouses and operation teams is high, financial support is needed at early stage.

Professor Song you mentioned that oversea warehouses are rented?

Freight Forward Company Yes

Professor Song do you have data comparison in detail about the cost of building warehouses in China and in foreign countries.

Freight Forward Company No, I don't have clear data, but the cost of building warehouses in foreign countries must be much higher. 70% of the goods that come from foreign countries are from Italy, mainly including wine, oil, high-end furniture, ceramic tile and construction materials. As for high value-added products, the regulation about transportation efficiency will be listed in the contract, customers will pay a higher fee to carrier for ensuring timeliness.

Professor Song the financial risk will increase if companies change from ocean shipping into railway transportation.

Freight Forward Company high-end furniture doesn't use letter of credits but telegraphic transfer, and 100% advance payment. Producers begin to produce after 50% of payment is paid. After 3-month of production the rest 50% of payment should also be paid, then goods can be picked up. Generally speaking, there is one or two containers of high-end furniture per month (the value is one million per container). Buyers want to use letter of credits as well, but producers do not agree.

Professor Song if financial institutions intervene, the financial risk of both parties will decrease a lot.

Freight Forward Company yes, we hope financial institutions can intervene. In the current trading between China and other Asian countries, the credit situation of companies is not very satisfied. The owners of goods in China want to use bill of loading, but it cannot be realized at the moment. When the goods arrive at Alashankou, if the payment is not received, the block train company will not transport goods to foreign countries temporarily. But the Alashankou port doesn't allow goods stayed there for long, otherwise the port will send telegram to the railway bureau that sent the goods. In the future, if the FFC ask for this railway bureau to transport goods again, the FFC will get a punishment from the railway bureau. In the previous period, there was 4 containers that didn't get the full payment, so the FFC didn't dare to transport the goods. Because once the goods arrive at the oversea station, the local station will call receiver to pick up the goods, no matter the receiver has paid or not.

Professor Song you must work in this field for many years, have you ever met the situation that owners of goods and receivers dispute about the payment?

Freight Forward Company it is rare in Europe, but it happened in Asian countries. The credit level of companies in Kazakhstan and Kyrgyzstan is lower than Chinese companies.

Professor Song how to solve it? Resort to legal procedure?

Freight Forward Company as carrier, it is not our business, but only concerns both owners and receivers.

The companies who choose railway transportation know the risk, so usually the owners would transport after the payment is received. I am also engaged in customs supervisor, and familiar with ocean transportation. As for ocean transportation, after the goods are loaded, the shipping company will send a manifest to the custom. If the information in manifest matches the declaration, the customer supervisor is finished, then the domestic companies can ask for tax refund, it is an automatically data matching. As for railway transportation, after departure, the railway will align a number to each container and finish the custom supervisor manually, the level of informatization is low. The railway transportation also needs improvement in this aspect. No railway bill of loading not only leads to pressure for the owners of goods, but also results in inconvenience for FFC. If the bill of loading exists, FFC can detain the bill of loading of the unpaid goods, engage in finance activities as well, such as receivable payment, and generate some financial instruments. Without bill of loading, it is a big trouble.

Professor Song it is the first time that I heard about financial problems in railway transportation. The block trains are currently in a dilemma to some extent.

Freight Forward Company yes, you are right. Though fast and cheap, but from the perspective of companies, they not only concern logistics cost but the overall cost of the whole company, such as the turnover rate of capital and financial cost. Basically, a block train without any financial instrument is not cost efficient.

Professor Song when the block train enters a country, if the custom find that the number of goods is higher than it is said in declaration, what will they do? As far as I know, if the Beijing airport custom discover such situation, for example, the number of imported clothes is 2 or 3 higher, the goods will be transferred to Smuggling Investing Office, which will become very troublesome. Both buyer and seller should provide a clarification, and the goods will be detained for a long time. What is the situation in other customs, such as Alashankou customs, is it strict or not?

Freight Forward Company the customs clearance of return way Rong Ou block train is not at Alashankou, but only transfer there. The customs clearance happens at Chengdu Land Port or other destinations. If Chengdu Customs find such situation, they will investigate that the variance of goods number is subject intent or non-subject intent.

Professor Song how to judge it is subject or not?

Freight Forward Company the documents during the whole process and all the email exchange should be provided to the customs, then customs make a judgment based on them. The customs has its way to manage, if the amount of value reaches a certain level, even it is non-subject intent, the goods will be transferred to Smuggling Investing Office as well. "Strict entry and tolerant exit", the examination of imported goods is strict, but there will still be a distinguish between subject intent and non-subject intent.

Professor Song the behaviors of law enforcement are different in different customs, probably Beijing Custom is stricter.

Freight Forward Company the customs will promise the import efficiency, finish checking and examination in the same day. They will not behave randomly, but obey the customs' rules.

Professor Song if the platform (the Land Port Company) is moved outside China, and build a similar platform overseas connecting resources like owners, transportation, warehouse and so on. At the moment there is no Chinese leading role in building such platform, and it must be done by companies, and the government is only to provide policies and financial support. From your perspective, do you want to have such platform?

Freight Forward Company I never heard such platform exists, but I do hope there will be. I hope it is service company rather than state-owned enterprise to do it. And it would be better that a company with good service awareness to do this, but not leave everything away once the working hours is over. For example, Kazakhstan's service awareness is not high enough, you can never find them except for working hours. If you want them to work overtime, you need to give them wage first, otherwise they will not work.

Professor Song The power of the platform is strong.

Freight Forward Company yes, but the basic purpose of the platform is providing services.

Professor Song in your oversea company, for example, the company in Italy, do you have Italian employees?

Freight Forward Company yes, we have.

Professor Song what is the position of Italian employees? Sales and marketing?

Freight Forward Company they are in charge of contacting local companies, and there is also position for lawyers. As for contacting Chinese companies, we have Chinese employees.

Professor Song let's discuss further about goods collection in return way.

Freight Forward Company we are searching for new models as well, such as agent procurement, we make procurement overseas to meet the domestic demand. We want to build a data warehouse, in order to let Europe knows our needs, and build exhibition centers and warehouses in Europe. However, it will be very costly and we cannot see benefit in short term (1-1.5 years), so we haven't tried yet. Now we are building an exhibition center in Chengdu, introducing good European products (on-site examination by our colleagues oversea, the companies' credit is guaranteed) into China.

Professor Song as far as I know, Italians have a characteristic, they focus on making products, so the product quality is high. As for the other services, they don't care at all. Therefore, Chinese companies need to do a lot to introduce their products into China, the market development is hard.

Freight Forward Company we are not able to solve the financial problem, but we can make efforts on oversea services. Once the oversea service is complete, the goods resources for the return way train won't be a problem anymore. We are now negotiating with some big clients for return way, they have thousands of containers every year and they used to transport by ocean and follow DAP (delivered at place) regulation. As for the building of oversea connection, we haven't done it in large scale, we try to accomplish it point by point, in order to provide a good service as a channel.

Appendix B

Keyword generation clustering

B.1 Keyword array generation

B.1.1 Step 1: Selection of words that describes thesis background

The whole search for optimal performing keywords was started by choosing, indeed, keywords. The main idea was to understand which words were the most effective in pinpointing literature; in the following table, it's possible to see (Table B.1) the number of articles that contains the keyword in the title and the number of articles with the word per year.

Obviously, this is a very high level approach, as almost each word may differ in significance by changing its field of application; but we can still observe some interesting trends:

1. Export is a growing trend in research papers and overall literature (It grown 154% times the average keyword), this clearly shows that Export is more and more relevant in today society.
2. The same goes for the performances and logistics keywords, looks like that the modern literature is focusing more and more on that.
3. There are also some negative trends, subjects in which the academic world might be losing interest, such as railroads and railway transportation.

Due to the big differences in results for queries (like railway/railroad, terms that describes the same thing) it is safe to assume that we can merge some of those keywords and even integrate them with parallel concepts (like "intermodal" transportation).

There are also some terms very present in articles, but not really in article titles, such as SME, PMI, Italy, Logistics, export and barriers: this might mean that we should not look for

Table B.1

Thousands of articles found per keyword in title, the yearly growth is normalized on every result and thus comparable.

Keyword	Intitle	1996-2000	2001-2005	2006-2010	2011-2015	Yearly growth
<i>Barriers</i>	178	827	1670	1220	1450	87%
<i>China</i>	1270	780	1470	959	1430	96%
<i>Export</i>	105	695	1730	1290	1830	154%
<i>Italy</i>	209	767	1290	1140	1500	82%
<i>Logistics</i>	126	204	502	582	470	133%
<i>Performances</i>	102	405	1240	1230	1340	199%
<i>PMI</i>	6	17	33	44	45	118%
<i>Railway</i>	131	252	428	437	396	58%
<i>SME</i>	15	58	93	130	119	84%
<i>Import</i>	528	359	724	703	522	68%
<i>Railroad</i>	56	63	88	83	74	22%

whole articles dedicated to those subjects (for example, the search of proper papers totally focused about Italian PMI export could be very time consuming). Instead, import keyword for example is extremely present in titles articles: this may suggest a more specific literature.

B.1.2 Step 2: Combine the keywords, contextualizing the results

We are now going down a step, creating all the possible (meaningful) couple of keywords among our starting pool of 9. For each of these couples we query the number of articles that present both words in the title, to understand if there are some precise fields of research.

For example, everything paired with China (China import, China Railway OR Railroad, China barriers and so on) returns a huge number of article titles: this means that there are many articles about China, so many that they get very specific, and so present in the title itself very specific keywords/topic. This difference is made clear, if we compare Italy pairings with China ones: literature with a focus on Italy is smaller, and less specific; therefore, it is hard to come by with both Italy and another keyword in titles.

There are also couples that are just too generic yet, just like Barriers Export or Logistic Railway; we will add to those “too generic” couples more keywords later, in order to focus our research. We are also learning what fields of research are less populated with articles (once again, this is just a proxy, it is not enough to just search for the titles of the articles) :

import performances is a lot less populated than export performances and the same goes for mostly every import couple VS export couple. Railway and railroads literature is surprisingly populated with many specific articles about performances, Italy, China and even export and barriers, the same goes for the PMI & SME couples.

Overall, we will use these numbers as a starting point for a first clusterization (Table B.3, that will allow us to automatically select which couples of keywords are in need of further keywords: this will guide us into a deeper understanding of the field literature (for example, China Logistics is not enough to get us focused results, we may want to add for example Railway keyword; while Logistics PMI SME articles could already give us interesting hints).

We can notice how at each step, a new array of less specific couples are selected. We now possess effectively couples of words that lead us to precise literature and couples of words that still deliver a too general pool.

This same method is applied to generate they keywords that needs to be grouped in groups of 4 or even 5 to give a decent result back. Just think of "China" keyword, it is obvious that in order to get relevant articles for this study we will have to assign to it other words, like "China Export PMI Railway" (table B.5), or the results will be too vague. While, "PMI Export" already gives us a pool of very focused articles. You can find the whole process as an appendix.

B.1.3 Step 3 : Sort the final clusters

For some clusters one word was sufficient to focus the research, for the most general ones (like the China related ones) more keyword was necessary. Finally, here it is an array of keywords that generate results relatable to our topic, but these needs to be organized in order that makes possible to understand how the literature review will take shape.

Table B.6 is the current disorganized state of the words, we can already see that as expected some keywords array are verting towards china related studies for examples, while other are going towards the logistics aspect of our research. We used a ROC algorithm, the one its usually used to find families in production processes, in order to organize in literature topics, the full procedure is reported as an appendix.

In Table ?? is it possible to see how five topic area have been generated.

1. A first one all about performances of railway based logistics, with a slight focus on SME. No nationalities focus.
2. Another one all about logistic performances, but with the introduction of import and export aspects and so barriers. No nationality focus.

Table B.3

Setting a threshold of 9999, 453, 100, 52 and 32 results (obtained from ABC analysis, that also is the reason behind color association in all the tables in this study), is it possible to see how the keyword combinations that doesn't need a third keyword are (1,2,3,8,21)

Combination	InTitle	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
1	6	6	6	6	6	6	6
2	3	3	3	3	3	3	3
3	6	6	6	6	6	6	6
4	57	57	57	57	57		
5	53	53	53	53	53		
6	9999	9999					
7	115	115	115	115			
8	2	2	2	2	2	2	2
9	65	65	65	65	65		
10	493	493	493				
11	100	100	100	100			
12	32	32	32	32	32	32	
13	9999	9999					
14	117	117	117	117			
15	32	32	32	32	32	32	
16	41	41	41	41	41	41	
17	138	138	138	138			
18	52	52	52	52	52		
19	233	233	233	233			
20	141	141	141	141			
21	17	17	17	17	17	17	17
22	62	62	62	62	62		
23	63	63	63	63	63		
24	129	129	129	129			
25	9999	9999					
26	134	134	134	134			
27	145	145	145	145			
28	453	453	453				
29	69	69	69	69	69		
30	9999	9999					
31	521	521	521				
32	831	831	831				

Table B.4

In this second step, the previous (already enough specific) combination have been removed, and we are now looking at the keywords couple to transform into triplets, in order to filter a more useful literature. In this case: 4,5,9,12,15,16,18,22,23,29 will became triplets.

Combination	InTitle	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
4	57	57	57	57	57		
5	53	53	53	53	53		
6	9999	9999					
7	115	115	115	115			
9	65	65	65	65	65		
10	493	493	493				
11	100	100	100	100			
12	32	32	32	32	32	32	
13	9999	9999					
14	117	117	117	117			
15	32	32	32	32	32	32	
16	41	41	41	41	41	41	
17	138	138	138	138			
18	52	52	52	52	52		
19	233	233	233	233			
20	141	141	141	141			
22	62	62	62	62	62		
23	63	63	63	63	63		
24	129	129	129	129			
25	9999	9999					
26	134	134	134	134			
27	145	145	145	145			
28	453	453	453				
29	69	69	69	69	69		
30	9999	9999					
31	521		521				
32	831		831				

Table B.5

This is an extract of the triplets and quadruplets generation process, it is possible to observe how a (in red or blue) new keyword is associated with the previous couple.

C.	1	2	3	4	5	6	7	8	9
17			Export				PMI OR SME	Railway OR railroad	
19		China	Export				PMI OR SME	Railway OR railroad	
27			Export	Italy			PMI OR SME	Railway OR railroad	
7	barriers		Export				PMI OR SME		import
20	barriers		Export				PMI OR SME		
14	barriers		Export					Railway OR railroad	
26	barriers				logistics			Railway OR railroad	import
11			Export	Italy				Railway OR railroad	
24			Export		logistics			Railway OR railroad	import

3. The third cluster is about Italian import, export; with slight focus on both SME and railway logistics.
4. The fourth is China export logistics related (especially railway).
5. The fifth is all about china and Italy export/import barriers. No logistic involved.

The logistics based clusters will be joined, this is how the previously summarized (in this chapter introduction) structure has been created. As already mentioned, what follows will be divided in 3 sections a first papers review about China Import, a second about intercontinental logistics and finally on PMI export barrier and performances (that is indeed the link between the two previous topics). The bibliography and literature will be searched according to the presented keyword cluster structure.

Table B.6

This is the current status of the various keyword cluster that has been found. All of them reach the desired specificity according to the topic.

New index	1	2	3	4	5	6	7	8	9
1		China			logistics				import
2		China			logistics			Railway OR railroad	
3		China		italy				Railway OR railroad	
4		China	Export					Railway OR railroad	
5		China	Export		logistics				
6	barriers	China	Export	italy					
7		China	Export						
8	barriers		Export						
9	barriers	China							
10			Export				PMI OR SME	Railway OR railroad	
11		China	Export				PMI OR SME	Railway OR railroad	
12			Export	Italy			PMI OR SME	Railway OR railroad	
13	barriers		Export				PMI OR SME		import
14	barriers		Export				PMI OR SME		
15	barriers		Export					Railway OR railroad	
16	barriers				logistics			Railway OR railroad	import
17			Export	Italy				Railway OR railroad	
18			Export		logistics			Railway OR railroad	import
19	barriers		Export	Italy					import
20	barriers	China	Export						import
21				italy	logistics	performances			
22					logistics	performances		Railway OR railroad	
23					logistics	performances	PMI OR SME		
24			Export		logistics	performances			
25	barriers			italy	logistics				
26	barriers				logistics				import
27	barriers				logistics		PMI OR SME		
28				Italy	logistics				import
29				italy	logistics		PMI OR SME		
30			export		logistics				import
31				Italy		performances			import
32	barriers			italy			PMI OR SME		
33	barriers			italy				Railway OR railroad	
34			Export	Italy				Railway OR railroad	
35		China	export		logistics				import
36			export	Italy	logistics				import
37			export	Italy			PMI OR SME		
38								Railway OR railroad	import
39							PMI OR SME		import
40						performances			import
41							PMI OR SME	Railway OR railroad	
42					logistics	performances			

	6	5	7	8	9	3	4	2	1
1	Performances	Logistics							
2	Performances	Logistics	PMI or SME						
3	Performances	Logistics		Railway or Railroad or Rail Freight					
4			PMI or SME	Railway or Railroad or Rail Freight					
5	Performances				Import				
6			PMI or SME		Import				
7				Railway or Railroad or Rail Freight	Import				
8	Performances	Logistics				Export			
9			PMI or SME	Railway or Railroad or Rail Freight		Export			
10		Logistics			Import	Export			
11		Logistics		Railway or Railroad or Rail Freight	Import	Export			
12	Performances	Logistics					Italy		
13		Logistics	PMI or SME				Italy		
14	Performances				Import		Italy		
15		Logistics			Import		Italy		
16			PMI or SME			Export	Italy		
17				Railway or Railroad or Rail Freight		Export	Italy		
18				Railway or Railroad or Rail Freight		Export	Italy		
19			PMI or SME	Railway or Railroad or Rail Freight		Export	Italy		
20		Logistics			Import	Export	Italy		
21		Logistics		Railway or Railroad or Rail Freight				China	
22		Logistics			Import			China	
23						Export		China	
24		Logistics				Export		China	
25				Railway or Railroad or Rail Freight		Export		China	
26			PMI or SME	Railway or Railroad or Rail Freight		Export		China	
27		Logistics			Import	Export		China	
28				Railway or Railroad or Rail Freight			Italy	China	
29		Logistics	PMI or SME						Barriers
30		Logistics			Import				Barriers
31		Logistics		Railway or Railroad or Rail Freight	Import				Barriers
32						Export			Barriers
33			PMI or SME			Export			Barriers
34				Railway or Railroad or Rail Freight		Export			Barriers
35			PMI or SME		Import	Export			Barriers
36		Logistics					Italy		Barriers
37			PMI or SME				Italy		Barriers
38				Railway or Railroad or Rail Freight			Italy		Barriers
39					Import	Export	Italy		Barriers
40								China	Barriers
41					Import	Export		China	Barriers
42						Export	Italy	China	Barriers

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