Analysis of door-to-door logistics in the steel industry. The partnership's analysis of «Coutinho & Ferrostaal» and «Astra Shipping Agency»

by

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Acknowledgements

One of the most important period in every student’s life is the composition of thesis as well as its further defense. In order to prepare a good paper, many details have to be taken into consideration. A lot of information has to be collected, analyzed and put on the paper in the proper way. That is why I would like firstly to thank the Center for Maritime Economics and Logistics of Erasmus University of Rotterdam. The professors, lecturers and all other people have taught us how to perform more effectively in each situation.

Indeed, the good performance can not be achieved without supervisors. Supervisors are those people, who are able to guide the student into the right direction and provide the author with viable and pragmatic comments. That is why I would like to thank my academic supervisor – Professor Doctor Maria Besiou and my company’s internal supervisor – Waleri Snatkin. Such perfect ratio of theoretical background and practical knowledge has contributed a lot by giving the author a chance to create the rigorous research. They both supported me and gave me very valuable pieces of advice. I would like also to emphasize that in spite of their busy schedule, they constantly supported me and reverted with essential feedbacks.

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Abstract

It is hard to imagine life without automobiles, planes, trains, buildings etc. However, all of the mentioned things can not be created without steel as a matter. Steel products are everywhere and can be met almost in every industry. But the steel products should be transported because they are mainly produced in the minefields, which are very often far away from customers. And that is why the logistics is extremely important component of the steel industry.

The present thesis helps to analyze the logistics of all variety of steel products and determine how the current logistics model in real-life partnership can be improved. The importance of logistics optimization is stipulated by the global market, which damaged significantly due to the world financial crisis. Firms have started to think in terms of cost minimization instead of profit maximization and it is the place, where logistics as an irreplaceable part in many types of businesses is able to play the most important role.

The Russian market, which has been chosen as the final customer of the steel products, delivered by studied company, can be considered as fairly complicated because of high concentration of the local rivals as well as Russian specificity and set of mind. Under the latter, the author means the insufficient level of transparency.

The studied partnership is a good example of effective partnership between two complementary markets – steel industry and third-party logistics. In such a manner, the analysis of good practice can be beneficial to both parties. First of all, it is possible that vertically integrated companies will start to outsource logistics function because it might be more advantageous and competitive in conditions of modern trade market. Secondly, the logistics companies can catch the idea of how to survive in severe conditions, which are nowadays dictated by the world economy. Conclusions, presented in the end of the paper, are quite unhacked and have been received by the analysis of studied partnership. This is stipulated by the fact the author together with supervisors have specified the research as qualitative with many in-depth interviews. The latter made the thesis more realistic and fill it with the voice of business.
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List of Abbreviations

C&F – Coutinho & Ferrostaal GmbH
ASA – Astra Shipping Agency
WTO – World Trade Organization
FOB – Free on board
CIF – cost, insurance, freight
SME – small and medium enterprises
BOF – basic oxygen furnace
EAF – electric arc furnace
EU – European Union
CIS – The Commonwealth of Independent States
COB – Container-on-barge
LLC – Limited Liability Company
PR – Public Relations
1 Introduction

For the last several years the world economy has been changing a lot. The latter has a cyclic nature and each market player has to keep it in mind. 2008 world financial crisis has negatively influenced many companies, customers, authorities and countries. It is known that every market from car manufacturers to construction industry has sustained losses. In order to stay the course, firms have to adapt to the current situation by changing their strategy, re-engineering of business processes, dismissal of employees etc. Eventually nowadays the optimization of the business in terms of cost minimization becomes much more important for many companies than expansion or other aggressive strategies. Enterprises in the majority of physical industries would better save and maintain than spend their income on further development. This statement is totally suitable for the steel industry as well as for the logistics.

1.1 Rationale for the research

The steel industry has always been one of the leading in the world market. At the present time, the steel market can be described as oligopoly with several major players (Bhandari et al., 2009). For any new and small company it is almost impossible to enter the market because of high barriers to entry. The strong competition, similar production technologies between firms and severe market’s conditions due to the present financial crisis force business to search qualitative competitive advantage out of the bounds of high-quality products.

Having an experience in shipping company and studying Maritime Economics & Logistics in Erasmus University Rotterdam, the author of this paper has decided to investigate how logistics-oriented companies adjust to new tough economic conditions and what kind of benefits they are able to receive on the assumption of current situation of the global crisis. Being involved in operation processes of Onego Shipping & Chartering b.v., located in Rotterdam, the Netherlands, the author has noticed that firm has been trying to maintain already existing partnerships to be able to predict the volume of a freight. The company, whose business model used to be an effective to operate on the spot chartering market and suitable during the market boom from 2002 to 2007, has smoothly changed the strategy to create a bundle of signed contracts up to 2017 year (Y. Leontiev 2012, personal communication, 15 January).

Combining the above-mentioned knowledge of examined markets, the author has decided to follow their cooperation in the author’s native country. Taking into consideration the Russian market of steel, which is quite difficult to enter because of big concentration of top world biggest steel producers in the industry such as local JSC «Severstal», «EVRAZ plc», JSC «Mechel», JSC «NLMK», JSC «Metalloinvest», one of the main opportunity to penetrate the foreign market besides the high quality of products, in the author’s point of view, is to demonstrate the feasible costs of logistics.
Moreover, it is the author’s view, that this study can be a good anti-crisis guidance for the small and medium enterprises (SME), such as a big variety of logistics companies, which face the difficulties in the current market conditions.

1.2 Aim and objectives of the study

To sum up, the author of the thesis has laid down an aim to analyze the door-to-door logistics in the steel industry. In support of the mentioned aim, the author has formulated the core question of the thesis – how to optimize the door-to-door logistics in the steel industry?

In order to prepare the full analysis, several research objectives have to be met:

- The analysis of the seaborne logistics of steel raw materials as well as final / semi-final steel products;
- To examine the current logistics schemes, which are nowadays preferable inside the Russian market;
- To determine the key elements of effective logistics used by studied partnership;
- To analyze the port of Saint-Petersburg as an essential component of the delivery of steel products to Russia;
- To determine the efficiency of local warehouse, located in the suburb of Saint-Petersburg

1.3 Structure of the study

Structurally the paper is divided into 3 main parts. The first one is the superficial analysis of the global steel market. The latter has been chosen on purpose. Almost none of world industries can survive without steel products. Steel is one of the most widespread details in the world. It is presented everywhere – in construction industry to build the house, business center etc.; in shipping industry – to build a new containership or bulk carrier; in automotive sector – to create the new sharp design of the car; in appliances – to make a new washing machine or water-heater. In such a manner, the first chapter in general argues the importance of the topic as well as the research question. The steel products can not be produced everywhere and their location mainly depends on minefields (for instance, Russian vertically integrated steel giants have the production plants in Siberia and Ural). Hence, being as a complementary market for many other industries, the steel manufacturers as well as the steel traders, have to think in terms of transportation of raw materials or finished goods to the place, where the final customer wants them to receive. Indeed, the word «transportation» is highly complex and includes the whole package of services in order to maintain world global industries, which demand the regular replenishment of steel products in their warehouses.

The logistics’ component should not be underestimated. In addition, the coming exhibition called «MetallTransLogistik 2012» will for the first time ever pay a lot of attention to logistics component as the stable competitive advantage: «Due to the fact that mining and metallurgical complex accounts for a considerable part of international and domestic cargo transportations while the logistics costs reach depending on the industry 10 to 40%, in their effort to find more efficient solutions for costs cutting, management of companies show keen interest in the subject»
(JSC "METAL-EXPO", 2012). This statement shows the trend of growing important of logistics in the steel industry and that is why the author, who is interested in both logistics and steel markets, has chosen the above-mentioned topic as the research subject.

In such a manner, the first chapter is the characteristics of world steel industry.

As for the second chapter, the author will specify the research and constrict the purpose of second chapter to Russian steel industry analysis as well as the analysis of main logistics schemes, used by vertically integrated local manufacturers such as JSC «Evraz», JSC «Severstal» or JSC «NLMK». All companies are in the list of top world biggest steel producers and the latter makes Russian market highly competitive and hence it makes the current research more valuable. As the result, the focused market will be analyzed with its opportunities and threats.

Thirdly, the author will switch the interest to the partnership of Coutinho & Ferrostaal and Astra Shipping Agency, which is the practical component of the study. The results gained in this part will be spread on the whole paper and will be presented in the conclusions.
1.4 Assumptions

The studied partnership is aimed to elicit the structure of the logistics scheme, which can be used by the company in order to compete on foreign markets. Indeed, before making the analysis of the whole logistics process from manufacturer to final consumer, some assumptions have to be done.

1.4.1 Research methodology

To start with, it should be mentioned, that very often optimization assumes quantitative research as well as the presence of different models. For instance, one of such model is cost-minimization problem, which has been studied during Supply Chain Management course in Center for Maritime Economics and Logistics (Chopra & Meindl, 2010).

In such a manner, the first assumption as well as one of the main peculiarities of the research, that the latter is based on the qualitative research, which implies that unstructured data analysis will be done (Family Health International, 2012). Qualitative research plays an important role in the international research. It is able to provide the author of the research with understanding of the key problem and encourage the author to develop the solutions. By means of qualitative research it becomes possible to compare internal and external markets, which is an important in case of this research (Malhotra, 2008).

Before making any deep research in the studied field, the author was advised to base the thesis on the partnership analysis of the steel trader and logistics company. The main argument regarding the core methodology was that the ideal situation will never occur in the real life and that much more beneficial is to «hear the voice of the business», as it was said during first meeting with Mr. Snatkin, regional director of «Coutinho & Ferrostaal» (W. Snatkin 2012, personal communication, 16 July). The contact details of above-mentioned respondents are listed in Appendix 1.

As a result, the core emphasis in the research part has been done on the series of in-depth interviews with the representatives of both steel and logistics industries. In-depth interview is the personal unstructured direct interview, where the respondent is asked by interviewer in order to determine his core incentives, emotions and attitudes and persuasion in the particular field of expertise (Malhotra, 2008). The list of questions for the respondents is presented in appendix 2.

Among the representatives were people from both steel and logistics industries. Mr. Waleri Snatkin, the regional director of Coutinho & Ferrostaal (Hamburg, Germany) as well as an internal supervisor of this thesis, was responsible for the steel industries’ side. Mr. Leonid Rozhdestvenskiy, the managing director of Astra Shipping Agency (Saint-Petersburg, Russia) has helped the author with logistics component of steel delivery on the Russian market. In addition, the phone interview with Mr. Alexey Semin, chartering director of Mainline Shipping Company (Athens, Greece) as well as the interview with Mr. Yuri Leontiev, chartering manager of Onego Shipping & Chartering b.v., have provided the author with overall understanding of the steel logistics, performing on the global market.
Although the secondary source data is not so reliable in comparison with primary data, the former has also been used effectively during the composition of the paper. The access to the companies’ internal documents, such as official contracts, monthly reports, letters, invoices etc., was kindly granted to the author by Astra Shipping Agency, where the author has had an internship.

1.4.2 Other assumptions

As for the assumptions, the second one is the analyzed market. As the key market for the research, Russia has been chosen for several objective reasons. Firstly, Russian market is quite saturated with large steel and mining companies and it means that any foreign company in the industry may encounter the strong competition. This makes the research more valuable because the logistics component has become the predominant one. In spite the fact Russian companies in the examined market have strong brand name and awareness («EVRAZ plc», JSC «Mechel», JSC «Severstal»), the foreign enterprise can only work effectively if they are able to assure low operational costs. Hence, the studied steel trading company Coutinho & Ferrostaal (C&F) has to think in terms of costs minimization and only logistics is nowadays responsible for it in the industry (W. Snatkin 2012, personal communication, 16 July).

The third limitation is the commodity class. After the in-depth interview with Mr. Snatkin (C&F) has been done, the author has constricted the scope of inquiry. If the partnership between Coutinho & Ferrostaal and Astra Shipping Agency is taken as the foundation of the research, the special sort of goods has to be analyzed – ore with the polymer coat. The latter has two main peculiarities on the studied market. First of all, it is the seasonal deficit. Secondly, there is a sufficient level of local production and the latter determines the price level of the market, which is varied from plus to minus 10 percent. As a result, the product is in-demand, but in certain prices’ framework. It implies, that the good has to be offered at the competitive price, which gives the seller possibility to sell the ore at a profit (W. Snatkin 2012, personal communication, 16 July).

The fourth assumption concerns the privacy policy. As Astra Shipping Agency is the limited liability company, it is not interested in information disclosure. It means that in spite the fact the thesis paper contains a number of specific figures, some financial data has not been available (bookkeeping report, profit & loss statement, cash flow statement). However, the representatives of the companies have discussed some financial criteria in general during the interviews.
2 Global steel industry

2.1. The basic characteristics

To start with, the definition of steel should be done. Steel is an alloy combination of carbon and iron and it’s characteristics are determined by the other elements in addition to carbon. There are two main ways in steel production. The first one is an integrated smelting including blast furnace (BF) iron making followed by basic oxygen furnace (BOF). The second one is an electric arc furnaces (EAF) (World Coal Institute, 2007).

Steel industry is one of the locomotive of the world economy together with oil and gas, chemical, construction industries. In spite of the crisis in 2008, which was the reason for steel market fail on 25%, the latter is dynamically developing and nowadays, according to Mr. Waleri Snatkin, the steel industry has almost totally recovered after the world financial crisis and at the present moment demonstrates the 2007 key figures (W. Snatkin 2012, personal communication, 16 July). Steel industry is a complex market with highly complicated production process as well as with big amount of goods, related to the industry.

Basically, the steel industry’s goods can be conditionally divided into 2 main groups: raw materials (iron ore, coking coal) and finished / semi-finished goods (different tubes, hot and cold rolled coils, pallets etc). For instance, vertically integrated companies cover all production process and in such a manner sell raw materials as well as finished products. Although, there are hundreds of steel trading companies, which very often specialize on the specific product range, such as for instance the studied company – Coutinho & Ferrostaal GmbH.

Demand for iron ore has increased sharply during the previous decade. It was mostly stipulated by the still growing Chinese economy. Such dramatic growth of the demand was the core one during the period 2000 to 2008. Although the domestic production of the iron ore in China has also increased since 2000, it was not enough to feed the appetite of the Chinese steel industry. At the present time, when the market is not so predictable, the market structure for iron ore trade is in the process of adjusting to the new dynamics of iron ore demand and supply. Also historically, the market balance was relatively predictable, resulting in a respectively stable price that cleared the market.

Raw materials (iron ore in this case, and also coking coal and other steelmaking raw materials) can be linked as a function of steel production. Raw material production has recently been known as the new investments had been well announced and has taken a few years to come into production. Similarly, the steel demand was relatively well known and has grown only moderately. The above-mentioned has been drastically changed during the past decade and it is now influencing the stability of the markets for steelmaking raw materials.

The future is more uncertain, with a large range of factors, which impact on the availability of supply of steelmaking raw materials. Apart from needs to develop the new minefields, the existing infrastructure required the constant supply of raw materials, such as ports and railways, which are under pressure. Uncontrollable effects, such as adverse weather regularly have an impact on the balance between
supply and demand in the market. All the above-mentioned contribute to increasing uncertainty of supply and volatility of the cost of raw materials to steel producers.

The steel production is highly dependent on the price of raw materials and as a result is very sensitive to any changes in production costs. In order to produce different types of steel goods, manufacturers (who are the biggest intermediate consumers) have to obtain the big amount of raw materials. As a result, due to increased volatility (caused mainly by world financial crunch), the costs of raw materials have a significant impact on the sustainability of the steel industry (W. Snatkin 2012, personal communication, 16 July).

In such a manner, according to the author of this paper, major issues in raw materials supply are as following:

- New projects realisation can be seriously limited because of insufficient infrastructure, financing problems and bottlenecks in acquiring environmental permissions;
- Existing supply sources also face the increasing risks such as adverse weather (for instance, in Australia) and export restrictions in the major exporting countries;
- Global steel industry is expected to continue the growth despite high uncertainties in the global economy. Also, raw materials demand may stay robust for the time being.

According to the global data, steel production has shown strong growth during the past decade; and the growth was mainly stipulated by the dynamic development of the East. During the past decade, China has grown rapidly and now almost 50% of global steel production take place in China, with other regions remaining relatively stable as producers (Ernst & Young, 2012). Mr. Waleri Snatkin, whose company is nowadays strongly influenced by Chinese steel producers, also mentioned half (around 50%) of the global steel production in China.

In addition to many changes in the raw material supply chain, the steel industry had to struggle with the impact and repercussions of the world financial crisis, which has started since 2008. As a result, the capacity utilization has decreased significantly and a lot of companies were forced to cut the production (Ernst & Young, 2012). However, it should be emphasized that at the present moment the industry’s recovery is unbalanced and varies between regions. For instance, the world developed regions are lagging the developing regions, as is clear from the lower growth rate in steel consumption for the European Union (EU). As for NAFTA, it has gained a lot by including Mexico as the member state. The exceptionally high growth rate for Africa is partly the result of weak steel consumption at the beginning of 2011, owing to the political uncertainty in the region during the long period of time in 2011. Lastly, it is interesting to note that the growth rate for the steel consumption in China is slowing down. The latter, however, is stipulated by the fact China is growing in general but in the slower pace (Datamonitor, 2011).

Globally, the steel industry and steel consumption have grown by slightly more than 20% between 2007 and 2012 – indicating a continued robust and significant demand for steel. For instance, according to Mr. Waleri Snatkin, the steel market
has grown up to 15% from the beginning of world financial crunch (W Snatkin 2012, personal communication, 16 July).

However, it is notable that by excluding Chinese steel market, the world global industry still demonstrates the growth.

The important role of China in the steel market can not be ignored as it is evident from the fact that China has accounted for 53% of the additional growth in the steel demand between 2010 and 2011. NAFTA and the rest of Asia and Oceania were also playing an important role in the growth of demand between 2010 and 2011 (Datamonitor, 2011).

The dynamics of the metal export (supply) and import (demand) by type are presented in tables 1-6.

Table 1 Export of iron and steel (US Dollar thousand, world and top 24 countries)

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*International Trade Center 2011*
According to the above data from the Table 1, the booming growth of Chinese steel industry can be seen. Started from 11466727 thousands US dollars in 2004 as an export of iron and steel, China has more than tripled this amount. This table is a good evidence of mentioned before details concerning China. As for Russia, the total growth from 2004 to 2011 is not so rapid. Russian steel companies exported more than China in 2004, however now China is exporting almost twice more. The table 1 shows us that at the current moment the industry is at the same level as it was in 2007. The peak of the world market export of iron ore and steel was in 2008 and was equal to more than 526432439 thousands US dollars.

Table 2 Export of Copper and articles thereof (US Dollar thousand, world and top 24 countries)

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The copper as the raw material is also very important in the steel industry and the global market leader is Chile. The latter exported value were 30475939 thousands US dollars in 2011. It is notable, that the biggest fail was also in 2009, right after the beginning of financial crisis.

Table 3 Export of Aluminum and articles thereof (US Dollar thousand, world and top 24 countries)

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China is the global leader in terms of aluminum export. The former has more than tripled the export value, started from 5175296 thousands US dollars in 2011 to 18648585 thousands US dollars in 2011. Russia is also in the world leaders of aluminum export, however, it is far away from Chinese volume. The difference is more than 10000000 thousands US dollars.

Table 4 Import of iron and steel (US Dollar thousand, world and top 24 countries)

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Taking into consideration the global import of iron and steel, the biggest importer is Germany, which imported value was 38079155 thousands US dollars in 2011. Comparing with Russia, for instance, the difference is more than 6 times, whereas comparing with China, Germany imports around 1,5 times more. This is stipulated
by the above-mentioned fact, that China is dynamically developing and there are not enough domestic resources to feed the appetite of Chinese industry.

Table 5 Import of Aluminium and articles thereof (US Dollar thousand, world and top 24 countries)

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Almost the same picture can be found while analyzing the table 5, which shows top 24 world importers of aluminium. Germany is ranked as the first one with the value of 1943424 thousands US dollars. It is remarkable, that Russia is not in the list, which might be described by the sufficient domestic production. China is ranked as the 3\textsuperscript{rd} one, however the difference between USA (№2) is more than 10000000 thousands US dollars.
China is the biggest importer of copper in the world, whereas Russia is not even in top 24 countries. Germany is placed as the 2nd, however the latter looses a lot. The difference between top two countries in terms of copper import is more than 3,5 times. Chinese value of the copper import was equal to 54251470 thousands US dollars.
The former is nowadays the engine for the progress, however this can not continue for a long time and the limit is very close. Steel manufacturers will have to invest in new and exclusive products and put them in front of the market. Africa and Russia are going to harm the industry in their own raw material capacities to developing a focus on more exclusive steel products in the effort to maintain the level of profit margins (Ernst & Young, 2012).

Looking at the import and export pattern in the steel industry from 2004 to 2011, some conclusions can be drawn. First of all, tables demonstrate who are the most steel-oriented countries in the world. They are: China, USA, Germany and Russia. The former is nowadays the engine for the progress, however this can not continue for a long time and the limit is very close. There is a big probability that Africa and

\[ \text{Diagram 1 The dynamics of trade balance (2004-2011)} \]

\[ \text{Composed by the author} \]

The diagram 1 is based on the above-mentioned tables (table 1-6) and is measured in US Dollar thousand and composed by the author of the thesis.

2.2 Challenges and trends

Despite the regional shifts in production and trade, the global steel industry faces three significant challenges in the near future.

Firstly, the weak economic growth is expected almost universally in the every region in 2012. While this does not mean that the global economy will go into a recession, it does mean that growth is expected to slow down, presenting the steel industry with more challenging market conditions.

Secondly, the changes in the raw material markets and the increasing volatility of these markets are going to harm steel makers and put them in front of the significant challenge. The options for steel manufacturers are varied from investments in their own raw material capacities to developing a focus on more exclusive steel products in the effort to maintain the level of profit margins (Ernst & Young, 2012).

Lastly, the steel industry will have to invest in the technological solutions to become more sustainable and to limit the impact of the industry on the environment. Taking into account the future, it is almost impossible to imagine modern sustainable society without also thinking about steel as the core element.
Mid-East will become a large net importer of the steel goods. This might be a reason of a young population and growing wealth as a result of exports of oil and other mineral resources. As a result, demand is far outstripping the supply in these regions, resulting in the growing net imports. As for the Commonwealth of Independent States (CIS), it remains constant as a net exporter, while NAFTA is declining as a net importer. China has changed from a net importer to a net exporter during the period (Bloomberg, 2012).

2.3. The main transport routes

Nowadays companies have the possibilities to adopt a combination of proven supply chain inventory practices and a new generation of inventory collaboration and optimization technologies. By following this approach, companies are reducing the inventory levels across the firm and simultaneously improve the service and productivity.

As it has been mentioned before, the steel products can be divided into 2 main groups: raw materials and finished / semi-finished goods. Vertically integrated companies, such as Arcelor Mittal or Baosteel are able to serve customers with all range of steel goods – from iron ore and coal mining to providing a full range of steel products and service offerings.

2.3.1 Transport routes for raw materials

In such a manner, it can be noticed that the main routes of raw materials are not the same as for the final goods. This is stipulated by the fact that iron ore or coal are mined in the specific places on the earth and has to be delivered to the specific places, where the key plants are situated. It can be named as B2B business, however, in the majority of cases, iron ore minefields are owned by vertically integrated companies, which are then carry raw materials to their factories.

As for the iron ore, the majority of iron ore is gained in opencast mines in Australia, Brazil, China, India, the USA and Russia. Top-leaders are Australia and Brazil. Iron ore than is transported to ports by rail and then is shipped to steel factories in Europe and Asia.

As for the shipping component, the waterways have a particularly strong position in the transport of bulk goods. It has a leading role in transport of iron ore, coal, sand, gravel and chemical products. Maritime logistics is a mode, which combines significant capacities with relatively low operating costs (however, it is not so obvious nowadays, when the bunker prices are growing up drastically).

The latter stipulates the key shipping routes, which are used in raw materials transportation. The most popular one are from Brazil and Australia to Asia and Europe. This can also be predicted, because top biggest steel producers are Arcelor Mittal (head office in Luxembourg), Baosteel (China), Posco (South Korea), Nippon Steel (Japan), JFE Holdings, Inc. (Japan). For instance, crude steel output of the biggest steel producers in the world – Arcelor Mittal – was equal to 98'200'000 metric tons (mt) in 2010, whereas Baosteel produced 37’000’000 mt in the same year (Steelads, 2011). In such a manner, the main «customers» of the iron ore and
coal are concentrated in above-mentioned regions and hence, raw materials mined in Brazil and Australia are shipped to China, South Korea and Europe. As for example, European giant ArcelorMittal nowadays has 29 mining projects with plants in more than 10 countries. As for iron ore mines, they are located in such countries as Algeria, Bosnia, Brazil, Canada, Kazakhstan, Liberia, Mexico, South Africa, US, Ukraine. Moreover, the company is now developing new mines in Brazil, Canada, Liberia and Mauritania. As for the coal mines, the company is presented in Kazakhstan, Russia and US (ArcelorMittal, 2012). Taking into account the above-mentioned, it is borne in that raw materials routes are widely represented on the world trading globe. However, as it was said before, still routes from Brazil and Australia are the most intensive ones.

Raw materials are mainly transported to hub-and-spoke ports. For instance, the port of Shanghai in Asia and the port of Rotterdam in Europe. According to the official statistics from the port of Rotterdam, in the first quarter of 2012, imports of coal have reached 7 million tonnes (Port of Rotterdam, 2012).

Iron ore and coal are then transported to main plants. Turning to ArcelorMittal, the latter has steel producing factories all around the globe and has core divisions almost each part of the world. «Flat Carbon Americas» is responsible for slabs production, as well as for hot-rolled coil, cold-rolled coil, coated steel products. The division covers US, Canada, Mexico and Brazil. «Flat Carbon Europe» produces the same product range and is responsible for 15 sites in six countries. There is also a division, called «AACIS», which provides customers with final steel goods in 3 main regions – Asia, Africa and CIS.

Having examined the main activity of world biggest steel producing and mining company ArcelorMittal, it is borne in the main trading routes. Vertically integrated enterprises are in general constantly transporting their raw materials, which have been mined on their own premises to their producing factories mainly via hub-and-spoke ports. The latter have several benefits, which are indeed very crucial for the steel industry. First of all, the developed infrastructure gives market players possibilities to handle, store and tranship the cargo in the most effective way. Moreover, multi-modality is an essential, because very often plants are situated far from the waterside and as a result, different transport modes should be used, such as trains, trucks, and barges.

2.3.2 Transport routes for final and semi-final steel products

As for the final and semi-final steel products’ transportation, main transport routes are not so strictly determined as in case with raw materials. The customers are situated all over the world and hence steel products’ flows are very broad. However, some routes can be examined and they indeed depend on steel manufacturers. Significant level of different types of semi-final (e.g. slabs, blooms, billets) and final (reinforcing bars, welded pipes, seamless pipes, hot/cold rolled coils/sheets etc.) steel products are carrying from China, which (how it was repeatedly said before) is nowadays the leading steel market, which offer good quality and reasonable prices. A lot of steel products are being delivered to European hub-and-spoke ports, such as for instance, ports in Hamburg – Le Havre range. These ports have a big annual throughput of steel products.
For instance, the studied company Coutinho & Ferrostaal, which is one of the biggest steel trading company in the World, is situated in Hamburg and it is mainly stipulated by the hub-and-spoke port’s presence. The company has it’s own warehouse close to the port and it helps company to improve business processes a lot. Final steel products, which come from China or South Korea, are accumulated in firm’s warehouse and then can be transported to the final customer regardless of his location. The developed port infrastructure helps to render all kind of services from handling the container with goods and stacking it in the yard to truck services in order to transport products to warehouse or directly to the end user (W. Snatkin 2012, personal communication, July 16).

Visually, the main raw materials and final / semi-final goods’ flows are presented in the end of this paper (see appendix 4).

2.4. The main transport modes used in steel logistics

2.4.1 The waterways

The waterways have a particularly strong position in the transport of bulk goods. It has a leading role in transport of ores, coal, sand, gravel and chemical products. This can be explained by the typical characteristics of this transport mode. Vessel is the mode that combines high mass transport capacity with low operating costs, i.e. the line haul costs (per tkm) are low. It is a mode that also provides a high level of safety, which is a favourable condition to transport dangerous goods. In addition, ships as a transport is known for its high reliability of transport services, because of the ample capacity of waterways that enables congestion free transport.

On the other hand, inherent disadvantages of sea transport are its relative low speed and limited coverage of its infrastructural network compared to rail and road networks. In order to avoid relative expensive transhipment of cargo to other modes (road or rail), the latter usually restricts the transport relations for which barge transport is considered. The transport demand for ores and coal fits very well to the features of barge transport as it consists of large long-distance (international) transport flows at a limited number of transport relations, i.e. from seaports to steel industries and power plants, that enable cheap transport by using large vessels.

Taking into consideration raw materials, such as iron ore and coal, which are then used in steel production, the core transport mode is large-size vessels. Capesize vessels are huge bulk carriers that are able to hold a cargo of 140’000 tonnes or more (World steel association, 2011). First of all, it is stipulated by the nature of bulk goods. They are always ordered in big quantity and that is why it is viable to transport such type of cargo in vessels, because only the latter has the biggest carrying capacity. In the author’s opinion, nowadays it remains the biggest advantage, which determines the usage of capesize vessels. As bunker prices go up rapidly, the economic effectiveness of large ship, more known as economy of scale has almost lost its meaning (Bunkerworld, 2012).

However, the situation is much worse in container shipping. As bulk shipping market can be characterized as almost perfectly competitive, with big amount of companies in the industry, the container shipping industry has the form of oligopoly. In this
sector companies are much bigger and have a lot of assets in terms of huge vessels (e.g. Maersk is going to finish the production of Triple-E – the biggest containership ever) and that is why it is much more complicated for them to maintain stability under the constantly changing conditions of the global economy.

The above-mentioned is crucial in terms of final and semi-final steel products’ transportation, which are very often carried by containership. The latter is stipulated by the necessity to deliver a small lot of goods. For instance, Coutinho & Ferrostaal, which is examined company in this research, has a dominating share of container transportation in its business (W. Snatkin 2012, personal communication, July 16). The role and importance of container shipping market will be examined more specifically later in the paper, in Chapter 3.

Container-on-barge transport has developed very successfully in Europe during the last two decades, but this transport business has been primarily focused on maritime container flows and therefore, has developed as a typical transport system.

In a relatively short period of time barges have become a well-developed mode for transporting containers in Europe. Reliable and low cost barge services together with the provision of additional logistic services, such as the organization of drayage operations, have increased the interest in container-on-barge (COB) transport. And as a result, COB transport has shown annual growth figures of 10 to 15% for the last decade (Konings, 2009). Such rapid development of COB business is mainly defined by quality and position of inland waterways and the fact that deep-sea vessels have a strong correlation to barges.

Turning back to the historical facts of barge business, for a long time these international traffic flows have determined the platform for the COB transport market, but the last decade new geographical markets have also being opened up.

In particular in the Netherlands barge container transport has developed spectacularly, demonstrating that barge transport can also compete with road transport on much shorter distances than previously assumed. Nowadays there are more than 30 different services existed in Netherlands. About 880’000 TEU (twenty-foot equivalent unit) were shipped by barges predominantly between the port of Rotterdam and inland places. Later this multi-modal element between deep-sea vessels and end customers has been developed. For instance, the total number of inland terminals and barge services has rapidly increased for the last 10 years. Around 400,000 TEU were transshipped at the inland terminals in 2004. For example, the transported volumes recorded in Germany (170,000 TEU) and France (120,000 TEU) are relatively modest, but hinterland container transport by barge is constantly developing in these countries (Konings, 2009).

2.4.2 The railways

In general, the rail transport is used to deliver passengers or cargo from point A to B by way of wheeled vehicles, which run on special rail tracks. Basically, the routes of trains are determined and they are not so flexible as cars. However, the routes are also determined in case of sea vessels.
In the author's point of view, the main peculiarity of rail transport is its national identity. In comparison with vessels, which are mostly moving internationally rather than doing short-sea shipping, trains are mostly moving domestically. This idea can be proved by existence of national railways companies in many developing and developed countries. For instance, in Russia there is indigenous company called Rossiyskie Zheleznie Dorogi (RZD), whereas in United States there is famous Union Pacific Railroad.

In such a manner, the importance of railways in terms of steel logistics can not be underestimated. For instance, Russia has a significant number of steel producers, whose main premises and plants are located deeply on the mainland – in Siberia or Ural. As a result, the most rational way to deliver raw materials as well as final products is to use railways. The latter offer ample level of capacity and reasonable costs per wagon.

Indeed, there are some drawbacks, which make the usage of railways not so obvious. First of all, the problem is high infrastructure costs. In order to build the railways, a lot of things have to be done in advance. First of all, it is important to determine the most valuable route. Then, a lot of works should be done like, for example deforestation, which is distinguishing feature of Russia. In addition, a lot of rail-tracks have to be ordered to cover the entire route. Besides that, a lot of inventory has to be supplied. All the above-mentioned demand the significant investments either by state funds or private investments or even both. As a result, a lot of world regions do not have well-developed railway infrastructure.

However, the importance of railways as the transport mode has grown significantly for the last years. This is determined by rapid appreciation of alternative carrying modes. Sea freight is becoming more unpredictable and a lot of carriers add bunker surcharge costs into the charter-party in order to guarantee relative break-even of the carriage (Y. Leontiev 2012, personal communication, 15 January).

As for example, Russian railways strategy 2030 is the development of international corridors. According to the project, Russia plans to create a logistics network, that is going to facilitate transport activities between Europe and Asia. Such project will increase the trade among Russia, Europe, CIS and Asia-Pacific. Trans-Siberian route is also constantly developing in order to guarantee an adequate service quality. In such a manner, to make customs procedures less time-consuming and more reliable, a series of measures, such as advanced IT systems – freight customs declaration system – have been developed. The latter gives possibility to cut the total border stationing from more than 5 days to several hours. As for the competitor to maritime transport, there is a project to create an international corridor on the North-South axis. The latter is going to connect Europe, the Persian Gulf and the Indian Ocean. This line will also be linked with the Trans-Siberian route. According the forecast, the freight volume, which is gonna be transported via this route, will be of 190'000-240'000 TEU/year/direction (RailwayPro, 2010).

As a result, the rail transport is very important in terms of steel products transportation. The former replaces the maritime transport in cases when facilities are situated far away from the sea.
2.4.3 Road transport

Road transport is mainly presented by trucks, which are able to transport relatively big amount of cargo via public-access roads. The main advantage of this transport mode is flexibility. That is why trucks are very often used on the last leg of transportation – to the final consumer. Road transport does not need any specific infrastructure in comparison with maritime carriage or railways. Moreover, trucks as a moving unit are less expensive.

However, this transport mode has some disadvantages. First of all, the total capacity of one truck is significantly smaller compare to any vessel or set of cars. As a result, the transportation of the cargo in big quantity by road transport is totally unprofitable due to the necessity to involve big number of trucks and an upward oil prices. In such a manner, it is almost impossible to deliver raw materials (such as iron ore and coal) via the roads due to the big size of cargo per lot. This barrier determines an important specificity of road transport – the carriage of final goods. The second bottleneck of the road transport is the congestion. In the majority of cases, the road infrastructure implies the simultaneous movement of private cars and trucks on the public-access roads. As the number of cars, owned by private, is going up sharply, the traffic jams become the biggest barrier, which forces independent truck owning companies to break the deadline. As for the third drawback, it should be said, that road transport is considered to be the most polluting one and that is why many countries impose special restrictions to truck owners. As a result, the total carriage price is going up and it makes this transport mode less competitive.
Table 7 The comparison of main transport modes

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Railways</th>
<th>Road transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>- possibility to carry large volume of cargo;</td>
<td>- possible to carry large volume of cargo;</td>
<td>- flexibility;</td>
</tr>
<tr>
<td>- mainly international transportation mode –</td>
<td>- the most effective way to reach the</td>
<td>- «end customer mode»;</td>
</tr>
<tr>
<td>link to global exchange;</td>
<td>production plant;</td>
<td>- abundance</td>
</tr>
<tr>
<td>- significant routes portfolio;</td>
<td>- safety;</td>
<td></td>
</tr>
<tr>
<td>- safety;</td>
<td>- reliability;</td>
<td></td>
</tr>
<tr>
<td>- predictable schedule</td>
<td>- price/service ratio</td>
<td></td>
</tr>
<tr>
<td>Bottlenecks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- complexity to find an «opened» vessel due to</td>
<td>- very expensive infrastructure;</td>
<td>- can’t be competitive in</td>
</tr>
<tr>
<td>the current supply-demand imbalance;</td>
<td>- environmental concerns;</td>
<td>terms of large cargo lots;</td>
</tr>
<tr>
<td>- high bunker prices;</td>
<td>- the lack of routes;</td>
<td>- environmentally friendly;</td>
</tr>
<tr>
<td>- slow speed;</td>
<td></td>
<td>- congestions;</td>
</tr>
<tr>
<td>- the necessity to get into the line with</td>
<td></td>
<td>- safety</td>
</tr>
<tr>
<td>container shipping line’s schedule</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Composed by the author
3 Russian steel market

3.1. General characteristics

Russia as the largest country by area in the World has altered dramatically for the last 20 years, since the Soviet Union was collapsed in 1991. Russia nowadays is the only country in the World, which collects all elements of periodic table in the ground. And it is simultaneously the core advantage and disadvantage of Russia. On the one hand, while the price for the oil is high, Russia gains a lot by selling petrol and gas worldwide and earning billions of US dollars. On the other hand, the term «Oil dependence» is brightly reflects the current situation in Russian economy. A lot of brilliant scientists leave the country and prefer to work in USA or Europe. The attempts to become independent of oil are futile and obviously Russia will experience hard times if the Brent price goes down sharply (Buckley, 2012).

Talking about «oil dependence», the author of this research also means the steel industry. According to the World Steel Association, 4 of 25 largest steel producers in the world are from Russia (Steelads, 2012). They are: JSC «Severstal», JSC «Evraz Group», JSC «NLMK» and JSC «Magnitogorsk Iron and Steel Works» (MMK). These companies are still very profitable. For instance, according to the annual report of JSC «Evraz Group», the company earned as a net profit $453 millions, whereas it’s local competitor JSC «NLMK» earned more than 3 times more than Evraz. The former earned $1,4 billions in 2011. (EVRAZ, 2011)

However, Russia is far away from Arcelor Mittal, which is the biggest steel producer in the World, with the headquarters in Luxembourg. The latter manufacturer totally produced 98’200’000 mt in 2010, whereas the closest Russian rival Severstal produced only 18’200’000 mt at the same period of time (Steelads, 2011). Chinese companies, such as Baosteel, Shagang Group and Ansteel, demonstrate high figures of annual output. The latter shows that in spite the fact Russia produces a lot of metal, it becomes difficult to compete with foreign rivals. As a result, more steel products are penetrating on the market as an import.

Steel industry has significant share in Russian economy at about 5% (the second after oil & gas with 30% share), but has shown the weak growth rates in relation to other industries. Steel industry has had the lower growth than Oil & Gas and entire industry, because of two major factors:

• Slower prices recovery for steel products – Brent price grew 26% in 2010 in comparison with 2009, HRC and Rebar – 5% and 16% respectively;
• Slower steel production volumes recovery – in 2010 compared to 2007 oil production was 2,9% higher; steel production was 7,5% lower (Roland Berger, Strategy Consultants, 2012).

What should be expected further depends on endurance of positions of steelmaking sector in the world market.

Russian steel industry is consolidated among six major players: Evraz, MMK, Severstal, NLMK, Mechel, Metalloinvest, which account for 86% of crude steel production. Evraz, Mechel and Metalloinvest predominantly specializes on the flat
steel production, whereas MMK, Severstal, NLMK – on the long steel production (Severstal, 2011).

Russian players are still recovering from the hit of 2008-09 financial crisis and have not reached the pre-crisis level of production. NLMK has been able to return to the pre-crisis level due to the export increase.

After the analysis of several Russian steel producers’ annual reports (such as Severstal, NLMK, Metalloinvest and Evraz) the current companies' strategies have been determined. They are mainly focusing on four major topics:

- vertical integration to create stability in material provision and cost control;
- modernization of current production facilities and building the new ones to expand product mix and reduce operational costs;
- international expansion to add production capacities and acquire modern technologies;
- production optimization to sustain cost advantage and improve efficiency.

Domestic steel market is divided between the 6 biggest companies with a high level of specialization by type of the products: flat, long, pipe products.

Low consumption of high value-added products is explained by the weak localization in the automotive and not well developed machinery industry in Russia. The apparent steel demand in Russia was 30.3 millions mt in 2010, or 120.3% of 2009 demand. The steel demand in Russia has been led by strong activity in the pipe and tube sector due to realization of some large projects by JSC «Gazprom» and JSC «Transneft». Production in the automotive industry recovered post-crisis thanks to the implementation of a 'cash-for-clunkers' programme. Domestic consumption of steel pipes in 2010 was about 8.5 millions mt, or 150% of the 2009 level - from which the LDP share was 3.0 millions mt. Total Russian steel tube and pipe production capacity reached about 13.5 millions mt in 2010. (NLMK, 2011)

The accumulated depreciation of Russian metallurgical equipment now exceeds about 43%. In 2009-2010, state guarantees in the metallurgical sector involved loans for a total sum of 53.4 billions roubles. Total 2010 investments in the Russian steel sector reached about 160 billions roubles (The Government of Russian Federation, 2010). Notable modernization projects in 2010 involved:

- the commissioning of a modern complex for manufacturing LDP [named 'Height 239'] at the Chelyabinsk pipe plant, which took place in July 2010. This involved start-up of a new tube shop for manufacture of single weld longitudinal welded pipes of the large diameter (508-1420 mm) with external anticorrosive and internal coverings, with 600 kt of capacity. The cost of this project was about 21 billions roubles.
- The modernization finalized in November 2010 of the electrosteel melting complex at Pervouralsk [named 'Ferrous Ozone 32']. This involves around 950 kt of capacity at the Pervouralsk tube plant (ChTPZ Group). The new melt shop will allow the company to raise the quality of seamless pipes and to take out of service the dated OHF shop. This project cost was about 17.6 billions roubles.
The Ministry of Industry of Russian Federation was heavily involved in actualization of most priority investments projects for the Russian metallurgical complex in 2010. The total sum of these investments projects in Ferrous metallurgy in the next 5 years was around 370 billions roubles. In 2011, these main investments have included:

• putting into operation a heavy plate mill “5000” on Vyksa metallurgical plant of OMK Group (third HPM 5000 in Russia after Severstal and MMK);
• a new cold strip rolled mill “2000” on MMK, Magnitogorsk;
• a new rail and structural steel mill on Chelyabinsk (Mechel) and reconstruction of Nizhny Tagil (Evraz) rails production;
• a new blast furnaces №7 at NLMK, Lipetsk;
• investment in a polymeric coating unit at Cherepovets (Severstal) with a further polymeric coating line for LDP being installed at the new ‘Height 239’ facility at the Chelyabinsk pipe plant (Steelnews, 2012).

Taking into account Russian national metallurgy, it should be said that the latter is very sensitive to any changes in the world economy. The new wave of crisis can strike on this branch of economy more severe, than on any other segment of economy (it was already observed in 2008).

In addition, according to experts "RIA Analitika" (Russian most respectful analitical bureau), the main potential for metallurgy within the country is defined by the demand from machine-building sector. As for The defense industry, it may become the main impetus. Rearmament and development of automotive industry is capable to create an essential support for demand for steel. The construction sector can become one more important factor of growth for branch, because metallurgy is essentially connected with volumes of construction works. Successful development of construction branch can add another 2-3 percent to growth rates of metallurgy (Finance.mapsofworld, 2012).
3.2. Russian steel producers

Russia’s steel industry continued to grow in the third quarter of this year, judging by production reports published by domestic steel makers (Analytical department of RIA RosBusinessConsulting, 2006). Their strong performance and rising prices on the Russian steel market may lead to the fact that growth will continue in the fourth quarter.

Magnitogorsk Iron and Steel Works (MMK), one of Russia’s leading steel producers, reported a net profit of 11.2 billion roubles (about 416 million dollars at the current exchange rate) in the third quarter of 2006, up from 8.9 billion roubles in the second quarter and 71 percent more than in the third quarter of last year. From January to September, the company’s net profit amounted to 26.7 billion roubles (about 991 million dollars), up 11.4 percent on the year. MMK spokeswoman Elena Azovtseva told RBC Daily that the improved performance was due to rising steel prices combined with lower costs. She said the company was increasing production, both through enhancing the effectiveness of its existing facilities and the acquisition of new facilities. Dmitry Skvortsov, at Bank of Moscow, believes MMK’s increased profit was also due to lower coal prices. MMK’s performance was typical of the whole industry, says Denis Nushtaev, an analyst at IFK Metropol. Growing production becomes the norm for Russian steel makers (Analytical department of RIA RosBusinessConsulting, 2006).

Ervaz Group, Russia’s largest steel company, reported a 25 percent year-on-year increase in steel production in the third quarter of 2006, to 4 million tonnes. In the first nine months of this year its production rose 17.6 percent to 12 million tonnes. Pig-iron production increased by 29 percent to 3.2 million tonnes, and rolled steel production was up 26 percent at 3.7 million tonnes. “The group’s Russian assets - Nizhny Tagil Metal Works and West Siberian Metal Works – reached the record production level of 1989,” PR Director Nikolai Kudryashov told RBC Daily. Evraz attributes its production growth to a construction boom fuelling the demand for the group’s products. To meet the growing demand, the company is taking measures to increase the effectiveness of its production facilities, and it is also buying new assets. “A new blast furnace was put into service in September,” Kudryashov said. Producers of flat rolled steel also have reported the growth (Analytical department of RIA RosBusinessConsulting, 2006).

Novolipetsk Steel Works (NLMK) raised its steel output by 5.9 percent from July to September 2006, to 2.2 million tonnes. It also produced 2.2 million tonnes of pig iron in the third quarter, up 17.6 percent on the year but 3 percent less than in the second quarter. NLMK spokesman Anton Bazulev said the decline in pig-iron production was due to planned repairs. The company expects to produce 9.2 million tonnes of steel in 2006. Meanwhile, steel prices are rising not only on the domestic market but on foreign markets as well, boosting the profits of Russian steel makers, which export up to 50 percent of their production, says Dmitry Skvortsov, at Bank of Moscow. Yuri Vlasov, an analyst with Renaissance Capital, said all steel companies receiving operating profits from steel sales, will show better financial results in the third quarter. (Metal.com.ru,2012)
3.3. The peculiarities of Russian steel logistics

Total metallurgical goods transportation by the Russian railways grew significantly in 2010. Shipments of iron ore involved movement of 101.9 mt (+6.8%), of ferrous metals of 87.9 mt (+12.4%), ferrous scrap 20.9 mt (+26.5). In 2010 Russian export of ferrous metals amounted to ~30 mt (106.8% of the 2009 level) and Russia will thus remain the world number three exporter in 2010 after China and Japan. Russian export of steel pipes in 2010 was just 1.1 mt (69% of the 2009 level, only). (Rosstat, 2011).

Rail transportation is the main transportation mode for Russian steel industry, taking 89% of freight turnover of steelmakers. Other modes of transportation are unable to create alternative service because of geographical and historical conditions, described below.

In the author’s opinion, the latter is mostly determined by the fact that Russia is geographically the biggest country in the World and maritime transport is very often not able to reach the industrial districts. In addition, Russian biggest problem since historical times is the roads. Their quality does not satisfy the requirements of safety and even practicability. In such a manner, as it has been already mentioned before, the railways are considered to be the most popular mode of transportation not only in case of steel industry but also in some other sectors. In addition, the core steel plants of Russian companies, such as NLMK, Severstal or Evraz are located close to minefields in Siberia and Ural. River transport can not serve all the volume produced by vertically integrated giant firms. It is mainly due to shallow water, which can only be served by barges with capacity from 600 to 1500 metric tonns. Hence, railways, which are generally dominated by the state company RZD, have a biggest turnover of steel goods in case of domestic transportation (L. Rozhdestvenskiy 2012, personal communication, 23 July).

It should be also said that being in process of restructuring, Russian railways suffer infrastructure’s bottlenecks in some industrial zones and increase in empty run of rolling stocks. That creates the significant pressure on the steel makers in terms of stability in material supply and provision of in-time shipments to customers.

Owing to lengthy distances in Russia, rail transportation has started to play a crucial role in the steel industry. Other modes of transportation, such as roads and inland rivers, are used much less than rail transportation. However, the latter modes of transportation are actively used in Europe. It can be described by shorter distances in Europe and their better development compared with Russia. Low level of iron ore transported by rail in Europe partly explained by the locations of the main European steel plants near the rivers or coast. Iron ore are shipped to these plants directly by vessels (L. Rozhdestvenskiy 2012, personal communication, 23 July).
4. The partnership of Coutinho & Ferrostaal and Astra Shipping Agency.

4.1. Coutinho & Ferrostaal GmbH & Co. KG

Coutinho & Ferrostaal (C&F) is one of the biggest independent steel trading companies in the world. According to the official website, the core competence of the company is the disposal of raw materials and steel products throughout the entire steel industry chain. Hence, the company is responsible for providing the customers all over the world with high-quality steel goods. In order to meet the buyers needs C&F makes the full service, including transportation, warehousing/storage, customs clearance, delivery and financing (Coutinho & Ferrostaal, 2012).

The company was established as an alliance of three enterprises: Villacero, MPC Münchmeyer Petersen & Co., and Ferrostaal AG. This joint venture was found in 2008, however the primary companies started the business in 1894. At the present time, C&F has three independent central operation hubs, which are situated in Hamburg, Essen and Houston. As a result of such hub’s location, company’s zone of presence covers a lot of countries, serving the steel goods from Germany to USA. In addition, firm’s branches and subsidiaries are situated in 58 cities around the world. Total number of employees is nowadays more than 300 people.

Geographically, the business of the company can be divided into 8 regional districts. They are:

- North America;
- Latin America;
- UK, Ireland, Southern Europe and MENA;
- Western Europe and Sub-Saharan Africa;
- Northern, Central and Eastern Europe, and Central Asia;
- Eastern Asia
- Southeast Asia and Oceania
- South Asia

In such a manner, C&F covers almost the entire world and its core administrative hubs, located in Houston, Essen and Hamburg provide the customers with the logistics and financial services in each step of trading network, which allow C&F to sustain the reputation of the best steel trading company in the world. In order to prove it, the firm is nowadays presented in large construction projects. According to Mr. Snatkin (C&F), at the present moment company extensively participates in tender projects in African region (W. Snatkin 2012, personal communication, 16 July).

4.1.1. Product range

As for the assortment of products, the studied enterprise is able to offer a big amount of steel products’ varieties. First of all, the division of product range can be done in 2 main groups – semi finished and finished goods. The former are basically raw materials, which are: pig iron; direct reduced iron; hot briquetted iron; slabs, blooms, billets. As for the finished goods, they can be separated into 4 subgroups:
• Flat products –
  o Hot rolled plates;
  o Hot rolled coils/sheets;
  o Cold rolled coils/sheets;
  o Galvanized coils/sheets;
  o Aluminized coated coils/sheets;
  o Prepainted coils/sheets;
  o Tin plates.
• Long products –
  o Reinforcing bars;
  o Merchant bars – angles, flats, squares and round bars;
  o Steel sections – beams, profiles;
  o Sheet piles;
  o Wire rods;
  o Wire and wire products
• Pipe –
  o Welded pipe;
  o Seamless pipe;
  o OCTG pipe;
  o Mechanical and structural tubing
• Special steel –
  o Alloyed and high-carbon steel;
  o Forging-grade steel;
  o Forgings;
  o Bright steel;
  o Stainless steel.

According to the above-mentioned, the wide-variety of the products guarantees the sufficient supply on the steel market and in such a manner expand the demand for the steel goods, because almost each business or sector can find an optimal offer. At the present moment, among the industries, which cooperate with C&F, there are:
• Oil and gas;
• Construction;
• Aviation;
• Automotive;
• Shipbuilding;
• Appliances;
• Windtowers (Coutinho & Ferrostaal, 2012).

4.1.2. SWOT-analysis of the company.

In the author’s opinion, each company, which decides to adapt any strategic decision, has to weight its strengths and weaknesses, which are internal factors, have to be determined as well as opportunities and threats of external environment. This approach indeed can be viewed as a strategic planning process. It is very beneficial tool, because it helps to correlate company’s capabilities and resources with competitive environment (Kotler, 2009). In case of this research, SWOT-analysis is the essential drive, because C&F also has an activity in the foreign markets and the effectiveness of its international business is indeed the competence
of strategic management. In spite the fact, the current research takes into consideration the logistics component of foreign deals; however, it is crucial to analyze the studied firm by using above-mentioned analysis. The effective logistics can not be performed itself. It might be only the case if all drawbacks and advantages as well as peculiarities of external environment are taken into consideration.

In spite the fact that C&F is one of the largest independent steel traders in the world, it has an organizational structure of limited liability company (LLC). Moreover, the company does not figure in mass media and hence it seems hardly to analyze such company without any internal communications. However, the in-depth interview with company’s representative has helped significantly in terms of SWOT-analysis composition.

Table 8 SWOT-analysis of C&F

<table>
<thead>
<tr>
<th>Strengths:</th>
<th>Weaknesses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The wide-variety of the products</td>
<td>- Dependence on steel producers</td>
</tr>
<tr>
<td>- The high quality of the goods</td>
<td>- The shortage of advertising, Public Relations (PR) and other</td>
</tr>
<tr>
<td>- Large clients’ portfolio</td>
<td>marketing activities on the foreign markets;</td>
</tr>
<tr>
<td>- Strong brand name</td>
<td>- Unstable profit</td>
</tr>
<tr>
<td>- The absence of costs, connected with proper production process;</td>
<td></td>
</tr>
<tr>
<td>- Flexibility</td>
<td></td>
</tr>
<tr>
<td>- Effective current logistics scheme</td>
<td></td>
</tr>
<tr>
<td>Opportunities:</td>
<td>Threats:</td>
</tr>
<tr>
<td>- The potential growth of Russian market because of stable oil prices</td>
<td>- Russia as a sufficiently corrupt country</td>
</tr>
<tr>
<td>- The entrance of Russia in World Trade Organization (WTO)</td>
<td>- Strongly competitive market</td>
</tr>
<tr>
<td></td>
<td>- New turn of crisis</td>
</tr>
</tbody>
</table>

Composed by the author

Strengths.

As it has been already mentioned in the company’s description, C&F is able to provide customers with almost all types of steel products from semi finished to finished goods. Such service is highly beneficial in the steel industry. Taking into consideration the Russian market, the local players have narrower product range. Moreover, because C&F is a trader, it is able to offer the steel products from different producers. For instance, as it has been told in the first chapter, the big amount of steel is nowadays coming from China. Chinese products are cheaper, because of economies of scale, and also have a good quality. In comparison, Russian steel can not be price competitive towards Chinese, due to lack of technology and resources.

Large clients’ portfolio is also the advantage of C&F. Company has strong participation in global projects. As it has been previously told, the company is now intensively operating in Africa. The big clients’ portfolio is very strong competitive
advantage, which is closely connected with firm's brand awareness. Nevertheless the studied company was established recently, the history of basis companies took the root in 1894. However, there should be done some explanation. Strong brand name is only the advantage in terms of B2B cooperation. Steel producers are familiar with C&F as a reliable business partner. As a result, the steel trader is able to choose its suppliers.

One of the most important company's strengths is the absence of proper production process and as a result, the production costs. Traders usually participate as intermediaries between producers and customers and earn the percentage from sales. Such strategy, which can be described as to buy at the lowest price and sell at the highest one, is quite beneficial, because it gives possibility to concentrate on value-added services instead of the production. In such a manner, the firm will pay attention to trading (sales), logistics, financing and strategic functions.

Flexibility is very important aspect, especially in terms of big enterprises. It makes the company possible to react faster on the externalities than own-production companies. It is much easier for C&F to adapt to the new market conditions. Such adaptation can be achieved by supply redistribution. For instance, if Chinese market goes down in accordance with global economic forecast, C&F will switch to emerging markets, for instance, Turkey.

The last but not least is the effective logistics scheme. According to Mr. Snatkin, the current cooperation between C&F and Astra Shipping Agency can be viewed as an effective one, because at the present moment it meets the expectations of head company (W Snatkin 2012, personal communication, 16 July).

Weaknesses:

First of all, it should be mentioned that traders as a business model are highly influenced the producers of the goods. For instance, if the trader and the manufacturer made the deal, which has been revoked later, the former bears the responsibility and liable to the final customer.

As for the shortage of advertising and any Public Relations (PR) activities, these can also be viewed as disadvantage of the studied company. Although the steel industry's players do not use marketing tools a lot, some actions towards final customers have to be done in order to increase the brand image or awareness. It does not need to be done in terms of TV advertising or any other massive campaigns. It is better to arrange via personal communications and marketing research tools, such as qualitative or quantitative interviews, in-depth interviews with the clients.

In comparison with steel manufacturers, the trader is less profitable due to the absence of the own production line. It is obvious, that vertically integrated companies such as Russian Severstal or French Arcelor Mittal are much more profitable and they are more willing to predict possible annual outcome. However, such companies are less flexible and hence can not adapt to changed market conditions in the same fast way as steel traders.
Opportunities

The main opportunity, which has been determined by the author of this paper, is the potential growth of Russian market. According to the data, gained from the secondary sources and mentioned in the second chapter, Russia can demonstrate the total growth. In spite of forecast, Russian GDP has shown the increase by 4.9% (RIANOVOSTI, 2012). It means that the economy is reviving and it leads to the fact that customers will start to use the products of C&F in a more active way.

The second opportunity, which has recently seemed as impossible, is the entrance of Russia into the World Trade Organization (WTO). Russia has become its 156th member on 22nd of August 2012 (World Trade Organization, 2012). The main benefits of this cooperation will be permitted to foreign customer-related and industrial goods and hence to foreign companies. The advantage will generally consist of the reduction of import/entrance duties. The latter will make foreign goods more solicited than it used to be before the participation in WTO. It has been always the case that foreign goods, such as grocery, produced in Europe or somewhere else, are of scale more expensive than domestic ones.

Although the main preferences will be given to consumer goods, such as groceries, the foreign companies specialized in steel, chemical, power economy industries (Sinaeva, 2012).

In such a manner, according to the above-mentioned fact, Germany-based studied company C&F will get a good chance to stabilize its status on the foreign Russian market. In the author’s opinion, it will happen due to gradual price descent of steel products. As a result, selling high-quality goods at the reasonable price will be a strong competitive advantage of the examined steel trading company.

Threats

First of all, as it has been already mentioned, Russia is ranked 142 in the Corruption Perception Index made by Transparency International (Transparency International, 2011). Indeed, the lack of transparency can be viewed as the threat. It means that company, which has decided to penetrate into the Russian market, can not totally predict all expenditures. In the case of this paper, two negative circumstances may occur due to this problem. The first one is the increase in number of days for the whole logistics movement from the manufacturer to final buyer of the steel product. The second one is the increase of the final logistics price. Indeed, the absence of transparency, which starts from the moment the cargo (steel products) arrives at the terminal, makes the logistics component not so effective.

Russian steel market has been described in the previous chapter and the obvious conclusion can be done. Russian steel industry is very competitive and it is quite difficult for foreign player to compete with local players. The latter are in general presented by vertically integrated producers, which have it’s own production line and the majority of their functions are joined in the one enterprise.

As for the second threat, the new wave of world financial crisis can be viewed as an external restrictive factor. According to the experts’ forecasts, the new wave of crisis
(which has started since middle of 2008) is coming soon. As the examined company is located in Europe (Hamburg, Germany), it has to be ready for potential decline in Eurozone (The Guardian, 2012).

The above-mentioned SWOT-analysis is quite important even in spite the fact it is not the core analysis of the paper. However, the presence of strong logistics network has been determined as one of the main strength of examined company. In such a manner, the further research will be directed towards the logistics component.
4.2. Astra Shipping Agency Ltd.

4.2.1 General information

«World Chartering Ltd» was established in 1994 and it’s main business was chartering and management of river-sea vessels. Forwarding department was found in 1995. «Astra Shipping Agency» was based in 1995 and consisted of 100% equity of «World Chartering Ltd». «Astra Shipping Agency» provides vessels, which come to port of Saint-Petersburg, with top-class service. The company works 24 hours 7 days per week. Shipowners, charterers as well as operators of the vessels can be sure that experienced company’s agents will try to find the best solution for customers in any complicated situations by close interaction with harbor master, port authorities, stevedores, masters of the vessels etc. The motto of the company is: «Our core competence is the honesty and professionalism». Each activity of the company is done according to Russian and international legislation and is also based on common seamanship. Business areas, such as chartering, agency and forwarding have licenses given by Ministry of Transport. Since the April 1998 the company successfully operates it’s own private terminals: berth №27 in Trade port equipped with quay crane, which has capacity of 20 metric tons. The firm also owns the berth №50 in «Timber port» and «Salt» quay on the river Neva above the bridges. Private quays located above and below on the river guarantee smooth, safe and fast passage of passing ships with the type river-sea (L. Rozhdestvenskiy 2012, personal communication, 23 July).

4.2.2 Core competence of the company

The main business of the company is the organization of agency service in the Sea Port of Saint-Petersburg (including all private terminals) and particularly in River Port (including all zones on the river Neva). The firm provides all its clients with overall service package in the inland Russian water routes from Saint-Petersburg to Cherepovets, including all ports on both Ladozhskoe and Onegskoe lakes. According to the interview with Mr. Rozhdestvenskiy, who is both chief operating officer and internal supervisor of this paper, the annual quantity of the vessels served by Astra Shipping Agency has constantly grown since 1996 till 2008, when the World global crisis happened (L. Rozhdestvenskiy 2012, personal communication, 23 July). The below figure shows the trend in number of vessels, served by the company from the period 1996-2012 (till July).
The specialization of the company can be divided into 5 main groups of businesses. They are:

- Chartering
- Management of vessels
- Forwarding
- Agency
- Consulting in the transport sphere

**Chartering**

The department provides clients with following services:

- Chartering of dry-cargo tonnage with the capacity from 1000 to 3000 metric tons;
- Chartering of reefers;
- Guarantee the places for part cargo on the liner basis
- Full operation of the vessels (including chartering, technical and financial support).

Because of the beneficial location of Saint-Petersburg on the juncture of river and sea routes, Astra Shipping Agency has gained significant experience in terms of cargo carriage organization from Russian river ports to the straight direction of sea ports by «river-sea» vessels’ types as well as with cargo shiftment in the port of Saint-Petersburg on the sea ships.

There is an extensive database of different tonnage at the company's disposal:

- «river-sea» type of vessels with the deadweight of 1000 to 5000 tons;
- reefers vessels with the deadweight of 150 to 9000 tons;
- sea and ocean ships with the deadweight of 1500 tons to 50000 tons.
Management of vessels.

This activity implies operation of chartered vessels. Operations mean every day vessel's control and the guarantee of smooth services in both loading and discharging ports.

Basically, any shipping company's (particularly specialized in bulk transportation) routine activities are chartering and operations. The former is responsible for earning money by signing the contracts with charterers or searching the suitable offer on the spot market. The latter is concentrated on costs minimization. The core competence of operational department is to make each voyage as cheap as it is possible by port disbursement's price reduction or searching the most optimal place to bunker the vessel in terms of price or location (assuming minimum deviation).

At the present moment, the company disposes the fleet of 2 vessels, which means that nowadays it is not the core companies' sphere.

Forwarding

In this sphere Astra Shipping Agency follows the main goal of forwarder. The goal is the practical solutions to freight owners in terms of export-import cargo shiftments and delivery of cargo to the final customers. The firm experts’ aim is to minimize customers expenses in case of logistics and quickly respond to the both consignors and consignees needs.

Forwarding department of the company is responsible for several functions:

- organization and development of optimal transport schemes for import and export cargoes;
- establishment of strong business partnership with large independent ship’s surveyor companies;
- Coordinated cooperation between forwarding, chartering and agency departments of the firm;
- Consolidation of the shipload lots in the customs warehouses and optimization of cargo shiftment in the port of Saint-Petersburg, Kirov’s factory and sea port of Viborg.
- Customs clearance of export-import cargoes
- «River-sea» type vessels' clearance in the Baltic customs, which go to inland water of Russia through Saint-Petersburg.

Organizing the shiftment or re-handling of a cargo, Astra Shipping Agency works directly with port authorities and shipowners in order to avoid any conflict situations, which can arise on the receipt of the cargo from the vessel and guarantee the safety of the carriage.

The loyal customers of the firm are:

- North-Western fleet;
- North river line;
- Toepfer International HmbH;
- Transocean S.A.
- Simonson Chartering
- Hernung Shipping
- KNT
- Baltic reefers ltd.
Agency

Agency has always been quite sustainable direction of business in the examined company. However, after 2008, when global financial crisis has started, the agency faced hardships due to very low number of incoming vessels (see the diagram 2).

The firm as an agency is represented in the port of Saint-Petersburg. However, being a gate of European goods, the port of Saint-Petersburg has a big number of agencies, which mean that the competition is tough.

Consulting in the transport sphere

This is relatively new focus area for the company, which is nowadays extensively developing. Consulting services cover all transport modes and the company is able to develop and offer the best solutions in the logistics in order to guarantee the optimization.

However, the above-mentioned package of services is nowadays completed by new company's focus – the delivery of steel products to Russian market, which is discussed in details below.

Steel delivery

One of the key company's fields of concern is the partnership with German company called Coutinho & Ferrostaal GmbH & Co. KG. The latter is one of the biggest independent steel trading companies in the world. It was established in 2008 by the merger of three global players: German CCC Steel (Coutinho Caro & Co.), Mexican Grupo Villacero and German MAN Ferrostaal AG (as it has been already mentioned in the chapter concerning C&F). The company’s fields of concern vary from simple back-to-back trading transactions to transportation, financing, storage, door-to-door delivery and customs clearance. At the present moment company’s main activities can be divided into 4 main groups:

- Trading;
- Logistic services;
- Financial services;
- Strategic services.

The first one is the core and basic business of the company, whereas the last three are value-added services. Logistics is the bundle of services, which stimulate the trading activity of C&F by the means of door-to-door delivery of steel products. It is known, that steel manufacturers are located close to minefields of natural raw materials. However, the customers are all around the world. It means that logistic services play an important role in the sector and each company in the steel market should pay attention to this element.
4.3. The analysis of the partnership.

As it has been already mentioned in the research, the studied analysis will be done on a step-by-step basis. First of all, it should be determined whether the logistics component should be kept inside the company or outsourced to independent firm, such as for instance third-party logistics companies (3PL).

4.3.1 Internal logistics or outsourcing.

Logistics is an essential component in the economy and every business entity. For instance, in China logistics costs may account for 18 percent of GDP in 2012. Total logistics spend in U.S. was equal to 1.28$ trillion in 2011, which is 6.6% more comparing with 2010 (17% more above 2009) of GDP in 2007 (Burnson, 2012). And this can be calculated as 8.5% of the U.S. GDP. The above-mentioned figures prove the significance of logistics in world economy.

However, it is still a question whether to outsource the logistics or to keep the logistics department inside the company.

Internal logistics implies the existence of logistics department within the firm. Since companies have different functions such as financial and marketing, they might also have logistics function. Taking into account the steel industry, whose main players are basically large vertically integrated companies, most of them have in-house logistics department. Because of the fact logistics is complicated process, some enterprises have opened the logistics departments as subsidiary companies. For instance, Russian steel giant EVRAZ has created the firm called «EVRAZ trans», whereas it's local competitor Mechel has established «Mechel-Trans». Such non-core assets had been organized to perform obligations of core business and were increased later to self-sufficient enterprises with own client's portfolio. As the result, nowadays the logistics subsidiary EVRAZ trans can be sold to the Russian «First Cargo Company», which specializes in railway transportation. According to the experts, EVRAZ trans may cost 9 billions of roubles (Vedomosti, 2012).

Further to above-mentioned, Russian ore mining and smelting giant called Metalloinvest has had in-house logistics department as well, consisted of charterers who searched suitable vessels on the spot market. However, they have re-organized the logistics by outsourcing the latter to independent company, called Mainline Shipping Company. This case will be briefly described below.

During the composition of this paper, the author has met with Mr. Alexey Semin, chartering director of Mainline Shipping Company, which was based in Athens in 2008 and specializes in door-to-door logistics for various commodities. For the last few years, the company has been the important part of Russian steel giant, called Metalloinvest (A. Semin 2012, personal communication, 26 July). The latter is one of the biggest private companies in Russia, which focuses on the ore mining and smelting. According to the last available annual financial report, Metalloinvest has a consolidated revenue about 9,9 billion US dollars and the net profit 1,4 billion US dollars (Metalloinvest, 2011). Before Mainline Shipping Company made an agreement with Metalloinvest to arrange maritime logistics, the latter had it's own department, which chartered the vessels on the spot market. However, the shipping market went down dramatically after the crisis in 2008 and still has not recovered yet. The management of Metalloinvest has realized that current internal logistics department is not able to cope with existing situation because of lack of shipping knowledge. Moreover, the employees were not highly motivated and were not interested in minimizing the logistics costs. And the board of directors decided to
outsource the maritime logistics to independent shipping company, which has had definitely much more knowledge and experience concerning maritime carriage of goods. According to their website, the firm «uses an umbrella of subsidiaries which are able to offer a full logistics portfolio including sea freight, railway, transshipment, agency, warehousing and distribution. As a result, having few own vessels and being the professional player on the market, Mainline Shipping Company has helped Metalloinvest to minimize maritime transportation costs (A. Semin 2012, personal communication, 26 July).

Because of worldwide trend in globalization, a lot of companies have decided to outsource logistics function to Third-Party Logistics (3PL) companies (such as above-mentioned Mainline Shipping Company) and in such a manner to concentrate more on the core activities. 3PL companies are external supplier that performs all or part of the company’s logistics function, such as transportation, storage, distribution and financial services etc. (Guardian, 2012). Companies have realized that some secondary but important firm’s functions might be effectively outsourced and this has pushed 3PL companies as a full segment of economy. Such companies work as intermediaries between manufacturers or suppliers (the purchaser of the 3PL services) and customers of the final products. The important reason to outsource logistics functions is the necessity to cut the amount of own warehouses, inventories and vehicles and as a result the costs, which are occurred by their usage. Indeed, the partnership with 3PL companies can bring a lot of benefits, such as:

• Concentration on the key competence – logistics services – rather than vertically integrated organizations, which have to spread their competence;
• Flexibility, which gives possibilities to react quickly to unstable business environment;
• Better knowledge of the market. Availability of resources, which are not available to manufacturer (data, intermediaries, brokers etc.), access to best products, services and technologies.
• The lack of necessity to invest a lot in infrastructure and physical supplements (vehicles);
• Spread the risk and responsibility;
• Reduction of operating costs;
• Shift from fixed costs to variable costs.

However, the applicability of 3PL company as a provider of outsourced logistics, should be analyzed in terms of the size of a business entity. Although the main disadvantage of 3PL is the remote control of logistics process, in author’s opinion, the total benefits overweight the drawback and hence, especially in the era of globalization, delegation of authorities in case of outsourced logistics becomes preferable in case of vertically integrated companies of the steel industry.

In order to demostate the most typical 3PL arrangement, the author of this paper has composed the diagram 3 in accordance with the study book «Supply Chain Management» by Sunil Chopra and Peter Meindl.
According to the above-mentioned trends and partnership’s history, the intermediate conclusion can be done. The current downturn shipping market demands highly professional logistics team, which has to be at least able to maintain the costs or even make a breakeven. That is why the author of this paper is assured that an each large company has to make an internal analysis and weigh all pro’s and contra’s. On the one hand, the manufacturer can less effectively control an outsourced logistics. And the manufacturer has to take a risk of non-performance of obligations. On the other hand, total benefits can outweigh the risks and as the result manufacturer can be able to perform better than it’s main competitors.

In addition, such partnership can be viewed from the other angle. Nowadays shipping companies are under the high pressure due to the market conditions. Before the global crisis shipping companies gained a lot because of sufficient demand. Manufacturers gained traction and the volume of goods to transport were in excess. Shipping companies have been taken loans and built the vessels, which earned much more than they cost. As a result, by 2008 there were surplus of supply and lack of demand. Ships made losses and a lot of shipping companies were almost unemployed. After one and a half year of experience in Dutch shipping company Onego Shipping b.v., the author can confirm the disproportionate situation in the shipping, particularly in the break bulk niche. A lot of companies in the sector are trying to establish strong partnerships with big manufacturers, such as Arcelor Mittal in order to guarantee capacity utilization.

Based on the above-mentioned intermediate conclusion, as for the studied partnership between Coutinho & Ferrostaal and Astra Shipping Agency, the latter appears for the 3PL company. In other words, it means that steel trading company has decided to outsource its logistics function to independent firm. In author’s opinion, this decision was done, because of some Russian market’s peculiarities. First of all, Russia is still very corrupt country. As it has been already mentioned before, Russia is ranked as highly corrupted country by Transparency International.
Organization. with the score 2.4 (from 0 to 10, where 0 means that a country is perceived as highly corrupt and 10 means that a country is perceived as very clean) (Transparency International, 2012). It means that foreign companies can waste a lot of money if they are not familiar with «invisible rules». In addition, the current situation is determined by the modern economy. The financial crunch has led to dramatic circumstances in different industries. The steel sector, which is fairly competitive, forces players to concentrate on the core activity. Although financial and sales departments become more important nowadays, logistics should not be underestimated as well. The key goal of modern logistics is to minimize the costs and that is how the effective logistics have to look nowadays. Just in-time delivery starts to play a support role. As it has been told during Maersk lecture series in the Center for Maritime Economics and Logistics in Erasmus University Rotterdam, at the present time Maersk’s vessels rarely appears in ports in accordance with both Lines and Master's initial itinerary (Center for Maritime Economics and Logistics, 2012).

In such a manner, in order to comply with the requirements of existent situation, Coutinho & Ferrostaal has outsourced the logistics in case of supply in Russia. Astra Shipping Agency as the 3PL company renders full service and provides the studied steel trader with transportation, transshipment, loading and discharging, warehousing, customs clearance and final delivery of the variety of steel products, starting from raw materials (pig iron, slabs, blooms, billets) to pipes, long (reinforcing bars) and flat (hot rolled plates) products. In author’s opinion, such strategic decision is to a large extent determined by the core company. C&F does not have own production line, as for example it’s local rivals, such as Mechel or Severstal. For traders, it is preferable to have outsourced logistics, because first of all, their total revenue is lower than steel producers giants such as Arcelor Mittal or Baosteel, whereas outsourcing allows to minimize costs.

In order to analyze the door-to-door delivery of steel products from manufacturers to final customers, the author has decided to divide the analysis into sub steps. First of all, the maritime component of delivery will be determined from local manufacturer to C&F hub in Hamburg as well as from port of Hamburg to port of Saint-Petersburg. Secondly, the author is going to designate the process of transshipment and discharging. In the end, the final delivery to the end customers will be analyzed.
4.3.2 The typical scheme of door-to-door logistics

The typical cooperation between C&F and Astra Shipping Agency looks as following:

• The firm "Coutinho & Ferrostaal" does the order for batch production metal at plant and makes its payment.
• By the time of readiness of the order of "Astra Shipping Agency" submits empty the container under loading to plant on Taiwan.
• At plant is performed loading the metal in containers which on containerships are delivered to the port.
• Metal passes the customs clearance and then loading in port on a feeder vessel. The feeder vessel delivers containers to the Singapore port where the overload of containers is performed from a feeder vessel on an ocean vessel.
• On an ocean vessel cargo follows to the Hamburg port where the overload on a feeder vessel which delivers cargo is again performed to St. Petersburg.
• In the seaport of St. Petersburg the containers unloaded from a feeder vessel, arrive on WTS (a warehouse of temporary storage) where again pass a customs clearance.
• With WTS containers on containerships deliver to a warehouse where they discharged, cargo remains in a warehouse, and empty containers return to the port.
• In a warehouse metal is sorted by weight and color. In process of receipt of orders of packaging of the necessary weight and color on trucks or by rail are delivered to the buyer.

All course of carriage of cargo from manufacturing plant to a warehouse of firm takes about 38-45 days, from them the 35th transportation and from 3 to 10 days the customs clearance on WTS in the seaport of St. Petersburg.

4.3.3 Warehousing

The integrated approach in logistics assumes through management of the streams passing through all links of logistic structure. However it doesn't exclude the analysis and research of separate components of links and elements. Thus it is necessary to fulfill the following requirements:

• all elements / links are considered in interrelation'
• all elements / links make uniform logistic structure, and therefore their work is directed on achievement of the general criterion function of all system
• the local purposes and problems of functioning of elements / links will be coordinated with a common goal and problems of logistic structure
• the analysis and researches of any element / link of logistic structure are carried out on the basis of a system approach
• modeling of elements / links of logistic structure is carried out on the same principles, as system as a whole
• optimization of all system is primary task, and only it sets conditions of sub optimization of elements / links making it.

The main conditions of effective functioning of a warehouse as element / link it is possible to consider as the following from the general principles of design last, the following:

• the warehouse is considered not separately, and as an element logistic structure. Overall performance of a warehouse answers effective functioning of logistic
structure as a whole.

• interactions and relationship of a warehouse as at level of all logistic structure, and in the subject of logistic structure are considered

• technical and technological possibilities of movement of the material stream passing through a warehouse, with external transport, and also direct suppliers and buyers coordinate

• decrease in expenses for warehouse processing of cargoes doesn't involve decrease in a degree of service of clients

• the complex of the logistic services provided by warehouses, answers policy of servicing in firm

• technical and technological solutions in a warehouse start with logistic need and economic feasibility

• the automated control system for information streams, irrespective of level of technical equipment of the warehouse is applied

• the uniform approach to flow of documents between all participants of logistic structure is provided

• shaped coding of cargo at the enterprises manufacturers takes root.

Warehouses – a component of the integrated logistic structure – at the same time are financially - technical base of the main participants of this system. The warehouse plays a role of an element of a material stream as, providing implementation of logistic operations logistic structure, it isn't subject to further decomposition within logistic structure objectives.

In all warehouses, irrespective of their place in logistic structure, there is a transformation of a material stream in the sizes and structure of entering and leaving lots of products on time of receipt, shipment etc.

Thus, the warehouse can be considered as the main converter of a material stream of logistic structure from suppliers of raw materials and materials before delivery of finished goods to the end user. Activity of a warehouse is directed on logistic structure optimization.

The modern large warehouse (for example, a warehouse of tare and piece cargoes) represents a difficult technical construction which consists of a set of various subsystems (a complex of buildings, set of processed cargoes, system of information support etc.) and the elements of a certain structure united for performance of concrete functions of transformation of material streams.

**Advantages of warehousing**

In logistic structure it is possible to consider as the main reasons for use of warehouses the following:

• coordination and supply and demand alignment in supply and distribution (at the expense of creation of insurance and seasonal stocks of production)

• decrease in logistic expenses at transportation (at the expense of formation of optimum parties of delivery)

• maximum satisfaction of a consumer demand

• creation of conditions for active strategy of sales

• expansion of geography of the market

• uninterrupted supply of end users and the organization at them commodity stocks
The main functions of a warehouse in logistic structure:

Warehouses within logistic structure carry out the following main functions:

1. Level intensity of material streams according to demand of the consumer.
   (i.e. change of volume of processed cargo in unit of time). If to consider logistic structure as a whole, that become the main dictating link the end user.
2. Transform the range of an in-door warehousing stream according to the order of the client.
   This function gains special value in distributive logistics where the trading range includes the huge inventory of the various producers differing on functions to the size, to a form, etc.
3. Provide the concentration and storage of stocks.
   Concentration and storage of stocks allows to level a difference between release of production and its consumption and to carry out process production and supply on the basis of created commodity stocks.
4. Smoothing the asynchrony of the production process.
   It is a question of alignment of the asynchronous moments between technological and organizational processes, and also between separate working operations of production.
5. Combine shipment parties.
   For reduction of transportation costs the warehouse can carry out function of consolidation of small parties of cargoes for several clients to a full load of a vehicle.
6. Renders services.
   The warehouse actively participates in implementation of policy of logistic service of the enterprises.

Among the main services of a warehouse it is possible to allocate four groups:

- Material services
- Organizationally – commercial services
- Warehouse services
- Transport-forwarding services

«Rent or buy» analysis

During the internship in Astra Shipping Agency as part of Center for Maritime Economics and Logistics programme, the author has made the financial analysis, regarding the practicability of own warehouse. One of the problem the author of the thesis was responsible for was: What is more beneficial for the logistics optimization in our case – to rent the warehouse (the current situation) or to invest in the new facility in order to minimize operational costs in the future by avoidance of such expences, as rental charges.
However, it should be said as an assumption, that some preliminary works had been already done before, so the main problem was to compare the figures and give the recommendations. In order to get the results, present value analysis has been done.

Both annual and months calculations regarding which project is preferable are presented in Appendix 6 and 7.
It is seen that both projects compete with each other. However, it is seen from the tables in appendices, that the construction of the own warehouse will decrease the fixed costs of the examined company from the very beginning, because building costs are lower than the annual rental costs.

PV criteria of the «construction project» is significantly higher than PV criteria of the «rental project» and hence, the former is more profitable than the latter. After the completion of construction phase, exploitation costs of building and equipment as well as lease land costs and others in total are lower than rental costs.

The profit from the capital economy is generated in the beginning of 3rd year from the beginning of construction stage. All above-mentioned shows the viability of «construction project», which is really economically beneficial one.

This analysis has been already shown by the author to both representatives – Mr. Waleri Snatkin and Mr. Leonid Rozhdestvenskiy. The author was advised that top management of both companies would discuss this problem.

4.3.4. Sea port of Saint-Petersburg

Saint-Petersburg is the biggest transport and industrial center, which can be named as the marine capital of Russia. It is named as the European gateway of Russia and the most significant connection element between the East and the West. The port of Saint-Petersburg is located on the North-West of Russia at the following positioning data: 59°56' NL, 30°18' EL (JSC "Sea port of Saint-Petersburg", 2012).

At the present moment the port is managed by JSC «Sea port of Saint-Petersburg». The latter is one of the largest stevedore companies rendering services in an overload and registration of the foreign trade cargoes within the water area of the «Big port of St. Petersburg».
Specific weight of holding makes about a quarter of all volume of an overload of the foreign trade cargoes among seaports of our country.
The company continuously increases goods turnover volume, develops and modernizes internal structure.

JSC Seaport St. Petersburg possesses sufficient capacities for processing more than 40 million tons of cargoes a year and has possibility to form the territory for further development using the factor of a shallow part of the “Nevskaya guba”.

During recent years, JSC Sea port of Saint-Petersburg fulfilled radical reorganization as a result of which the independent stevedore companies were created on the basis of the former cargo areas of port.
Annual cargo turnover of port in 2005 reached 37.6 million tons of cargoes, and ships turnover exceeded 20 thousand ships (JSC "Sea port of Saint-Petersburg", 2012). The sea trading port is equipped with the modern reloading equipment.

In the sea trading port the total area of covered warehouses makes 155.8 thousand sq.m, the open warehouse spaces is 551.5 thousand sq.m. In the customs relation warehouses of JSC sea port of Saint-Petersburg are founded as warehouses of temporary storage of the closed type.
Specific weight of sea port in total amount of an overload of the foreign trade cargoes the Russian seaports (in 2005г. - 203,6 million tons) make more than 10% (JSC "Sea port of Saint-Petersburg", 2012).

In the general goods turnover of the Seaport of Petersburg, the largest transport center of the Northwest of Russia, the Seaport processes more than a half of all foreign trade cargoes.
As for the main port's competitors, they are the ports of Russia ("Murmansk Commercial Seaport", «Sea trading port Kaliningrad», «Vysotsky sea trading port»), Baltic (Ventspils, Tallinn) and Finland (Kotka, Helsinki).

Port development.

Change of structure of cargo traffics, increase of a role of intermodal transportations create the need of development of capacities of port on the basis of reconstruction existing and the need of constructions of new modern reloading complexes.

The analysis of these changes has defined the main directions of perspective development of the sea port of St. Petersburg.

The project of development of an association on transfer of oil products is carried out by JSC Petersburg Oil Terminal and includes an alluvium in the area of 200 thousand sq.m, installation of tanks in total volume of 40 thousand tons and reconstruction mooring No. 112.

Besides development of berthing and reloading capacities the port dynamically develops capacity of the automobile and railway entrances. Carrying out reconstruction of the mooring No. 64 with increase of its length, and also lengthening of deep-water moorings No. 42 and 43 for simultaneous processing of two heavy-tonnage vessels is planned.
The Sea channel is planned to be expanded to 60 meters and deepened to 13,5 meters for ensuring conducting to the port of heavy-tonnage passenger and cargo vessels.
The volume of processing of export-import cargoes in borders of the Seaport of St. Petersburg is planned to be increased up to 60 million t by 2014.
For this purpose, besides modernization of existing port capacities, construction of four new ports and technological complexes is planned.
These four new ports are situated in Gorskaya, Kotlin's island, Bronka and Lomonosov.

In order to examine the sea port of Saint-Petersburg and it’s main peculiarities, the author has decided to create the PEST-analysis of the North-Western Region of Russia in order to understand the almost monopolistic power of the port, which is nowadays considered as the main gate to Russia.

**PEST-analysis of North-Western Region of Russia.**

PEST analysis is the tool intended for identification of policy, economy, society and technology aspects of environment which can affect to region strategy (Kotler, 2009).
From a set of the factors characterizing influence of environment on development of the region, PEST analysis allocates 4 main groups, i.e. by means of this tool are investigated political, economic, sociocultural and technological aspect of environment of the region (Downey, 2007).

Environmental analysis

The main political question is a question of the power. The central power regulates the mechanism of the address of money in the region, investments, receiving the main resources in the region.

The analysis of economic aspect of environment of the region allows to understand, how the main economic resources at state level are formed and distributed. For the majority of regions it is the most important general condition of development. Social component of environment it is most connected with the analysis of a standard of living of the population, culture, a demographic situation in the region. By it its special value, as a rule, is defined in the analysis and planning of possibilities in strategic prospect. Value of technology factor of environment consists in the analysis of the technologies applied in the region, allowing to observe standards and supporting acceptable level of profitability of the enterprises functioning in the region. Recently standards of ecologically focused business management, the ISO-14000 series being a regulator of the economic relations between the enterprises and branches, both on internal, and in the international markets are most actively developed.
Table 9 PEST-analysis of North-Western Russia

<table>
<thead>
<tr>
<th>Policy</th>
<th>Economy</th>
</tr>
</thead>
</table>
| • Election of the president of the Russian Federation in 2012.  
• Legislation change  
• Elections to the Duma of the Russian Federation  
• The state influence in the region  
• Regulators and norms  
• Elections of governors (mayor) and local legislature  
• Environmental problems | • Economic situation and tendencies  
• Change of course of currencies  
• Dynamics of a rate of refinancing  
• Change of tariff rates  
• Inflation  
• State regulation of development of the region  
• Investment climate in branch  
• Customs tariffs |

<table>
<thead>
<tr>
<th>Society</th>
<th>Technology</th>
</tr>
</thead>
</table>
| • Demographic changes  
• Accounting of an ecological factor  
• Change of a standard of living  
• Change in base values  
• Change of educational system  
• Ethnic and religious factors  
• Consumer representations  
• Support of the needy  
• Main events and influence factors  
• Change in level and way of life | • Development of competitive technologies  
• Financing of researches  
• Information and communications  
• Significant tendencies in the field of research and development  
• State technological policy  
• Investment support in small and medium-sized enterprises  
• Improvement of system of protection of intellectual property  
• Exchange of experience with foreign partners |

Composed by the author (2012)

Table PEST analysis of the tendencies having essential value for forecasting of development of the region.

Development tendencies in the Russian Federation in 2009-2012 create the following possibilities for development of the Northwest economic region:

In the policy sphere:
Partial change of the government, election of the president in 2012, and also administrative reforms of government rather strongly influence nature of political management, and also allow to improve fight against corruption methods in the government and national economy. In the whole, after the change of structure of the Government it is possible to assume that Russia will avoid political shocks that should well affect a condition of the economic, social and political sphere.

Political analysis

Due to the future election of the president of the Russian Federation, the government is possible change partial or almost complete.
It creates uncertainty of future political policy of the country that in aggregate with unstable state of the economy and the ambiguous relation of foreign countries to policy of the Russian Federation can be at the bottom of unforeseen consequences and to deterioration of stability of political position of the Russian Federation.

In the economy sphere:
The real tendency of strengthening of the rouble exchange rate, arisen in connection with imperfection of the currency legislation, can lead to decrease in competitiveness, both on external, and on internal the markets.

In the social sphere:
Natural decline in population, which is observed in the Northwest area, and also a high unemployment rate in some areas, says about saturation of the market of labor that can negatively affect a population standard of living; if present rate of inflation remains, there will be preconditions for further decrease in a standard of living of the population.

Besides, in connection with the collisions which have become frequent recently on the racial soil and because in the territory of this economic region representatives of a set of various nationalities live preconditions for formation of negative social climate in the region are created.

In the technological sphere:
Reduction observed throughout the last decade budgetary and the knowledge-intensive development can lead science funding to further degradation of separate branches of the enterprises of various industries that further can lead to deepening of an economic crisis, stagnation and even an economy depression because of loss of competitiveness of the Russian goods on internal and especially on external the markets.

Economic analysis

The Northwest economic region should become priority in the specified sense as the international and interregional economic cooperation within the European North gives to Russia exclusive chance for integration into the European and world economy. The northwest area directly connects the most occupied and economically developed regions of Russia with the countries of the European Union. It historically is base of development of all Arctic coast of Russia which economic value increases every year.

Areas of the Northwest economic region with various degree of success meet an economic crisis. The last two years, industrial production grew up in all regions, but growth of agricultural production is expressed not so unequivocally and everywhere, and the real monetary income of the population in the majority of regions didn't reach level of pre-crisis 1997, not to mention prereform level.

Owing to the geographical position, the Northwest is obviously more attractive to investors, especially foreign that proves to be true its raised share in total amount of domestic and foreign investments in comparison with the major socio-economic indexes.

The low potential and low risk are distinctive feature of areas of the Northwest except St. Petersburg (so, the Novgorod region by results of the last rating was included into number of ten least brave regions of Russia.).

Therefore the main objective here is building of their investment potential, possibilities and places of involvement of investors, and also their subsequent resource providing (the territory, infrastructure, a manpower).
As the especially, foreign investors consider favorable conditions near the Northwest. Not casually, St. Petersburg is one of leaders in Russia on attraction of direct foreign investments during a number of years. On total amount of direct foreign investments per capita in the area the Leningradskaya, Novgorodskaya areas and St. Petersburg are allocated. The intensive activity of foreign investors stirs up activity and domestic. Such tendencies in investment activity create a good reserve for new economic start of the Northwest economic region.

Social analysis

Natural decline in population which is observed in Northwest economic the area, and also a high unemployment rate in its some areas, say about saturation of the market of labor that can negatively affect a population standard of living. Under condition of an exit of economy of some areas of this area from crisis that should be promoted by the regional policy which is carried out by federal authorities, and also preservations of present rates of a gain of VRP in rather safe areas, the increase in a standard of living of the population thanks to growth of salaries and the budgetary payments to the population is possible. Besides, the social policy which is carried out by the federal government will allow to improve the provision of the majority of the population at the expense of subsidies and grants.

Technological analysis

As the Russian Federation traditionally is one of world leaders in the field of scientific and technical development and at the same time stably takes the last positions on their introduction in production, under condition of carrying out the correct federal policy in this area, improvement of investment policy and the taxation, basic changes in economy thanks to competitiveness increase, both on internal, and on external the markets are possible.

The tendency of development in the Russian Federation in 2009-2012 create the following threats for development of the Northwest economic region.
5 Summary and Conclusions.

In the end of this paper, the author would like to emphasize the main findings, which have been received during the composition of the thesis: «Analysis of door-to-door logistics in the steel industry».

During the composition of this thesis, the author has analyzed all components of door-to-door logistics in the steel industry in order to answer the question: how to optimize the door-to-door delivery of steel products. As for the basis of the paper, the partnership of Coutinho & Ferrostaal and Astra Shipping Agency has been taken. The practicability of this cooperation’s research is stipulated by several factors:

- The possibility for the author to have an internship and possible future job in Astra Shipping Agency;
- The complexity of Russian market as an objective market for geographical expansion;
- Compensation of academic knowledge with practical experience, gained during the internship.

Russian market as a studied one is fairly complicated and it is stipulated mainly by the severe competition. Russian metal-makers are able to offer relatively cheap product, which is indeed partly satisfies the existent demand. However, before 2002 (the year, when the described partnership were established) the Russian market analysis has been done by C&F and especially by Mr. Snatkin, who is nowadays can be named as the main company’s person concerning Russian market’s operations. Marketing research was done in terms of potential clients’ visits and it showed the presence of sufficient demand on the side of Russian customers. The products, which can be offered by C&F are not competitive towards Russian manufacturers in terms of price. The former are more expensive. However, they are more competitive in case of quality. The German trader can offer French, Taiwan, Korean steel products from such producers as Arcelor Mittal, Baosteel etc., which is more expensive but at the same time is more qualitative. As a result, goods are in-demand on local Russian market. However, to have only demand is not sufficient. There should be an effective business model, which includes among other things – logistics. After the world financial crisis, which began in the second quarter of 2008, the majority of the companies in the steel market started to concentrate the attention on cost minimization instead of profit maximization. The former nowadays seems more possible. However, logistics has always been quite an expensive part of any company due to its complexity. The latter consists of both physical (vehicles, cargo itself, cargo documents, vessels, trains etc.) and nonmaterial (information) movements. Nevertheless, the effectiveness can be reached and it is to a large extent depends on the firm, which provides the logistics services.

It can be said, that studied model of cooperation between steel trader and 3PL company is quite typical even in the global context. However, after the moment all in-depth interviews were done and analyzed, the author of this paper has been able to conclude about certain complexity of the studied logistics design. Such multiplicity is determined by specificity of Russian market. Despite the positive dynamic of Russian GDP, which demonstrated the growth by 4,9% in first quarter of 2012, the country is still highly corrupt and is ranked 142 in the Corruption Perception Index by
Transparency International (Seputyte, 2012) (Transparency International, 2011). In the studied partnership the corruption is observed in Federal State Institution «The large port of Saint-Petersburg». The biggest hardship to import foreign container is met during customs clearance. First of all, total time to deliver container from manufacturer to the final customer becomes longer due to bureaucracy procrastination. Moreover, extra expenditures may occur in the form of bribes etc.

One of the most important finding of this paper is the gradual switch from containerization to break-bulk. Such sharp change is determined by current world economy, which has been suffered a lot since second quarter of 2008. However, steel producers have already recovered and according to the forecast made by «Deutche Bank Research» there will be annual growth of 3,5% until 2020 to 2,1 billion tonnes (Deutsche Bank Research, 2008). In comparison with global steel industry, shipping industry and particularly container lines are under high pressure nowadays. It is stipulated by several factors, such as for instance high bunker prices. In addition, Standard & Poor’s Ratings Services (S&P) decreased CMA CGM credit rating from «B minus» to «CCC plus», because of liquidity position deteriorated in the first quarter of 2012. French shipping line CMA CGM posted a first-quarter loss of $248 millions (Leach, 2012). In such a manner, container lines inform nowadays about increase in freight rates. The chief executive of Ports of Auckland Tony Gibson as well as Maersk country manager in New Zealand have both confirmed that global shipping companies will charge freight rates in order to minimize losses they are facing (Fox, 2012). This trend sounds dramatically in the modern steel transportation market. According to Mr. Rozhdestvenskiy, at the present time the shipping lines «quarrel with one’s bread and butter» (L. Rozhdestvenskiy, personal communication, July 19). In other words, by increasing the freight rates, shipping lines compel steel producers or traders to search for a qualitatively new possibility in cost minimization.

As it has been already mentioned, the optimization of the door-to-door logistics had been made by division the whole network into small parts, which were later examined and analyzed. One of such component was the warehouse of Coutinho & Ferrostaal, which is located in Saint-Petersburg (pictures can be found in appendices). During the internship, one of the tasks given to the author was to make the financial analysis and in such a manner to answer the question: what is more beneficial in terms of logistics – to take on lease the warehouse or to build the own one? As for the short conclusion, the comparison analysis has demonstrated the expediency of the own warehouse. Despite such a high-rise task, it helps to determine one of the possible step in overall logistics cost minimization.

As a result of this paper, the qualitative analysis of door-to-door logistics in the steel industry has been done. It has shown and in-depth interviews have confirmed it, that the current organization of logistics processes is an effective one, because it firstly allows C&F to minimize costs and hence to be competitive on the foreign market, such as Russian and secondly it allows Astra Shipping Agency to stay the course. However, the above-mentioned changes can be imbedded in order to be more effective.
Bibliography


[Accessed 17 July 2012].


Appendices

Appendix 1 The respondents’ contact details.

1. Mr. Waleri Snatkin
   Company’s name: Coutinho & Ferrostaal GmbH;
   Type of activity: Steel trading company;
   Position: Regional General Manager;
   Telephone: +49 40 380 22 7527;
   E-mail: w.snatkin@coutinhoferrostaal.com

2. Mr. Leonid Rozhdestvenskiy
   Company’s name: Astra Shipping Agency ltd.;
   Type of activity: Third-party logistics company (3PL);
   Position: General manager;
   Telephone: +7 (812) 635 50 01

3. Mr. Alexey Semin
   Company’s name: Mainline Shipping Company
   Position: Chartering director
   Telephone: +30 210 9689860
   E-mail: chartering@mainline.gr

4. Mr. Yuri Leontiev
   Company’s name: Onego Shipping & Chartering b.v.
   Position: Chartering manager
   Telephone: +31 10 506 5 667
   E-mail: chart@onego.nl
Appendix 2 Questions, prepared for the in-depth interviews.
The questions prepared to personal in-depth interview with Mr. Waleri Snatkin

1. When did the partnership between the two companies start?
2. What was the main drawbacks during the first year of the partnership?
3. Do you have an internal logistics department in the company and (if yes) what are the main functions of this department?
4. How did you take the decision to penetrate the Russian market and what was the main marketing techniques in order to investigate the existent demand?
5. What are the main differences between CIF (Cost, Insurance, Freight) and FOB (Free on board) deals, which can be settled between C&F and ASA?
6. What is the proportion of CIF and FOB deals?
7. How do you determine which manufacturer to use?
8. How does the economics conditions influence the cooperation between your companies and what are the main decisions, which can be made in order to adjust to constantly changing market conditions?
9. Which steel products are nowadays in-demand?
10. How do you estimate the Russian market in terms of corruption?
11. What are the main expenditures, which are directed towards logistics component?
12. What do you think, is it possible that your partnership’s strategy will be copied?
13. Do you have any plan concerning the warehouse? Do you think it is possible that your company is going to purchase its own warehouse in Saint-Petersburg or the company’s priority is nowadays to minimize costs?

The questions prepared to personal in-depth interview with Mr. Leonid Rozhdestvenskiy

1. What are the main threats, which can come from the main local rivals, such as JSC «Severstal» or JSC «NLMK»?
2. What is your opinion concerning further improvements, which can be done in terms of logistics component?
3. What are the main steps, which cargo has to follow in order to reach final customers?

4. Can you estimate the level of corruption in the sea port of Saint-Petersburg and what are the main obstacles you face in this element of logistics network?

5. What are the total logistics costs in the price of final metric ton of steel?

6. What are the main trends in modern steel logistics?

7. Can you estimate the share of steel logistics in the total portfolio of your company’s deals?

8. What is the most prevalent way to deliver final and semi-final goods on the last transportation leg directly to customer’s «door»?

The questions prepared to Mr. Alexey Semin (Mainline Shipping Company, Athens, Greece) and Mr. Yuri Leontiev (Onego Shipping & Chartering b.v., Rotterdam, Netherlands).

1. According to your own opinion, what are the main trends in the door-to-door logistics of the steel products?

2. How can you estimate your activity on the global logistics market?

3. How do you operate in comparison to your main rivals?

4. To Mr. Alexey Semin: What are your main advantages, which finally have attracted the vertically integrated steel giant JSC «Metalloinvest» and forces the latter to outsource the world logistics?

5. In your own opinion, what are the main factors, which can influence the discussed business in the near future?
Appendix 3. Pictures of warehouse, rented by C&F
Appendix 4 World trade routes of steel raw materials (iron ore and coal) and final / semi-final steel products.

World trade routes of steel raw materials (iron ore and coal)

Source: IEA

World trade routes of final / semi-final steel products

Source: ISSB
### Appendix 5 The key steel industry’s figures

Global steel market volume: thousand metric ton, 2006-2010

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<th>Year</th>
<th>Thousand metric ton</th>
<th>% Growth</th>
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<td>2007</td>
<td>1,281,486.0</td>
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<td>2008</td>
<td>1,267,127.0</td>
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<tr>
<td>2009</td>
<td>1,178,267.0</td>
<td>(7.0%)</td>
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<tr>
<td>2010</td>
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<tr>
<td>2006-2010</td>
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<td>3.3%</td>
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Datamonitor 2011

Global steel market segmentation: % share, by value, 2010

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<td>Europe</td>
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<td>Americas</td>
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<td>Middle East &amp; Africa</td>
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<td>Total</td>
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Datamonitor 2011

Global steel market share: % share, by volume, 2010

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</tr>
<tr>
<td>Baosteel</td>
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</tr>
<tr>
<td>Nippon Steel</td>
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Datamonitor 2011
Appendix 6

Investment in construction and rental costs (in roubles) for the first year

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<th>Equipment rental (in roubles)</th>
<th>Construction (in roubles)</th>
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<td>2,575,000</td>
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**Appendix 7 Investment in construction and rental costs by year**

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<td>-2 052 000</td>
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<td>Concrete</td>
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<td>Equipment</td>
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<table>
<thead>
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<td>PV</td>
<td>-38 217 800</td>
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Annual discount factor: 23%  
Discount factor per month: 0.017

*All the figures have been provided by Astra Shipping Agency in unstructured way.*