Going Global. Focus Shipbuilding Industry in Romania

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The purpose of this article is to analyze the reasons for going global from the company perspective and to show how a good logistics management can help to obtain efficiency of operations by the integration of all material acquisition, movement, and storage activities. When transportation and inventory costs are substantial on both the input and output sides of the production process, an emphasis on logistics is appropriate. In this case location is a key factor in cutting costs with logistics and producing and selling with competitive prices. From this point of view Romania has a strategic location, Constanța port being in the heart of Europe and focusing on reducing transportation costs and helping companies develop global strategies by reducing supply chain costs. One characteristic of global companies is the pressure for production costs. This can be realized by choosing appropriate logistic locations in order to improve logistics management.

Key words: globalisation, shipbuilding industry

JEL Classification: M16, F23.

1. Introduction

The globalization of production refers to the tendency among firms to source goods and services from locations around the globe to take advantage of national differences in the cost and quality of factors of production (such as labour, energy, logistics, etc). By doing so, companies hope to lower their overall cost structure and/or improve the quality or functionality of their product offering, thereby allowing them to compete more ef-
fectively. Major technological, economic, social and political forces have caused businesses to become internationalized and then globalised.

The first factor is the decline in barriers to the free flow of goods, services, and capital that has occurred since the end of World War II. After World War II, the advanced industrial nations of the West committed themselves to removing barriers to the free flow of goods, services, and capital between nations. This goal was enshrined in the treaty known as the General Agreement on Tariffs and Trade (GATT) and then World Trade Organization (WTO).

The second factor is the technological change particularly the dramatic developments in recent years in communications, information processing, and transportation. If the lowering of trade barriers has made globalization a theoretical possibility, it is the technological change that has made it a tangible reality.

Over the past 40 years, global communications have been revolutionized by developments in satellite, optical fiber, and wireless technologies, and now the Internet and the associated World Wide Web (WWW); all these made possible by the development of the microprocessor, which enabled the explosive growth of high-power, low-cost computing. The cost of microprocessors continues to fall, while their power increases (a phenomenon known as Moore's Law, which predicts that the power of microprocessor technology doubles and its cost of production falls in half every 18 months)\(^1\). As this happens, the costs of global communications are plummeting, which lowers the costs of coordinating and controlling a global organization.

The phenomenal growth of the Internet and the associated World Wide Web is the latest expression of this development. In 1990, less than 1 million users were connected to the Internet. By mid-1998 the Internet had about 147 million users. As of 30th of September 2007, a stag-

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\(^1\) Moore’s Law is named after Intel Corporation (a major microprocessors manufacturer)
1.244 billion people use the Internet according to Internet World Stats. As a conclusion, developments in information and communications technology have had major impacts directly on the advance of globalization itself and on its underlying forces. Global communication technologies, like the telephone, the fax, the Internet (with associated WWW, electronic mail, multimedia, etc), have made it possible for businesses to coordinate their activities throughout the world. Global communications like satellite television have also played a role in creating global customer needs, increasing awareness of products and brands across the globe. In other words, as well as directly contributing to the globalization of industries and markets, the technological developments in the field of communications and information technology, have played a major role in the economic, political and social changes that have also contributed to globalization.

In addition to developments in communications and information technology, several major innovations in transportation technology have occurred. In economic terms, the most important are probably the development of commercial jet aircraft and super freighters and the introduction of containerization, which simplifies trans-shipment from one mode of transport to another. The advent of commercial jet travel, by reducing the time needed to get from one location to another, has effectively shrunk the globe. Containerization has revolutionized the transportation business, significantly lowering the costs of shipping goods over long distances. Before the advent of containerization, moving goods from one mode of transport to another was very labour intensive, lengthy, and costly. It could take days and several hundred longshoremen to unload a ship and reload goods onto trucks and trains. With the advent of widespread containerization in the 1970s and 1980s, the whole process can be executed by a handful of longshoremen in a couple of days. Since 1980, the world's containership fleet has more than quadrupled, reflecting in part the growing volume

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1: http://www.internetworldstats.com/stats.htm
of international trade and in part the switch to this mode of transpor-
tation. As a result of the efficiency gains associated with containeriza-
tion, transportation costs have plummeted, making it much more eco-
nomical to ship goods around the globe, thereby helping to drive the
globalization of markets and production.

2. Yip’s (1992) globalisation driver framework

Industries and markets differ vastly in the extent to which they are
globalised. For example, the consumer electronics industry and its
markets are largely globalised; on the other hand, both the market for
personal banking and the associated industry providing banking ser-
vices are still largely localized (in that they operate in limited geograph-
ical regions). Yip (1992) provided the most widely used framework for
assessing the extent of and potential for industry and market globaliza-
tion. Yip’s (1992) research suggested that there are four categories of
drivers (market, cost, government and competitive) which must be
analyzed in order to determine the degree of globalization within an
industry. The strength of each of these drivers will vary from industry
to industry and from market to market. Although this framework is
discussed in the context of the macro environmental analysis, it must
be said that there is a strong relationship between the factors at work
in the macro environment and the globalisation drivers. This relation-
ship is illustrated in Figure 1, where it can be seen that changes in the
macro environment will affect both the general extent of globalization
and the degree of globalization in specific industries.
2.1. Market globalization drivers

As Yip (1989) noted: “market globalization drivers depend on customer behaviour and the structure of distribution channels”.

Homogeneous customer needs. According to Yip (1989), when customers in different countries want essentially the same type of product or service, opportunities arise to market a standardized product. As it will be presented later in the article, a key issue in defining a strategy is to understand which aspects of the product can be standardized and which should be customized. Another remark is that homogeneous needs
make participation in a large number of markets easier because fewer different product offerings need to be developed and supported.

Global customers. Some customers (often global organizations themselves) purchase goods and services on a global basis. They seek the suppliers who can offer the best worldwide product, service and price package. These businesses often demand inputs that are globally standardized. There are two types of global customers: national and multinational. A national global customer searches the world for suppliers but uses the purchased product or service in one country. National defense agencies are a good example. A multinational global customer also searches the world for suppliers, but uses the purchased product or service in many countries. The World Health Organization’s purchase of medical products is an example.

Global channels. Analogous to global customers, channels of distribution may buy on a global or at least a regional basis. Global channels or middlemen are also important in exploiting differences in prices by buying at a lower price in one country and selling at a higher price in another country.

2.2 Global Strategy

Writers on global strategy, including Porter (1986, 1990), Bartlett and Ghoshal (1987, 1988, 1989), Prahalad and Doz (1986) and Yip (1989, 1992), argued that in international business there are significant advantages to be gained from the global scope, configuration and coordination of a firm’s international activities.

Companies that pursue a global strategy focus on increasing profitability by reaping the cost reductions that come from experience curve effects and location economies. They are pursuing a low-cost strategy. The production, marketing, and R&D activities of companies pursuing a global strategy are concentrated in a few favourable locations. Global com-
panies tend not to customize their product offering and marketing strategy to local conditions because customization raises costs (it involves shorter production runs and the duplication of functions). Instead, global firms prefer to market a standardized product worldwide so they can reap the maximum benefits from the economies of scale that underlie the experience curve. They also tend to use their cost advantage to support aggressive pricing in world markets.

This strategy makes most sense where there are strong pressures for cost reductions and where demands for local responsiveness are minimal. Increasingly, these conditions prevail in many industrial goods industries. For example, global standards have emerged in the semiconductor industry. Accordingly, companies such as Intel, Motorola, etc pursue a global strategy. However, these conditions are not found in many consumer goods markets, where demands for local responsiveness remain high (e.g., audio players, automobiles, processed food products). The strategy is inappropriate when demands for local responsiveness are high.

**Figure 2: Global strategy forces**

![Diagram showing the factors influencing global strategy and the benefits/costs of implementing such a strategy.](source: adapted from Yip (1989))
We also present the settings for different global strategy levels, as seen by Yip(1989).

### Table 1: The settings for global strategy levels

<table>
<thead>
<tr>
<th>Strategy level</th>
<th>Setting in the case of a pure multi-domestic strategy</th>
<th>Setting in the case of a pure global strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market participation</td>
<td>No particular pattern</td>
<td>Significant share in major markets</td>
</tr>
<tr>
<td>Product offering</td>
<td>Fully customized in each country</td>
<td>Fully standardized worldwide</td>
</tr>
<tr>
<td>Location of value-added activities</td>
<td>All activities in each country</td>
<td>Concentrated, one activity in each (different) country</td>
</tr>
<tr>
<td>Marketing approach</td>
<td>Local</td>
<td>Uniform worldwide</td>
</tr>
<tr>
<td>Competitive moves</td>
<td>Stand-alone by country</td>
<td>Integrated across countries</td>
</tr>
</tbody>
</table>

Source: adapted from Yip (1989)

3. Global Shipbuilding Industry and Globalization: Focus Romania

The ship building industry enjoys strategic importance in view of its role in a country's economy. Being a labour-intensive industry, countries with low wage levels are ideally suited for ship building activities. The shipbuilding sector is a global industry with China, South Korea and Japan controlling 78% of the total market share. Romania is still a very small player with an insignificant market share. The fortunes of the ship building industry generally fluctuate in tandem with global
economic growth and international trade. The 3.9% global economy growth in 2003, 5.6% in 2004 and 7.4% in 2007 has been above the long-term underlying trend 3.6%. The tonnage demand for sea-borne traffic grew 10% in both 2003 and 2004 as compared with 4.5% growth per annum since the nineties. Structural changes in the shipping market have resulted in longer distances and increased demand for all types' tonnage. A strong ship building market is expected to continue in the near future due to higher economic growth, low interest rates, and a continuation of the global outsourcing trend.

Figure 3: Manufacturing labour cost USD/hour (green 2003, dark green 2003-2006, grey 2006-2010)
3.1. Industry evolution

Shipbuilding is a global industry with China, South Korea and Japan controlling 78% of the world market though modern ship building, as defined in the contemporary world, evolved in Europe. In the late sixties, the European shipbuilding industry began to steadily witness competitive challenges from developing countries like Japan and South Korea indicating a shift towards the Asian countries. High labour costs in Europe and the USA also contributed to a gradual shift of the ship building to Asian Countries. Japan emerged as the one of the largest ship building nations outside Europe while South Korea emerged as a strong player in the seventies. The growth of South Korean shipyards was significant as demonstrated capability to build large ships at highly competitive costs. Until date, both Japan and South Korea retain their hold with a 64% market share.

The increasing wage structures in Japan and South Korea are leading to the emergence of China and Taiwan as the other leading ship building nations. Japan, although no longer considered a low cost producer, is expected continue to dominate the world market due to larger scale automation in its shipyards. India is also likely to compete for a share in the Asian ship building market space. With 100% FDI in Indian ship building sector and growing competitive pressures to expand capacities across geographies by harnessing local advantages, India has all the chances to ask its share of maritime action.

The global shipbuilding industry has seen a dramatic rise in new ship orders and completions since 2000, driven both by economic globalisation and the consequent increase in marine freight and also by last-minute demand from purchasers trying to beat the implementation of new structural regulations. Unfortunately, global shipbuilding capacity has also continued to increase and experience teaches us that this will eventually result in significant overcapacity and excess competition, with shipbuilders slashing prices to lure business. The industry has
seen periods in the past when it was “busy but unprofitable” and seems structurally unable to learn from those experiences.

In 2004, the industry completed 40.17 million tons, 3.65 times production in 1988, the most recent trough. Some of this is due to productivity gains, but much is the result of increased capacity from the entrance of Korea, China and developing countries to the market. China has a particularly ambitious capacity expansion program underway. It currently has 14 large shipbuilding docks in construction or planning, and there are concerns about the impact that this will have in exacerbating the supply and demand gap. Strong demand for new ships has also helped to increase the global backlog from 58.87 million tons in 1999 to 71.10 million tons in 2000 and 158.97 million tons in 2005 (January-September). Therefore, the industry has a backlog of 3-3.5 years with its current capacity.

Meanwhile, ship prices have also shown improvements thanks to the sustained boom in the marine transportation market and the tightness of ship supplies. Prices for tankers (VLCCs) have gone from $65 million in 2000 to $130 million in May 2005. Likewise, the price for bulk carriers (king-size) has improved from $35 million in 2002 to $68 million in May 2005. In 2004, global orders for new ships declined by 11.61 million tons from the previous year to come in at 50.86 million tons, and 2005 also. This trend could be seen as an indication that the new ship market is entering a period of correction, but it is more likely caused by shipping companies forgoing new orders because of the skyrocketing price of ships and shipbuilders becoming more selective in the orders they accept because of the tightness of the market.

To sum up, from the global economic and shipbuilding market trends we have seen so far, it would appear that new ship demand and prices are solid, as are marine freight volumes. Nonetheless, if the industry continues to book massive order volumes and produce massive tonnage, there will one day be a glut of ships, which will lead to a slump in maritime freight prices and a slump in ship prices as well. The issue
that faces the global shipbuilding industry today is how to sustain solid market conditions so as not to repeat the mistakes of the past.

We would like to consider next the global demand for new ships. These forecasts were calculated on the basis of global economic growth forecasts, trade volumes, marine freight volumes, transportation efficiency and scrap and replacement forecasts. Over the near term, the industry has a backlog of 158.97 million tons which, as was already explained, is the equivalent of 3-3.5 years worth of work and will take the industry through 2008-2009. Converting the current backlog to average completions, the industry can look forward to 44.80 million tons in average completions each year until 2010.

This figure takes account of completions for the current backlog, higher completions from expanded capacity, orders and completions for short-term deliveries that take advantage of fluctuations in the marine transportation market, and the order volumes that can be expected on the new ship market given the forecasts for sustained growth. For 2010 onwards, the completion forecasts are 34.16 million tons for the 2011-2015 period, declining to 33.30 million tons for the 2016-2020 period.

When we compare annual completions of 33.30 million to 34.16 million tons per year for the 2011-2020 period against world shipbuilding capacity of 44.00 million to 50.00 million tons, we can see that the world has an excess of 10.00 million to 15.00 million tons in capacity. This capacity figure takes account of current capacity, planned expansions in facilities and improvements in productivity, and it is roughly on par with the entire capacity of either Japan or Korea. Obviously, this will result in excess competition as shipbuilders fight for survival, and labour unions must understand that there will be significant impacts on jobs as well. What the global shipbuilding industry must do is first to understand that the marine transportation market is cyclical in nature, and then to forecast trends for the future and take steps not to allow a mismatch between supply and demand to develop. It is vital
that we have systems in place that can take proper action at the proper
times. Accomplishing this will in turn require that we share an aware-
ness of the importance of sustainable growth for the global shipbuild-
ing industry and that we work to establish a system for international
coordination on the basis of mutual understanding and cooperation.

3.2. Key factors set to dominate near term shipbuilding markets

Reduced laid up tonnage. After twenty years in which there was always a
surplus of shipping capacity, in the last decade, as the 1970s built fleet
has been scrapped, the balance of supply and demand gradually tigh-
tened. That is shown by the reduction of laid up tonnage that fell from
2 million dwt in 1993 to 1 million dwt in 2004.

High freight rates. As a result, the shipping market finally got back into
balance and over the last years; we have seen much higher freight rates
than had been experienced for at least 30 years in both the tanker and
the bulk carrier markets.

Running new ships is now cheaper than old ones. The economic cost of new
ships has fallen dramatically making building a new fleet a more attrac-
tive proposition than it was a few years ago. This happened because
falling prices coincided with record low interest rates. Taken together,
these two factors reduced the "time charter equivalent" cost (i.e.
OPEX, finance and depreciation) of operating a new VLCC from
$45,467/day in 1992 to $21,984/day in 2004. Because new ships be-
came cheaper than old ships, it encouraged ship-owners to invest.

Tightening regulatory environment. It has made old ships politically incor-
rect, encouraging new investment. This pressure was enormously in-
creased by the EU initiative after the Prestige incident, and had en-
couraged tanker owners to invest heavily in new double-hulled vessels.
The tanker industry is busy phasing out the remainder of the tankers
built during the 1970s investment bubble, so there has been replace-
ment demand.
All markets booming together. Unusually in 2003, we saw all four major segments of the shipping market, tankers, bulk carriers, containerships and gas ordering heavily at the same time. In 2003, tankers ordered 13.1 m COT, bulk carriers 7.5 m COT, Containers 15.6 m COT and others 7.3 m COT. In particular, this shows the strength of the container investment.

The "China factor". Over the last five years the Chinese economy has moved into a phase of growth which is similar to the rapid expansion of the Japanese and European economies in the 1960s. Over the last year this has driven bulk carrier rates to levels three or four times higher than has ever been seen previously, as they imported iron ore and steel products to supply the construction boom. In addition Chinese exports across the Pacific and to Europe has created a shortage of container ships, resulting in a record container ship ordering in at 2003 when 2 million TEU of new ships were ordered.

3.3. Romanian shipbuilding industry performance

Today's global economy and rapidly expanding world require more efficient, more economical and more productive means. The Romanian shipbuilding industry proved to respond positively to such challenges and witnessed impressive results within the last decade. Those developments have led to a significant export industry, a sustainable and profitable sector, which now exceeds 33 million EURO annually. This economic evolution reflects our tradition in shipbuilding products manufacturing.
Within the Romanian economy, the shipbuilding industry has an important place and represents one of the engines of the development. Romania's access to the Black Sea and the Danube course of more than 1000 km on the territory of Romania contributed to the development of shipbuilding more than 160 years ago. The history of many present shipyards began in the 19th century under the form of shipbuilding workshops: (Braila, Galati, Turnu-Severin, Giurgiu). The latest Romanian shipyards are those of Mangalia and Tulcea, built in the 1970s, that period being characterized by investments and upgrading works in all shipyards. The long tradition of shipbuilding led to the development of a higher education system in the field aiming to ensure highly skilled specialists, a strong research and a design database. The Shipbuilding Department of "Lower Danube" University, the ICEPRONA V Research & Design Institute and ship designing offices are situated mainly in Galati. The shipbuilding and repair yards, the main makers of equipment and research system are well distributed along the country/river and seacoasts.
3.4. PEST analysis for Romania

1) Political factors have an influence on logistics and shipbuilding industry: privatization policy, European Union accession, etc. The EU accession may influence the competitiveness of the shipbuilding industry through various channels. These are:

   - The single market: Romania and the EU already form a free trade zone and so joining the customs, union should not have any serious effect on the competitiveness of shipbuilding.
   - Trading policies: enforcement of custom rules and taxes for non EU imports will increase the materials and equipments
   - Competition rules: subsidies cancellation for export companies (60% interest refund) will increase the shipbuilding finance costs.

2) Significant progresses have been made towards privatization, with eight yards already privatized and one more currently under offer. Two further yards have been offered, so far unsuccessfully. Privatization commitment of the Government for industrial field is enforcing the competition for shipbuilding and ship repair: Constanta shipyard become real competitor after privatisation.

3) The necessary amendments of the labour code, connected with the slight adjustment of the working time regulations, employment of the young and women, rules of terminating employment, and the change of employer should lead to a slight increase in labour costs.

4) The industry will have to adjust to the environmental acquis in three main ways: higher energy costs; higher costs of industrial waste disposal and higher costs of water treatment.

5) The macroeconomic factors in play are: higher growth of wages, real appreciation of the currency, and lower interest rates. With the current trends in investment and productivity growth, the rise in la-
bour costs should lead, overall, to an increase of unit labour costs in euro by 2-3% in the medium term.

6) The most important economical factors that influence the shipbuilding were the growth of world economy, fiscal policy, the credit and financing policy, foreign exchange rate and inflation rate. The growth of world economy, fiscal policy and the credit and financing policy are influencing the growth of company, and the foreign exchange rate and inflation rate are influencing the profit rates.

7) Social factors that influence shipbuilding industry are the lifestyle trend, demographic rate, migration rate, education system:

- Occidental lifestyle trend make that expectations of employees from companies to rise continually. This will have a negative impact for shipbuilding industry – the younger people will try to orientate to other industries or will choose to continue studies. This will increase the demand for skilled workers.

- The decreasing of demographic rate will have a negative impact on the shipbuilding industry in the following years by increasing the work force age.

- Opening of European labour markets to Romanian high-skilled shipbuilding workers will have a negative impact on the Romanian shipbuilding industry. Work force migration is encouraged by relatively low level of salaries from Romanian shipbuilding industry (compared with salaries from European Union countries).

- The traditional Romanian education system prepares skilled workers for shipbuilding industry. There are specialized high-schools that prepare all kind of workers for shipbuilding industry: fitters, welders, pipe workers, electricians, etc. also technical universities prepare shipbuilding engineers (Galati and Constanta universities have specialized sections for shipbuilding in-
8) The most important technological factors that have influence the shipbuilding industry are the development of information and communication technology and the innovation potential:

- Developments of information and communication technology have a positive influence on the shipbuilding industry by eliminating the "space barrier". Now the extensive utilization of the Internet makes possible "collaborative design" between design teams situated in different locations around the world. In addition, a great influence has the development of informational systems that allow management of companies almost in "real time".

- Innovation is considered in shipbuilding industry one of the key elements for the increase of the productivity. Only by improving productivity can a shipyard survive to the fierce competition.

3.5. Ship repair market

The key factors set to dominate near term ship repair markets are:

- Tightening regulatory and chartering policies regarding vessel standards and maintenance

- Intense competition in all regions, with near term pressure to remain, particularly from developing low cost centres such as China, Vietnam, the Baltic and East Mediterranean Black Sea.

- Ship repair overcapacity; low revenues and a reluctance to close capacity.

- Restructuring and consolidation among established ship repairers, with focus on niche value markets.
The phase-out of single-hull tankers under IMO 13G regulations between 2003 and 2015. The impact of the economic slowdown, particularly in the US and Asia, combined with low freight markets.

3.6. Ship repair demand outlook

The main feature of development is one of progressive expansion in underlying repair demand, supporting an aggregate growth rate of 2.1% per annum between 2006-2010 before easing to around 2.0% per annum between 2011 and 2015. Over the long term, fleet expansion within the larger tanker and bulk markets, supported by a rapidly expanding container fleet is set to underpin steady repair demand growth between 2010 and 2015. Age profiles are expected to support a reduction in vessels over 15 years of age through 2010, in contrast to an expanding proportion of older vessels towards 2015, particularly within the container fleet.

The most significant impact on forward repair demand will be attributable to the large-scale consumer fleet expansion programs set to dominate longer-term markets. Between 2005 and 2010, underlying repair demand from the fully cellular container market is expected to rise by 32%. Over long-term period, 2010-2015, repair demand for container vessels is set to climb by a further 26.6%. The competition is at high level mainly in the ship repair domain. The main competitors are: the Constanta shipyard and the shipyards from Turkey. For the shipbuilding domain, the main competitor is represented by Constanta shipyard. The other shipyards from Romania are not capable to build big capacity vessels due to the lack of construction facilities.
4. Conclusion

Whether to globalise, and how to globalise, have become two of the most burning strategy issues for managers around the world. Nowadays, finding a good key location for production and managing supply chain could be the way to success. Throughout the article we tried to explain why Romania can have a core competence in integrating logistics solutions for global companies. In order to do so, we have first established which are the factors enhancing globalisation. The synthesis of the two major parts of this work resulted in a simplified map of the Romanian assets, recommending it as a strategic logistics solution for global companies. Among these, its position, in the heart of Europe, its very well prepared and not very expensive workforce, the continuous decreasing of interests and inflation (sign of the economic stability yet to be reached but in process). In the end, given the global economy expanding world Romania should prepare to take active part to the international supply chain and, in the same time, the rest of the world should acknowledge the strategic opportunities that could arise from the integration of the Eastern European countries in the worldwide flow of goods, services and capital.

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