

Term paper



Does China provide a sustainable competitive environment for the maritime industry?

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SUMMARY

This term paper seeks to investigate whether China provides a sustainable, national competitive environment for the maritime industry. The theoretical foundation for the paper is based on cluster theory and uses the *diamond of national competitive advantage* (Porter 1990) as an analytical framework for analyzing the industry. The data analyzed is collected through 11 in depth interviews with business managers of companies operating within the industry in the Shanghai region.

Based on the analysis, the paper presents four key challenges for China and the competitiveness of the maritime industry. The overall challenge for China is the transformation to an economy where primary competitive advantage is based on factor input (i.e. cheap labor) towards a more efficiency driven economy. In addition, accesses to qualified labor, too much mobility in the workforce and too much intervention from the government are key challenges.

Based on these challenges, the paper presents a set of recommendations to the industry and the government that should be executed in order to gain a sustainable competitive advantage. The recommendations for the industry include formalizing cluster structures, focus on developing and retaining personnel and knowledge as well as focus on improving China's image as a high quality producer. For the government, recommendations focus on deregulation and increased competition in the industry, a shift from financial support based on subsidies towards venture capital as well as facilitation of extended collaboration between governmental institutions, the industry and institutions for higher education.

The overall conclusion of the analysis is that despite apparently successful at present, the current company and governmental policies in China does *not* constitute a sustainable competitive environment for the maritime industry. If China does not reconsider its policies, the long term effects may be that China loses its competitive edge to other emerging competitors.

1. INTRODUCTION

This study presents a review of the maritime industry in The People's Republic of China, an industry where China over the last few years has become a significant player. The aim of this study is to investigate whether China as a nation possesses competitive advantages that are sustainable and superior to that of other nations. The theoretical foundation for this paper is based on the concept of industry clusters, and specifically the *diamond of competitive advantage* framework (Michael Porter 1990).

The research done as a basis for this paper consists of interviews from ship builders, ship financiers and suppliers. However, the main issues to be discussed in this paper centers around China's shipbuilding activities, as these are the primary driving actors in both the maritime and related industries. The term "maritime industry" will therefore be used relatively broadly.

2. RESEARCH STATEMENT

2.1 Relevance of topic

The Chinese markets and how to do business in China has over the last years evolved as one of the most debated and studied fields within the field of strategy and business in general. China has undergone widespread reforms over the last decades, and the Chinese business environment is about to move from a centrally planned economy to a more market oriented economy. Luo (2002) claims that this type of transformation creates markets that, as long as this change is on-going, are associated with risk as the consequences of the changes are not yet identified and assessed. Therefore, doing business in China represents an opportunity for companies, but it also represents a significant risk (Folta 2005). To most foreign companies, China represents a brand new environment, with different views on most aspects of doing business; from culture to the role of the government and diversified social structures.

According to the US-China Business Council (2009), the maritime industry in general, and the shipbuilding industry in particular, represents one of the key industries in China. According to China State Shipbuilding Corporation (CSSC), China is aiming at becoming the world's largest producer of ships by 2015, and The Chinese State

Council has set goals of market shares equivalent to 25% of the world's output by 2010. In order to ensure that these goals are reached, the Chinese government is heavily supporting the industry financially, both through stimulus packages related to the financial recession and through more general financing (Dow Jones 2009).

Further, this case proves interesting due to the fact that China is heavily reliant on foreign investments. The major growth in China is caused by foreign companies investing. In 2003, China passed United States as the world's largest target for foreign direct investments and has kept its position as the main target for FDI (Gaunt 2008). There is no sign on this development to change; in a recent survey (Walsh 2009) more than 90 % of multinational companies say that China is important to their global strategies, while 52% defines the Chinese market as critical.

The evolution of a new competitive super power described above constitutes a very interesting setting for a case study of the Chinese maritime sector. Shifts in the competitive landscape in this industry have significant consequences for all involved players. This is also of particular interest for Norway due to the importance of the industry to the Norwegian national value creation. According to Reve (2009), Norway currently has a unique position in this sector due to easy access to the ocean, superior technology and extensive knowledge. In addition, the maritime industry is of essential importance for the Norwegian economy, as it consists of more than 9 percent of the GDP in Norway (Ministry of Trade and Industry 2006).

A more in depth study of this industry will help identify how the situation is today, and what challenges the players involved will face in the future.

2.2 Research question

Based on the introduction above, the following research question is formulated:

Does China provide a sustainable national competitive environment for the maritime industry?

As indicated by the research question, the focus of the term paper will be to do a macro analysis of the Chinese maritime industry and look at indicators on national competitiveness. Further, it is important to underline that the paper tries to identify *sustainable* advantages, not only temporary competitive advantages.

3. THEORETICAL FOUNDATION

3.1 What is a cluster?

Concentrations of industry players within a limited geographical area are a phenomenon that has been debated widely. The concept of clusters is not only of interest to academics, but is also widely used in business and politics in order to explain development of industries and countries.

The concept of 'clusters' and 'clustering' is used relatively broad in the literature. One main reason for this is that these concepts encompass a wide range of dimensions and schools of thoughts. This, again, has led to several definitions and applications of the terms. Cortright (2006) argues that a cluster, in its most general form, consists of companies and related economic actors and institutions that draw productive advantage from their mutual proximity and connections. Depending on fields of interest, scholars offer partially competing definitions on the concept of clustering. Paul Krugman (1991) refers to clusters as agglomerations and knowledge linkages. Contrary to this, Porter (1990, p.197) refers to clusters as "geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions in a particular field that compete but also cooperate". This definition is widely credited and often cited in literature. Consequently, this paper will also use Porter's definitions as the basis for further discussions.

3.2 Literature review

The first works on cluster theory dates back to Alfred Marshall's (1920) works on patterns of economic activities and co-locations, the so-called industrial agglomerations among industrial districts in England (Cortright 2006). In his works, Marshall defines three main reasons why certain companies within an industry choose to locate in proximity to each other. These three reasons are often referred to as *the Marshallian trinity*, and include the following elements:

- **Knowledge spillovers**, being the positive externalities that firms receive in terms of knowledge from the environment (Caniels & Romijn 2003; Furman et al. 2002)
- **Market labor pooling**, founded on the premise that companies in a region creates strong markets for a certain types of labor needed in a specific area –

and that this creates a self reinforcing effect where people are attracted to certain areas where their competence is needed, and companies will locate where there are bases for the competence they need (Cortright 2006).

- **Supplier specialization**, meaning that suppliers are able to specialize in normally expensive niches as a result of sufficient demand (Marshall 1920). This proves especially important in relation to innovation and commercialization of innovations (Reve 2009, p.11).

These elements stand out as important driving mechanisms to the birth, sustainability and development of clusters.

Based on the fundamental works of Marshall, a new genre of research emerged in the early 1990s, termed "*new economic geography*" (Krugman 1991; Fujita & Krugman 2003). Being perhaps the most prominent advocate of this stream of research, Krugman bases his works on Marshall's works on the importance of regional agglomerations.

Krugman (1991) further argues that regional clusters emerge mainly from accidental reasons. When the clusters emerges, they are sustained by external scale economies, occurring when firms benefit from lower production cost as a result of the whole industry growing (Gupta & Subramanian 2008). Krugman further argues that, due to lower transaction costs, companies should locate in proximity to markets where demand is high or where the supply of input factors is favorable (Krugman 1991, p.98).

3.2.1 Porter's school of clustering

Michal Porter's works on cluster theories (1990; 1998) are perhaps the most influential ones in the field of clusters. Porter (1990) argues that in order to understand competitive advantages in the world of globalization, the understanding of clusters are of vital importance. He further argues that when competition becomes more globalized, the importance of regional locations increases, rather than decreases. Porter claims that the competitiveness of a nation is measured by the level of productivity of its industries. Porter postulates that in a nation that provides a home environment related to a specific industry that is forward-looking, dynamic and challenging has a good foundation to succeed in the given industry.

To analyze the foundations related to the home environment, Porter (1990) presents a framework called *the diamond of competitive advantage*. This framework consists of four attributes that both individually and as a system constitutes the playing field that each nation establishes and operates for its industries (Michael Porter 1990). These four attributes are:

Factor conditions include a nation's quality of production factors, e.g. access to capital, infrastructure and skilled labor. The latter is particular importance in the new, more knowledge-intensive industry. Porter argues that a general workforce is not sufficient to create a competitive advantage. This is in line with Marshall's reasoning on specialization of labor through labor market pooling. A pool of specialized competences that is linked to a certain industry is more difficult for "competing" countries to copy.

As the world is globalizing, one might argue that demand is also becoming global, making local demand less important. However, Porter stresses the importance of home market **demand conditions**. Porter argues that a home market that is characterized by buyers that help the industry get clearer and earlier pictures of upcoming global demand as well as buyers are demanding and sophisticating, hence forcing companies to innovate.

Further, presence of **related and supporting industries** is another determinant for national advantage. The presence of internationally competitive supporting industries facilitates the use of cost-effective input by minimizing transaction costs. In addition, and even more important, is that these industries foster innovation and upgrading through close relationships and co-operation.

Finally, **firm strategy, structure and rivalry** constitute the context for competition in the cluster. In addition, these factors determine how companies are created, organized and managed. Intense rivalry inside an industry may be destructive in a short-term, but helps companies focus on innovation, i.e. becoming more competitive internationally over time.

In addition to these factors, it is important to mention **the role of governments** in this system. According to Porter, the role of the government is neither to act as an essential helper or supporter of an industry or to entirely accept the "free market" and withdraw all involvements. The proper role is, according to Porter (1990), to

“encourage – or even push – companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and difficult”. This implies that it is not the government’s role to create competitive industries *per se*, but to work in tandem with companies by transmitting and amplifying the forces in the *diamond for competitiveness*.

3.2.2 Clustering in emerging economies

As stated previously, China is currently the world’s largest emerging economy (Jain 2006). This has certain implications for how cluster theories can be applied to analysis of Chinese industries as the characteristics of competition in emerging economies differs from developed economies. Porter (1998) argues that clusters normally are most pronounced in advanced economies. As a consequence, there are some specific traits of the Chinese business environment that needs to be taken into account when discussing the maritime industry (Wright et al. 2005). The institutional context in emerging economies is characterized by underdeveloped capital markets, scarcity of skilled labor, lack of reliable market information, extensive state intervention for business operations and lack of effective mechanisms to enforce contracts (Isobe et al. 2000). Porter (1998, p.250) supports this picture, and adds that government policies may also work against cluster formations in developing economies.

Further, it is important to bear in mind what characterizes the Chinese emerging economy in particular. Luo (2002) explains that markets that are “undergoing significant political and/or social reforms, shifting from former centrally-planned systems to market determined systems” can be labeled as *transition economies*. Over the last decades, China has undergone extensive changes, including lower trade barriers, economic liberalization and a shift from state owned enterprises towards joint ventures and more private ownership (National Bureau of Statistics of China 2010).

The Chinese approach to change from a system of centralized planning to a more market based economy has been based on an evolutionary and experimental approach, rather than a top-down revolutionary change that is seen in e.g. former Soviet (Lin et al. 1996). The implications of China still being a transition economy as described above is, according to Meyer (2001), that the Chinese business system will

be influenced by policies and inheritance from the previous communistic regime for several years ahead.

The characteristics above are important to acknowledge when conducting the analysis of the maritime sector in China. However, this does not undermine the importance of analyzing clusters in emerging economies. Developing strong clusters, hence increasing national competitiveness, may have different framing conditions and different challenges than in developed economies, but is nevertheless just as important. Porter (1998) even argues that the development of well-functioning clusters is one of the essential steps in moving towards an advanced economy.

3.2.3 Critique and limitations of cluster theory

When writing a paper based on cluster theory analysis and frameworks, it is important to beware of limitations and critique of the selected concepts.

The most fundamental debate regarding clusters is related to the term itself and what different scholars put into the concept. The different academic disciplines emphasize different measurements of clustering, like density in network ties (Powell & Smith-Doerr 1994) or geographic proximity (Krugman 1991; Porter 1998a). To further complicate, the term is often labeled differently, like 'agglomerations', 'industrial regions' or 'cities' (Martin & Sunley 2003).

This "fuzziness" of the cluster term represents a significant challenge when researchers are to operationalize and investigate constructs that measure clustering. This will have implications on how it is possible to generalize and provide policy implications. Simmie (2004) shows that there is limited empirical evidence to suggest what the dynamics of clustering have achieved across different circumstances and locations; hence policy-making often exceeds what can be supported empirically. This finding is important in terms on the discussion that is to be done in this paper; it is doubtful that the findings in this case can be used to make general policy suggestions for either the industry outside China or Chinese markets in general.

By being the most prominent advocate of clustering theories, Porter's works are also subject to streams of critique. Martin & Sunley (2003, p.28) argue that a concept that "is as elastic as clustering (...) cannot provide a universal and deterministic model on how agglomeration is related to regional and local economic growth".

They further question the assumption presented by Porter that economic growth and success can be credited to an association between high-growth industries and some form of geographic concentration. This critique is recognized at an increasing rate, even among advocates of the cluster concept that clusters are not all the same.

Several case studies also question the reliability of Porter's frameworks. A study conducted by McDonald et al. (2007) finds little support for Porter's way of viewing cluster policy making and growth. Other models are also presented as competing models to Porter's diamond of national competitiveness. Blundel & Thatcher (2005) argues that other models (in this case the "cluster dynamics model") provide more sophisticated explanations of responses and outcome in their case study of volume yacht manufacturing in Europe.

When conducting the analysis in this paper, it will be of importance to acknowledge the limitations and criticism that is being published, as this will enhance the quality of the analysis and discussions.

3.3 Research methodology

The aim of this paper is to assess the characteristics of the competitive environment in the Chinese maritime industry. In order to conduct the research, a qualitative study based on several case studies has been selected. This method is particularly suitable for investigating a phenomenon in its context. This is important, as it will be literary impossible to investigate the maritime cluster in China without accounting for the context; both endogenous and exogenous factors that affect the environment.

3.3.1 Data collection

The primary data for this term paper has been collected through in-depth interviews with representatives from 11 companies that are players in the maritime industry and located in the Shanghai-region in China. Appendix 1 includes a list of the companies interviewed. As this is an exploratory study, semi structured interviews were conducted in order to get the most out of each case. This implies that the interviews deviated some from the interview guide in some instances. The interview method proves effective as it provides targeted and case-relevant information containing perceived causal inferences (Simmie 2004).

Norwegian companies might have certain biases when discussing the Chinese business environment. These challenges is minimized by collecting data from both Chinese and Norwegian companies and afterwards contrasted and compared the results. In addition, the interviewees from the Norwegian companies all have different backgrounds and experiences with Chinese business environments. In order to achieve as good credibility on the data as possible, the research methodology is inspired by the method of *triangulation*, defined as “[a] method of cross-checking data from multiple sources to search for regularities in the research data” (e.g. O'Donoghue & Punch 2003, p.78). This way of working with data quality is of particular importance due to sources affected by censorship and a relatively closed society.

To further improve the data quality and richness, several secondary data sources, like consultancy reports, company websites and newspaper articles has been used. These sources have been used both as background research before interviews and as referenced sources in the term paper.

4. DIAMOND ANALYSIS – THE CHINESE MARITIME INDUSTRY

This section provides the analysis of the Chinese maritime industry based on Porter's diamond for national competitiveness.

4.1 Factor conditions

In general, China ranks third in the world on investment, as measured by percentage of GDP that is spent on fixed assets, such as factories, machinery, equipment, dwellings, and inventories of raw materials, providing the basis for future production (CIA 2009).

The Chinese infrastructure has been rapidly and extensively upgraded over the last few years, and is argued to be one of the most important premises for the impressive economic growth in China. A very important development in China is that the government has opened and connected their infrastructure to surrounding countries and continents. When aiming at becoming one of the most important trading countries in the world, this is of vital importance. According to Norges

Naturvernforbund¹, China used 1.25% of their GDP on railway infrastructure projects in 2008. In comparison, Norway used an estimated 0.09% in the same period. Among the interviewees, there was a general agreement that infrastructure was good and that the focus on this is of importance for the further development of the competitiveness of the cluster.

In terms of education, China is producing graduates with higher education at a high pace. Jin (2009) reports that the total number of college and university graduates will pass 6.3 million in 2010, in which only 63% is likely to enter the work force. The fact that as much as 40% will be left out of the workforce, creates a competitive environment for graduates, resulting in graduates with good grades and knowledge. In addition, according to the interviews it seems to be extensive co-operation between companies in the maritime industries and universities, enabling focus on specialized educations and sourcing of the right candidates to the right job after graduation. There are, however, some challenges with regards to the work force. The first problem, as argued by e.g. Mr. Eivin Sæter at Ulstein Group, is that Chinese engineers lack the competence to see systems, and “the bigger picture”. They are extremely good at working with specific problems and products, but when trying to fit their part into a bigger picture, they lack competence to do so. The other challenge related to the Chinese work force is that it is difficult to retain skilled labor. This is termed “the golden collar paradox”, and describes young, Chinese professionals that are willing to change employer for a slightly higher salary. This turnover is actually a huge problem in China, as Mr. Espen Lund in DnB NOR reports: “there is actually a 50% turnover for typically office workers every second year”.

In general, it is important to note that as China is moving upwards on the development ladder, China’s competitive advantage as a source of cheap labor is diminishing to neighboring countries like Taiwan and India. This underpins the importance of focusing on higher education, with specialized programs that will fill the needs in the Chinese competitive industries.

In terms of macroeconomic stability, China is well positioned as a competitive player. According to The Global Competitiveness Report, China has macroeconomic

¹ Computations based on public information, presented by Lars Haltbrekken

stability as one of their main competitive advantages, mainly due to a high national savings rate and low government debt (Schwab 2009).

On the more micro-level, the picture is slightly different. The Chinese financial market is relatively unsophisticated compared other competing nations. This is mainly because there are certain restrictions on capital flows, lack of access to venture capital and loans in general (Schwab 2009). This may be an obstacle for local companies that need risk capital to do research and innovation. This undermines the development of the national competitiveness. Mr. Espen Lund in DnB NOR confirms this by stating that DnB NOR exclusively place capital at disposal for larger companies like the national shipyards, not to smaller suppliers and companies that act as subcontractors to the large, state owned players.

4.2 Demand conditions

Contrary to what may be intuitive, a strong home market has a very strong influence on how companies perceive, interpret and respond to buyer needs in a globalized world of competition. It is little doubt that the Chinese home market has been very attractive; for both domestic and international players. However, this may primarily have been due to the size of the home market. One example of this is Jotun, a world class producer of paint and coatings that entered China mainly to exploit the home market and not the favorable factor conditions. Jotun is today actually a net *importer* to the Chinese market. However, as Porter (1998) argues, it is primarily the characteristics, not the size of the home market that influences the level of competitiveness.

China can be termed a “coastal” state, with more than 18.000 km coastlines. According to Gao Weijie, vice president of Cosco (2003), these coastal areas accounts for more than 50% of the GDP contributions and carry out 80% of the nation’s import and export value. These advantages set the stage for demanding customers and development of the maritime industry.

By being a prioritized industry by the government, it is reason to believe that the maritime industry enjoys a demanding home market. Porter (1998, p.191) argue that a nation gains competitive advantage if “domestic buyers are the world’s most sophisticated and demanding buyers for a product or service“. The two largest customers in the maritime industry are the state-owned CSSC and COSCO

shipbuilding groups. China is not yet seen as the most sophisticated nation for ship building, but it is aiming at this position in competition with Japan and Korea. The innovative capabilities in China can be illustrated by the shipyard Shanghai Waigaoquao Shipbuilding Company (SWS) that has evolved from only producing bulk carriers (the simplest vessel constructions in the market) to FPSOs² and semi-submersible rigs in less than 10 years. Most of the respondents from interviews, agreed that China *will* be the most demanding and world leading buyer of products and services related to the maritime industry within 3-5 years. This also became evident when interviewing Mr. Lin Feng, general manager in CSSC that argued that their shipyards' currently buys about half of their services and products internationally as the local Chinese suppliers did not meet their quality standard. But, within the next 5 years, they aim at buying more than 90% of their goods from national suppliers.

As of today, the vast majority of ships built in China are exported. However, China is also strengthening its position as a leading actor on sea freight. This is related to their strong position as an exporter; hence China seeks to control their supply chain from domestic producer to international supplier. This leads a group of domestic ship owners in China that help enhance the notion of demanding domestic customers in the country.

In sum, both ship builders and ship owners represent an emergence of world class, demanding customers in China. However, as acknowledged by several of the interviewees, China is still dependent on learning and adapting from foreign customers and suppliers.

4.3 Related and supporting industries

The maritime industry in China is surrounded by a set of related and supporting industries. These industries range from high tech players within the offshore industry to small, specialized suppliers of parts and related services. As discussed earlier, the players in these industries are mainly wholly or partially foreign owned companies that have been attracted to China primarily due to the size of the market. In addition, one often see that the foreign companies avoids bringing their business

² FPSO is short for Floating, Production, Storage and Offloading and is an advanced offshore vessel

critical knowledge to China, due to issues related to copyright infringements and violation of rights related to intellectual properties.

Foreign companies may be able to provide downstream industries with cost-effective inputs in efficient and preferential ways. However, as Porter (1998) argues; the most significant advantage supporting and related industries can help building up are those related to innovation and upgrading. China has based much of its industry development of “copying” from and imitating their international counterparts through partnerships and direct ownerships. As long as managers of foreign companies resist moving innovation and R&D into China, it is likely that both the maritime industry itself as well as the supporting and related domestic industries will suffer from this.

It is important to note that there are some industries emerging that may take the role as key supporting industries to the maritime industry. The offshore industry is one example where China has developed capabilities and managed to nationalize parts of the supply chain. Some of the largest ship yards in China, including SWS outside Shanghai, is currently focusing heavily on R&D in this industry. Further, the shipping industry in China is emerging to become an important global player. It is likely that a collaboration between these industries will lead to several positive externalities, including; (1) the ability to increase speed of information flows and the amount and quality of innovation as well as (2) increase the possibility that these industries, together, will develop skills that can be used to build and sustain competitive advantages.

Finally, it is important to note that it is not a necessary condition that all parts of these industries are represented and dominated by domestic players. Porter (1998, p. 192) argues that it may be self-defeating to create suppliers that are totally dependent on home-market demand, without having the ability to serve international market. The challenge for China will therefore be to build up strong industries consisting of strong domestic players that also possess the capabilities and resources necessary to be a player in the global market in order to stay competitive and focus on development of knowledge and innovation.

4.4 Firm strategy, structure and rivalry

The fourth part of the diamond looks at how companies are organized, what strategies are most common as well as the internal rivalry within the industry. After having conducted the in-depth interviews in the Shanghai region, it becomes quite evident that China differs from many other countries on these issues.

First, the company structures in Chinese companies are hierarchical, and probably inspired by the way the country is controlled by the Communist party. This implies strict top management control and a top-down leadership style. After having observed a staff meeting at the SWS shipyard in Shanghai, it became evident that worker's participation in the decision making processes is, at best, limited in Chinese companies.

Further, when interviewing Norwegian managers that have been hired to work in China, they all agree upon one thing: it is a lack of production efficiency and rational use of labor. China has experienced enormous economic growth over the last few years, and combined with low cost of labor, this has made managers downgrade focus on efficiency in production processes. Some of the respondents in the study even had the impression that the priority for many Chinese managers is to employ people rather than delivering a wealthy bottom line.

The former argument also relates to observations done on employee motivation. One of the main challenges expatriate managers reported was that employee motivation and mobility in the industry was primarily driven by wages and compensations. This is a challenge for managers seeking to build a competitive base of knowledge in a company as a source for innovation and R&D.

The ship building industry in China is to a large extent controlled by the government. There are two large corporations controlling most of the ship yards in the country; China State Shipbuilding Corporation (CSSC) and China Shipbuilding Industry Corporation (CSIC). These companies operate as conglomerates (GlobalSecurity.org 2010), and control the vast majority of activities related to construction and maintenance of vessels in China. From interviewing representatives from CSSC, the overall impression is that the competition between these companies and their related ship yards is, at best, limited. The two conglomerates have divided the Chinese market in two; one operating in the Northern regions and one operating in

South. This may be attributed to the fact that they two players are tightly managed from the government and their long-term strategies for the industry as a whole. Further, due to the importance of these two agglomerations, they also enjoy financial support from the government. During the financial crisis, the Chinese shipyards have enjoyed substantial subsidies and tax cuts in order to stay in the market (Reuters 2009). A representative from CSSC also claimed that the Chinese government had bought and secured the construction of vessels that was cancelled from the original buyers.

Looking at the more specialized suppliers, a slightly different situation is observable. The Chinese suppliers are under pressure from foreign companies entering the Chinese market. However, according to interviewees that have recently entered China, this has not led to more rivalry. Instead, foreign companies that enter into markets that are considered important by the Chinese government are required to either engage in a joint venture with a Chinese partner or to be controlled by the government.

In sum, it is arguable that the competition among the players in the maritime industry in China is limited. The structure of the industry, which is influenced by tight governmental control, allows for only limited competition among the players.

4.5 The role of the government

Despite not being an integrated part of the Diamond, Porte (1998) emphasizes the role of the government. Understanding what role governments take in the development of the competitiveness of nation is of vital importance in order to understand the full picture.

It is beyond doubt that the government in China plays a crucial role in developing the national industries. Being a communist-run country with one party in control, the Chinese government is able to execute their plans and strategies effectively without time draining negotiations and compromises. It is, however, important to note that the Chinese government, for most practical purposes, is more of a regional run than national run. It was apparent from several interviews that location-decisions were heavily dependent on the plans and visions of the government in the different regions. Despite this, it is important to underline that the Chinese government has the maritime industry on top of its agenda. For the players in the

industry, this result in an active government and everyone is affected by how the government executes their strategies – one way or the other.

It became evident from talking to managers of several specialized suppliers operating in China that the government played an important role in the day-to-day operations of the companies. What all respondents agreed upon, was that there is a very strict regime of reporting in China. DnB NOR writes more than 300 reports every year to different governmental instances. Another company, TTS Marine, has one Chinese person employed exclusively for governmental contact. From the interviews, it may seem like this also to some extent is correlated with the personal connections between the managers and the government. Respondents that had close personal connections with representatives in the government or in the communist party were generally more positive and experienced more support from the government than the ones with only distant relations. These observations are also confirmed in the study done by Schwab (2009), where corruption ranges among the top problematic factors for doing business in China.

The interviews also revealed that, even within the same region, the government uses different policies on different companies. This seems to be aligned with the way Chinese government is trying to nationalize its value chains: foreign companies with no local Chinese competitors (i.e. competence that China needs) receives tax benefits and attractive loans, while companies operating in industries with local competitive Chinese players meets stricter auditing routines and tax regulations.

5. KEY CHALLENGES

In the analysis of the Chinese maritime industry cluster, several challenges have been revealed. This section presents a summary of what appears to be the most pressing challenges for the industry itself and for the government in China. Due to the scope of the paper, generic macroeconomic challenges facing the Chinese governments are left out.

5.1 The overall challenge: A shift from factor driven to efficiency driven competition

Cheap labor and the production of basic products to a low price have been vital to establishing China's current competitive position. However, reports show that China is losing their competitive advantage on this arena to India and Vietnam (Schwab

2009). In order to sustain a competitive position, China faces several challenges regarding what to focus on in order to sustain the competitive edge. According to Porter (1998), such changes include, but are not limited to, efficiency improvements in the production processes. This again will pose challenges to China in terms of sustaining growth rates and to prevent rise in social unrest and unemployment rates.

5.2 Access to qualified labor

As earlier discussed, China produces an incredible number of graduates every year. It seems, however, that the knowledge the graduates possess is not sufficient aligned with the needs in the industry. According to the interviewees, this is especially prominent when it comes to complex systems thinking, where the workers are required to understand relations in larger systems (e.g. offshore installations). If China is to develop from a country where learning from others is a necessary condition for development, this challenge needs to be addressed.

5.3 A workforce with high mobility

Many Chinese companies invest heavily in specific training for their workers, often due to the challenge above. To possess a specific knowledge base is one of the prerequisites for gaining a sustainable competitive advantage. Even though some mobility in the workforce may foster innovation (Lenzi 2009), too much mobility between companies or industries may be an impediment to building and sustaining knowledge bases. According to several of the general managers interviewed, this high mobility is a result of competing companies attracting the employees with only slightly higher wages.

In addition, there is another significant challenge for companies operating in the more urban parts of China. When recruiting labor from the more rural parts of China, managers often experience that workers does not show up for work after holidays, because they have earned “enough” to support their family back home. This also represents a flow of knowledge *out* of the industry, a pressing challenge for managers.

5.4 Too much intervention from the government

As discussed earlier, the intervention from the government is rather extensive in the maritime industry in China. Based on observations, it seems like the strategy of the

government is to avoid internal competition between companies, so that the players can concentrate on competing on the global arena. In addition, the industry enjoys great subsidies and other government controlled benefits as a result of being defined as a key industry. By protecting the national player, they are not exposed to free competition, leading to lower degrees of innovation. The Chinese government is under heavy pressure from many institutions arguing that China needs to open their markets and expose their domestic companies to more competition (e.g. EurActiv 2010; E24/NTB 2010).

This challenge is also of great concern among researchers. Porter (1998) argues that governmental control that is based on subsidies and protection from companies may be a hindrance to the development of sustainable clusters in a country.

6. RECOMMENDATIONS

Based on the discussions and analysis in the previous sections, the term paper will conclude by presenting a set of recommendations. When building up a national competitive advantage for an industry, companies and the government need to collaborate and work in the same direction. Failing in doing so may weaken the competitive edge of the industry. As a consequence, this section provides recommendations for both the players in the industry as well as for the Chinese government.

6.1 Industry recommendations

The first recommendation to the maritime industry is to **formalize cluster structures**. The cluster today is relatively hierarchical and has the characteristics of a hub-and-spoke network that surrounds the two largest conglomerates, CSSC and CSIC. This implies a communication that is relatively top-down; *from* the conglomerates *to* the suppliers. In order to foster development of the cluster, it is of vital importance that the players surrounding the conglomerates also communicate among each other. This enhances knowledge spillovers and innovation, important aspects in any cluster (Cortright 2006). In the future, it is also important that the cluster does not entirely depend on the largest players, but transform to a more flat structure where the relative importance of the key actors are reduced.

Secondly, the companies in the maritime industries need to develop strategies for **developing and retaining personnel**. As mentioned the turnover in the Chinese

companies is a notable problem, and it may be difficult to solve as long as the employers are willing to change employer for only small increases in compensation. When interviewing Norwegian companies operating in China, they argued that they had huge success with focusing on different types of compensation, e.g. education for the workers' kids, transportation and accommodation close to the work premises or payment on house loan installments. According to the general managers workers feel more connected to their workplace, hence made them more loyal.

Related, companies in China should focus on enhancing employee participation. Giving employees more responsibility for innovations and ideas related to improve products, services or working processes may make them more loyal. In order to do this, China could look to Japan and their way of doing continuous improvements and innovations called *kaizen* (Imai 1986). This shift in way of working requires in-depth cultural changes in the workplace, and should not be imposed; rather introduced in collaboration with the employees. Doing this requires that the challenge related to lack of systems thinking among graduates is addressed by the government.

Further, companies in China need to **work on their reputation as a high quality producer**. As China has been producing products that is of low cost where quality has been less important, the "Made in China" term is often associated with low quality products. If China is to succeed in industries based on high quality engineering and complex solutions, it is essential that the national reputation is aligned.

Up to now, competition from foreign companies has been limited in China, due to regulations, as discussed earlier. However, pressure is rising to make the Chinese government open its markets to more competition. This will enable companies in China to **use their competitors as motivators and benchmarks**. According to Porter (1998), increased competition should be seen as inspiring sources to do more innovation and increase efficiency in its own organization.

6.2 Government recommendations

Generally, Porter (1980) argues that the role of government when building a nation's competitive advantage should be to act as a catalyst and challenger (Porter 1998, p. 200). He further argues that governments should encourage – or even push –

companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and difficult.

First, and foremost, the Chinese government should **deregulate their markets and allow for increased competition** in the industry. The positive effects of increasing competition are discussed above, but it is important to emphasize that increased competition in the cluster and its related industries will increase the total level of innovation. Doing so may be painful for parts of the industry in a short time perspective. It is likely that some parts of the industry that has been owned and subsidized from the government are uncompetitive; hence will go bankrupt in a deregulated market. The state owned CSSC and CSIC ship yards represent a good example in this regard. These conglomerates represent two national champions within the industry, but the internal competition is limited: there is no competing innovation and R&D and the actors does not compete in tenders. Porter (1998) argues that despite apparent cost savings due to avoidance of double work effort, having institutions like these ship yards compete will be beneficial through rapid product and process improvements – enabling them to become more competitive in the global markets. This development must also be supported by strict antitrust laws to avoid direct cooperation among industry rivals.

As mentioned in the challenges for the industry, large parts of the industry are heavily subsidized. It is recommended that instead of subsidizing parts of the industry that the **government gives companies access to venture capital** that can be used for increased innovation and research. In the present situation, the incentives for R&D are limited because of the subsidies. Access to risk capital and risk-willing investors are crucial to develop and sustain of more advanced, knowledge based, clusters (Reve 2009).

Concluding, it is recommended that the government **initiate and facilitate a more transparent collaboration between governmental institutions, the industry and institutions for higher education**. In order to build a pool of specialized competence in the work force, it is important that the industry is able to flag their demand for competence. Educational establishments need to adapt in order to deliver knowledge that can be used in the industry. Transparency is a prerequisite for stable and predictable development of the industry.

7. CONCLUSION

China has over the last years enjoyed a remarkable growth in their economy, primarily based on favorable conditions like access to cheap labor, widespread export and a large home market. But as China is moving towards a more advanced economy, and with the stated ambitions of the Chinese government to be the worlds' leading ship building country in 2015, it is important that a sustainable long term strategy is set up for this.

The analysis presented in this paper shows that China is faced with demanding challenges. It is likely to believe that China's current policy, to a large extent based on subsidies and market regulation, will *not* be sustainable in the long term. In order to build a national competitive advantage that is favorable for the maritime industry, China needs to open up their markets, continue and expand their innovation and focus on building a workforce that possess highly specialized competences that will be difficult for their competitors to copy or imitate. Some of these transition processes may be painful in the short term, but definitely necessary and beneficial for the overall competitive edge of China in the long term.

LITERATURE

- Blundel, R. & Thatcher, M., 2005. Contrasting local responses to globalization: the case of volume yacht manufacturing in Europe. *ENTREPRENEURSHIP AND REGIONAL DEVELOPMENT*, 17(6), 405-429.
- Caniels, M.C.J. & Romijn, H.A., 2003. Firm-level knowledge accumulation and regional dynamics. *INDUSTRIAL AND CORPORATE CHANGE*, 12(6), 1253-1278.
- CIA, 2009. CIA - The World Factbook -- China. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html> [Accessed May 19, 2010].
- Cortright, 2006. Making Sense of Clusters: Regional Competitiveness and Economic Development.
- Dow Jones, 2009. China To Support Shipbuilders To List, Issue Bond. Available at: <http://www.chinesestock.org/show.aspx?id=38473&cid=13> [Accessed April 26, 2010].
- E24/NTB, 2010. Krever tilgang til Kinas markeder. Available at: <http://e24.no/utenriks/article3662419.ece> [Accessed May 23, 2010].
- EurActiv, 2010. EU industry chiefs urge return to open markets, competition. Available at: <http://www.euractiv.com/en/trade/eu-industry-chiefs-urge-return-open-markets-competition-news-319740> [Accessed May 23, 2010].
- Folta, P.H., 2005. Cooperative joint ventures. *The China Business Review*, 32(1), 18-23.
- Fujita, M. & Krugman, P., 2003. The new economic geography: Past, present and the future. *Papers in Regional Science*, 83(1), 139-164.
- Furman, J.L., Porter, M.E. & Stern, S., 2002. The determinants of national innovative capacity. *RESEARCH POLICY*, 31(6), 899-933.
- Gaunt, J., 2008. China top as global FDI increases 5.1 pct in 2007. Available at: <http://in.reuters.com/article/asiaCompanyAndMarkets/idINL0335080620080304> [Accessed April 26, 2010].
- GlobalSecurity.org, 2010. China - China State Shipbuilding Corp. Available at: <http://www.globalsecurity.org/military/world/china/cssc.htm> [Accessed May 22, 2010].
- Gupta, V. & Subramanian, R., 2008. Seven perspectives on regional clusters and the case of Grand Rapids office furniture city. *INTERNATIONAL BUSINESS REVIEW*, 17(4), 371-384.
- Imai, M., 1986. *Kaizen: The Key To Japan's Competitive Success* 1st ed., McGraw-Hill/Irwin.

- Isobe, T., Makino, S. & Montgomery, D.B., 2000. Resource Commitment, Entry Timing, and Market Performance of Foreign Direct Investments in Emerging Economies: The Case of Japanese International Joint Ventures in China. *The Academy of Management Journal*, 43(3), 468-484.
- Jain, S.C., 2006. *Emerging economies and the transformation of international business*, Edward Elgar Publishing.
- Jin, T., 2009. China to Produce 6.3 Million College Graduates in 2010. *The China Perspective*. Available at: <http://thechinaperspective.com/articles/chinatoproduce63millioncollegeduatesin20106518/index.html> [Accessed May 19, 2010].
- Krugman, P., 1991. *Geography and trade*, the MIT Press.
- Lenzi, C., 2009. Workers' mobility and patterns of knowledge diffusion: evidence from Italian data. *The Journal of Technology Transfer*. Available at: <http://dx.doi.org/10.1007/s10961-009-9130-6> [Accessed May 23, 2010].
- Lin, J.Y., Cai, F. & Li, Z., 1996. THE LESSONS OF CHINA'S TRANSITION TO A MARKET ECONOMY. *The Cato Journal*, 16(2). Available at: <http://www.cato.org/pubs/journal/cj16n2-3.html> [Accessed May 9, 2010].
- Luo, Y., 2002. *Multinational enterprises in emerging markets*, Copenhagen Business School Press DK.
- Marshall, A., 1920. *Principles of economics*, Amherst, N.Y.: Prometheus Books.
- Martin, R. & Sunley, P., 2003. Deconstructing clusters: chaotic concept or policy panacea? *J Econ Geogr*, 3(1), 5-35.
- McDonald, F. et al., 2007. Is There Evidence to Support Porter-type Cluster Policies? *Regional Studies*, 41(1), 39-49.
- Meyer, K.E., 2001. Chapter 25. International Business Research on Transition Economies. *Oxford Handbook of International Business*, 1, 716-760.
- Ministry of Trade and Industry, 2006. Skipsfarten som verdiskaper. Available at: <http://www.regjeringen.no/nb/dep/nhd/dok/regpubl/stmeld/20032004/stmeld-nr-31-2003-2004-/2/2.html?id=404560> [Accessed May 4, 2010].
- National Bureau of Statistics of China, 2010. National Bureau of Statistics of China >> Yearly Data. Available at: <http://www.stats.gov.cn/english/statisticaldata/yearlydata/> [Accessed May 9, 2010].
- O'Donoghue, T.A. & Punch, K., 2003. *Qualitative educational research in action*, Routledge.
- Porter, M.E., 1998. Clusters and the new economics of competition. *HARVARD*

BUSINESS REVIEW, 76(6), 77+.

Porter, M., 1998a. *On Competition* 1st ed., Harvard Business School Press.

Porter, M., 1998b. *On competition*, Harvard Business Press.

Porter, M., 1990. *The competitive advantage of nations*, Free press.

Powell, W.W. & Smith-Doerr, L., 1994. Networks and economic life. *The handbook of economic sociology*, 368–402.

Reuters, 2009. Chinese shipyards see sharp drop in orders in 09-paper | Reuters. Available at: <http://www.reuters.com/article/idUSSHA16408520090209> [Accessed May 22, 2010].

Reve, T., 2009. *Norway – a global maritime knowledge hub*, Available at: <http://web.bi.no/forskning%5Cpapers.nsf/wResearchReports/FF9BF9873E2F5DB2C125767A0034B521> [Accessed December 28, 2009].

Schwab, K., 2009. *The Global Competitiveness Report 2009-2010*, Available at: <http://www.weforum.org/documents/GCR09/index.html> [Accessed May 19, 2010].

Simmie, J., 2004. Innovation and Clustering in the Globalised International Economy. *Urban Stud*, 41(5-6), 1095-1112.

US-China Business Council, 2009. PRC Industry Revitalization Plans 2009. Available at: <http://www.uschina.org/info/prc-industry-revitalization-plans-2009.html> [Accessed April 26, 2010].

Walsh, T., 2009. Understanding China's Business Risk Environment. *Risk Alert*, 5(3), 1-48.

Weijie, G., 2003. Development Strategy of Chinese Shipping Company under the Multilateral Framework of WTO. Available at: <http://www.cosco.com/en/pic/forum/654923323232.pdf> [Accessed May 19, 2010].

Wright, M. et al., 2005. Strategy Research in Emerging Economies: Challenging the Conventional Wisdom*. *Journal of Management Studies*, 42(1), 1-33.

APPENDIX 1:

List of companies and representatives interviewed

All interviews were conducted during a study trip to the Shanghai region in February and March 2010.

17 Group of Norway – Martin Nickelsen, General Manager

China State Shipbuilding Corporation – Lin Feng, General Manager of Export Department

DnB NOR – Espen Lund, General Manager

Goltens Group – Andreas Wagner, General Manager

Grenland Group – David Wu, General Manager

I.M Skaugen – *Based on company presentation and panel discussion with top management*

Jotun Cosco – Michael Schum, Sales Director

Marine Aluminium - Jari Inermo, General Manager

Waigaoqiao Shipyard – Feng Xuebao and colleagues

TTS Marine – Arne Knudsen, General Manager

Ulstein Group – Eivind Sæter, Deputy General Manager