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## **The Greek Maritime Cluster as a Driving Force for the Economy's Restarting**

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**Abstract:**

*Clusters as a geographical concentration of independent activities have been for a long time recognized as a crucial instrument for promoting industrial development, innovation, competitiveness and growth. A vast literature and worldwide experience has emerged and is associated with the most dynamic economies.*

*The maritime industries and services comprise of a wide range of sectoral activities producing internationally tradable goods and services in a most competitive world environment.*

*In Greece, the shipping sector traditionally has a sizeable contribution to the Greek economy mainly by its revenues from seaborne transportation services. At the same time, the contribution from the other categories of the maritime cluster in domestic value added is relatively limited. There is a significant scope to benefit from more balanced maritime activities, with appropriate policies providing huge business opportunities and generating production, value added, employment, direct in the maritime sector and the rest of the economy through multiplied indirect effects.*

*By this paper, we aim to present the economic importance of the Greek maritime cluster to the economy and its related macroeconomic aggregates, as also in the country's external balance, competitiveness, economic confidence and stability.*

*We are going to attempt to explore future prospects and appropriate policy instruments in the main field of the Greek maritime cluster, by which the unexploited opportunities can contribute to the country's effort exiting from the current crisis.*

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## **1. Introduction**

Greece is the biggest maritime nation in the world, famous for its shipping industry. The Greek-owned fleet, according to its share, continues to rank at the top among shipping countries. An internationally competitive, export-oriented sector is dominated by its dynamism in the world shipping market. In contrast to this, all other related sectors constituting the Greek maritime cluster lack in competitiveness and rate of growth. Their contribution to the Greek economy compared to the shipping industry, is limited among sectors at different degree.

A more balanced development is needed for most sectors of the maritime cluster by exploiting and expanding existing and new opportunities and potential. Their contribution, through direct, indirect and induced impacts to the Greek economy, will be valuable particularly during the current crisis. The role of clusters in the modern economy has been recognised in the last decades in economic literature and related policies, aiming to create a strong, competitive home basis. By this paper, we try to explore the degree to which the whole maritime cluster in Greece, by implementing appropriate policies, can become a driving force, a key growth driver, contributing to the economy's restarting.

The contribution of clusters in today's global economy is a topic that has been examined by the international literature. In Chapter 2 we analyze the role of cluster in developing a competitive economy, innovation and growth.

In Chapter 3 of the paper we refer specifically on the maritime cluster and the sectors that comprise this cluster. We present a classification of these sectors based on their main function, according to EU and international experience.

The Greek maritime cluster is a significant parameter for the Greek economy. In Chapter 4 we illustrate its importance to the Greek economy as it is described through direct, indirect and induced impacts to the macroeconomic aggregates like value added, employment tax revenues etc.

Chapter 5 presents the strategy and the policy framework that should be implemented as well as the hurdles that should be overcome in order the economy to benefit even more from the Greek maritime cluster. Actions that can be applied such as privatization policies and PPP schemes are proposed which will have direct and indirect impact to the national economy. Chapter 6 presents final conclusions and answers to key questions posed in the paper.

## **2. The role of clusters in building a competitive economy**

Searching for sectors with comparative advantages in today's globalized learning economy in order to promote growth and exploit country's opportunities is an important task. But the most important in this economy based on the dynamic principle

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of competitive advantage, is the creation of such advantages in various sectors and the possibilities to be combined with comparative advantage. In such cases, the creation of a strong competitive sector becomes a dynamic factor and driving force affecting the performance and the development of national economies. For the creation of competitive advantage, clusters are today recognized as an instrument of crucial importance for their contribution to competitiveness, innovation and growth. Cluster's concept appearance and theorisation in economic literature has lasted almost a century with reference to the so-called Marshallian externalities or 'external economies of scale' (Marshall 1920).

But the turning point in international literature on clusters comes from Michael Porter's contribution, *The Competitive Advantage of Nations* (1990). For our purposes here, is useful to recall the main points of cluster's concept and definition according to Porter. 'Clusters are critical masses of geographic concentrations of interconnected companies and institutions in a particular field' or 'geographically co-located end producers, suppliers, service providers, research laboratories, educational institutions and other institutions at a given economic field' (Porter 1998).

Collecting contributions of several authors regarding the clusters, Anderson et al (2004) considers the following as key elements. **Geographic concentration** or firms' location in geographic proximity can be a factor creating external economies of scale, social capital and learning processes. **Specialization** is centred in a core activity to which all clusters actors are related. Multiple actors. Clusters include forms but also public authorities, academia, financial sector, institutions for collaboration etc. **Competition** and **Co-operation** are analysed in a context with complementarities that characterises the relation and functioning of all interlinked actors. A **critical mass** is necessary to achieve inner dynamics. **Innovation** is the main element of cluster's firms involved in continually process of technological, commercial and organisational change. Other elements like **culture**, **cultural homogeneity** and **historical tradition** can be considered as key assets for the development of cluster dynamics (Callegati E., Grandi S. 2005).

A dynamic understanding of enterprises competitiveness as a process, clearly indicates, that it cannot be sustained in the long run only by focusing on developing their own core and new competencies and internal restructuring alone. They are very much depended on a favourable economic and industrial environment in general and knowledge infrastructure at different geographical levels specifically (Asheim B. 2001). 'What happens inside companies is important, but clusters reveal that the immediate business environment outside companies plays a vital role as well' (Porter M. 1998). A number of key insights related to the importance of external environment, are necessary to how companies continually create competitive advantage. In this process also the 'R' is coming closer to 'D' which according to corporate reckoning makes research 'better' and more 'relevant', closer both to RD markets and corporate strategies (Damaskopoulos T. 2009). Together with the above factors, the microeconomic environment integrates different capabilities like input factors

conditions, policy framework and regulations; local demand conditions that affects and defines decisively extended capabilities for dynamic clustering. Cluster's birth, evolution and decline, depended strongly on their relative competitiveness, are due to historical factors, circumstances and culture, advantages offered by physical or geographical location, new upgraded infrastructure. Also due to the existence of skilled labour force, the regulatory framework without significant administrative costs, the favourable business environment, and business initiatives from innovative companies etc.

Clusters as globalised economic activities, strong 'home bases' internationally competitive representing the organisational foundations for global competitive advantage. They are closely connected and dependent for their sustainability and origin on the above described factors. A long tradition and experience in Europe, United States, China and other places in the world economy, has already created some important examples. Mentioning some of the most famous industrial clusters we refer to the Silicon Valley with its rich institutional landscape, the emerging of Medicon Valley, a leading European biotechnology cluster in pharmaceutical stretches geographically over two countries, parts of Sweden and Denmark, the Irish ICT-cluster, the biotechnology clustering in the east coast of China, the Dutch transportation cluster mainly based on the port of Rotterdam. Their emergence and particular characteristics and advantages, assure the rich experience the broad scope and huge factors affecting competitiveness in today's economic environment (Brannerhjelm P., Feldman M. 2006).

### **3. The Maritime Cluster - Definition and Mapping**

Both Greece's and Europe's maritime history, has laid the foundations for a leading role in maritime economy. Shipping and all sea related maritime activities play a strategic role for economic growth and prosperity. All these maritime activities comprising a valuable asset that has to be preserved and strengthened by efficiency, competitiveness and quality services in today's global and open economy. The maritime industries and services been internationally competitive, and by their dynamism continually developed and expanded, encompass a widening range of sectoral economic activities. Using a narrow or broader, detailed or more comprehensive definition for maritime cluster, there are differences in mapping all its sea-related sectors. According to the most common European definition, sea-related sectors are classified in 3 main areas: Area 1 including 11 traditional maritime sectors, area 2 including 2 sectors (coastal and cruise tourism) and area 3 including fisheries (Policy Research Corporation 2008).

In a more detailed mapping, 20 maritime sectors comprise the maritime cluster (Douglas-Westwood 2005). A classification and grouping by main function of the most related maritime activities used by EU and internationally, should be the most appropriate way for the exploration of a cluster's economic magnitude and performance (European Commission 2007). As it is illustrated in Table 1, such a classifica-

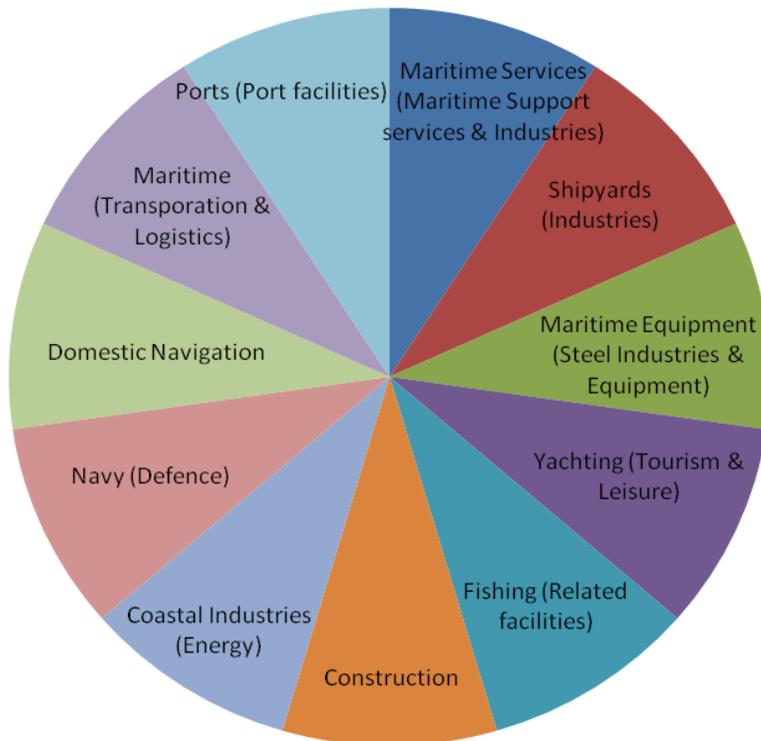
tion can include both traditional and new sectors and related activities, in a dynamic clustering on the base of a broader or narrow definition.

**Table 1.** Sectors of the Maritime Cluster by their main function

<b>Transport</b>	<b>Services and other operations</b>	<b>Manufacturing</b>	<b>Resources exploitation</b>	<b>Public sector</b>	<b>Leisure and Tourism</b>	<b>Research</b>
Shipping	Brokers & agents	Ship building, repair, conversion	Fish processing	Education & Training	Cruising	Consultancy
Inland navigation	Bunkering	Boat building-repair	Fisheries & aquaculture	Governance	Littoral activities	Oceanography & Oceanology Institutes
Ports & Terminals	Classification & Inspection	Marine & offshore equipment	Oil, gas & renewables	Hydrographic Offices	Yachting & Marinas	Towing tanks
	Dredging	Marine and non-marine suppliers		Navies, Coastal Guards and SAR services		Universities
	Financing			NGOS		Maritime Academies
	Insurance			Trade Unions & Associations		
	Pilotage					
	Specialised media					
	Maritime law					
	Rescue					
	Ship supply					

Every one of the above categories can be described and subdivided in more detailed and specialised activities arising from new organisational and technological requirements of a dynamic growing sector. Competitive advantages in a maritime cluster's activities rely on its ability for a continuously successful development and application of innovation and research. Furthermore, by integrating new elements and improved standards in maritime policies, like sea safety, environmental aspects,

etc, in order to comply with related regulations, generates 'new markets' and benefits for technology or service providers.



**Figure 1.** Maritime cluster

Everywhere in Europe and the World, examples of successful national and regional maritime clusters exist, exploiting such potentials, specialised in particular maritime activities. In Europe, with its leading position on the most maritime sectors of the world's maritime cluster, all member states are engaged in at least some maritime activities. All these activities have high direct economic impact in value added, employment, expenditure effects and government budget according to the size of a country's maritime cluster. In order to estimate the total economic importance of maritime activities, their strong links with other sectors of the economy inducing significant indirect effects has to be accounted. Production, value added and employment generated elsewhere in the economy, must be included in the economic significance of the cluster in terms of indirect effect that makes it possible by input-output analysis. The basic reasoning behind input-output analysis is that a change in demand will have a direct impact, not only on the sectors producing the required product, but also on all supplying sectors. In turn, the supplying sectors will also demand more inputs and so on. The 'rippling effect' that is generated with all

multiplicative indirect effects, can be captured and summarised by input-output analysis (Policy Research Corporation 1997). Another induced effect in private consumption can be estimated arising from changes in disposable income due to the above activities. By analysing maritime structures, we can reveal the competitive position of firms in the sector, the cost structure, the role of subcontractors in value added production, their innovative power, technology and information, synergies and interactions between maritime industries vital to the total cluster competitive position and viability.

#### **4. The Macroeconomics of the Greek Maritime Cluster**

Traditionally the Greek maritime cluster has a significant contribution to the value added of the national economy, together with sectors such as construction (public and private works), tourism, trade, agriculture and financial services. It is considered as a sector of high productivity and value added. Today, with more than 4000 ships, Greek-owned fleet ranks first in the world, owning 16% of total capacity. Various studies, try to estimate the impacts of maritime cluster or part of this as it is the shipping sector on the Greek economy.

IOBE (2013) estimates that the total value added of maritime transport to the Greek economy (direct and indirect) was 6.1% of 2009 GDP. The net revenues generated by the maritime transport activities contribute to the diminishing of the current account deficit. At the same time the maritime sector and its further development can be an important tool that will promote the export activities of the economy enhancing its tradable profile.

In figures, the direct and indirect value added of Shipping to the national economy for 2009 has exceeded €13bil. with approximately 30% to be considered as the indirect effect. The direct impact is estimated to 8,4 bill and the indirect up to 4, 8 bill. Tax revenues estimated also up to 790mill euro. A wide range of services and activities are affected by the indirect effect of the shipping sector such as agency services, auxiliary facilities, freight etc, necessary to accommodate the high demand in the maritime sector.

The contribution of the shipping to the national economy is not related only to the value added but also to other important segments such as employment as well as to other indirect activities within country's economy. The total contribution direct and indirect to the employment estimated up to 192.000 people. IOBE study estimates also the potential contribution of shipping to the Greek economy reaching to 26 bill euro for value added and employment up to 500.000 people. An other study BCG(2013), estimates the total contribution of the shipping cluster up to 13,4 bill euro or 6% of Greek GDP in the year 2010. The direct impact is 7,6bill, the indirect 2.3 bill, and the induced is 3,4 bill euro. The total employment estimated up to 165.000 people. Another indicator of the contribution of Greek shipping to the Greek economy is the receipts in Services Balance that come from Sea Transport services estimated at

136 bill euro for the past decade, covering on average 30% of trade deficit. Beyond Shipping, Greek ship-owners contribution and support to the Greek economy and society is also significant. Greek ship-owners have been investing shipping capital in other sectors of the Greek economy and also financed social activities in culture, in health, in education etc. The degree of integration with the rest of the economy, is of crucial importance for the total contribution of maritime cluster on this. If Greek maritime cluster was not integrated then the demand for supporting services would be accommodated by international companies and professionals (i.e. oil and gas, auxiliary facilities, goods and services necessary for the maritime transportations etc). As a result the value added to the sectors that are related and can service maritime activities would be affected negatively. Unemployment would rise while the disposable income of the professionals and employees in the sector should be lower. The Greek maritime cluster as whole has a significant contribution on the GDP and the employment, although it is difficult to have accurate data due to the structure of sector (absence of an integrated system monitoring the employees, different flags and Registries etc. Comparing with other European Union countries, the Greek maritime cluster ranks 6th in terms of value added that generates in the national economy and 5th in terms providing employment, despite the fact that Greece controls the largest fleet in the world. The relative lower contribution of the shipping cluster, reflects the absence of positive spill over-effects between shipping and related clusters due to the small size and low level of sophistication of related industries in Greece (Icasa L,et.all. 2009).

Sectors that are affected indirect by the maritime cluster are various supporting facilities, legal, financial and other consulting services, retail, construction, agricultural goods, inland transportation, banking etc. The contribution of the maritime cluster on the Greek economy is multi dimensional and has significant positive effects. It constitutes a key growth-driver for the economy and a huge potential exist for further expansion, contributing to the country's economic growth.

## **5. Exploring the Development opportunities**

### ***5.a Appropriate strategy and Policy framework***

Limited if compared with other European countries with a much smaller shipping sector. The existence of some other factors like Greece's favourable position as the only European country in East Mediterranean, its long maritime tradition, the necessary human capital with maritime know-how and experience, implies that there is significant scope to benefit from a more balanced development of a maritime cluster. Such factors as the above reveal an unexploited potential, new business opportunities and value added creation in the broad network surrounding the shipping industry. It provides space for action by appropriate policies, aiming to exploit this unexploited potential crucial for the economy's restarting. A well-designed, integrated sectoral strategy for the development of all maritime clusters' activities is of the highest priority. It has also to be intergraded in a broader economic policy agenda

and it's undertaken measures should be clearly oriented to sharpen competitiveness for existing and new maritime capabilities in a globalize context. Attracting foreign investment and business by expanding the old and creating new and complementary maritime activities, has to be the main target in this strategy. Even moderate progress towards this direction, along the lines of analogous strategies, followed by Dubai, Singapore and Valencia in Spain, could increase the domestically produced value added by another €2.7 billion on top of €2.8 billion related to the development of the transportation hub (Mylonas P. 2010). This strategy would provide significant business opportunities, creating favourable backward interlinkages with a broad range of other domestic economic activities.

The multiply effects as presented by the above estimations, should be of significant importance for the stagnated Greek economy. Privatisation policies, with rapid increase of the private sector's participation and a more efficient regulatory framework that deliberates maritime activities from the high Greek 'red tape', the highest administrative burden in the Eurozone, have to be the cornerstones of this effort. The impressive achievements of Greek shipping internationally, far from the influence of the Greek bureaucracy are a good paradigm. By relying in such policies and the modern regulatory framework, Greece can create the necessary favourable business environment 'making easy to invest'. In this context, the Greek maritime cluster can attract investment, implement the best practices and international experiences and can also result a broad diffusion of technology and efficiency. These factors constitute the most important preconditions for the development of internationally competitive maritime related activities. It is obvious that both output and input of maritime sector must be internationally competitive.

The development and implementation of such strategy and policy measures, makes necessary the establishment of a Formal Organisation including all maritime players, private and public, representing the most sea-related sectors in Greece. The European experience on this issue can be very helpful (Policy Recears Corporation. 2008).

### **5.b Main fields of instant action**

On the field of Transport, the inflow of Greek shipping receipts according to the data presented by the bank of Greece reached to 140 billion Euros during the last ten years period. But this amount underestimates the Greek share of revenues earned in the world market. Only part of Greek shipping revenues earned abroad inflows to the country. The inflows of shipping receipts of the biggest ship owning nation in the world are at the same level with Denmark that owns 2.2% of the world tonnage (World Maritime Markets 2005). Appropriate policy measures focusing on support and develop surrounding maritime activities, can increase shipping receipts inflow as a traditional factor of crucial importance for the economy's external balance of payments and current double deficit-double crisis condition (Theodoropoulos S. 2011).

A huge privatisation program for all of the country's ports by using various forms like Public Private Partnership (PPP) project similar to other European ports and in line with the new European regulatory framework, is a key step and is an urgent priority. It can attract potential investors in new investment opportunities, revealing new activities, enhance efficiency and increase competitiveness of the backward former public services. The effects in the whole system of the country's intermodal transport by lowering the total transport cost are going to be significant. In today's severe crisis of public finance, the necessary investment for building and modernising infrastructure, can be financed only by mobilising private capital. The necessary steps- delayed but encouraging- that have been realised in the country's main ports, Piraeus and Thessaloniki, serving as strategic gateways for Greece, east Mediterranean and southern Balkans, have to speed up.

In a fast growing sector internationally as it is the sea tourism, the potential for Greece with its unique archipelago and coasts, climate and geographical position, is very significant. In one of the world's most attractive sailing destination can be created a huge emerging market in cruising and yachting.

The recent liberalisation of the cruising sector from old long standing legal rigidities, in similarity with other competing Mediterranean countries, has already rapidly increased the number of cruising passengers arrivals. The new liberalized environment, promoted the opportunities to exploit home porting potential, to attract investment in new infrastructure improvements and expansions, but mainly benefit the whole large chain of activities related to cruising.

A new framework can also promote yachting services, the rapid growth of marinas construction like other Mediterranean countries and significantly benefit the country's economy. Such benefits can also increase through a more efficient organisation of the country's passengers shipping. In this environment, a broad range of domestic service activities can emerge related to the maritime sector. Existing services, can also be expanded and upgraded, becoming more competitive and specialised creating competitive advantages, and in some cases establishing centres of "maritime excellence". Also the opening up of closed professions is expected to enhance the Greek potential of maritime services. Greece has the necessary well-educated and experienced human capital for a flourishing maritime service sector. Universities, Academies, Research Institutions and appropriate policies to attract people to the seafaring professions, can help to reveal the real potential. A necessary condition to exploit it is the appropriate policy measures towards a flexible maritime labour market, by abolishing widespread rigidities mainly responsible for today's continuous decrease of the number of Greek seafarers.

The implementation of EU's continuous upgrading of maritime policies covering already all related matters necessitates new activities and gives scope for new employment opportunities. According to the EU's future maritime policy, as it pre-

sented in the Commissions Green and Blue Paper (2006) (2007), 'The European Vision for the Oceans and Seas', aiming to retain Europe's leadership in sustainable maritime development, a broad range of new policies and measures supporting the central target of sustainable use of marine resources and the environment, are going to be developed. In the case of Greece, such policies aiming to build up a competitive maritime industry where maritime cluster plays a central role, is of great importance. Also policies to maximise the quality of life in coastal regions, by developing coastal tourism and managing the land-sea interface by Integrated Coastal Zone Management (ICZM) and adopting policies for islands' sustainable development are of great interest. Collecting data servicing multiply activities and spatial planning for a growing maritime economy, are necessary tools for the above policies. All these policies aiming to develop the related activities of Greek maritime cluster and make them more competitive, can be supported by the existing European experience and regulatory framework, but also co-financed by the European budget's resources.

## **6. Conclusions**

The importance of the Greek maritime cluster to the economy and its related macroeconomic aggregates, as well as in the country's external balance, competitiveness, economic confidence and stability, is obvious and justifiable from the released figures by the monitoring authorities.

Its contribution to the macroeconomic aggregates appears to be significant since it constitute a major part of the national economic activity. The Greek maritime cluster can become a key growth driver and support economy's effort out of current crisis.

There is a significant scope to benefit from more balanced maritime activities, with appropriate policies providing new, huge business opportunities and generating production, value added, employment, direct in the maritime sector and the rest of the economy through multiplied indirect effects.

The implementation of appropriate policy instruments mentioned above, in the main field of the Greek maritime cluster can be the key factor by which unexploited opportunities of the sector can contribute to the country's effort exiting from the current crisis.

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