

### Investigating Ship Building Supply and Demand Forecasting Trends – Overview

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**Abstract—** The huge importance of the maritime shipping industry to the global economy was confirmed by the United Nations specialised agency for maritime affairs, the International Maritime Organization, which reported that the world has changed to the point where almost no nation can be fully self-sufficient and that the global economy simply could not function without a vibrant shipping industry. Of all the world's great industries, shipping is perhaps not only the most international, but also it is the one that has considerable effect on most of the world's population. The shipping industry has a major effect on the transportation of goods, intercontinental trade of raw materials, import and export of food, fuels and manufactured goods. Production of goods increasingly takes place in more than one country and this is one of the main reasons for the growth of seaborne cargo in recent decades. Increasingly goods are often partly made in one country, processed in another and finalised or assembled in a third with components coming from all over the world. This globalisation has given the shipping industry a major responsibility since it has a significant effect on the end price of all goods it transports. Having forecasting information about how many ships of different types are required, and when, would have a substantial positive impact on efforts to reduce the ever increasing costs of sea transportation. Here, cost reduction impact would be achieved by better matching the type of ship, and its operating costs to the type and volume of goods requiring transportation. The main aim of this research illustrated in this paper was to develop an accurate and reliable method of forecasting supply for various types of ships. To achieve this aim several key questions were identified leading to a number of objectives which were transformed into a set of tasks. A number of variables were identified that needed to be predicted in terms of the features of types of vessels involved and the goods they transport. Here the main variables to be analysed had to be identified along with their effects on the supply and/or demand for given types of vessels. The volatile nature of shipping was considered and required the intended forecasting model to be able to monitor trends on a regular basis and to sense sudden changes in demand or changes which may have an impact on the reliability of the accuracy of the predicted value. The research identified the most effective forecasting technique which was the neural network model developed for this work. Additionally, the work here identified the relationships between supply and demand for shipping with a view to exploring the nature and the strengths of these relationships. It was noted that there is a very strong relationship between supply and demand hence providing a means of accurately estimating the demand values from predicted supply values for various types of ships.

**Index Terms—** Forecasting, shipping, demand and supply, market trends , future shipping trends, ship life cycle, forecasting capacity, forecasting methods, expert systems, neural network, correlation , regression .