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Role of Key Performance Indicators in Port Management

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Abstract: Performance indicators are much more than figures reported weekly, monthly, quarterly, half-yearly or even annually. They allow the understanding of the level of performance, the state of the business, so that a strategy can be developed. Shipping industry is more and more developed, and the managers are facing new challenges. The more accurate the knowledge, but especially the evaluation of the performance indicators, the more adjustments can be made correctly and in that way the management can reach fast, positive results for the long-term course of the developed business. In this paper we will analyze the importance of Key Performance Indicator (KPI) and their role in port management.

Keywords: key performance indicator; port management; shipping industry

1. Introduction

The expansion of the economic development has led to the development of close and complex trade relations, in terms of foreign trade. These relations were highlighted by the expansion of exports, but also of imports. As Krueger (2020) noted, the international trade theory provides little clue as to the role a trade strategy plays in economic development. However, two conceptual positions can be delimited that are important for the approached topic.

The need to transport goods all over the world has led to the emergence of transport, which has motivated people to discover and develop new forms of transport of goods, both domestically and internationally, thus facilitating access to increasingly diversified resources, in terms of trade. (www.holleman.ro, 2017)

River and sea transport are one of the main factors in the growth of global trade in goods, whose figures are constantly growing. (Bouqhet, 2016). The development of transports and port services on the national and international level have led over time to a rapprochement of the countries, to a development in the same rhythm of trade (Horneț, 2007).

Transport is an important aspect of material production, which, through its role in the movement of goods, decisively influences other branches of the world economy, including international trade. (Caraiani, 2001)

Even if in port system we find several organizations with different roles, is important to notice that, one of the most important roles is played by port operators (Turcanu (Marcu) & Gasparotti, 2019; Turcanu (Marcu) et al., 2019). Their main objectives are the development and division of the market and

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implicitly the maximization of the profit. They have to be sustained by port administrations by offering the services listed below in fig. 1.1:

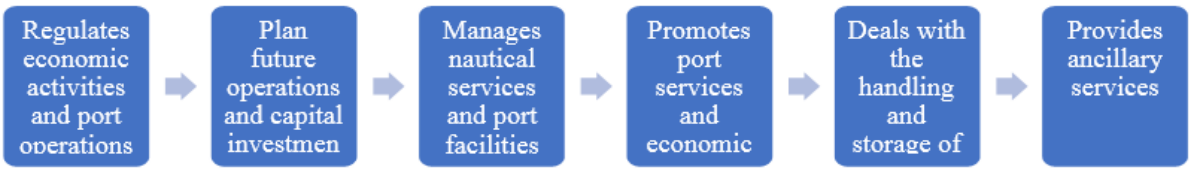

Figure 1.1. Services Offered by Port Administration

2. Factors Underlying the Performance of the Import-Export Operations on Inland Waterways

As a transport hub, the port plays a very important role. The efficiency is given by the level of economic and technical development of the port, a special emphasis being placed on the degree of digitalization. In western countries, this process has been started for over two decades, it being in a continuous evolution and penetrating different segments/modes of transport, thus facilitating the transport process, but also the transhipment of goods.

A determining factor in the growth, respectively the diversification of the port services, is represented by the permanent improvement of the service offer. This fact leads to the maintenance of the ports on the market, by keeping/retaining, but also attracting new customers. The evolution of the international trade has shown that the addition of interconnected, value-added port services leads to a long-term development of the entire value chain, connected to the port infrastructure.

Links and nodes are the most important elements in the network of inland waterway transport. It is important to develop those elements and harmonize them in order to gain efficiency on transport timing.

The network of inland waterways and maritime transport consists of two equally important elements: links and nodes. For the efficient and reliable operation of the transmission network, both elements must be developed and harmonized equally.

When we think of the river transport, it is important to know that the infrastructure consists mainly of rivers and canals, and the delivery is made by boat. This type of transport has always been the cheapest compared to road, rail or air, but in optimizing the route of goods, especially internationally, it is imperative to interconnect all these types of transport.

This type of transport is mainly addressed to customers who want to transport large quantities of goods. The more goods are transported in the same barge convoy, the lower the costs. The main disadvantage of this type of transport is given the high travel time. It can be optimized by streamlining transit in different ports and transferring goods to other types of transport. From here, the infrastructure necessary for intermodality in the transit and transborbation points is absolutely necessary. That type of transport is supposed to many risks, that are described in table 1 listed below.

Table 1. Risks in Shipping

The main specific risks	Influence factors
Transport operationality	Transport delays are primarily due to weather conditions, which are applicable to both river and sea transport. There are regions that face the same pervasive problems, such as drought, hurricanes or earthquakes.
Attacks on the transport ship	Terrorism acts and piracy affects are all over the world. All the industries can be affected and the shipping industry is not an exception. Their protection against such acts is currently a major concern of States, shipowners and the international community embodied in a set of measures and actions specifically designed for this purpose. (Coanda, 2010)
Accidents	At international level exists two organizations that develop the rules in order to prevent the accidents. Those institutions are International Maritime Organization (IMO) and International Labor Organization (ILO). The problem is that in many states the shipowners break the rules and that conduct to accidents. In the world, more than 100 transport ships are lost every year, accidents resulting in the loss of more than 3,000 lives. Recent disasters include the accidents of the oil companies Erika (in 1999) and Prestige (in 2002). Around 22,000 and 20,000 tons of oil spilled out of their tanks. The biggest damages are in environment, tourism and fishing industry. (Coanda, 2010)
Unqualified human resources	Accidents related to unqualified human resources produce damage regarding the extension of delivery time.

3. Port Activity Specific Performance Indicators

The port involves a complex organization, with many defining actors in its activity, involved in the management process, which leads to the establishment of a greater number of performance indicators. A small number of indicators may not provide a satisfactory basis for performance analysis. Specialists recommend fixing a set of basic indicators, so that later they can be developed in other secondary indicators, so that as many details as possible can be achieved. It is very important that the secondary and the basic actors are consistent (Haralambie, 2013).

Depending on how the indicators are tracked, it can be permanent or punctual, depending on the purpose. As a rule, the indicators continuously monitored refer to the activities carried out inside the port and refer to the port as an isolated entity. In the port management course notes, the Beizadea and Popa (2013), shows that if a permanent indicator is declining this is a negative fact, regardless of the situation resulting from the comparison of that port with other ports. A set of continuously monitored indicators is in fact standardized parameters of the port activity, and their values become norms specific to that port. It considers multiple characteristics of the port (machinery, equipment, investments, geographical area, traffic, etc.) that are considered specific and that change slowly, but not completely. Point indicators are information that describe a port's performance at a given time and in absolute terms. They are used to decide where an anomaly occurs in the activity. These indicators are used when making comparisons. Those who use such indicators have their own system of values for making comparisons, but it should be noted that these values are useless if the other factors that influence and particularize the activity are not considered. The indicators should be used carefully, considering all significant additional factors, before carrying out the analysis and proposing measures to change the existing situation.

Strong competition in many segments of the maritime business emphasizes that pursuing a higher level of efficiency and staying competitive has become the urgent strategy for ship management companies

to gain an advantage in the global market (Turcanu (Marcu) & Gasparotti, 2020). As the ship management industry is service-oriented, the provision of high-quality services should be considered an important intangible resource to gain potential customers and retain existing customers. Although measuring service quality is quite difficult, many researchers have explored shipowners' views on the attributes offered by ship management companies and their importance for choosing ship managers as a strategic plan for developing service quality (Duru, 2013).

An international standard is needed to define, measure and report information on operational performance in maritime transport. To meet this need, a group of 18 ship management and ownership companies have decided to launch the Shipping KPI project in order to improve the capacity of the shipping industry to meet the growing demands of society. The project was funded by participating companies, but received partial funding from the Norwegian Research Council. A steering committee led by Wilh. Wilhelmsen ASA supervised the project activity, while MARINTEK was the project manager and the main research and development partner.

Launched in 2003, the system was developed by a cross-industry group of experts, led by InterManager - the international trade association for the ship management industry - and working with the Norwegian Research Council, Marintek consultants and maritime IT specialists SOFTImpact and supervised by an independent KPI association since 2011 (BIMCO, 2011).

It allows shipowners and managers to compare the efficiency of their ships with the performance of industry and sector averages.

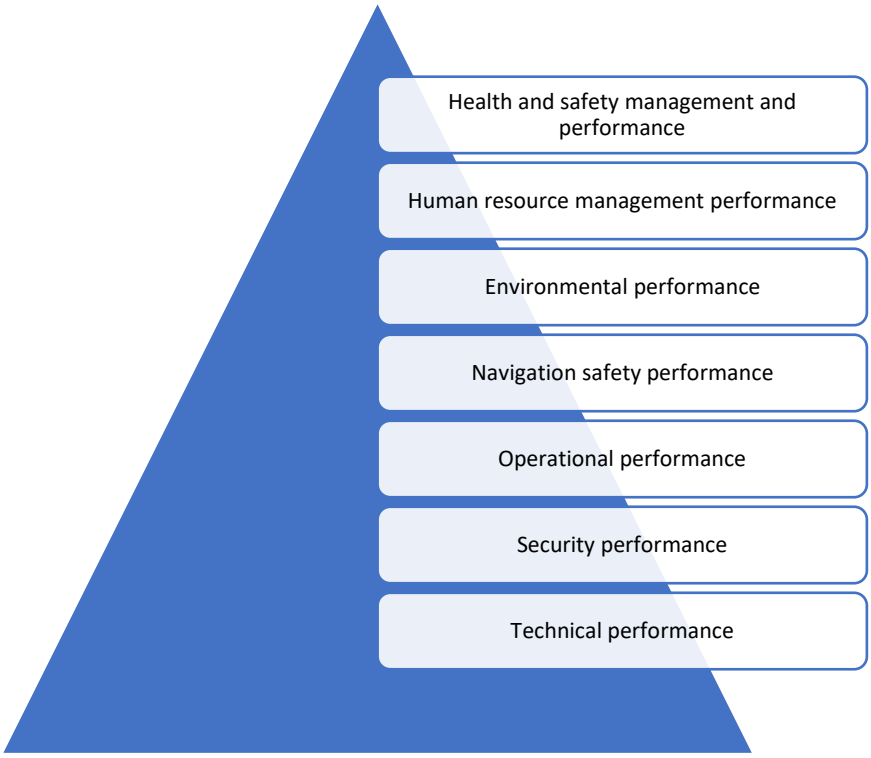

Figure 1.2. Standard of Naval Performance Indicators

Conclusion

In the conditions of the development of the world economy of the contemporary era and in perspective, of the growth in high rhythms of the volume of the naval traffic and of the exceptional diversification of the assortments of goods, both for raw materials, but especially for industrial, consumer or technical investment products, sea and river as well as ports have particularly high loads, which have imposed in the last quarter of a century the achievement of spectacular constructive technical advances both in ship production and in the expansion and modernization of sea and river ports. These achievements have required and continue to require huge investments that can only be secured at the national level or even through international cooperation. From this point of view, the classic statement regarding the economy of river transport must be reconsidered in relation to the volume of investments, of extremely high values. The organized, safe and operative development of maritime trade is no longer a simple problem in the new millennium, but an extremely complex one, because the realization of the advantages mentioned above, interpreted in terms of the necessity in the world circuit of trade maritime countries.

In conclusion, inland waterway transport, as an objective necessity of the modern national and international economy, can preserve its advantages only through a fair conception and organization in the construction of national fleets and ports.

The potential of inland waterways can only be achieved if the legislation is harmonized throughout the waterway so that times can be optimized. Shipowners must have clear procedures and rules applicable throughout Europe.

Aknowledgement

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