



Ship scheduling and routing optimization. An application to Western Mediterranean area*

Mauro Catalani^{1**}

¹ Territorial System Department, Naples Parthenope University, Via Medina 40, 80122 Naples, Italy

Abstract

The objective of the paper, knowing the number of ports and ship fleet, is to optimises maritime transport routing of a containership, based on demand scheduling to each port of call ,using the expert system approach with owner utility function (McFadden D. 2000). All that need the operative cost of ships employed and their technical characteristics. The problem solution will be given, for each ship of the fleet, by routing of the ships , container movement for each port of call and transport cost. This paper proposes the use of a methodology based on an expert system computation program with a random utility function of a shipowner operating in a maritime network mapped by geographical information system GIS (Catalani M. 2001).

Keywords: Maritime; Networking; Route; Feeder; Optimisation.

1. Introduction

The current trend for giant ships, as can be seen from the constant growth in size of ocean-going container ships, has led the shipping companies which own these ships, known as deep-sea craft, to select a limited number of stop-over ports where they can concentrate large amounts of merchandise. All this involves significant investment on the part of big deep-sea shipping companies in ever larger ships, which, by stopping at few ports, make it possible to cover a wide-ranging market, making use of local feeder services (Frankel E. 2005). In this way, it is possible to serve port terminals where one direct stop-over would not be economically advantageous or even practicable for geographical, technical, or commercial reasons, (distance from the main trade routes, shortage of infrastructures, shallow waters, modest quantities of containerisable cargo, etc.). The feeder service therefore, in the maritime container transport scenario, is a logistic activity where the main merchandise carrier is substituted, for a certain portion

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** Corresponding author: Mauro Catalani (mauro.catalani@uniparthenope.it)