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MASTER’S THESIS

**DETERMINATION OF COMPETITIVE STRATEGY AND
FIRM PERFORMANCE RELATIONSHIP IN RO-RO
COMPANIES OPERATING IN TURKEY**

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İZMİR- 2021

DECLARATION

I hereby declare that this master thesis titled as “**Determination of Competitive Strategy and Firm Performance Relationship in Ro-Ro Companies Operating in Turkey**” has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

24.01.2021

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ABSTRACT

Master's Thesis

Determination of Competitive Strategy and Firm Performance Relationship in Ro-Ro Companies Operating in Turkey

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Recent developments in the international trade have raised the demand for multimodal transport solutions which allows less dependency on pollutant, costly and risky road transport. Several studies have revealed that maritime transport is the most environmental friendly transport mode alternative to road. Especially, short sea Roll-on/Roll-off (Ro-Ro) shipping has been addressed in many several policy papers as a significant means of shifting cargoes from road to sea, and realizing sustainable economic developments.

Ro-Ro transportation is considered as the most suitable maritime transportation system in our country thanks to its strategic geographic position, advanced land network connections, and increasing trade volume. However, many Ro-Ro companies have suffered either enter into the market or, even if they achieved entrance, to maintain their operations. The key issue is here to analyze the market environment accurately, and to choose best fit strategy which lead companies to gain sustainable competitive advantage and improve firm performance.

This study aims to tackle competitive strategy and firm performance relationship within Ro-Ro shipping context. In this regard, twelve competitive strategy components and three firm performance criteria were identified through literature reviews and semi structured interviews. Then, contextual

relationships among these variables were determined and developed into a model via Interpretive Structural Modeling (ISM) technique. Afterwards, most critical variables composing the model were evaluated by means of Cross-Impact Matrix Multiplication Applied to Classification (MICMAC) analysis. According to the research findings, customer orientation and responsiveness, operational flexibility, innovativeness and R&D are the most critical strategy components, while market share is the best performance indicator for Ro-Ro companies operating in Turkey. It is recommended these companies' managers to adopt hybrid strategies to boost firm performance.

Keywords: Ro-Ro, short sea shipping, competitive strategy, firm performance, Interpretive Structural Modeling (ISM), MICMAC.

ÖZET

Yüksek Lisans Tezi

Türkiye’de Faaliyet Gösteren Ro-Ro Firmalarının Rekabet Stratejisi İle Firma Performansı Arasındaki İlişkinin Belirlenmesi

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Uluslararası ticaretteki son gelişmeler, kirletici, maliyetli ve riskli karayolu taşımacılığına daha az bağımlılık sağlayan multimodal taşımacılık çözümlerine olan talebi artırmıştır. Birçok çalışma, karayolu taşımacılığına en çevre dostu taşımacılık modu alternatifinin deniz taşımacılığı olduğunu ortaya koymuştur. Özellikle, kısa mesafe Ro-Ro taşımacılığı, birçok politika raporunda kargo akışını karayolundan denize kaydırmanın ve sürdürülebilir ekonomik gelişmeleri gerçekleştirmenin önemli bir aracı olarak ele alınmıştır.

Ro-Ro taşımacılığı, stratejik coğrafi konumu, gelişmiş kara ağı bağlantıları ve artan ticaret hacmi sayesinde ülkemize en uygun deniz taşımacılığı sistemi olarak kabul edilmektedir. Ancak pek çok Ro-Ro şirketi pazara girmekte ya da giriş yapsalar dahi faaliyetlerini sürdürmekte zorlanmaktadır. Buradaki ana mesele, pazar ortamını doğru analiz etmek ve şirketleri sürdürülebilir rekabet avantajı elde etmeye ve firma performansını artırmaya yönlendiren en uygun stratejiyi seçmektir.

Bu çalışma, Ro-Ro taşımacılığı bağlamında rekabet stratejisi ve firma performans ilişkisini incelemeyi amaçlamaktadır. Bu kapsamda, literatür taramaları ve yarı yapılandırılmış mülakatlar yoluyla on iki rekabet stratejisi bileşeni ve üç firma performans kriteri belirlenmiştir. Daha sonra bu değişkenler arasındaki bağlamsal ilişkiler belirlenmiş ve Yorumlayıcı Yapısal

**DETERMINATION OF COMPETITIVE STRATEGY AND FIRM
PERFORMANCE RELATIONSHIP IN RO-RO COMPANIES OPERATING
IN TURKEY**

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ABBREVIATIONS

AHP	Analytic Hierarchy Process
ANOVA	Analysis of Variance
ANP	Analytic Network Process
ASEAN	The Association of Southeast Asian Nations
BSC	Balance Scorecard
BSI	Bloomberg Shipping Indices
CMV	Common Method Variance
DA-like	Defender-Analyzers
DWT	Deadweight Tonnage
EO	Entrepreneurial Orientation
etc.	Et cetera
EU	European Union
Eurostat	European Statistical Office
EVA	Economic Value-Added
GMS	Greater Mekong Sub-region
GT	Gross Tonnage
GTMA	Graph Theory Matrix Approach
HRM	Hierarchical Multiple Regression
I/O	Industry Organization View
ILO	International Labour Organization
IMO	International Maritime Organization
Inc.	Incorporation
INEA	Innovation and Networks Executive Agency
IoT	Internet of Things
ISM	Interpretive Structural Modeling
ISL	Institute of Shipping Economics and Logistics
ISO	International Organization for Standardization
IT	Information Technology

ITF	International Transport Workers' Federation
LNG	Liquified Natural Gas
LR	Leverage Ratios
LSD	Least Significant Difference
M&A	Merger and Acquisition
MANCOVA	Multivariate Analysis of Covariance
MICMAC	Cross-Impact Matrix Multiplication Applied to Classification
MIP	Mersin International Port
n/a	Not Available
nm	Nautical Miles
OBOR	One Belt One Road
OECD	Organisation for Economic Co-operation and Development
PA-like	Prospector-Analyzer
PCC	Pure Car Carrier
PCTC	Pure Car and Truck Carrier
PLS	Partial Least Squares
R&D	Research and Development
RBV	Resource-Based View
ROA	Return on Asset
ROE	Return on Equity
ROI	Return on Investment
Ro-La	Rollende Landstrasse
Ro-Pax	Roll-on/Roll-off a Passengers
Ro-Ro	Roll-on/Roll-off
ROS	Return on Sales
SBU	Strategic Business Unit
SCI	Supply Chain Integration
SCP	Structure - Conduct – Performance
SEM	Structural Equation Modeling
SMEs	Small and Medium-Sized Enterprises
SPSS	Statistical Package for the Social Sciences

SSIM	Structural Self-Interaction Matrix
SSS	Short-Sea Shipping
TCL	Turkish Cargo Line
TEN-T	Trans Europe Network-Transportation
TQM	Total Quality Management
TRACECA	European-Caucasian-Asian Transport Corridor
TURKLIM	Port Operators Association of Turkey
TUSIAD	Turkish Industry and Business Association
UND	Turkish International Transport Association
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USA	United States of America
UTIKAD	Association of International Forwarding and Service Providers

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INTRODUCTION

Accelerating international trade, progressions in transportation networks, and mobility of the goods have all provided new opportunities for multimodal transport that comprises utilizing more than a single mode to create an integrated transport chain. Considerable efforts have been exerted by policymakers, being EU in the first place, on modal shifting to minimize dependency on road transport. Ro-Ro transport represents a special maritime segment in which shift between transportation modes could be achieved conveniently. With this aspect, it constitutes a key part of intermodal or multimodal transport chains. The underlying logic for promotive strategic actions behind Ro-Ro is offering a competitive alternative to congested, polluting, accident-prone, and resource-consuming road transport. Ro-Ro transport is denoted as a creative solution to difficulties associated with road transport such as lack of value-added services, queueing delays, customs clearance and quota issues, failure of integration with other modes, traffic safety problems, and so forth.

Turkey, having outstanding, advantageous and strategic position between Europe, Asia and Africa, serves as a significant hub in international trade. Being a key transfer point among these continents; the country inevitably has a grand potential to develop multimodal solutions, including Ro-Ro transportation. Especially considering various initiatives such as Middle Corridor, One Belt One Road (OBOR), and numerous government investments to expand ports/terminals and to improve road - rail networks, Ro-Ro transport has come into prominence in Turkey as days pass. Although the Ro-Ro industry has grabbed substantial attention and encourage new firms to participate in the competition to get a share from this promising market, many companies have failed to continue their existence in Turkey. Therefore, Turkish Ro-Ro industry has been dominated by a few major companies operating in three main markets: Europe, the Black Sea and Mediterranean. To achieve longevity unlike other several companies that went bankrupt, existing players must first attain sustainable competitive advantage. In this context, the question arises on how those Ro-Ro companies can achieve a sustainable competitive advantage which may be accomplished through the successful formulation and implementation of competitive strategies that lead to improve firm performance.

Aim and Scope of the Research

This study aims to identify and rank components of competitive strategies pursued by Ro-Ro companies operating in Turkey, to explore and evaluate the interrelations among those components and firm performance indicators, to develop a conceptual framework visualizing linkages among them, and to propose strategies for Ro-Ro managers to enhance firm performances. Accordingly, this research seeks to answer the following questions:

R.Q.1: What are the critical components of the competitive strategies of Ro-Ro companies operating in Turkey?

R.Q.2: How is the conceptual relationship and the level of interdependence between competitive strategy and firm performance variables?

R.Q.3: How managers working for Ro-Ro companies should approach in addressing these components for achieving a greater firm performance?

Within the context of the aim of the study, Ro-Ro companies operating in Turkey are chosen as the main focus in determining competitive strategy and firm performance linkage. Considering distinctive characteristics and market dynamics of short-sea and deep-sea shipping, this study focuses primarily on Ro-Ro lines that perform over short distances. In the same vein, dissimilarity of competitive factors in cabotage and international markets leads to limitation of the research's scope.

Significance and Theoretical Background of the Research

The shipping companies have faced lots of challenges since the 2009 economic crisis including lower freight rates, insufficient infrastructure, overcapacity problems, volatile earnings that lead firms to suffer from low profits and poor financial performance (Pathak, 2015: 11). Such threatening and dire situations have forced shipping companies to choose an optimal, clear strategy to sustain their existence and achieve competitive advantage. The success of a shipping firm is contingent upon building a good strategy and effective implementation of it (Han, 2017; Pathak, 2015; Slater and Olson, 2000). Despite all the significance of the

subject, there exists scant literature about strategy formulation and its implementation in the shipping industry context (Niamié and Germain, 2014; Panayides, 2003). Studying strategies of the shipping industry, Niamié and Germain (2014) emphasized that strategy topic has been started to get more scholars' attention especially since 2004 in the shipping industry. They found just three articles that were edited before the 2000s.

Competitive strategies are known as crucial to explaining variations of profitability and firm performance in the long-run (Beard and Dess, 1981; Teeratansirikool et al., 2012). Several typologies have been presented in the strategic management field that aims to guide firms for competing in particular industries via exploitation of firms' competitive advantage to achieve their objectives and goals. In this research, Porter's (1980) generic strategies which are namely cost leadership, differentiation, and focus are employed for its conformity with many other typologies (i.e. Miles and Snow, Mintzberg), universally acceptance and popularity, simplicity, generalizability, testability, and well-designed structure and so forth. (Ormanidhi and Stringa, 2008, Teeratansirikool et al., 2012). Porter (1980, 1985) posited that a firm must make a clear choice among these generic strategies to strengthen its market position and ensure long term profitability.

Acknowledging the criticality, numerous publications have been carried out to explain the competitive strategy-performance link based on Porter's theory. However, very few studies have addressed this relation in the shipping context. Therefore, this research makes valuable contributions to literature in several ways:

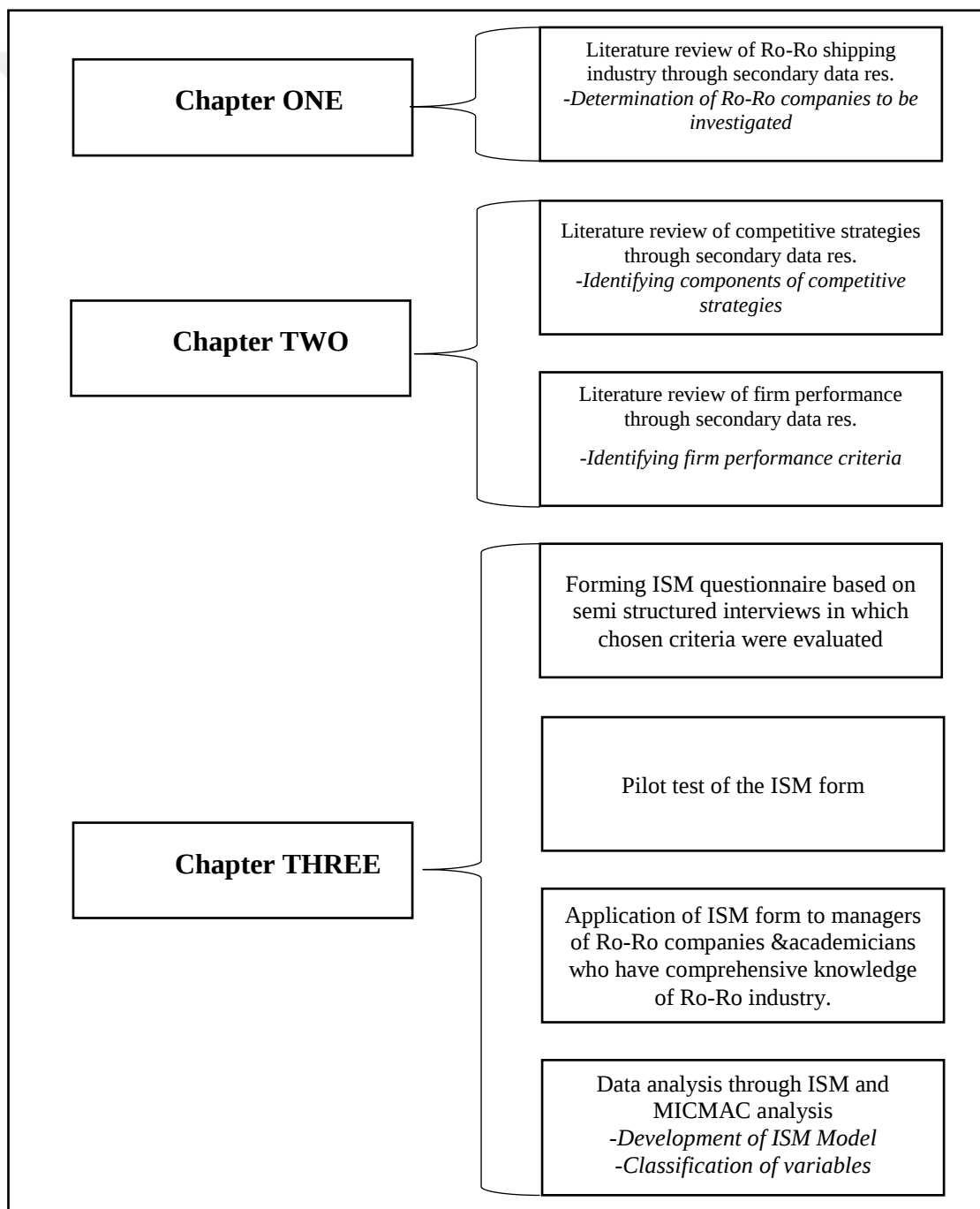
- It is the first research investigating the linkage between competitive strategy and firm performance within the Ro-Ro shipping context.
- This study extends previous studies on strategy-performance relation by analyzing interrelations among competitive strategy components each other and with firm performance indicators, and by providing a graphical presentation of those conceptual relationships.
- The present study explores, for the first time, strategy-performance relation through the Interpretive Structural Modeling (ISM) Technique. Although there is a limited number of studies using ISM to make competitive analysis (e.g.

Singh et al., 2018; Verma et al. 2018), no research found regarding competitive strategies.

The Research Process

To reach the aim of the study, the research process design of the study is revealed in Table 1.

Table 1: Research Process



As seen, this master thesis is composed of three distinctive chapters to realize the major research objectives. The first chapter begins with general information regarding Ro-Ro shipping, its characteristics, and the main factors affecting the industry. Later on presents the industry's development process from a historical perspective, the current state of the short sea Ro-Ro shipping in Turkey, Europe, the USA, and ASEAN countries, and macro external environmental analysis of the Turkish Ro-Ro market.

The second chapter is particularly dedicated to the literature review. It initially clarifies strategy and competition concepts, and explains different typologies and taxonomies regarding competitive strategies. Five forces analysis of the Ro-Ro industry is also given in this part of the thesis. Afterward, the literature review of the competitive strategies and firm performance relationship is carried out, and constituent elements of both concepts are identified.

Chapter three describes the research methodology. In the beginning, semi-structured interviews are conducted to identify representative criteria compiled from the literature review. Following, the ISM technique is applied to discover interrelationships and ranking among strategy and performance criteria. In this regard, all contextual relationships are illustrated by forming a well-designed model. Based on MICMAC analysis, critical variables that shown within the model are found. From this point of view, some strategies that may enhance firm performances are proposed to Ro-Ro managers.

CHAPTER ONE

RO-RO TRANSPORTATION

In the new global trade system, Ro-Ro transportation has become a central issue for governments that set out improve intermodal transport practices. Considering main logistics objective in the Eleventh Development Plan of Turkish Government (2019-2023) which accentuate the significance of multimodal and intermodal transport to reduce logistics costs, to facilitate trade and to increase the competitiveness of Turkey, Ro-Ro transportation has risen to prominence.

When Ro-Ro transportation is combined with road or rail, it constitutes one of the most efficient and powerful weapons of intermodal transportation as a rapid, reliable, safe and flexible solution. Strategic geographic position, advanced land network connections, and increasing trade volume make Turkey a center of attention for Ro-Ro operators. This chapter presents general overview of Ro-Ro transportation.

1.1. RO-RO TRANSPORTATION AS A SHORT SEA SHIPPING TOOL

Short-sea shipping (SSS) is taking an increasingly significant place in the maritime industry since the enlargement of vessels lead deep-sea operators to reduce port calls and transfer cargoes from hub ports to out ports via smaller, feeder vessels (Stopford, 2009: 532). This transport mode has been high on the European Union (EU)'s agenda due to accounting for nearly sixty percent of the EU trade is performed via SSS (Amerini, 2009). In this context, the "Motorways of the Sea" concept has become a prominent transport policy that emphasizes better integration of SSS to intermodal logistics chains (Baird, 2007; Douet and Cappucilli, 2011; Navarra et al., 2014).

SSS has been developed in response to the excessive increase in road traffic, which leads to delays and traffic congestion in freight delivery and as a result in poor quality and high costs of transport services in Europe. The underlying reason for development for the "Motorways of the Sea" policy is to offer a competitive alternative to congested, polluting, accident-prone, and resource-consuming road

transport (European Commission, 2019). Figure 1 reveals Motorways of the Sea routes.

Figure 1: Motorways of the Sea Map



Source: Innovation and Networks Executive Agency (INEA), 2014.

Hard to make a specific definition of the SSS since definitions may differ in terms of transport distances, ship types, cargo types, and geographical features. Some authors indicate just coastal navigation as SSS, whereas other definitions encompass international level or river transports, as well. The common point among all definitions is the movement of the passengers or cargoes without crossing oceans (Çakaloz, 2015; Öztürk et al., 2017). Stopford (2009) characterizes SSS by flexibility; while Saldanha and Gray (2002) point out its sustainability and economically competitive aspects. Within this scope, SSS has been considered as a key element of intermodal transport. For Deveci et al. (2004), intermodality enables companies to offer fast, reliable, safe, environmental-friendly, and sustainable door-to-door services through benefitting from advantageous sides of each model. To exploit the full potential of SSS, it is required to enhance the connections to inland networks via either road, rail, or even in some cases air transport.

According to Stopford (2009), Ro-Ro shipping is among the most suitable means to shift between transportation modes. Medda and Trujillo (2010) state that Ro-Ro vessels enable to horizontal handling of cargoes which allow low

transshipment costs and faster cargo handling operations thanks to its innovative shipping technology. Therefore, it can be concluded that this type of vessels play an effective role in the enhancement of SSS competitiveness. Ro-Ro is denoted as a creative solution to problems associated with road transport including lack of value-added services, queueing delays, customs clearance and quota issues, failure of integration with other modes, traffic safety problems, and so on (Deveci, 2010: 24). Ng (2009) propose that reasonable frequency, interoperability, and regularity are necessary to achieve a competitive advantage over road transport. In this regard, Ro-Ro shipping can also be considered as a source of competitiveness owing to offering scheduled and frequent services between predestined calling ports arising from liner structure.

SSS supports the alleviation of transportation-related costs, lead time, and environmental impacts. Considering a Ro-Ro vessel that can carry approximately 80 trucks at the same time, its positive contribution to the economy both at the company and national level becomes obvious. Less infrastructure dependency, utilizing economies of scale, smoothing the traffic congestion, improvement of energy efficiency and air quality, etc. have tempted governments to revitalize SSS (Öztürk et al., 2017: 60-61). More particularly, Ro-Ro and Ro-Pax vessels come to the forefront in this sector. Although the sector is progressively developing in the USA, Canada, and Australia, short-distance transportation is still dominated by land networks (rail and road) in such countries. Indeed, recently SSS has experienced significant growth in Europe. EU has made a considerable effort on a modal shift away from road transportation especially since the White Paper project was conducted in 2001 (OECD/ITF, 2009: 101). The sea regions where European SSS freight traffic is the most intense are the Baltic Sea, North Sea, and the Mediterranean Sea. Dover is Europe's largest Ro-Ro port, therefore it is not surprising to note that a great part of Ro-Ro units' movement was carried out by UK (Eurostat, 2019). Germany, Italy, Sweden, and the United Kingdom are the countries where nearly 85% of Ro-Ro transportation has been performed. For this reason, trade among these countries is of the essence in SSS (Çakaloğlu, 2015: 98).

The development and support of the SSS within the scope of EU transport policies have given positive results. Not only member countries in the EU but also in

candidate countries including Turkey, intermodality and SSS have gained priority. According to the OECD report exploring intermodal transport in Turkey (2009), mainly two forms of intermodal transport are used for both national and international operations. Firstly, road-rail operations are conducted using Rollende Landstrasse (Ro-La) which refers to adopting a roll-on/roll-off technique to road transport. Accordingly, road vehicles can be transported on specially adapted low floor wagon trains. On the other hand, for maritime operations, Ro-Ro vessels are deployed. Ro-Ro operations are defined in this report as transport of semi-trailers, lorries, swap-bodies, or containers to vessels on their wheels or on wheels specifically connected to them for that purpose. Both national and international ferry services involving SSS as well as railway ferries are considered in this form (ITF, 2009: 101-102).

Ro-Ro transportation is considered as the most suitable maritime transportation system in our country thanks to its strategic geographic position, advanced land network connections, and increasing trade volume (Yeşilbağ, 1999: 411). Turkey aspires to overcome the obstacles arising from various political and legal negativities encountered in road transportation by using SSS. Ro-Ro transport is progressively developing within the scope of SSS in Turkey. Its Ro-Ro operations center upon Europe, being in the first place, Mediterranean and Black Sea countries. As an effective, efficient, and environmentally friendly mode of transportation, Ro-Ro has grabbed worldwide attention. More particularly, it also provides numerous advantages to Turkey for better integration to the rest of the world through multimodal transport opportunities. In this regard, understanding the dynamics of the Ro-Ro market and the conduct of the major players has vital importance for realization country's full potential.

1.2. DEVELOPMENT OF THE RO-RO TRANSPORTATION IN THE WORLD

The origin of the modern Ro-Ro ships can be traced back more than one hundred and fifty years to the early times of the steam trains. These ships, called train ferries, were specifically designed to convey trains across the rivers since they were too large and wide for bridges. Being equipped with rails, those ships enabled trains

easily roll straight on to the vessel, and after passing river roll-off train in another rail berth again. In this context, the first Ro-Ro operations began in 1833 on the Forth and Clyde Canal in Scotland by Monkland and Kirkintilloch Railway Company (Marshall, 1989).

In the US, Ro-Ro services started in the late 1920s by carrying commercial cars and vehicles between Havana, East and Gulf Coast ports. Ro-Ro vessels were not been used for deep-sea transportation due to low capacity utilization and perception of being uneconomical (Stopford, 1997: 397). Ro-Ro transportation, especially short-sea shipping, has gained traction since the 1940s. In the course of World War II, landing ships were the first sea-going vessels that purposely built to enable road transport vehicles, in that case, more particularly for military tanks, to roll straight on and off (Lenton and Colledge, 1968: 577).

Ro-Ro transportation, in its modern form, started to develop in Scandinavia in the 1960s and expanded from here to other European coastal countries. Although originally intended for short-haul and passenger carriage, Ro-Ro transport was later transformed into freight transport and, over time, started to use for deep sea transport as well (Yıldırım, 2006: 14). Moreover, containerization led to transport larger volumes of cargo and perform flexible handling operations which also significantly contributed to demand Ro-Ro transportation thanks to increasing speed and efficiency. Today, these ships have greatly flexible cargo capacity. They constitute the most important part of the world fleet used for the transportation of forest products, vehicles, and various special, high, and heavy cargoes.

1.2.1. Factors Affecting Development of the Ro-Ro Transportation

Ro-Ros are the leading specialized ships that provide competitive advantage through huge investments and speed up transportations in the maritime sector (Gammelgaard, 2013: 15). There are many advantages created by fast, reliable Ro-Ro transportation including effective cargo transfer from the land/rail to the ship with minimal load fluxes in the port, more frequent service opportunity and utilizing cost advantages stemming from long port times, high level of handling operations, etc (Varbanova, 2018: 124). More specifically, one of the most decisive factors in the

choice of Ro-Ro ships is undoubtedly the fact that factory-produced goods can be easily loaded and unloaded only once in a single carrier vehicle and greatly increase the hauling speed. Therefore, cargoes (vehicles) can be protected against damage that may occur during transshipment or cargo handling process, and the retarding of the obsolescence of the vehicles due to moving less (Yeşilbağ, 1999: 412). The causes for the development of the Ro-Ro market can be listed as follows (Çakaloğlu, 2015: 102-103):

- ✓ It creates a cost advantage for both the shipowner and the shipper. It enables shippers to smoothly and quickly serve either from door to door or from warehouse to warehouse; while for the shipowner it reduces handling time, costs, and dependence on port equipment.
- ✓ It allows more competitive freight pricing by the virtue of a cost-effective structure.
- ✓ It ensures customer satisfaction thanks to the reliability of schedules, the safety of transport, and higher quality. Furthermore, the convenience of the documentation process, faster transportation, lower damage probability, and cost advantages also positively affects customer satisfaction.
- ✓ Since Ro-Ro transportation is suitable to benefit from multimodal transportation' advantages such as door-to-door service opportunities and less exposing cargo transshipments or handling operations; less handling costs, less cargo damage/loss, and pilferage risks are experienced.
- ✓ Ro-Ro units, whether they are only trailers or drivers accompanied vehicles, can be easily transported to key industrial centers, as they are consolidated and suitable for grouping.
- ✓ Developments in the trade of wheeled cargoes raise the importance of Ro-Ros since a need for transportation of such specialized cargoes is created.
- ✓ The investment costs required for handling Ro-Ro cargoes at the port facilities are very low compared to other ports. There is no need for cranes in Ro-Ro ports, only ramps, and parking areas are sufficient for the loading and unloading of wheeled cargoes.

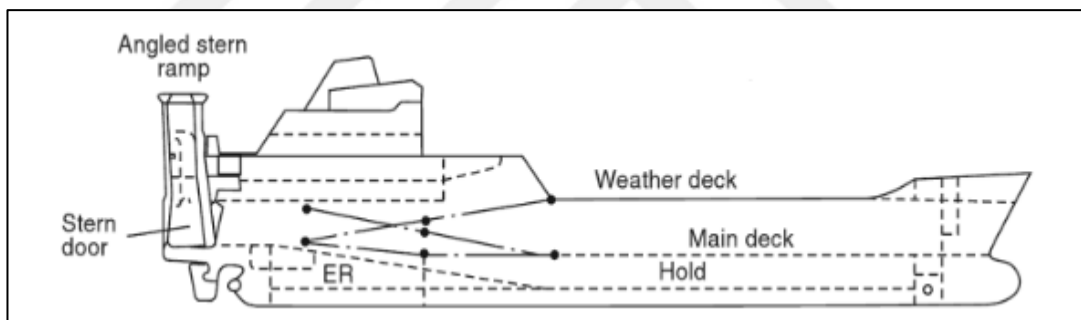
- ✓ Ro-Ro ships are characterized by versatility and flexibility thanks to ancillary equipment such as forklifts or MAFI trailers which are used for handling, loading, and unloading of units.

The modern design of the Ro-Ro vessels and cost advantage achieved by Ro-Ro operations help to boost overseas trade volume.

1.2.2. Characteristics of Ro-Ro Transportation

Ro-Ro is an acronym for Roll-on/Roll-off which identifies how cargoes are loaded into and unloaded from a Ro-Ro vessel. Unlike containerships which being lifted by means of cranes, Ro-Ro transportation enables loading/discharging of cargoes through external or internal ramps that are typically placed at the stern, at the bow, or on both sides of the vessel as seen in Figure 2 (Arof, 2016: 3).

Figure 2: Ro-Ro Cargo Ship Design



Source: Bruce and Eyres, 2012: 22

Ro-Ro is one of the most favorable and successful ship types operating today. Its flexible structure, integrability with other transport modes, and speed of the operations has made it excessively popular on many shipping trade routes (IMO, 2020). The most distinctive and overemphasized feature of Ro-Ro ships is to the ability to carry wheeled cargoes. During the historical development process, the related ships have transformed into more versatile structures to carry various cargoes in accordance with their fields of activity and designs. Besides wheeled cargoes, Ro-Ro ships have been able to serve project cargoes or any other units which can be driven or towed onto a ship by wheeled equipment such as a forklift, trailers, and so

on. Therefore, even bulk cargoes can be transported by Ro-Ro ships if they are packaged, palletized, or containerized to be handled through such equipments. In this regard, definitions of the Ro-Ro vessels especially represent the ship design and cargo types. For Stopford (1997: 373), Ro-Ro can be defined as *“a multi-deck vessel in which the holds are accessed by ramps in the bow, stern or side.”* According to IMO (1985: 4), Ro-Ro carrier refers:

“A ship which has one or more decks either closed or open, not normally subdivided in any way and generally running the entire length of the ship, in which goods (packaged or in bulk, in or on-road vehicles including road tank-vehicles, trailers, containers, pallets, demountable or portable tanks or in or on similar cargo transport units or other receptacles) can be loaded or unloaded normally in a horizontal direction.”

Ro-Ro transport has two major characteristics: First, it is a mode of intermodal transportation which refers to the movement of freights in the same single loading unit or a vehicle by consecutive transport modes without handling of cargoes while shifting modes. Multimodal or combined transport terms are also used in some cases interchangeably with intermodal transport due to describing using more than one transport mode, but their context may be differed (UNESCAP, 2005). Second, Ro-Ro transport is usually considered as a type of SSS scheme. In this context, it is an important alternative for minimizing challenges caused by road transport including high transportation costs, emissions, noise pollution, traffic density, and fatal accidents.

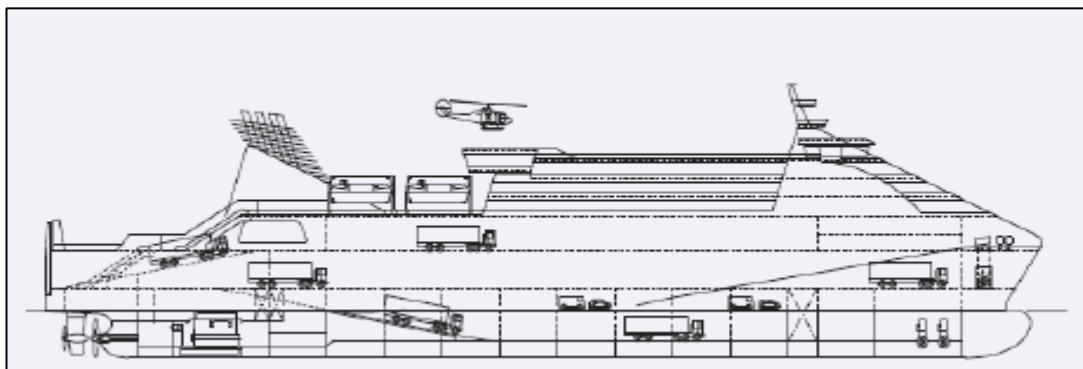
Ro-Ro transportation is a liner type of shipping in nature. Vessels are assigned to serve on a specific route and pre-determined ports according to the schedule which increases the reliability of transportation in terms of time when excluding the sea-related negativities. The fact that the departure and arrival times are known to a large extent makes it easier to estimate the delivery time of the cargo more precisely compared to other transportation modes (Yaran, 2009: 15). Particularly, trailer and truck transports are carried out potently on the Northern part of Europe and in the Mediterranean Sea while transport of manufactured cars is performed between US, Europe, and Japan trade routes (Leach, 2007). Although Ro-Ro vessels are also deployed in such transoceanic routes, their role in deep-sea cargo

carriage is very limited. PCCs (pure car carrier) and more recently PCTCs (pure car and truck carrier) have been used for these vehicle trades which also represent different types of Ro-Ro transport. When it comes to the short-sea trade, the domination of Ro-Ro ferries which is used for cargo and passenger carriage becomes prominent (Stopford, 2009: 494).

It is impossible to separate Ro-Ro carriers from each other with strict bounds since they are one of the ships with the highest flexibility and easiest modification (Hülagü, 2007: 7). Classification of Ro-Ro ships is mostly made according to the cargoes they carry. The improvements in their features and designs over the years have led to their inclusion in different ship classes or the creation of their new ship classes. Stopford (1997) and Christodoulou et al. (2019) indicated Ro-Ro vessels as 'liner' and 'specialized' vessels. Branch (2007) categorized them under 'multi-purpose ship' class while Stopford (2009) considered Ro-Ro ships basically within the scope of 'general cargo ships'. The most common Ro-Ro ship types used for SSS are:

- *Ro-Ro cargo ship*: Ro-Ro cargo ships constitute the largest part of the Ro-Ro fleet worldwide. These ships which are primarily used for transporting cargoes such as trucks, trailers, and semi-trailers are mostly used in the short sea trade market. Cargoes are carried in trailers and trucks, or unitized form loaded via forklifts or other vehicles. In Ro-Ro cargo ships maximum of 12 passengers (except for crew) can be transported due to relevant legal regulations.

Figure 3: Ro-Pax Ship Design



Source: Nautic Expo, 2015.

- *Ro-Pax*: Ro-Pax, see Figure 3, is short for roll-on/roll-off a passenger. It is the type of ship where transporting vehicles, wheeled cargoes, as well as passengers, are transported (Özkan, 2014: 22). For passengers, Ro-Pax ships have accommodation cabins and dedicated areas such as restaurants, storerooms, and cafeterias. Safety and security issues and related regulations are more strictly binding for these vessels since they must comply with international standards which applied to both Ro-Ro and passenger ships (Marine Insight, 2019).

1.2.3. Ro-Ro Transportation in the World

Maritime transportation is the life blood of the global trade and the world economy since nearly 80% of the international trade in volume, and more than 70% of international trade by value is carried by seaway. Transport volume modestly enlarged at 2.7% and reached to 11.9 billion tons in 2018 (UNCTAD, 2019: X). When share of seaborne cargo types are examined, it is seen that dry bulk cargoes have the biggest pie with 44% share (5.2 billion tons), following by liquid bulk with 27% (3.12 billion tons), containers and gas carriage, respectively, 16% (1.9 billion tons) and 3% (418 million tons). Other cargoes accounts for 10% (1.23 billion tons) of the total goods carried by sea (TURKLIM, 2019: 51). Ro-Ro transportation is represented as others which reveal growth in global maritime cargo amount from 2016 to 2018. However, in the most cases, Ro-Ro is considered within the scope of general cargo transportation. In terms of freight-based markets, Ro-Ro transportation is evaluated in both specialized cargo and general cargo class. Considering the value of the cargoes, the share of general cargoes in total maritime transport is 60% (Stopford, 2009: 506).

Table 2: Global Maritime Cargo Growth (billion tons)

Cargo Type	2016	2017	2018	2017-2018 change
Liquid Bulk	3,016	3,080	3,117	1,2%
Gas	355	383	418	9,1%
Dry Bulk	4,903	5,091	5,206	2,3%
Container	1,733	1,833	1,916	4,5%
Others	1,132	1,191	1,235	3,7%
Total	11,139	11,578	11,892	2,7%

Source: Türklım Sector Report, 2019: 50.

According to 2018 IHS Markit fleet statistics, of the around 60,000 ships trading internationally which accounting for around 1.88 billion tons DWT (deadweight tonnage) of capacity, general cargo carriers and bulk carriers are the two most common ship types in the fleet. Ro-Ro cargo ships are ranked at 9th and passenger/Ro-Ro ships 14th place in terms of DWT capacity with totally 24.5 million tons. Average age of Ro-Ro cargo ships is 17, while older ships are deployed for Ro-Pax transportation.

Table 3: World Fleet Statistics

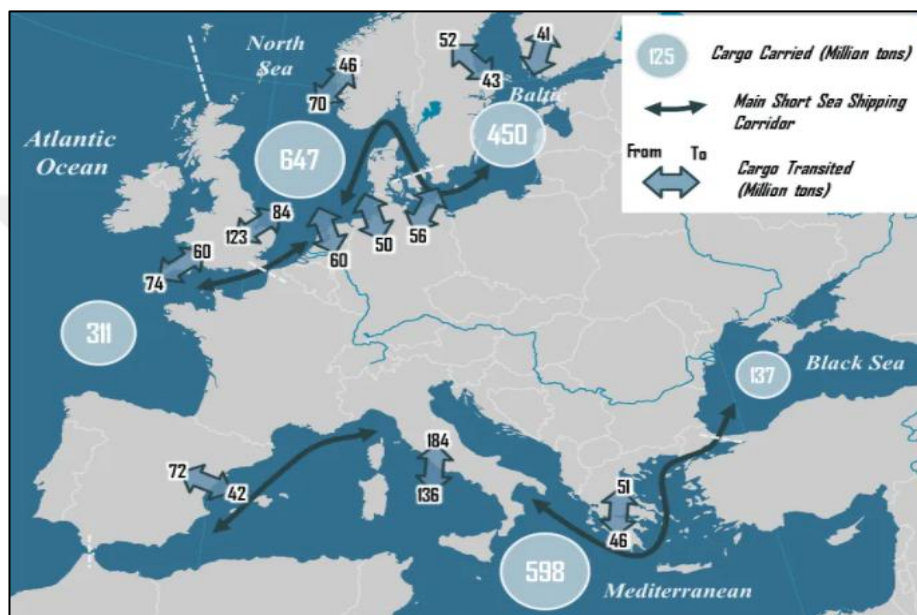
Ship Type	No.	DWT	GT	Age
Dry Bulk	10,419	803,294,941	439,551,928	9
Crude Oil Tanker	2,781	445,581,876	237,407,953	10
Container	5,214	266,476,807	237,095,172	12
Chemical	5,412	111,508,366	69,084,797	13
General Cargo	14,815	78,262,397	54,267,226	24
Oil Products Tanker	5,668	52,774,405	32,595,433	22
LNG Tanker	543	43,834,895	55,936,207	10
LPG Tanker	1,463	24,639,068	21,532,149	15
Ro-Ro Cargo	2,857	20,109,620	50,689,571	17
Other Dry Bulk	1,207	12,017,003	8,966,818	21
Self-Disc. Dry Bulk	140	5,770,725	3,418,230	30
Other Dry Cargo	308	4,836,764	4,611,851	25
Refrigerated Cargo	912	4,442,835	4,104,777	30
Passenger/Ro-Ro Cargo	3,181	4,366,820	17,614,846	26
Passenger (Cruise)	572	2,315,041	22,440,816	24
Dry bulk/Oil	66	2,083,540	1,203,544	27
Passenger Ship	3,614	705,250	1,617,427	28
Other Liquids	170	449,183	353,248	35
Passenger/General Cargo	345	219,696	497,625	30
Total Cargo Carrying	59,687	1,883,689,232	1,262,989,618	22

Source: IHS Markit 2018 Report, 2019.

Ro-Ro shipping is especially concerning to European markets where more than 65% of the total Ro-Ro fleet by capacity of vessels operates. During the last

decades, SSS has been integrated to European intermodal transport chains owing to being environmentally friendly, safe and energy efficient alternative to road transport. Several different sea regions, see Figure 4, which consist of not only EU countries, but also partner countries making SSS with are taken into consideration to evaluate the concept (Eurostat, 2020). These regions as follows:

Figure 4: The European Short Sea Shipping Market



Source: transportgeography.org, 2015.

1. *The Baltic Sea region*

- All ports of Estonia, Finland, Lithuania, Poland, and Latvia as well as Russian and German ports on the Baltic.

- Danish ports below the Kolding- Nyborg–Korsør– Helsingborg line

- Swedish ports on the Baltic Sea starting from Helsingborg

2. *The North Sea region*

- All ports of the Netherlands, Belgium, and Norway as well as German ports on the North Sea

- Starting from Helsingborg (not included), ports of Sweden on the North Sea

- Danish ports that located on North of the Kolding- Nyborg–Korsør– Helsingborg line, Faroe Island.

-UK: East coast ports of Great Britain extending from Ramsgate to the Shetland Islands, Orkney Islands and Cape Wrath in Scotland.

3. *The Atlantic Ocean region*

-All ports of Portugal (including Açores and Madeira), Ireland and Iceland

-Ports of France on the Channel and on the Atlantic Ocean, reaching up to the Belgian border

-Stretching away from ports of Spain located on the Atlantic Ocean to Tarifa, including Canary Island.

-UK: ports of Great Britain on the Channel (from Ramsgate excluded) and the west coast to Cape Wrath in Scotland; ports of Northern Ireland.

4. *The Mediterranean region*

-Turkish ports located on the Mediterranean Sea and Bosphorus.

-Ports of Spain located on the Mediterranean Sea from Tarifa (not included).

-Ports of France located on the Mediterranean Sea.

-All ports of Italy, Cyprus, Malta, Libya, Gibraltar, Slovenia, Bosnia-Herzegovina, Croatia, Montenegro, Greece, Tunisia, Algeria, Albania, Syria, Lebanon, and Occupied Palestinian territory.

-Ports of Morocco, Israel, and Egypt located on the Mediterranean Sea.

5. *The Black Sea region*

-All ports on the Black Sea with the exception of Bosphorus.

6. *Others*

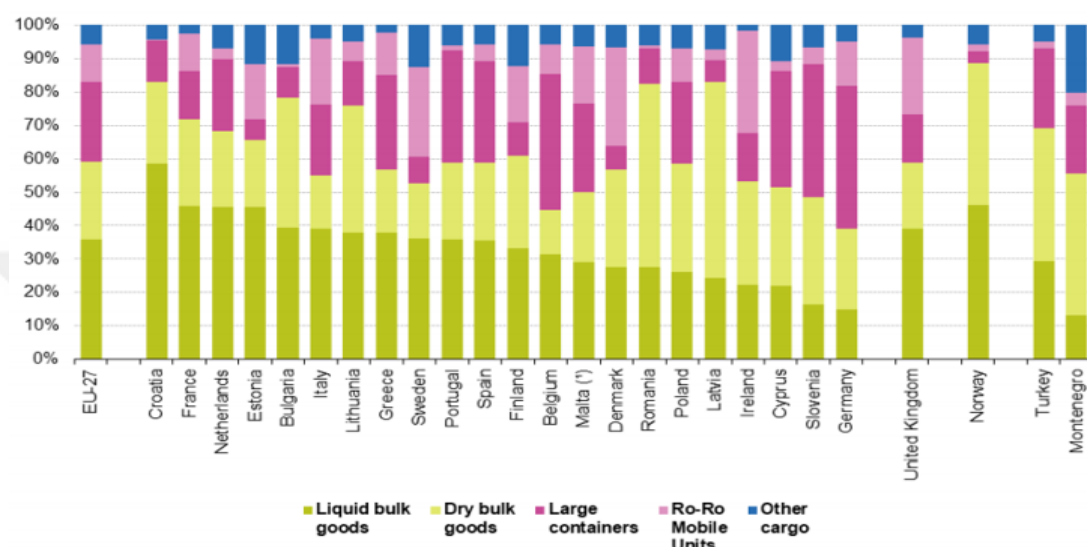
-Non-identified ports of Turkey, Germany, Russia, France, Sweden, the United Kingdom, Spain, Egypt, Israel, and Morocco; EU countries' river countries (Eurostat, 2020).

In 2018, majority of SSS of EU had been traded with the partners in the Mediterranean Sea with over 600 million tons which accounted for 31% of the total SSS tonnage of EU. It was pursued by the North Sea (23%) and Baltic Sea (21%). Atlantic Ocean, Black Sea and other regions were realized respectively 12%, 7% and 6% of the total EU SSS tonnages for all sea regions in that year.

European policy makers have initiated various projects, including Marco Polo I and II, Motorways of the Sea, and TEN-T, to support development of SSS, especially Ro-Ro transport. Hence, it is almost equally significant as container

shipping in Europe, more particularly in Baltic countries, UK and France (Langen et al., 2016). Figure 5 presents share of Ro-Ro cargoes handled in main ports in EU countries including candidate countries Turkey and Montenegro in 2018.

Figure 5: Gross Weight of Seaborne Freight Handled in Main Ports by Type of Cargo



Source: Eurostat, 2020.

Ro-Ro cargoes accounted for 11% of freight handled in main EU ports. The largest share of Ro-Ro mobile units, in terms of total tonnage of cargoes, was handled by Ireland with 30,5%, followed by Denmark with 29,4%, and Sweden with 27%. These output rates indicate the significance of Ro-Ro ferry traffic within the maritime transport of these countries. On the other hand, the highest EU volumes of cargoes, in tonnage terms, transported on Ro-Ro mobile units were recorded by Italy (96 million tons). More particularly, when busiest ports serving to Ro-Ro vessels are considered, Calais (France) was the biggest port for short-sea carried goods on Ro-Ro mobile units which accounted for 18,4 million tons in 2018.

As seen in Table 4, illustrating top 5 EU ports for Ro-Ro units, though handling amount of Calais sharply decreased at the rate of 7.2 per cent, the port maintained its leading position. When compared to growth rate of these ports, Rotterdam seems to have best potential among the top 5 which represents almost one fifth of total handled Ro-Ro units in main EU-27 ports.

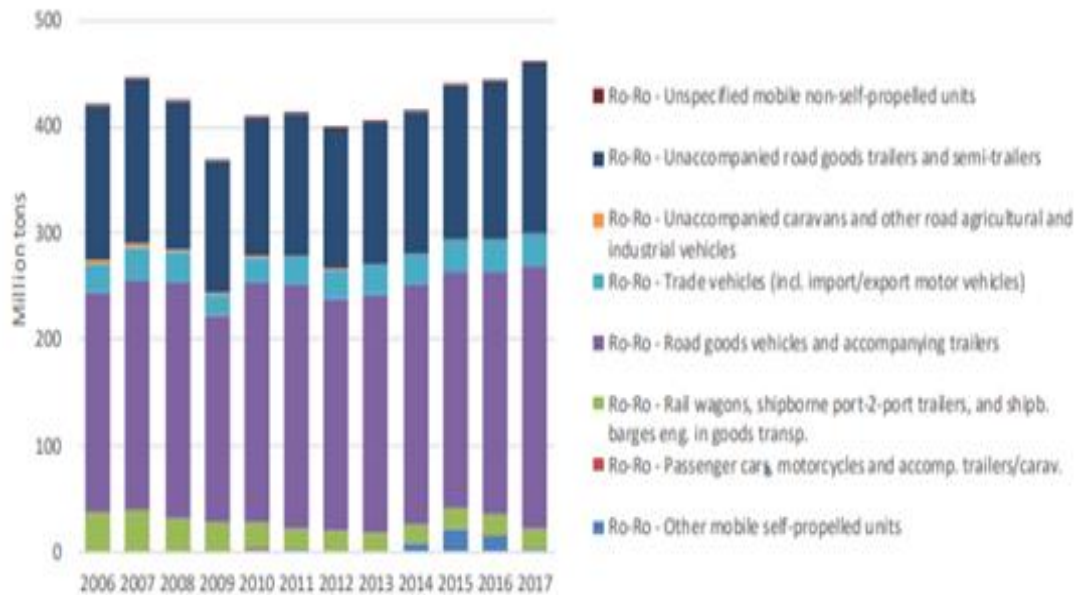
Table 4: Top 5 Ro-Ro Ports

Rank 2018	Ports	Total SSS (million tons)	Change 2018/2017 (%)	Share of EU-27 SSS (%)
1.	Calais	18.4	-7.2	4.9
2.	Dublin	13.8	+3.6	3.7
3.	Zeebrugge	13.4	-0.7	3.5
4.	Lubeck	12.8	+1.0	3.4
5.	Rotterdam	11.9	+4.3	3.2
Total Top 5		70.4	-0.6	18.6
Total handled in main EU-27 ports		377.3	+5.7	100.0

Source: Eurostat, 2020.

According to Eurostat data regarding twelve years (2006-2017) European SSS ports statistics that seen in Figure 6, the most transported Ro-Ro cargoes have been road goods vehicles and accompanying trailers in the first place, while unaccompanied road goods trailers and semi-trailers in the second.

Figure 6: Ro-Ro Cargo Handling in European Ports 2006-2017



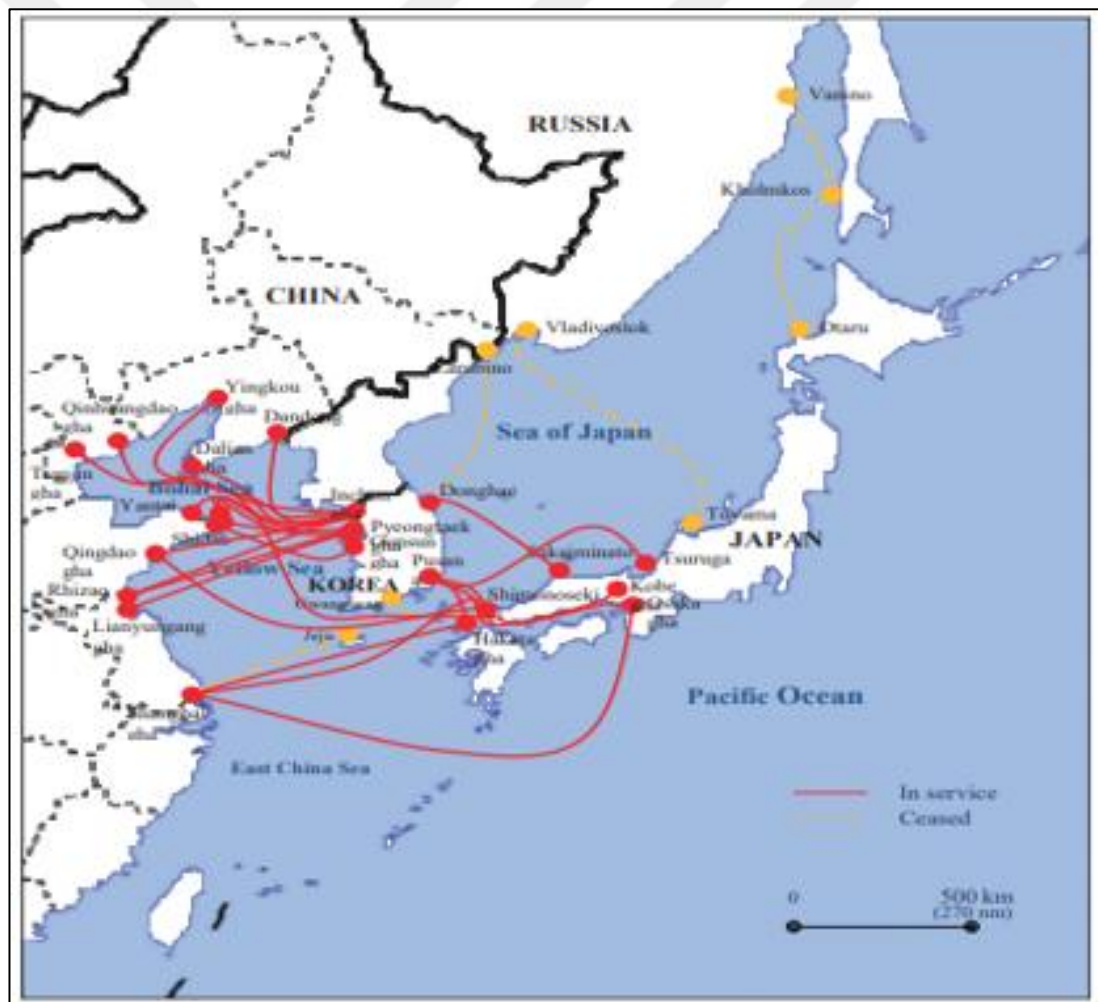
Source: Institute of Shipping Economics and Logistics (ISL), 2018.

Various parameters affect the employment of Ro-Ro shipping, such as cargo volume, type of the cargo transported, and shippers' demand that identify operations. Contrary to deep sea shipping segment, short sea Ro-Ro transportation deals with severe competition from land based transportation modes. To illustrate, in the U.S. goods were transferred through navigable rivers of Great Lakes, Mississippi, and Ohio. Notwithstanding, the rapid growth of rail and road transport led to downfall coastal and inland shipping in the 20th century. Today, more than 60% of the commodity transportation is transported via trucks; and SSS accounts for only 9% of US transportation. Although road transportation causes to societal and environmental problems, such as air pollution, increased energy consumption road accidents, traffic congestion, and advantages of the SSS have been perceived by most of the stakeholders; restriction imposed by the Jones Act or U.S. Cabotage laws, harbour maintenance tax, image problem, lack of marine terminal facilities and suitable port infrastructure have created obstacles for successful implementation of SSS in the North America (Perakis and Denisis, 2008: 592).

In Asia, Japan has been the most effectively utilized SSS. From South to North, the country has a 3000 km network that comprises of 112 ports, 23 routes, 48 operators, and 101 vessels. (APEC Transportation Working Group, 2007).

Eventhough, Japan is geographically formed as a cluster of island, domestic coastal ferry services directly compete with trucks with long distance haulage, since the national expressway framework is well-rounded all four main islands linked by fixed connections in Japan (Arof, 2015: 231). In Japan, lots of coastal Ro-Ro services have been augmented by means of 24-30 knots high speed vessels. Enhancement of these services have made Ro-Ro shipping more competitive and attractive than road transport, and enabled companies to achieve services in same frequency but less vessels (Baird, 2007). Figure 7 shows Ro-Ro routes have been deployed to connect Japan ports to Chinese and Korean ports.

Figure 7: North East Asia International Ro-Ro Shipping Routes



Source: The Master Plan and Feasibility Study on the Establishment of an ASEAN RO-RO Shipping Network and Short Sea Shipping, 2013: 2-2.

There are six routes that connect ports in western Japan and ports in Bohai Economic Rim of China or Shanghai, and five routes among Japan and Korea primarily via Korea/Tsushima Straits, fifteen routes linking ports facing Yellow Sea or Bohai Sea in Korea and China. Most of the distances of these international Ro-Ro routes are less than 600 nm excepting Kobe/Osaka -Shanghai/Tianjin routes. Their transit times vary from 12 to 40 hours (ASEAN, 2013: 2-3). Table 5 shows detailed information about international Ro-Ro service in the North East Asia.

Table 5: International Ro-Ro Shipping Service in North East Asia (As of April 2012)

Operator	Service Route		Distance ¹ (nm)	Transit time ² (Hrs)	Sail / week (RT)	Ship Type	Capacity ³	
							TEU	PAX
(Japan - China)								
Orient Ferry	Shimonoseki	Qingdao	575	27	2	ROPAX	265	350
Shanghai Shimonoseki Ferry	Shimonoseki	Taicang (Shanghai)	535	34	2	ROPAX	143	124
Shanghai Super Express	Hakata	Shanghai	490	28	2	RO-RO	242	-
Shanghai Ferry	Osaka	Shanghai	776	47	1	ROPAX	200	272
Japan-China Int'l Ferry	Osaka	Shanghai	776	46	1	ROPAX	250	345
Japan-China Int'l Ferry	Kobe	Shanghai	771	45	1	ROPAX	250	345
China Express Line	Kobe	Tianjin - Shidao	1060	52	1	ROPAX	170	442
(Japan - Korea)								
Camellia Line	Hakata	Pusan	115	5.5	6	ROPAX	220	522
Kanpu Ferry	Shimonoseki	Pusan	123	12	7	ROPAX	140	562
Pan Star	Osaka	Pusan	367	19.5	3.5	ROPAX	220	681
Pan Star	Tsuruga - Kanazawa	Pusan	384	19.5	1	ROPAX	220	681
Eastern Dream	Sakaiminato	Donghae	237	15	1	ROPAX	130	480
(China - Korea)								
Dandong Ferry	Inchon	Dandong	247	16	3	ROPAX	(n/a)	(n/a)
Daein Ferry	Inchon	Dalian	250	17	3	ROPAX	142	508
Beomyeong Ferry	Inchon	Yingkou	365	26	2	ROPAX	228	290
Inchon Ferry	Inchon	Tianjin	444	24	2	ROPAX	272	800
Jinin Haeum	Inchon	Qinhuangdao	352	24	2	Multi	228	348
Hanjung Ferry	Inchon	Yantai	238	16	3	ROPAX	293	392
Weidong Haeun	Inchon	Weihai	222	13	3	ROPAX	280	731
Weidong Haeun	Inchon	Qingdao	330	17	3	ROPAX	325	660
Yeonunhang Ferry	Inchon	Lianyungang	385	24	2	ROPAX	182	750
Yeonunhang Ferry	Pyeongtaek	Lianyungang	310	23	2	ROPAX	192	668
Pyeongtaek Jiaodong Ferry	Pyeongtaek	Weihai	239	12	3	ROPAX	240	900
Rizhao Ferry	Pyeongtaek	Rizhao	374	19	3	ROPAX	220	921
Dalong Ferry	Pyeongtaek	Logyan	182	19	3	ROPAX	267	720
Shidao Int'l Ferry	Shidao	Gunsun	208	14	3	ROPAX	203	750

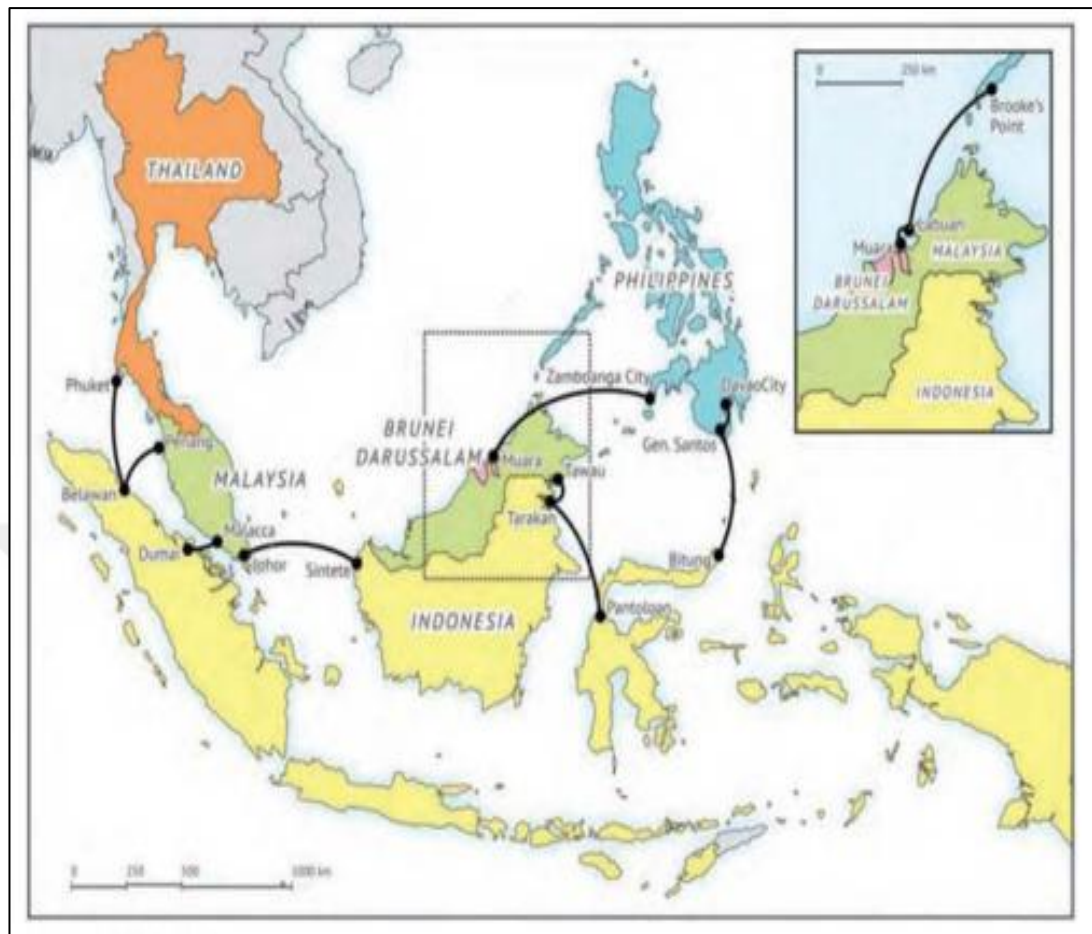
Source: The Master Plan and Feasibility Study on the Establishment of an ASEAN RO-RO Shipping Network and Short Sea Shipping, 2013: 2-3.

In 2011, Japan made a logistics partnership with ASEAN (The Association of Southeast Asian Nations) that adopted a master plan to enhance connectivity among member nations. The plan consisted of a study on the Ro-Ro network and SSS as a flagship project. Accordingly, they aimed to establish an integrated and efficient inland waterways network and to foster an efficient and competitive regional transportation services in the ASEAN. The cooperation completed three main sub-regional initiatives. These are:

1. The Greater Mekong Sub-region (GMS), consisting of China, Thailand, Lao PDR, Cambodia, Myanmar and Vietnam.
2. The Brunei Darussalam, Malaysia, Indonesia and Philippines-East ASEAN Growth Area
3. Malaysia, Indonesia, and Thailand-Growth Triangle (Furuichi et al., 2015: 1)

In the study of the ASEAN, eight candidate Ro-Ro routes were arranged that linked five countries namely Thailand, Philippines, Malaysia, Indonesia, and Brunei Darussalam. Seven of them will serve for short and mid distances, and one of them will serve for more than 500 nm long distances. Figure 8 illustrates a map of these candidate routes, and profiles of them are given in Table 6.

Figure 8: Map of Eight Ro-Ro Shipping Candidate Routes of ASEAN Study



Source: The Master Plan and Feasibility Study on the Establishment of an ASEAN RO-RO Shipping Network and Short Sea Shipping, 2013: 1-4.

Table 6: Profile of Eight Ro-Ro Shipping Candidate Routes of ASEAN Study

Route	Distance	Existing Shipping Services
(1) Zamboanga City (Philippines) – Muara (Brunei Darussalam)	537 nautical miles (nm)	No liner shipping service is observed.
(2) Davao City – General Santos (Philippines) – Bitung (Indonesia)	154 nm between Davao and Gensan, 302 nm between Gensan and Bitung	No liner shipping service is observed.
(3) Johor (Malaysia) – Sintete (Indonesia)	321 nm	No liner shipping service is observed.
(4) Tawau (Sabah, Malaysia) – Tarakan (Kalimantan, Indonesia) – Pantoloan (Sulawesi, Indonesia)	82 nm between Tawau and Tarakan, 281 nm between Tarakan and Pantoloan	Passenger shipping service is observed between Tawau and Tarakan.
(5) Brooke’s Point (Palawan, Philippines) – Labuan (Malaysia) – Muara (Brunei Darussalam)	20 nm between Labuan and Muara, 261 nm between Brooke’s Point and Labuan.	One small RO-RO ship started its service in October 2010, plying between Muara and Labuan by 1 return trip per day.
(6) Dumai (Indonesia) – Malacca (Malaysia)	58 nm	Fast craft provides frequent passenger shipping service between Dumai and Malacca.
(7) Belawan (Indonesia) – Penang (Malaysia)	140 nm	Only wooden-hull ships provide this strait crossing service.
(8) Phuket (Thailand) – Belawan (Sumatra, Indonesia)	242 nm	No liner shipping service is observed.

Source: The Master Plan and Feasibility Study on the Establishment of an ASEAN RO-RO Shipping Network and Short Sea Shipping, 2013: 1-4.

To sum up, SSS and integration to Ro-Ro shipping have been taken into agenda of various countries both at national and regional level. Although advantages of these concepts are obvious, several obstacles have also been associated with implementation because of legal, economical or social reasons. Performance and cost of the Ro-Ro shipping may vary from country to country. Following section will provide better understanding about Turkish Ro-Ro industry through recent market information and statistics.

1.3. DEVELOPMENT OF THE RO-RO TRANSPORTATION IN TURKEY

Although the modern form of Ro-Ro transportation started in the 1960s in the Western countries, this mode of transportation was put into practice with the Third Five-Year Progress Plan (1973-1977) in Turkey (Özdemir and Deniz, 2013: 105). The first Ro-Ro voyage was initiated with two vessels (Kpt. Necdet and Kpt. Sait Ozege) on the route of Mersin-Izmir-Trieste by Deniz Nakliyat in 1977. Not only wheeled vehicles but also primary conventional cash crops such as cotton, tobacco, and raisins in bales were transported. This line was operated till 1988; however, voyages were irregular and unreliable in operation (Özcan, 2008). Nonetheless, Ro-Ro transportation began to gain its actual importance in the mid-1980s, and the first regular Ro-Ro line became operational during these years. On May 20, 1985, the first Ro-Ro voyage on the line was performed with a Romanian-flagged vessel between the Port of Constanza and Trabzon Port (TUSIAD, 2007: 95). In June 1985, the Haydarpaşa-Constanza line was put into operation. The fact that this line was not economical in the transportation to South Europe direction caused the Istanbul-Trieste line to open in March 1987. This line became indispensable to reach European buyers especially to countries like Italy and France (Hülagü, 2007: 26). This maritime route was opened by the Turkish Cargo Line (TCL), which was a Turkish State merchant shipping company, founded due to pressures applied by UND. The underlying reason for these pressures stemmed from problems that freight operators faced with border crossing in Bulgaria. The TCL started its operations with two vessels; each transporting 55 trucks and their drivers with a round trip lasting 10 days (Torbianelli, 2000: 377).

Since the most of Turkey's trade plied with Europe and Central Asia, road transport was the main mode of transportation. Negativities arising from political turmoil and instability of the countries on the route, particularly, the breaking out of the civil war in the Balkan countries, Iran's restriction on transit passes, and crisis in relations with Russia brought about interruptions on the borders and transport corridors passing through these regions. Moreover, official regulations and documentation problems, lack of adequate road infrastructure, decreased safety standards also negatively affected business operations carried out through land

routes. Therefore, Ro-Ro transportation came into prominence in this period (Çakaloğlu, 2015: 135).

As of the early 1990s when the Ro-Ro sector started to boom, many Ro-Ro operators have emerged in the various regions of Turkey with increasing export/import volume of the country throughout the years. Since Turkey is located in the intersection where Europe, Asia, and Africa close to each other and thus on important corridors in terms of international land routes. Thereby, its position is of critical importance for east-west direction transportation activities. Besides, Turkish ports located in the Mediterranean, the Black Sea, and the Aegean Sea make the country a key point for the integration of road and maritime transport (UTIKAD, 2019: 54). Ro-Ro transportation, which is the most significant and functional type of combined transportation, is realized with the advantage of the geographical location of our country and offers new routes and opportunities to our international cargo transportation.

Ro-Ro services which began in 1987 have developed rapidly since 1992 due to the fact that civil war in Balkan countries caused serious problems for Turkey to use road transportation. To overcome these issues, Turkish International Transport Association (TİKA) decided to independently operate a number of Ro-Ro ships on the Haydarpaşa-Trieste route and two shipping companies namely TİKA Maritime Inc. and TİKA Ro-Ro Inc. with capital from 48 road freight operator members. TİKA commenced its Ro-Ro operations with two chartered vessels, Anglebury and Exonbury which were purchased in 1994, with a guaranteed 70% utilization rate from its members (Aslan, 2017: 15). This situation is considered as an important intermodal initiative of Turkish road haulers.

Just like the TİKA, several private sector initiatives have developed Turkey into one of the leading countries in terms of the Ro-Ro fleet in the Mediterranean region. In this context, high speed and heavy tonnage ships supplied by TİKA have brought great momentum to our Ro-Ro fleet (Yeşilbaş, 1999: 416). The growing Ro-Ro sector has enabled many players to emerge in the different regions of Turkey afterward. However, many companies and lines had failed in the Ro-Ro sector due to various problems political, legal, economic, or technical. For instance, shortly after starting their operations; BKT Ro-Ro, Ege Ro-Ro, and TI Ro-Ro lines were closed.

From 2000 onward, Ro-Ro transportation has been taken much more seriously, the ships in the fleet have become more modern and the lines become more stable. The share of Ro-Ro transportation in the amount of freight transported by road has increased significantly especially in the European market. Thereby the cruciality of this transportation mode in the Turkish foreign trade has become evident (Çakaloz, 2015: 136). The Ro-Ro market is expected to flourish and spread more with both economic growth and effort to green logistics practices which led to the restriction of using land-based transport systems.

1.3.1. Environmental Factors Affecting Turkish Ro-Ro Market

As mentioned in the development of Ro-Ro transport in Turkey, the driving force behind starting Ro-Ro operations stemmed from political reasons. The geostrategic position of the country has critical significance in both East-West and North-South direction movements. Any political turmoil in Turkey either internal or external affairs can directly or indirectly affect its Ro-Ro operations. Worsening of political relations among Turkey and other countries may give rise to two possible consequences influencing Ro-Ro transport. Firstly, in case the Turkish government is faced with a political problem with countries locating on its land routes, or when the countries on land routes are politically instable; it may end up with closing these countries' borders for road/rail transport. Secondly, in case the Turkish government has political problems with countries aiming for trade partnership (export and import activities); Ro-Ro transport would be affected negatively. To illustrate, political tension between Turkey and Russia arose in 2015, when Turkey shot down a Russian warplane at its border. Ro-Ro operators performing in the Black Sea faced several challenges even small Ro-Ro firms in the region had to go out of business since the Russian government imposed an embargo on the Turkish goods.

Geographical proximity, investments of European companies in Turkey, and cheap labor force make Turkey a significant, strategic partner for Europe. Being a candidate country of the EU, Turkey has been incorporated into EU transport policies. In this regard, Turkey put a premium on Ro-Ro transportation as well. To illustrate, in the past 17 years, \$145 billion has been invested in transportation

infrastructure to make Turkey a logistics base, and provide quick and uninterrupted movement between Asia and Europe. In addition to infrastructural investments such as Istanbul Airport, Baku-Tbilisi-Kars Railway, Marmaray, and 3rd Bosphorus Bridge; serious steps including Combined Transport Regulation and Turkey Logistics Master Plan have been taken to decrease the share of road transportation while extending the use of combined transport that involves exhortation of short sea transportation (UTIKAD, 2017: 19). In 2013 Maritime Working Paper prepared by Ministry of Transport and Infrastructure, new name, the requirement of professionalization of existing Ro-Ro companies and forming new Ro-Ro lines were emphasized. Moreover, the Eleventh Development Plan of Turkish Government (2019-2023) accentuated the significance of multimodal and intermodal transport to reduce logistics costs, to facilitate trade and to increase the competitiveness of Turkey.

Over the last decades reducing global emissions has been one of the main concerns for the shipping industry, and has given rise to stricter environmental regulations. Recent regulatory developments have been attempted to shape the Ro-Ro industry from shipbuilding to ship recycling, port activities to transport operations to make them more environmentally friendly and safer. Within the international shipping context, environment-related issues have been regulated and controlled by the International Maritime organization (IMO) that sets global standards concerning safety, security, and environmental performance (IMO, 2020). Concordantly, greener technologies such as scrubbers, ballast water treatment system, low emission engines and new vessels suitable to use cleaner fuels like LNG or alternative energy sources have been adapted to Ro-Ro industry. On the other hand, recently, Internet of Things (IoT), automation and digitalization, smart drones, new apps, and software systems have become prominent technologies shaping the future of the Ro-Ro terminal operations in Turkey.

International trade and transportation are known to affect the global economy due to being major components of it. Correspondingly they are considerably impacted by any problem or change in the economic conditions. More than a decade after the catastrophic global financial crisis, today the world is struggling with social, political, and economical consequences of a new profound crisis inflicted by the

COVID-19 outbreak. Economic fallouts of this pandemic crisis are expected to be much worse than the 2008–09 financial crisis periods since it creates long term, simultaneous disruptions in supply chains, customer demands, and logistics networks and infrastructures (Ivanov, 2020: 2).

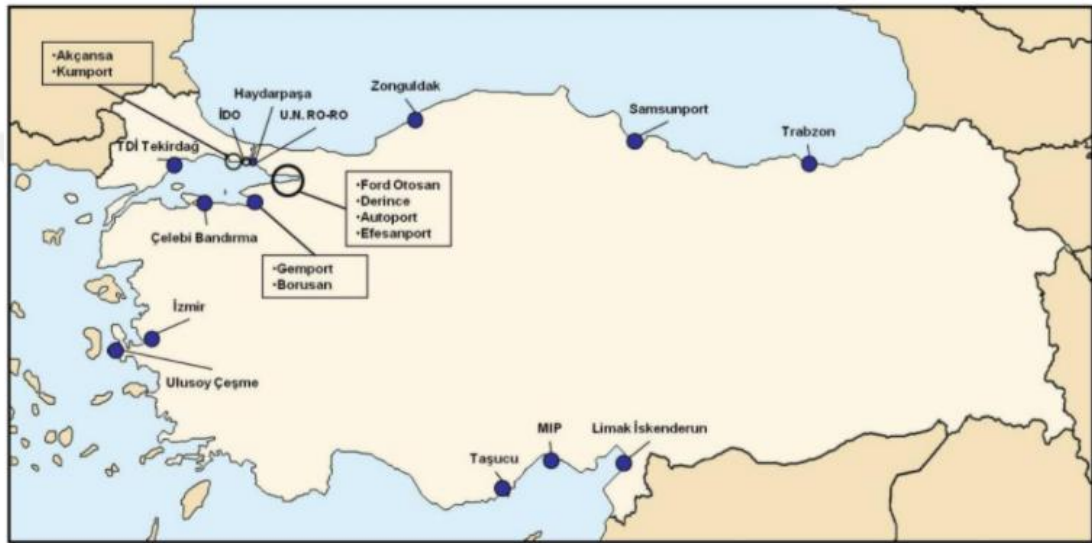
The pandemic outbreaks are characterized by an immediate and strong effect on the supply chain networks that render some factories, suppliers, distribution channels, and transportation links temporarily unoperational. The disruption to freight and logistics networks threatens international trade and distribution of fundamental goods to beat crisis and promote the recovery. Material shortages and delivery delays stemming from breaking global supply chains lead to ripple effect and deterioration of performances in many ways including productivity, service level, and revenue decreases (Dolgui et al., 2020; Li and Zobel, 2020). As the crisis pervaded and lockdowns arisen, numerous business operations came to a standstill and millions of employees around the world rapidly began losing their jobs regardless of the sector (ILO, 2020). Therefore, demand has substantially dropped across the board, consisting of ports/terminals, the shipping industry, and the trucking industry (Ship Technology, 2020). All in all, as an international industry, Ro-Ro transport has been exposed numerous external determinants. Especially, recently Turkish Ro-Ro market has suffered from both Covid-19 pandemic and changing legal requirements to ensure sustainability.

1.3.2. Ro-Ro Transportation in Turkey

Turkey is considered as a significant hub in international trade thanks to its outstanding strategic position where Europe, Asia, and Africa close to each other, and being on a historic, traditional trade route between them. The Middle Corridor Initiative by country, OBOR and parallelly government investments that aim to expand seaports, and to improve the road and rail networks also have contributed to further growth of the logistics market. The automotive industry has been one of the key driving forces of the logistics industry's growth in the country as 14th largest producer in the world, and 5th in the Europe with 78% export share (marketresearch.com, 2020).

Export and import automobiles are evaluated as wheeled cargoes just as Ro-Ro transport. While most of the automotive producers and so related ports/terminals are concentrated in the Marmara region; Ro-Ro transportation which enables companies to deliver cargoes in a short period of time is clustered not only in Marmara but also in Aegean and Black sea ports. In Turkey, 29 ports serve to wheeled cargoes as seen in Figure 9.

Figure 9: Turkish Ports That Handle Wheeled Cargo



Source: TURKLIM Sector Report, 2019: 109.

In the Turkish Merchant Fleet, there are 499 vessels which have 1000 DWT and over. Dry cargo carriers constitute the majority of the fleet in terms of number (185), while bulk carriers have the superiority in terms of both DWT (2.471.477) and Gross Tonnage (GT: 1.423.014). Considering all cargo types, wheeled cargoes represent smallest group in terms of tonnage. According to number, DWT and GT, Ro-Ro cargo ships account for, respectively, 3.60%, 2.80% and 9.25% of the fleet. Besides 18 Ro-Ro cargo ships, fleet consists of 10 Ro-Pax, 1 train ferry, and 6 ships serving to both dry and Ro-Ro cargoes which has the lowest average age. Ro-Ro cargo ships having average 17 years are relatively younger vessels as shown in Table 7 which reflecting general profile of the fleet. More than 40% of the Ro-Ro ships are in the 10-19 years range, while about 38% of them are younger than 9 years. All of

the Ro-Ro cargo ships within the Turkish fleet are registered in the international ship registry.

Table 7: General Profile of Turkish Merchant Fleet (1000 DWT+)

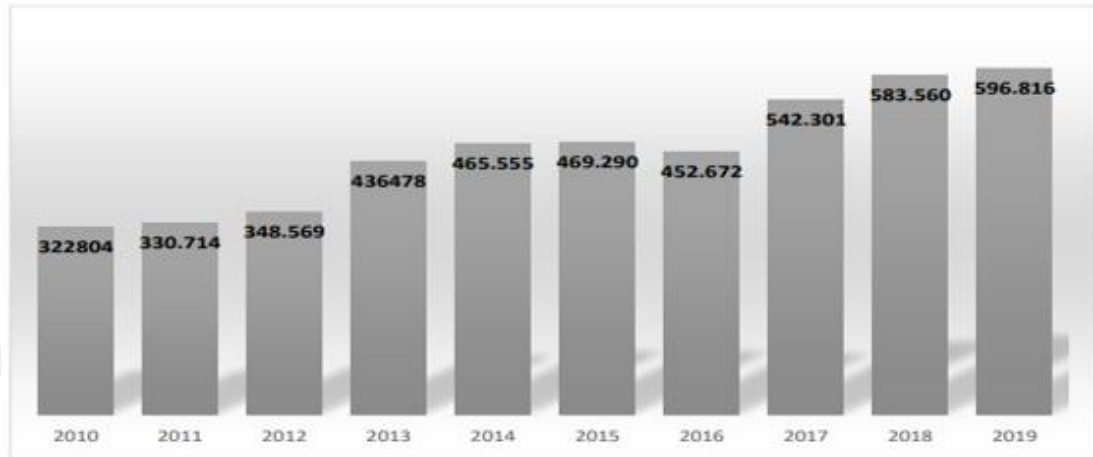
SHIP TYPES	Number	Tonnage (DWT)	Tonnage (GT)	Average Age
DRY CARGO	185	808.300	520.439	31
BULK CARRIER	56	2.471.477	1.423.014	19
CONTAINERS	49	1.041.029	832.387	15
DRYCARGO/CONTAINER	10	62.835	42.230	22
CHEMICAL TANKERS	54	531.182	343.143	18
LPG TANKERS	5	27.804	25.574	22
ASPHALT TANKERS	4	57.620	45.530	12
WATER BARGES	1	1.027	488	50
RO-RO SHIPS	18	195.680	460.099	17
RO-RO FERRY/PASSENGER	10	30.060	61.755	34
FERRY BOATS	8	15.329	11.846	30
TRAIN FERRIES	2	2.600	2.466	46
PASSENGER AND CARGO SHIPS	3	5.079	16.719	45
SCIENTIFIC RESEARCH VESSEL	3	7.780	24.309	25
SEA BUSES	1	29.642	431	31
SERVICE SHIPS	32	112.859	104.026	31
OIL TANKERS	45	1.457.464	781.361	18
TRAIN FERRIES/RO-RO	1	6.266	15.195	33
DRY CARGO/RO-RO	6	87.637	251.232	6
MARINE VEHICLES	6	18.168	12.426	7
<u>TOTAL</u>	<u>499</u>	<u>6.969.838</u>	<u>4.974.670</u>	<u>24,09</u>

Source: 2019 IMEAK Maritime Sector Report: 5.

Eventhough Ro-Ro transportation in Turkey's ports had grown unremittingly from 2009 to 2015, its growth rate has declined in the last four years. In 2016, Ro-Ro transport volume shrunk by 3.7% and decreased to 452.672 vehicles. This amount compounded by a record growth with around 20% rate and reached to 542.301 vehicles. In 2018 and 2019, this growth trend continued and came up to nearly 600

thousand vehicles. Ro-Ro lines transported during last ten years (20010-2019) are given in Figure 10.

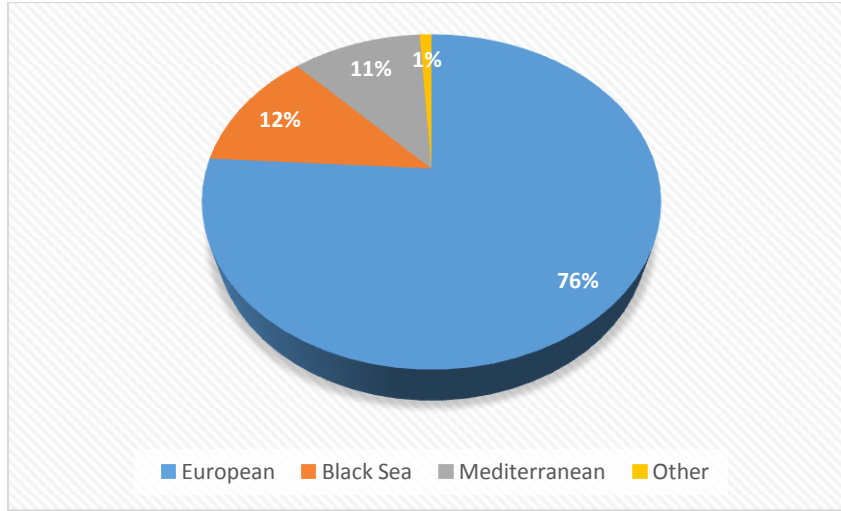
Figure 10: Ro-Ro Lines Transported Vehicles (2010-2019)



Source: IMEAK Maritime Sector Report, 2019: 41.

As seen in Figure 11, Ro-Ro transportation in Turkey is mainly evaluated within three different markets based on the location or destination of the Ro-Ro lines: European lines, Mediterranean lines, and Black Sea Lines. European market is of particular importance due to representing 76% of the Ro-Ro transport volume of Turkey. Therefore, it includes the biggest Ro-Ro operators in the country. In the 2019, 452.286 vehicles have been transported by European lines which are generally bounded with Trieste, and the most part of them carried out by DFDS. In the Black Sea region, 5 Ro-Ro lines transported 71.633 vehicles that accounted for 12% of the total transported vehicles. On the other hand, 11% of the total vehicles which amounted 69.144 have been transported by 6 Mediterranean lines as visualized in the Table 8.

Figure 11: Ro-Ro Lines Transported Vehicles (2018)



Source: IMEAK Maritime Sector Report, 2019: 42.

Table 8 demonstrates that approximately 29% of the total overseas Ro-Ro services were carried out on the Tuzla (Pendik) – Trieste route where 171.935 vehicles were transported in 2019. This amount singly equaled to more than sum of overall Black Sea and Mediterranean lines. It's followed by Tuzla (Pendik) – Toulon and Çeşme – Trieste routes in which respectively 63.642 and 58.269 transported vehicles. The total for these top 3 routes almost constituted half of the international Ro-Ro transport of Turkey. With 32.465 transported vehicles, Samsun-Tuapse route became the busiest line in the Black Sea market, while Mediterranean market was dominated by Mersin – Gazimağusa route where 30.104 vehicles were carried. Interestingly, İzmit- Zeebrugge and Mersin- Dar Es Salaam routes were just used by departing vehicles. According to TÜRKLİM report, over 70% of the aforementioned carriages were handled by its member ports.

Table 8: Ro-Ro Statistics on Regular Overseas Routes

	ROUTES	Arriving Vehicles	Departing Vehicles	Total Vehicles
EUROPE	TUZLA(PENDİK) – TRIESTE	94.296	77.639	171.935
	ÇEŞME – TRIESTE	28.148	30.121	58.269
	TUZLA(PENDİK) – TOULON	35.009	28.633	63.642
	MERSİN – TRIESTE	18.113	16.617	34.730
	YALOVA-LAVRIO – TRIESTE	13.585	23.616	37.201
	AMBARLI – TRIESTE	2.543	17.081	19.624
	ÇEŞME – SETE	5.855	7.100	12.955
	TUZLA(PENDİK) – SETE	6.447	4.585	11.032
	YALOVA-SETE	13.620	9.365	22.985
	YALOVA-BARİ	464	2.921	3.385
	TUZLA(PENDİK) – BARİ	372	2.106	2.478
	TUZLA(PENDİK) – PATRAS	10.633	1.480	12.413
	ÇEŞME - SAKIZ ADASI	250	841	1.091
	İZMİT- ZEEBRUGGE	0	846	846
	TOTAL	229.335	222.951	452.286
BLACKSEA	SAMSUN – TUAPSE	626	31.839	32.465
	ZONGULDAK - CHORNOMORSK (ILYICHEVSKY)	7.118	5.964	13.082
	İSTANBUL(HAYDARPAŞA) - CHORNOMORSK (ILYICHEVSKY)	3.839	5.744	9.583
	SAMSUN – NOVOROSSIYSK	252	7.876	8.128
	KARASU - CHORNOMORSK (ILYICHEVSKY)	3.600	4.775	8.375
	TOTAL	15.435	56.198	71.633
MEDITERRANEAN	MERSİN – GAZİMAĞUSA	10.183	19.921	30.104
	TAŞUCU – GİRNE	9.512	10.574	20.086
	TAŞUCU – TRİPOLİ	6.014	5.967	11.981
	MERSİN – HAYFA	1.742	1.908	3.650
	İSKENDERUN – DUBA	1.395	1.404	2.799
	MERSİN- DAR ES SALAAM	0	524	524
	TOTAL	28.846	40.298	69.144
	OTHERS	1.500	2.253	3.753
	SUM TOTAL	275.116	321.700	596.816

Source: TURKLİM Sector Report, 2019: 112.

After the acquisition of UN Ro-Ro, DFDS has become the major service provider in the pioneer Ro-Ro ports including Ambarlı, Yalova, Pendik Ports that connect significant industrial cities such as İstanbul, Kocaeli, Bursa, Ankara and Tekirdağ. As presented in Table 9 more than half of the Turkey's vehicles that internationally transported on a regular basis were handled by DFDS UN Ro-Ro ports. Ulusoy Çeşme that owned by Ulusoy Ro-Ro, DFDS's significant rival in European market, handled about one quarter of DFDS. It is ranked in the third place after Mersin International Port (MIP) which is the Turkey's biggest port in the Mediterranean.

Table 9: Vehicle Handling at Turkey's Ports on Regular Overseas Route Basis

Ports	Arriving vehicles	Departing vehicles	Total
DFDS UN Ro-Ro	102.230	141.338	243.568
MIP	38.091	41.722	79.813
Ulusoy Çeşme	28.157	33.208	61.365
Samsunport	6.927	12.854	19.781
Limak İskenderun	2.151	2.181	4.332
Borusan	0	790	790
TURKLIM Total	177.556	232.093	409.649
Turkey Total	255.691	327.869	583.560
TURKLIM Share	%69.4	%70.8	%70.2

Source: TURKLIM Sector Report, 2019: 113.

Availability of Ro-Ro ships is crucial for the success of endeavor to promote coastal shipping by decongesting highways and railways. Traveling between a countries' coasts are called 'cabotage', and more specifically it is defined as *"restriction of the operation of sea, air, or other transport services within or into a particular country to that country's own transport services"*. To protect this right, Turkey took effect Cabotage Law on July 1, 1926. Under this law, only Turkish flagged vessels have right to provide good and passenger transport from one point to another along Turkish shores as well as to perform towing and piloting services within or between Turkish ports and shores (FAO, 2020). Table 10 reveals numbers and miles of vehicles that transported in Ro-Ro cabotage from 2003 to 2019. As seen, Turkish Ro-Ro transport within cabotage has thrived in less than 20 years, and even number of vehicles become doubled before 2015. In terms of total miles,

transported amount has grown about 2.5 times compared to 2003 and reached up to 92.289.144 miles in 2019.

Table 10: Vehicle Carried in Cabotage and Vehicle x Miles

Year	Vehicles (Number)	2003–2019 % Change	Vehicle x Miles	2003– 2019 % Change
2003	6.219.645		35.880.927	
2004	6.900.922		40.835.592	
2005	6.961.643		42.294.836	
2006	7.773.689		51.978.669	
2007	8.161.999		59.942.527	
2008	8.866.797		82.950.808	
2009	9.315.772		82.580.396	
2010	9.400.735		83.607.444	
2011	10.402.917	116	83.283.519	157
2012	10.710.645		77.785.568	
2013	11.318.561		85.096.902	
2014	12.166.505		89.322.962	
2015	13.042.399		95.505.115	
2016	13.050.241		92.267.227	
2017	12.638.289		95.185.009	
2018	13.159.820		92.868.442	
2019	13.420.802		92.289.144	

Source: Republic of Turkey Ministry of Transport and Infrastructure, 2020.

Ro-Ro transportation within Turkey has concentrated mainly on five regions namely İstanbul, Marmara, Çanakkale, İzmir and Van Lake. İstanbul region which consists of 5 routes is the busiest region where 7.112.534 vehicles were transported in 2018. Although this amount has slightly (1.24%) increased to 7.200.933 in 2019, total amount of cabotage Ro-Ro transportation has shown better growth with approximately 2% augmentation and reached up to 13.420.802 vehicles. However, the progressive trade volume have varied region to region.

Table 11: Transported Vehicles at Cabotage Routes

Region	Routes	2018		2019	
		Vehicles (Number of)	Vehicle x Miles	Vehicles (Number of)	Vehicle x Miles
İstanbul Region	Eskihisar-Topçular/Tavşanlı	4.481.326	21.062.232	4.810.734	22.610.450
	Sirkeci-Harem	1.797.286	3.055.386	1.725.470	2.933.299
	İstinye-Çubuklu	814.585	953.064	649.064	759.405
	Ambarlı-Topçular	8.491	331.149	3.306	128.934
	Zeyport-Maltepe	10.846	151.844	12.359	173.026
	TOTAL	7.112.534	25.553.676	7.200.933	26.605.114
Marmara Basin	Erdek-Avşa (Türkeli)	30.330	545.104	31.912	573.834
	Tekirdağ-Avşa (Türkeli)	31.468	788.829	26.262	657.387
	Marmara A.-Erdek	47.207	939.049	42.432	844.029
	Marmara A.-Tekirdağ	716	17.900	359	8.975
	Erdek-Tekirdağ	5.514	220.009	2.946	117.545
	Derince-Tekirdağ	5.043	126.075	4.997	124.925
	Marmara Ereğlisi-Bandırma	1.659	61.383	0	0
	Ambarlı-Bandırma	166.172	8.640.944	158.694	8.252.088
	Tekirdağ-Bandırma	23.624	1.078.596	26.188	1.196.482
	Yenikapı-Yalova	375.716	9.768.616	384.683	10.001.758
	Yenikapı-Bandırma	155.158	9.930.112	110.154	7.049.856
	Yenikapı-Bursa	254.158	11.310.031	249.420	11.099.190
	Pendik-Yalova	540.540	7.297.290	651.424	8.794.224
	Diğer	74.422	2.168.347	75.922	2.207.782
	TOTAL	1.711.727	52.892.284	1.765.393	50.928.076
Çanakkale Region	Gelibolu-Çardak	546.427	1.366.068	496.518	1.241.295
	Gelibolu-Lâpseki	981.911	3.633.071	1.069.081	3.955.600
	Çanakkale-Kilitbahir	857.498	857.498	922.342	922.342
	Çanakkale-Eceabat	485.686	1.311.352	485.569	1.311.036
	Kepez-Eceabat	0	0	0	0
	Karabiga-Tekirdağ- Bandırma	0	0	10.509	388.833
	Kabatepe-Gökçeada	187.869	2.648.953	195.313	2.753.913
	G.Yükyeri-Bozcaada	206.232	845.551	227.515	932.812
	TOTAL	3.265.623	10.662.493	3.406.847	11.505.831
İzmir Region	Bodrum-Datça	16.162	290.916	17.260	310.680
	Bostanlı-Üçkuyular	1.033.602	2.480.645	1.020.357	2.448.857
	TOTAL	1.049.764	2.771.561		2.759.537
Lake Van	Tatvan-Van	20.172	988.428	10.012	490.588
	TOTAL	20.172	988.428	10.012	490.588
SUM TOTAL		13.159.820	92.868.441	13.420.802	92.289.145

Source: TURKLIM Sector Report, 2019: 114.

While number of transported vehicles has risen in some regions such as Marmara (+3.13%) and Çanakkale (+4.32%); trade volume has dropped in regions like İzmir (-1.16%) and Lake Van (-50.37%). More specific example for variation is seen in case that Ro-Ro transportation on Marmara Ereğlisi-Bandırma route has shifted to a new Karabiga-Tekirdağ-Bandırma route, which is located in Çanakkale region that ranked in the second place in Turkey.

As was pointed out, Ro-Ro transportation has idiosyncratic characteristics and dynamics shaping intermodal transportation. In this respect, it enables companies to offer fast, reliable, safe, environmental-friendly, and sustainable door-to-door services through benefitting from advantageous sides of each model. Less infrastructure dependency, utilizing economies of scale, smoothing the traffic congestion, improvement of energy efficiency and air quality, etc. have tempted governments to revitalize Ro-Ro transportation including Turkey. Accordingly, it's crucial to determine all factors affecting the performance of this transportation type. So far this study has focused on historical developments, general characteristics and external environment of the Ro-Ro, more particularly Ro-Ro implementations and statics of distinctive geographic regions. Now, it is necessary to be more specific to serve purpose of the study by clarification of business level strategies and firm performance concepts within the Ro-Ro shipping context.

CHAPTER TWO

DEVELOPMENT OF THE RESEARCH VARIABLES

The second chapter of this study is concerned with presenting theoretical underpinning of this research. In this section, literature reviews will be carried out through scrutinizing papers on competitive strategy and firm performance concepts. At this point, firstly a brief introduction of both concepts will be provided. Then, numerous studies focusing on their relationship will be presented to give a better insight about components of them. This approach will enable researcher to form basic framework of the research model after consulting with experts about Ro-Ro industry.

2.1. STRATEGY CONCEPT

Strategy definition has been a controversial subject in the strategic management literature owing to the multifaceted structure of the term and non-suitability to all industries (Hambrick, 1983; Chaffee, 1985; Feurer and Chaharbaghi, 1995). Another reason is that the strategic planning that emerged in the 1920s has undergone several changes in order to harmonize the changing conditions and strengthen its weaknesses; this has caused many researchers to make unique definitions and no consensus on a common definition (Eraslan, 2014: 23).

The origin of the strategy term dates back to the Hellenic period in which term was used as a military word. Etymologically, it is a combination of '*Stratos*' which means 'military/army' and '*agein*' in other words 'guide/lead' (Cummings, 1995: 23). According to TDK (2019), a strategy can be defined as '*The science and art of a nation's or community's using political, economic, psychological and military forces together to support policies adopted in peace and war.*' To defeat aggressor forces, the commander should develop tactics and techniques and set a course for efficient usage of potential resources. He should draw strategies to orchestrate and comprehend each element within the army to form wholeness (Hambrick and Fredrickson, 2001: 49). As a strategist, he is expected to be aware of what's around and be able to respond quickly to changes. Also, the commander is

primarily responsible for determining a vision, clearly informing and reaching out to all soldiers. Thus, communication ability plays a big role as well as military capabilities (Cummings, 1995: 24-26).

In the 1970s, the concept of strategy in business management came to the forefront. The pressure of increasingly intense competition, the pace of changes in technology, removing borders with the effect of globalization have led businesses to set strategic goals in many areas including investments, marketing, etc. (Güçlü, 2003: 65). Just like a commander, managers should be aware of their surroundings, observe rival's actions, and be out on maneuvers against them. To accomplish this various strategic points should be considered including what capabilities a company has, which resources can be obtained easily or which ones are scarce, what opportunities are there, or what dangers company may face. Therefore, a strategy can be defined as matching a firm's skills, resources, and capabilities with environmental opportunities and threats. It represents the course of action via operational plans in order to facilitate adaptation to both risks and opportunities in its operating environment, in this way sustain its efficiency (Kumar and Bansal, 2014: 412). Each business desires to achieve specific goals and objectives. A strategy is a tool utilized to achieve these aims. For instance, Parthasarathy (2007: 7) points out the aim of the strategy as showing superior firm performance than competitors. Chandler (1962: 13) has provided a definition of strategy:

"Strategy is the determinant of the basic long-term goals of a firm and the adoption of courses of action and the allocation of resources necessary for carrying out these goals."

According to Mintzberg (1987), an effective strategy consists of 5 different components. Each of them reveals the independent and distinctive basis of strategy, but all of them have a complementary effect for a successful strategy which is *ploy, plan, perspective, position, and pattern*. Achievement of objectives is contingent upon a detailed and successful plan. In another definition, Glueck (1972: 3) proposed that *"A strategy is a unified, comprehensive and integrated plan designed to ensure that the basic objectives of the enterprise are achieved"*. A plan should embody distinctive parts of an organization to serve a common goal. However, as posited in the adaptive model Chaffee (1985), firms persistently should make both external and

internal environmental assessment to adapt themselves to changing conditions. In this case, ploys pave the way for a response to a competitor's actions more frequently than a long-term plan. Those tactics enhance firms' maneuverability and strategic attacks to surprise rivals. A firm that intended to follow a strategy may fail in the implementation process. Therefore, managers and employees are expected to display consistent behavior regarding the realization of this strategy. While doing these, the effect of the operating environment and the position of the company cannot be neglected. Furthermore, how the company perceived by outsiders is as important as what the company does or aims to do. It has brought about a higher emphasis on subjective measurement of company performances regarding the successful implementation of strategies.

2.1.1. Corporate Level Strategies

Different kinds of strategies have been adopted at different levels of an organization depending on requirements and key considerations of managerial stage. Three primary strategy levels of an organization are corporate level, business level, and functional strategies.

Companies have sought a variety of ways to sustain their existence and competitive advantage in the long term. Especially over the last decades, changes and developments in both technology and competitive market dynamics have enabled companies to expand their operations in different countries or business lines. The stream of widening and diversification of business activities have given managerial decisions and capabilities prominence. Top managers are expected to clearly determine the main goals and objectives of the firm and draw a strategic road map. In this context, senior managers should concentrate upon several sensitive spots including decisions of main areas of business activities, positioning strategies for future, resource allocation, and organizational culture so on. Such strategic decisions determined and implemented at the senior management level are called corporate-level strategies (Ülgen and Mirze, 2013: 221). Lynch (2003: 7) quoted definition of corporate strategy from Drucker (1961) and Ansoff (1969) who are pointed as among well-known pioneers of the strategic management field:

‘Mapping out the future directions that need to be adopted against the resources possessed by the organization’.

Companies may aspire to further develop and grow by relying on their existing resources and capabilities in order to improve their positions and gain more returns in their sectors (Ülgen and Mirze, 2013: 198). In accordance with this purpose, companies might have rather widen their range of products or get into new markets with available products or completely new products or services. Simultaneous abandonment of both product line and operating markets is termed as diversification (Ansoff, 1957: 113). Panayides and Cullinane (2002) reported that diversification, vertical integration, strategic alliances, merger and acquisitions are the most preferred growth routes by shipping lines.

Diversification strategy is the essential tool used by top management in order for excess value creation from a portfolio of businesses through a synergy effect rather than separate business units managed by different owners. Such a parenting strategy can be realized either in a related or a completely different, unrelated sector (Porter, 1989: 236-245). Oswald et al. (2013) proposed that since the maritime industry has a highly volatile and cyclical structure, diversification strategy is mostly adopted by shipping lines as a protection guard and a vehicle for sustainable performance improvement. Thanks to hedge their bets, companies grow more with less risk.

On the contrary, financial decay or failure to sustain competitive advantages lead companies to give all their attention and effort to increase efficiency within the company rather than grow or diversify business activities. Companies prefer to eliminate or close out business units or assets that are no more profit generation. This strategy, which is defined as the turnaround strategy, is also mentioned as 'retrenchment', 'disinvestment', and 'liquidation' in the business literature (Ülgen and Mirze, 2013: 227-229). Byars (1991: 103) states several reasons for employing a turnaround strategy including mismanagement, intense competition, decrease, or volatility of demand. According to Eren (2010: 245), this type of strategy can be followed when the industry not attractive anymore or not granted enough market shares.

2.1.2. Business Level (Competitive) Strategies

Essentially, corporate strategy and business strategy diverge from each other due to the focussed level of organization and main questions that must be answered by the management (Galpin, 2019: 43). Unlike corporate-level strategies which gather all strategic business units (SBU) under a single roof, competitive strategies draw a road map in view of the fact that each SBU performing in a different market with idiosyncratic environmental conditions where customers are expected to their varying needs and demands be satisfied (Johnson et al., 2005: 240). Competitive strategy is defined by Porter (1985: 1) as '*search for a favorable competitive position in an industry*'. According to him, the main reason to employ competitive strategies by businesses is to protect themselves from industry-based forces in order to earn profit and keep this profitable position going. These strategies are crucial to explain variations in both profitability of the firm and its performance in the long run (Teeratansirikool et al. 2012: 169).

Hofer and Schendel stated that '*At the business level, the strategy focuses on how to compete in a particular industry or product-market segment. Thus, distinctive competences and competitive advantage are usually the most important components of strategy at this level*' (Beard and Dess, 1981: 667). For Hambrick and Fredrickson (2001), factors affecting the formation of the competitive strategy can be examined in the five dimensions which are namely *arenas, vehicles, differentiators, staging, and economic logic*. Accordingly, firms need to:

- 1) Determine particular business fields to operate, target market, product range or specifications of a product, etc.,
- 2) Find out the enabling tools or ways to reach their goals,
- 3) Make an offer which is unique, catching and somewhat distinctive to attract customers,
- 4) Make the right decision about sequencing and timing for taking an action,
- 5) And absolutely generate profit.

The business-level strategy has been one of the much-discussed topics in the strategic management literature since the 1970s. Most particularly, after Michael Porter's proposed typology in 1980, interest in this subject has been grown apace

(Sumer and Bayraktar, 2012: 101). Parnell (2011) suggested that typologies form a frame for the identification of several competitive strategies suitable for SBUs. Besides typologies (e.g. Buzzell et al., 1975, Miles and Snow, 1978; Porter, 1980; Schuler and Jackson; 1987; Mintzberg, 1988; Wright et al., 1992; Chang et al., 2002; Kim and Mauborgne, 2005), taxonomies (e.g. Robinson and Pearce, 1988; Douglas and Rhee; 1989; Powers and Hahn, 2004) which put empirical evidence for measurement of strategy implementations have also underlined characteristics of business strategies (Nandakumar et al. 2011; Sumer and Bayraktar, 2012).

Buzzell et al. (1975) grouped business strategies as building, holding, and harvesting strategies. Market share is used as a baseline of this typology. *Building strategy* requires launching new products or services, making a great effort on marketing activities to extend market share. *Holding strategy* seeks a way to protect the present market share level. Firm adopting *harvesting strategy* tolerates declining of market share intending to gain short-term earnings.

Miles and Snow (1978) considered the adaptation patterns of the business units in the categorization of strategies. Accordingly, *defenders* do not serve a broad product or market range. Therefore, they aim to maintain existing operations as efficient as possible by focusing on quality, price, or services. *Prospectors* seek always for new, innovative market opportunities by keeping pace with technology or emerging trends. *Analyzers* have the combination characteristic of prospectors and defenders simultaneously. They are looking for new opportunities and innovative solutions while effectively maintaining their existing operations. Lastly, *reactors* fail to develop a proactive and systematic strategy to respond to environmental changes.

Porter (1980) propounded three generic strategies namely cost-leadership (low-cost), differentiation, and focus (which is refined and subdivided into two as differentiation-focus and cost-focus in 1985). In the *cost leadership strategy*, the goal is to reduce the costs of the business in the sector in which it operates, and to gain a cost advantage compared to its competitors. The underlying logic is not to sell products at the lowest price, rather make industry average pricing with achieving minimizing costs, in turn to have a profitable position. *Differentiators* offer exclusive, innovative, value-added products and services to make customers felt privileged. Thus, premium pricing can be ignored by loyal customers. Even costs are

higher, businesses benefit from better profit margins. Adopting a *focus strategy*, the business unit specializes in a particular market segment or region. Firms concentrate all its strategic actions on this target market.

Based on Porter (1980), Schuler and Jackson (1987) described three strategies for firms aim to gain competitive advantage. *Cost reduction* has the same logic with cost leadership; *quality enhancement* leads the firms to improve the products' quality level; and *innovation* requires firms to make changes, be creative and original to pull customers. Both quality and innovation mentions stem from a differentiation strategy perspective.

Mintzberg (1988) argued that a business strategy is comprised of only differentiation and scope dimensions. He proposed six versions of differentiation strategies: *image, design, support, price, quality, and undifferentiation*. According to him, making no changes is also a difference. As opposed to Porter (1980), he claimed that low cost should also be classified as a kind of differentiation strategy just based on pricing.

Wright et al. (1992) supposed that business size is a determining factor in the choice of strategy to be implemented. On the ground that Porter's typology (1980), they asserted that large firms are expected to pursue *differentiation, low cost, low-cost differentiation, or mixed strategy*. Small companies, on the other hand, are expected to adopt only focus strategies which means *focus differentiation, focus low cost, or focus low-cost differentiation*.

Considering both market entry timing and competitive advantage aspects, Chang et al. (2002) identified three business strategies. Firstly, *pre-emptive/first-mover* firms gain a competitive advantage by getting into a new market or adopting a new/ latest technology before any firm else does. Later, *low cost/followers* attempt to enter this market or adopt the tested technology. Although *differentiation/followers* act slower than first movers, yet they observe market thoughtfully. Thereby, they can redesign and upgrade existing products or offer unique, special ones.

After introducing the value innovation model in 1999, Kim and Mauborgne (2005) developed '*blue ocean*' strategy. Taking value innovation model as basis, they recommended following both low cost and differentiation strategies simultaneously in order to generate demand in markets which are untainted by fierce

competition. Rather than getting involved in rivalry, the strategy suggests taking advantage of the gaps and lacks the existing market to create new markets and demands.

Porter's (1980) and Miles and Snow's (1978) typologies have attracted much more scholars' attention. Both are indicated as the most widely accepted, cited, criticized, tested, and refined ones (Anwar and Hasnu, 2016: 363). Therefore, more details regarding both typologies will be entered later in the study.

2.1.3. Functional Strategies

After the companies determine their corporate strategies regarding businesses they will operate, and competitive strategies that indicate how they will compete in the field of business they determine, it is expected to determine their functional strategies that are compatible with these strategies (Durgun, 2017). These strategies are prepared and executed at middle or lower management levels. Furthermore, they necessitate more technical knowledge and expertise compared to business or corporate level strategies. To give an example, the marketing department specializes in pricing and promotional activities while the human resource department centers upon recruitment process, training activities, or wage payment. In the same vein, from manufacturing to operation, R&D to accounting each functional department has specific strategies (Ülgen and Mirze, 2013: 280). The underlying logic of functional strategies is to maximize each department's productivity especially in terms of resource deployment (Nandakumar, 2011: 223).

2.2. COMPETITION CONCEPT

The phenomenon of competition has become quite essential for businesses to be survived. It has been going through a very significant change process in terms of meaning and content until today (Tekin and Çiçek, 2005: 63). Competitor behavior analysis and understanding the impact of varying environmental dynamics on competitive strategies have gained great attention since increasing competition

intensity has become observed in almost all business areas regardless of operating in-home or foreign countries and product/service types (Yamin et al., 1999: 507).

According to The Act on The Protection of Competition (1999), competition can be defined as *'The contest between undertakings in markets for goods and services, which enables them to take economic decisions freely'*. In the same vein, Türkkan (2014: 10) described strategy as a game or race played among multiple players. He emphasized that the aim of the competition is to share something scarce or to win a reward. Similarly, Tokathlıoğlu (1999: 9) stated that there is no difference between competing firms in an industry and contestants in a game except for seeking profit and efforts to prevent others from gaining profit. However, those prevention activities are expected to be performed fairly. It means that without violation of human rights and freedoms, or allowing privileges and discrimination to anyone (Türkkan, 2014: 10). The competition concept provides a basis to operate the market system efficiently. It benefits market actors by protection of their rights to make independent decisions. Moreover, it enables those actors to the pursuit of their own interests during making certain of economic efficiency and social justice.

Continuity of competition is contingent upon realizing it in the free market. Intense competition is mostly witnessed in the perfect competition market (Özsoy, 2010: 25) in which factors that make up the competition are reflected. For Ertek (2007: 144) ideal conditions of perfect competition are:

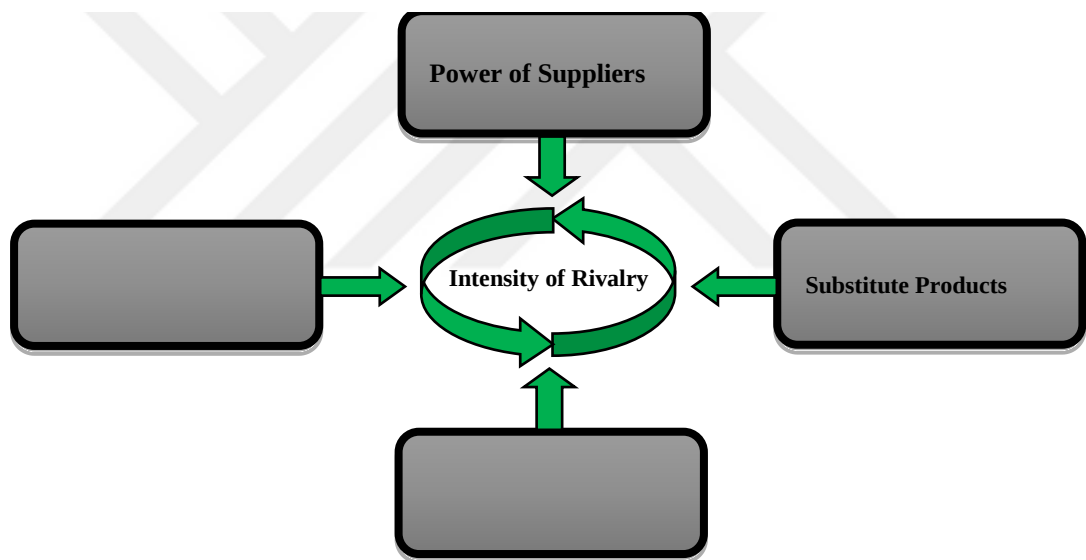
- freedom in market entry and exit
- multiple buyers and sellers in the market
- independence of competitors from each other
- identical and similar goods in terms of features, quality, etc.
- fully informed participants

2.2.1. Factors Affecting Competition

All businesses in the world want to maximize their market share and to increase their efficiency by exploiting the market opportunities, and coping with the problems and difficulties (Jaradat et al., 2013: 458). This leads to competition among companies with common interests. Yet, the intensity of competition differs

from one sector to another. This situation cannot be explained simply by a consequence of luck or coincidence. The main factor that determines the competition intensity is the dynamics of the sector in which competition occurs, rather than how the competitors behave. Understanding the industry environment starts with finding out which forces affect the organization. The underlying cause to carry out such analysis by an organization is to create a competitive advantage over competitors to defeat them (Lynch, 2003: 103). Porter (1980) formed five forces model which provides a very significant framework for the strategic plans of the companies, to reveal the current competitiveness of the industry in which the company operates. Porter's five forces model is presented in Figure 12.

Figure 12: Porter's Five Forces Model



Source: Porter, 1980.

While some forces are considered as a priority for some industries, in others, the same forces may not be taken into account. Any change in one of these forces results in a reassessment of the marketplace and reformulation of strategy since sectoral information has changed. As a result, five forces not only shape the external environment of the company but also influence its serviceability to customers and its profitability (Wu et al., 2012: 2). For this reason, the company must be able to accurately follow the signs in the market and the change of industry forces to achieve performance improvement.

2.2.1.1. Threat of New Entrants in Ro-Ro Industry

As the profitability potential of the product or service increases, the number of companies that desire to get a share from the market increases (Mohapatra, 2012: 265). Profitable industries encourage many new entrepreneurs or firms to participate in the competition to get a share from pie. Ülgen and Mirze (2014: 96) explained multiple factors that affect the attractiveness of an industry. Besides profitability, factors like industry's size and structure, easiness of entry and exit, growth rate, stage in the industrial life cycle, consistency of demand, uncertainty and risk level, the intensity of competition, etc. are known to play a key role in determining whether a sector is feasible to enter into or not. Although new players bring fresh blood by providing more capacity and resources to industry, they also pose a danger for existing market actors by escalating the competition (Porter, 1979: 138). Similarly, Thompson and Strickland (1992) suggested that especially in a case that no high market entry barriers exist against new entrants; it presents an element of risk for actors already competing. Walker (2004) argued that new players will not just decrease the market share and profitability, but change many factors such as the quality and price level of the products offered to the market.

Porter (2008) defined seven sources to create entry barriers to protect existing companies against potential entrants:

1. *Economies of scale*: Companies that have the opportunity to reduce their costs per unit by taking advantage of the high production volume will provide a competitive advantage over new entrants in terms of cost reduction. Existing market players are more likely to benefit from scale economies in different stages of the value chain. Newcomers need a long time and a large amount of investment to neutralize this superiority of their competitors. Hence, the existence of a scale economy can be used as a protective weapon against the threat of new entrants (Eren, 2003: 152-153).
2. *Product differentiation*: If existing businesses in the industry differentiate their products or create customer loyalty to their own brands, it will not be easy for new businesses to offer the same opportunities (Ülgen and Mirze,

2014: 96). Extra efforts and funds will be required to raise awareness about a new brand and attract customers.

3. *Capital requirements*: Some sectors necessitate investing heavily in specific areas including equipment, intelligent technologies (IT), facilities, distribution network, marketing comparing to other sectors. Need for obtaining finance and entailing concomitant risks may deter potential entrants (Lynch, 2003: 105).
4. *Access to distribution channels*: Setting up a new distribution channel in the industry can be extremely difficult and costly. Considering existing companies dominate over distribution channels, companies should raise difficulties for new entrants to frighten and discourage them to enter the market (Eren, 2003: 154).
5. *Switching costs*: In case that customer is satisfied with or loyal to the firm, less likely to lose that customer to a newcomer. On the other hand, even if the customer wants to transaction with a new entrant, he may avoid switching due to the high costs that he will have to bear.
6. *Cost disadvantages independent of scale*: Regardless of production volume or size of the organization, entrenched companies may achieve cost advantage which cannot be attained by rivals. This superiority can be gained by the learning curve (experience/ familiarity with industry), getting the necessary inputs easily (accessibility to cheap or best quality raw materials) and advanced, low-cost R&D capability and so on (Porter, 1979: 138-139).
7. *Government policy*: Entries into the industry may be restricted by the government. For instance, telecommunication or electric/gas utility companies have been protected or controlled by government bodies in some countries (Lynch, 2003: 106). Moreover, entrance to specific markets may be conditioned by royalty or license agreement which hard to get for new market players (Ülgen and Mirze, 2014: 97).

Turkish Ro-Ro industry has been dominating by a few major companies, mainly in European and Black Sea routes. Several poor attempts of new entrants such as Ege Ro-Ro, BKT Ro-Ro, Hatay Ro-Ro failed since the industry has too fragmented structure and requires to be invested high level of capital, borne with

operational costs and so forth. Ro-Ro operations are realized at least two available ports that enable berthing and serving those specialized ships. Therefore, potential entrants need to have an agreement with ports. Major players do not want to share their resources, so they can prevent this deal. As Ro-Ro transportation is a kind of liner transportation, regular customers may also not want to work with new entrants. On the other hand, it cannot be as easy as container shipping companies to differentiate the service offered by new companies in the Ro-Ro industry. Furthermore, it will be hard to compete with the established firms in terms of cost because they provide a scale economy by long-term agreements, especially with major auto manufacturers.

2.2.1.2. Bargaining Power of Suppliers in Ro-Ro Industry

Supplier is the source of all inputs required for the firm to produce products or offer a service (Mahoney, 2012: 267). So, its' power is the other side of the customer's power. A firm is in the customer position when a relationship with its suppliers is considered. For this reason, all firms have a desire to be as strong as customers against their suppliers. In other words, firms aim to obtain inputs cheaper as strong customers in their relations with their suppliers while making more profit as strong suppliers/sellers in their relations with their customers (Alonay, 2014: 29).

The bargaining power of a supplier stems from the ability to impose increased prices and/or to impair the quality of requested goods and services (Porter, 1979: 140). Suppliers with high bargaining power will more easily be able to have their decisions accepted by the firms with which they establish business relationships. Therefore, those firms will not have full flexibility in choosing and implementing its own strategic decisions and behaviors. Conversely, when suppliers' bargaining power is low, firms will be able to manipulate suppliers as they wish and be free to implement their strategies (Ülgen and Mirze, 2014: 97).

Firms depend on multiple different supplier groups to provide their input. Market characteristics and the significance level of offered inputs by a supplier or supplier group are determinative factors for supplier's power. Eren (2010) stated several determinants of the supplier power as follows:

- To gain a competitive advantage in an industry, companies may need inputs that will make them cost-advantaged and, if necessary, differentiated and privileged from the competitors' goods and services. Suppliers are more likely to have higher bargaining power if they have the necessary qualifications and they are flexible enough to enable companies to satisfy these demands.
- If a firm can switch suppliers without any loss such as a decrease in quality, delay in delivery time, compensation burden, dissatisfaction of customers, or incremental costs; the bargaining power of the supplier will be low.
- The existence of different suppliers or sectors producing substitute goods and services also adversely affects the bargaining power of the supplier.
- The formation of mergers and alliances is in favor of a supplier's power due to emergent virtually monopolistic structure.
- As the volume of input to be purchased increases, bargaining power will be in favor of the customer. Suppliers concede to provide many privileges, including high discounts to hold customer firms.
- The bargaining power of the suppliers decreases to the extent that the cost of bulk purchases is low. If the resources in the market will decrease as a result of the mass purchase, the suppliers that foreseen this outcome may become strengthen and raise prices.
- One of the biggest risks is that suppliers in the industry intensify the competition by entering their customers' markets. In response to this forward integration, customer firms may incline to achieve backward integration and participate in their suppliers' markets which poses a great threat to their bargaining power (Eren, 2003: 147-148).

Considering the Ro-Ro industry, shipyards and bunker providers are among major suppliers yet they do not offer large discounts or highly differentiated services. Multiple alternative suppliers also exist. Instead of new ships, firms may prefer purchasing second-hand ships with a higher average age that lessen dependency on shipyards. Owing to the fact that predetermined voyages require specific port calls, ports' hands may strengthen. Still, some firms have their own ports/terminals that enable faster, professional, and cheaper services to buyers. For example, DFDS has eight terminals in strategic positions along with Europe. Furthermore, the company

has made strategic acquisitions (U.N.), agreements (e.g. utilization of Alternative Ro-Ro's terminals), expand its own multimodal infrastructures so on.

Not only market characteristics, but also the culture of the called regions affects relations with suppliers. To illustrate, firms operating in the Black Sea region has more intimate, long term relationships with their suppliers due to being in a smaller range. Customers of such companies mainly demand transportation services, rather than differentiated ones that make Ro-Ro companies less contingent upon various suppliers. The European market, on the other hand, witnesses much more intense competition, more demanding customers, and in turn more professional relations with suppliers. In that case, different supplier alternatives make Ro-Ro companies switch easy.

2.1.2.3. Pressure from Substitute Products in Ro-Ro Industry

Competitiveness of a product or service is contingent upon whether it offers something unique, inimitable, or not. Duplicable products/services with the same or akin functions endanger the competitive position of a firm since they smooth out to replace a product rather than another (Porter, 2008: 31). Substitutability gives cause for switching among alternatives. Because it leads to a decrease in demand and to restrain the profitability of companies. From a broader perspective, it affects the industry dynamics (Porter, 1980: 23). Substitutes can be deemed as competitors for each other in most cases. Therefore, as the number of substitutes decreases, the sector becomes more attractive. Johnson et al. (2005) explained three different types of substitution:

1. *Product-for-product substitution*: Convergence of some industries has given rise to new alternatives for previous practices. As an example, when the e-mail system came into view, substantially it replaced postal services. To gain and sustain competitiveness some products require continual updates or new generations.
2. *Substitution of need*: In the case that a new product or service is launched, it may make existing products or services unnecessary. For instance, fast and reliable online banking services substitute for the traditional banking system.

3. *Generic substitution*: Suppliers compete for a share from disposable income. To illustrate, each option of spending income on holiday or purchasing new furniture or electronic apparatus and appliances may be substituted by each other in personal expenditures. Similarly, public industries like health, education, etc. are also substitutes for each other when public spending is considered (Johnson et al., 2005: 82).

When the price-performance factor of available substitutes is more winning compared to other products in the industry, the threat of them is considered as high. In cases where the perceived value created by the substitute is higher, the potential profit of the industry becomes more limited. If a product or service can be replaced without any loss or switching cost, substitutes pose a great threat to principal sellers. Firms are forced into quality improvement, cost reduction, or differentiation of products or services to compete for substitutes. All firms in the industry may need to be in the collective activity for an effective defence against substitute products (Porter, 1980: 23-24).

Two main substitutes pose a threat to Ro-Ro transport: Container shipping and road transportation. When road transportation is compared with container shipping, the road entails a higher risk for Ro-Ro. Although both of Ro-Ro and containerized transport are considered as liner shipping types, their structure, handling, and operation processes highly differ from each other. On the other hand, the roadway is the sole alternative for wheeled cargoes in most cases. However, international freight operators tend to employ Ro-Ro, especially when specific circumstances such as no land linking; unpleasant weather; traffic congestion and land route condition, political/legal issues, and obstacles so on are considered.

2.1.2.4. Bargaining Power of Buyers in Ro-Ro Industry

Bargaining power reinforces more powerful companies to obtain better agreement terms than inferior ones by leaving them no choice but to conform to a stronger party. Therefore, just like suppliers, customers seek to hard bargain to enhance negotiation terms and conditions in their favor (Crook and Combs, 2007: 548). Due to the fact that customers are well-informed today, thanks to convenience

to reach available information about products and services, it becomes easier for customers to compare suppliers and select the most favorable one (Mohapatra, 2012: 267). When customers are in a position where they have enough power to reduce prices, demand higher quality or a superior service performance at the same price, they become a significant industry force, as they also affect sector profitability (Porter, 2008: 30).

All businesses aim to gain acceptance, to be found valuable, to sell their products and services to customers in return for a specific price. Therefore, the survival of the firms is contingent upon the existence of customers (Ülgen and Mirze, 2014: 99). Customers' bargain power increases, especially when competitors offer similar or standardized products at almost the same value and price. Under these circumstances, customers can use another supplier as a trump card and make their demands met in the best way (Alonay, 2014: 32). Pfeffer and Salancik (1978) stated that the determinative factor of which party, supplier, or buyer is powerful in this negotiation process is the dependency level to the products or services.

Five forces intersect in multiple points with each other, thereby possible to interpret their relationship as interdependency. Bargaining powers of suppliers and customers can be considered as two extremes for the seesaw. Being strong on either side can change all balances. When suppliers offer undifferentiated and identical products, buyers dominate over suppliers. Similarly, low switching costs or the existence of substitutes strengthen the buyer's hand. Considering a few customers exist in the industry or mass purchases are carried out by them, customers become more valuable in the eyes of suppliers. Where suppliers are strong, customers can also pose a threat to them through collective power which stems from the formation of backward integrations (Porter, 2008; Ülgen and Mirze, 2014).

Buyers of the Ro-Ro companies are freight operators particularly those operating in international markets. Supposing that freight rates increase and no high switching costs, freight operators may prefer to use road transportation. Therefore, Ro-Ro companies are always seeking for new ways to retain existing operators and attract newer customers to use Ro-Ro. Besides, big car/truck manufacturers demand special Ro-Ro carriers for cross-continental trade. Large scale producers generally draw up long-term agreements that cover numerous special terms that may include

details parking distance between cars, storage area details (e.g. not to carry cars on the rooftop). To retain such big manufacturers, Ro-Ro companies may tend to start new routes, offer special payment terms and discounts, and ensure the highest safety standards during shipment. Ro-Ro companies need to arrange their voyages according to the production schedule of those big scale customers.

2.1.2.5. Intensity of Rivalry among Existing Competitors in Ro-Ro Industry

Traditionally, the main factor that companies have focused on during competitive analysis is competitors and the intensity of competition between them. In each sector there exist companies that have to compete for the same target group to sell their identical or similar products/services (Ülgen and Mirze, 2014: 100). Porter (1980) indicated that the competitive structure of an industry as the clearest and the most determinative industrial force on firm performance. He emphasized that a rival company's act interdependently since any move or strategic action of one player requires counter actions. Competition occurs due to the fact that competitors feel pressure on themselves to react against rivalry actions or seek to take advantage of opportunities around them. Therefore, in such an environment where severe competition exists, generally profits are expected to be lower due to the high cost of rivalry.

Intense competition pushes prices down, causing customers to have products at lower prices than their value. In an environment where there is no competition, prices can be much higher than customers' expectations, which forces customers to make very clear decisions about purchasing products (Alonay, 2014: 34).

Severe competition arises as a consequence of several factors which are in interaction. For instance, in case of low pace or stagnant industrial growth, competition becomes intensified and companies that anticipate growth aspire to get their competitors' market share. The production of homogeneous products triggers to fierce competition. Companies wishing to stand out from the competition must differentiate their products or offer exclusive products. Similarly, brand identity and recognition also a vehicle to gain an edge over competitors. Another competition

intensifier factor is the high level of fixed costs which force firms to minimize average costs by increasing production level. Likewise, achieving economies of scale through augmented capacity leads companies to decrease their average cost level and to raise competition. Costs influence competition dynamics in many ways. Besides such fixed costs, switching costs play a key role in the determination intensiveness of rivalry as well. As mentioned in other industry forces, absence or fewness of switching costs boosts the competition due to the fact that convenience to switch between firms. To alleviate competitive pressure, competitors tend to form mergers or strategic alliances. One of the pioneer sectors in which such collaborative partnerships have arisen is the shipping industry. Rather than competing in oligopolistic markets, rival companies have chosen to share market through alliances contributing to the balance between price and production quantities. However, strategies, structure, and culture of the competitors should be cohered to avoid conflicts stimulating rivalry. Last but not least, just like entry barriers, exit barriers of the industry also shape competitiveness. When exit from industry is precluded with social, financial, or psychological obstacles; firms perpetuate to competitive actions to be survived (Porter, 1980; Eren, 2010).

Ro-Ro industry, especially the Turkish market is dominated by few companies in certain routes. Dominating companies compete on the same routes which make competition harsher. The market is fragmented and recent acquisitions have changed market dynamics, more particularly the European market. For example, although Alternative Ro-Ro was the second Ro-Ro operator on Turkey-Europe line with a 23% market share in 2017, now the company solely maintains terminal operations. Similarly, the largest operator was acquired by a Danish company. Intention of the acquisition of Ulusoy Ro-Ro was prevented by The Turkish Competition Authority due to the threat of a monopolistic structure. Other companies performing on the Black Sea and Middle Eastern are relatively smaller and less competitive than companies operating on European routes.

2.3. COMPETITIVE ADVANTAGE AND THEORIES BASED ON COMPETITIVE ADVANTAGE

Competition is inevitable for businesses that seek to be survived and accomplished. While the efforts and performances of the firms that aim to continue their existence against their competitors were previously studied with the competition theory of economics, now they are also addressed in empirical research within the strategic management concept.

Today's competitive environment obliges companies to outperform their rivals. Otherwise they might have difficulty in finding a place in the market within a short period of time. Due to the increasing competition that stems from globalization, companies with superior competitive performance have the power to wipe their competitors out of the market. Therefore, companies which aim longevity necessitate not only gain competitive advantage but also keep this superiority sustainable. In this context, the question arises on how to achieve a sustainable competitive advantage. Accordingly, besides competition, the concepts of competitive advantage and sustainable competitive advantage have become among prominent topics frequently referred to in the strategic management literature.

The emergence of competitive advantage as a concept dates back to the second half of the 1970s. In 1978, Hofer and Schendel introduced the concept of competitive advantage and proposed that the competitive advantage can be achieved by companies through acquiring resources and developing a unique resource positioning different from other competitors. However, popularization of the concept was realized by Porter, who is known for his pioneering work in the field of strategic management. According to Porter (1980,1985), firms aspiring competitive advantage should provide either lower prices relative to competitors or superior value for customers. Both essential and auxiliary activities partaking in the value chain are required to be performed coherently and efficiently to persuade customers of paying premium prices. He posited that to attain a more substantial and long-lasting competitive advantage and defensible position than competitors, firms need to be adept in employing low-cost, differentiation, or focus strategies that proceed from the structure of the industry (Yamin et al., 1999: 508). Thereby, the success of the firm,

in terms of competitive advantage, is contingent upon the five forces' effect in the industry. Day (1984), who first used the concept of sustainability in strategy, stated that sustainable competitive refers the superiority of companies' production resources and outputs. Barney (1991) argued that the main source of competitive advantage cannot be industrial dynamics. Hereunder, each firm's competitive advantage emanates from its resources and capabilities. Thus its sustainability depends on its originality and difficulty in replication (Saldıraner, 2016: 81).

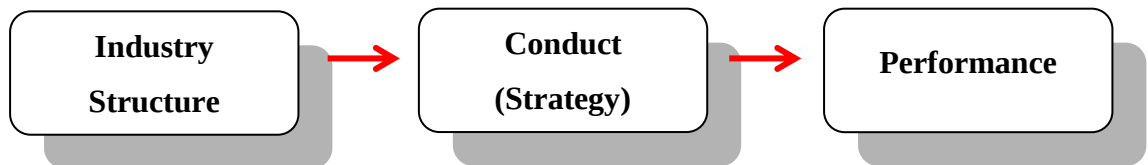
When the literature on competitive advantage or sustainable competitive advantage is examined, the dominance of the two main views is seen obviously. The first of these theoretical approaches, also referred to as the traditional approach and positioning school thought, is the Industrial organization View (I/O). This theory suggests that resources creating a competitive advantage should be sought in the structure of the industry. The other one is the Resource-Based View (RBV) which claims that competitive advantage originates from the idiosyncratic firm resources, core competencies, and capabilities (Özbağ, 2016: 888).

2.3.1. Industry Organization View (I/O)

The industry-based view has grounded on industrial economics which is a sub-area of microeconomics. This approach argues that firms' ability to generate above-average profits and gain competitive advantage depends on analysing the environment where businesses operate (Cantürk and Çiçek, 2016: 98). Industry-market characteristics, in other words, the external environment of the firm, are decisive in obtaining a competitive advantage. In this context, organizations need to initially concentrate upon sector they are in, and then develop specific strategies applicable to industry structure (Sönmez and Kasımoğlu, 2014: 69).

The early studies of the school of thought date back to the researches of Mason (1939) and Bain (1951, 1956). The industrial organization approach adopts the *Structure - Conduct – Performance (SCP)* paradigm, as seen in Figure 13. It is also known as the Bain-Mason paradigm. According to this paradigm, a strong and continuous causality relationship exists between industry structure, firm management, and market performance (Erol and İnce, 2012: 104).

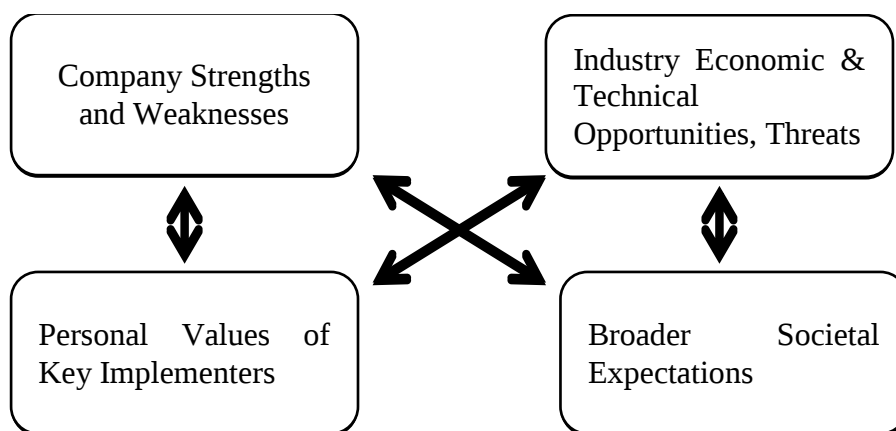
Figure 13: SCP Paradigm



Source: Porter, 1981: 661.

Mason asserted that both buyers' and sellers' attitudes, choices, and behaviors are shaped in accordance with the industry structure. In this regard, performance dimensions including efficiency, cost minimization, quality improvement, and innovativeness emerge as a result of these conducts. Studying how industry structure influences the firm's performance, Bain contributed greatly to the evolution of the IO view by clarifying the motives of performance variation among different industries. Furthermore, he propounded three barriers in order for the prevention of rivals' market entry. These are scale economy achievement, differentiation of products at a high level, and minimization costs to get an advantage (Ghemawat, 2002: 53). This study later formed a basis for Porter's five force models (Erol and İnce, 2012: 104). Although the paradigm is a starting point for Porter's research, the framework developed and modified by him significantly differs from traditional industrial organization theory in several points.

Figure 14: The Four Key Elements of Effective Strategy Formulation



Source: Fahy, 2000: 95.

Porter (1991) criticized Bain-Mason paradigm with limited scope, constancy, failure to formulate effectual strategy. He asserted that the paradigm does not consider key elements of effective strategy formulation which is presented in Figure 14. Unlike Mason and Bain, Porter (1980, 1985, 1990, 1991, and 1998) concentrated upon the performance of the market, rather than the firm's performance.

2.3.1.1. Porter's Generic Strategies

Business-level (competitive) strategies are known as crucial to explain variations of profitability of firm performance in the long-run (Beard and Dess, 1981; Teeratansirikool et.al., 2012). As aforementioned before, several typologies have been presented in the strategic management field that aim to guide firms for competing in particular industries via exploitation of firms' competitive advantage to achieve their objectives and goals. Among them, Porter's (1980) and Miles and Snow's (1978, 1986) have become prominent approaches since both are considered more generalizable across different industries and strategic groups (Parnell and Hershey, 2005: 19).

The main idea behind the generic strategy concept is to decide on performing different business activities or carrying out standard activities differently from competitors. Moreover, the creation of strong and unique competencies to obtain a competitive advantage in just one or multiple areas to outperform rivals can be considered another aim of firms in choosing particular strategies (Phongtra and Johri, 2009; Porter, 1980). Regardless of which strategy is adopted, optimally exploiting competitive advantage by a firm relies on whether the chosen strategy fits with the firm's objectives and goals (Allen and Helms, 2006; Kippenberger, 1996). Porter (1980, 1985) proposed that yielding competitive advantage and ensuring superior performance with long-run profitability can only be achieved in two ways:

1. Firms may produce their goods and services the lowest cost possible and sell them with industry average pricing. Therefore, higher profit margins comparing to its rivals can be reaped.

2. Firms may provide competitive advantage and higher returns as a result of making a difference in their goods and services, and selling them to the customer at a higher price than other goods and services in the market.

For him, each firm aspiring competitive advantage needs to pursue either cost leadership (low cost) or differentiation strategy in a broader sense, or focus strategy which leads firms to concentrate on a narrower, niche area with cost or differentiation. Accordingly, firms can position in the industry so as to leverage their strengths and protect themselves from the negative influences of the five forces. To avoid firms from contradictions due to adopting disparate strategies, they must be clear on strategy selection. Otherwise, firms will fail to fulfil discordant strategies' requirements and become stuck-in-the-middle. This situation inclines firms to perform inferiorly in comparison to their rivals who follow pure strategy forms (Porter, 1996: 67). However, several empirical studies have proved combination of cost leadership and differentiation strategies may bring about superior firm performance than pursuing a single version of them (Baroto et al., 2012; Jones and Butler, 1988; Kim and Lim, 1988; Manev et al., 2014; Miller and Dess 1993; Leitner and Guldenberg, 2009; Pertusa-Ortega et al., 2009).

Employment of Porter's model in this study is based on several reasons:

- First of all, his typology conforms and is consistent with many other generic strategy typologies in a certain extent. To illustrate, both of defender strategy of Miles and Snow (1978), and efficiency strategy that is proposed by Hambrick (1983) overlap with the cost-leadership strategy. Likewise, Miles and Snow's prospector strategy share common characteristics with the differentiation strategy (Agyapong et al., 2016; Amoako-Gyampah and Acquah, 2007).
- Universally acceptance and popularity of the model smooth the way for researchers to test model's applicability (Agyapong et al., 2016: 453)
- It enables a general framework to understand sources of obtaining and sustaining competitive advantages (Koo et al., 2004: 165).
- Model is considered as simple, clear, well-defined in terms of structure which makes up easy to comprehend and implement (Ormanidhi and Stringa, 2008, Teeratansirikool et al., 2012).

- Last but not least, it's been associated with various environmental, organizational, and performance-related factors, variables (Amoako-Gyampah and Acquah, 2007; Dess and Davis, 1984).

2.3.1.1.1. Cost Leadership

The first strategy, which became increasingly widespread in the 1970s due to the popularity of the concept of the experience curve, is to achieve overall cost leadership in the industry. Being a cost leader comes to mean that a firm carries through becoming the lowest-cost producer in the sector where it competes (Porter, 1998: 12). Firms employing cost leadership seek efficient opportunities, cost-cutting processes, and perform strict control in order to produce less costly products and services than their competitors (Daft, 2001: 60). Successful implementation of this strategy requires “*aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like research and development (R&D), service, salesforce, advertising, and so on*” (Porter, 1980: 35).

Success in low-cost strategy implementation of a firm also depends on how promising its market share and convenience to acquire required inputs including, raw materials, technological or human resources, component parts, etc. with priority (Tanwar, 2013: 12). Therefore, the main aim of the firms should retrench not only production costs; rather minimize all costs regarding each activity in the value chain (Thompson and Strickland, 1996: 228). What most significant issue in this case is to maximize the firm's efficiency through processing the lowest inputs comparing potential rivals. Yet, firms must pay sufficient attention to its own principles regarding pricing, quality, delivery, value, etc. while managing whole these processes (Taştan, 2005: 51).

Grant and Jordan (2014: 186) asserted that a firm following cost leadership is expected to draw away its competitors in cost areas in seven different ways to outperform its rivals. First of all, an economy of scale is known to one of the best ways to reduce unit costs for multiple activities from production to storage,

transportation to distribution so on. In the same vein, reduction in input costs can be achieved via a favorable location of the firm/plant, negotiating power, unorganized labor force. Capacity utilization and flexibility also give firms a chance to rapid adaptation to changing internal or external conditions to easily cut down costs. Another source of cost reduction is learning curves or economies which facilitate firms to augment their competencies or capabilities and operational routines. Moreover, production designs and techniques including process innovation or restatement of existing business processes can create an opportunity for companies in order to lower the costs. Besides, corporate culture, managerial capabilities, motivational factors may become sources of cost advantages.

2.3.1.1.2. Differentiation

Differentiation strategy refers to an integrated stream of practices and actions that firms present goods or services to be perceived as significant and unique by customers (Teeratansirikool et al., 2012: 170). Markets which characterized by intense competition and high level of saturation enable most suitable conditions to apply this strategy. Customers who have specific unsatisfied demands and are insensitive to price elasticity specifically trigger companies to use differentiation strategy. Moreover, it is preferred by well-established firms that possess unique and critical resources or capabilities (Agyapong, 2016; Porter, 1980, 1985). Firms can ensure superior service levels, augmented product/service performance, distribution operations, better brand reputation, image, and design, etc. compared to their potential or existing rivals. Thereby, firms may request higher premium prices in return for their offerings in order to generate much more profit margins (Frambach et al., 2003; Porter, 1980).

Firms aspire to be positioned in their customers' minds as having superiority over its rivals. The creation of such perceptions or changing customer perceptions in favor of their firms requires to be supported by specific advertisement programs, intensive and well-done marketing activities, ever-developing innovative technologies, designs, and solutions, etc. Differentiation methods or vehicles are not the same for every industry. In this regard, each industry has idiocratic requirements.

Differentiation can be achieved via range and coverage of products/services, customer service approach, fast or incremental innovations, product or process engineering. Furthermore, being the leader in terms of quality or technology, strong distribution networks through collaborations and alliances, and the performance of R&D activities may contribute to success of the strategy implementation (Phongpetra and Johri, 2009: 19). For Çam (2002: 161), differentiation activities can be performed in four ways:

1. Using more up-to-date and better technologies or techniques than competitors to differentiate offers. This novel approach smooths the way for companies to adapt themselves to changing requirements and the urge to enter untested markets.
2. Giving more weight to the quality improvement processes to differentiate offerings, so that boost durability and reliability of the firm to build customer loyalty.
3. Create differentiation by means of providing better quality, timely, and reliable post-sale supports compared to competitors.
4. Differentiation is based on charging fewer prices for firms' fewer quality goods and services.

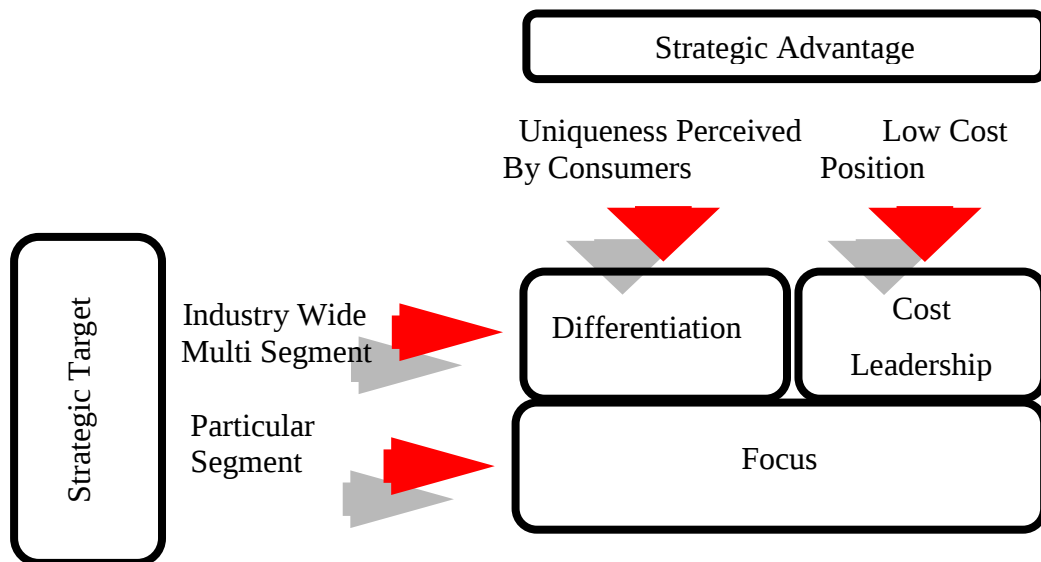
Differentiation is a strategy suitable to achieve above-normal profits in the market since it creates a defensible and sustainable position to overcome five competitive forces (Certo and Peter, 1991: 113). Similar or identical products are expected to be exactly with the same price. Otherwise, even steady customers can be apt to shift to sellers which offer the same products with the cheapest prices. Successful implementation of differentiation may let the firm to freely quote a price for its products /services (Udell, 1964: 45). Also as substitutes cannot ensure the same level prestige to customers, the substitution of differentiated products will be relatively less threatening. In addition, the prestige of products and services creates customer loyalty which can have a deterrent effect on potential entering the sector. On the other hand, Porter (1980, 1985) discussed some negative consequences that can be associated with employing a differentiation strategy. In case that price disparity between cost leaders and differentiators become a considerable amount, it will prohibit differentiators from building customer loyalty and finding buyers intend

to pay such premium charges. Likewise, when the competitors in the market imitate the differentiation applied by the firm, the obtained competitive advantage will be lost. When it realizes, the effect of the differentiation strategy disappears and the needs of consumers can change. Tactics and behaviors of competitors can also cause to lose advantages of differentiator firms and to raise their costs.

2.3.1.1.3. Focus

The focus or niche strategy can be defined as the implementation of cost leadership and differentiation strategies on a particular group of customers in a narrow market. Unlike two major generic strategies, low-cost and differentiation which target entire market; this strategy requires choosing a specific consumer group, geographical segment or product/service line to confine firm's products or services with the intention of canalizing its all resources, efforts, and expertise on it (Allen and Helms, 2006; Daft, 2001; Kumar et al., 1997; Porter, 1980, 1985). Figure 15 visualizes Porter's three generic strategies.

Figure 15: Porter's Three Generic Strategies



Source: Barato et al., 2012: 117 (Adapted from B.V.P.M., 2005)

Most viable conditions to adopt a focus strategy as follows (Eren, 2013: 271):

1. There should be buyer groups or geographic regions which demand special, distinctive, unique preferences and requirements,
2. Competitors purpose to serve their offerings to the whole industry or customers instead of specializing in a specific group,
3. Resources of the firm are not enough to strike the whole market's attention; on the contrary, they can only be effective in a certain market segment with scarce resources.

Niche strategies are more viable to smaller firms that hold scarce, limited resources since it enables them to get strength from their strategic advantages to position in the market and compete against larger firms (Koo et al., 2004: 167). A firm concentrating on a particular segment of the market while deactivating other segments can achieve to specialize in the targeted market segment. Small and medium-sized businesses that focus their activities on a certain market can also increase their opportunities to penetrate and take over the market, as they will establish more frequent and intimate relationships with customers in the region (Eren, 2013: 271). It ensures that the firm specializes in the segment it serves, and has extensive knowledge. On the other side, concentration on a narrow scope creates a cost advantage when compared rivals serving industry-wide, thanks to not require investments as high as for broad scope companies (Evans et al., 2003: 217). Focus is indicated as the most invulnerable and enduring generic strategy against substitution or imitation threats. It targets an area where competitors fail or are reluctant to compete in. When applied correctly, it will bring success. According to Porter (1980), success in the focused market segment is contingent upon promising growth potential of it and being overlooked the segment or considering as insignificant by rivals.

- Cost leaders that serve a breadth range of products outperform focusing firms in terms of cost advantage owing to economies of scale, distribution networks, bargaining power, and so forth.
- When offering differences between the target group and industry decrease, the focus strategy may lose its influence.

- Considering that competitive firms in the broad market aim at sub-markets which fall into the strategic target of firms employing focus strategy, again focus strategy may become ineffective.

2.3.1.1.4. Hybrid (Combination Strategy)

Porter (1980, 1985) emphasized that each of the proposed generic strategies entails exactly different ways of obtaining and sustaining competitive advantages. Broadly speaking, cost leaders substantially differ in many respects from differentiators including aims, organizational structures, supply system, value chains, resources, the field of activities, and marketing approach so on. To set an example, the main logic behind cost leadership is to take advantage of efficiency which leads firms more standardization and cost reductions mainly utilizing economies of scale. While differentiation is associated with exclusive products, greater innovation, and dynamism, quality improvement, intensive R&D efforts, speed delivery, etc. (Gupta, 1987: 484).

Porter (1985) stressed that since both strategies are inherently opposite and incompatible, simultaneous usage of them will eventuate in failure to successfully implement neither of them and becoming ‘stuck-in-the-middle’. Accordingly, a firm must clearly choose just one of them and dedicate its all resources and capabilities with full commitment to achieve it (Yamin et al., 1999: 508). Although several authors have corroborated Porter's view which is also called strategic purity (e.g. Campbell-Hunt, 2000; Dess and Davis, 1984; Hughes et al., 2010; Hambrick, 1983; Lähtinen and Toppinen, 2008); many other authors have contended against this view and have propounded that firms can pursue a combination of differentiation and cost leadership strategies which best fit their present conditions and enhance firm performance (e.g. Acquaah and Yasai-Ardekani, 2008; Allen and Helms, 2006; Baroto et al., 2012; Jones and Butler, 1988; Kumar et al., 1997; Leitner and Guldenberg, 2010; Manev et al., 2014; Miller, 1992; Miller and Dess 1993; Pertusa-Ortega et al. 2009; Yasai-Ardekani and Nystrom 1996). They alleged that rather than being contradictory, both strategies incline to present complementary and reinforcing effects on each other, especially in the long term. For instance, Yasai-Ardekani and

Nystrom (1996) suggested that by performing a differentiation strategy, a low-cost firm may reduce its vulnerability to a minimum. In the same vein, Acquaah and Yasai-Ardekani (2008) argued that when firms simultaneously employ cost leadership and differentiation strategy, it paves the way for strengthening their market presence and position through value-creating activities. Jones and Butler (1988) claimed that the achievement of effective differentiation can create economies of scale advantages. Considering the demand for innovative, quality, exclusive products increases, firms will effort to build more capacity which leads them to keep down the costs through economies of scale. Besides, Pertusa-Ortega et al. (2009) mentioned that realizing cost leadership in the best way gives a firm chance to transfer its profits to better marketing activities, to improve product/service qualifications, to enhance quality management practices; in turn, strengthening its position in terms of differentiation.

Miller (1992) underlined the fact that adopting hybrid strategies (also termed as a mixed, combination, and integrated with various sources) provide a relatively more strong and defensive position against five forces compared to pure strategies. Strength of the strategy stems basically from two advantages:

1. Complexity: Hybrid strategy has been indicated as strategically complicated and hard-to-imitate architecture in comparison with a pure strategic approach. Its multifaceted structure comprises several strategic focuses, and defends the firm against rivals' imitative attacks.
2. Flexibility: While pure strategy followers have great difficulty in adapting to environmental conditions owing to its rigid structure which makes them more vulnerable to changes in the market and competitor's actions. Pursuing a hybrid strategy enables firms to adapt themselves to changing market dynamics easily. Thereby, firms can be more customer-oriented to satisfy evolving customer tastes and needs (Miller, 1992: 38). Similarly, Leitner and Guldenberg (2010) posited that a combination of both strategies contributes to firms' flexibility and agility; specifically, allow them to enhance their offerings by focusing cost and product/service features together.

Due to the fact that keeping hold of advantages gained with differentiation or cost leadership strategy is difficult, hybrid strategy followers are more likely to

obtain and sustain superior performance in the long-run (Baroto, 2012: 123). So, a hybrid strategy can be feasible and profitable.

2.3.1.1.5. Stuck-in-the-middle

The main drawbacks and risks of the hybrid strategy are mainly related to Porter's assertion which supposed that simultaneous execution of opposed strategies' combination will lead firms to in an underperforming situation termed as 'stuck-in-the-middle' (Porter, 1985: 16). *“Becoming stuck in the middle is often a manifestation of a firm’s unwillingness to make choices about how to compete”*. Even the firm concentrates all of its capabilities to gain a competitive advantage with dual strategic focus; it succeeds in none of them since the achievement of such incompatible strategies generally necessitates inconsistent actions (Porter, 1985: 17). Two basic cases that bring about becoming 'stuck-in-the-middle' can be explained as:

1. Fail to fully or properly follow either differentiation or cost leadership,
2. Despite the potent pursuit of both strategies with managerial intensity, yet remain incapable to resolve trade-off dilemma that ended up with inertness or value reduction owing to a highly conflictual managerial context (Lapersonne, 2017: 41).

However, it is significant to realize that hybrid strategy and 'stuck-in-the-middle' positions are not equivalent. Stuck-in-the-middle firms fail to put a clear emphasis upon either of strategic approaches. Thereby, none of them can be successfully implemented to bring a competitive advantage. For instance, suppose that a firm possesses limited sources and canalizes these scarce sources to lower costs; it also has to reduce sources required for differentiation. On the contrary, when the firm directs mentioned sources to intensify marketing efforts, to innovate products with high-cost technologies or supply quality inputs; cost minimization cannot be ensured. The firm faces a competitive disadvantage and underperformance in both cases. Despite all drawbacks, Porter (1985) presented that employing this strategy can be considered viable when industry conditions are highly promising and favorable; or when rivals become 'stuck-in-the-middle' as well. Because only under these conditions a firm can be forced by any of the rivals to cut down its costs or

spend more and more on differentiation activities. Yet, he asserted that this situation can create just temporary advantage; sooner or later a rival will strengthen or a powerful rival enter into the market, and force firms to choose a specific generic strategy to be sustainable in the long run.

2.3.1.2. Miles and Snow's Typology

Miles and Snow (1978) suggested that the strategic orientation of organizations mainly shaped by organizational processes and decisions of the management. They developed a contributory framework which is called "*the adaptive cycle*" to understand the organization's actions against environmental changes. Accordingly, only a part of the organization's behavior can be predetermined by environmental conditions, rather the decisions made by the top management have critical importance for the organization's structure and process. The success of an organization is contingent upon how well the external environment and its strategies, processes, structure, and ideology conform to each other. This process starts with the organization's adaptation to the market with the aim of satisfying the existing and potential needs of the customers. This adaptation forms the strategy of the organization (Aldemir, 2018: 58). In the formulation of the adaptive strategy, all organizations need to consider three key problems:

1. *Entrepreneurial Problem*: product/market line, growth potential, commitment to organizational objectives
2. *Engineering Problem*: technical competence, technological orientation, and compliance, innovativeness
3. *Administrative Problem*: managerial functions e.g. planning, monitoring, etc., management attitudes, organizational structure, consistency (Miles and Snow, 1978: 549-550).

Grounding adaptive cycle concept, Miles and Snow (1978) presented a typology consists of three viable strategies which are defenders, prospectors, and analyzers. These strategies diverge from each other in terms of innovativeness level, method of environmental analysis, a span of product/market scope, and technological proficiency in problem-solving so on. Even each strategy requires a particular set of

actions; all is common in repetitiveness and consistency of their behaviors (Agyapong, 2016; Miles and Snow, 1978). On the other hand, the fourth strategy is called the “*reactor*” lack of strategic consistency. Therefore, it is associated with poor performance contrary to three other strategies that are more likely to be good performers (Jusoh and Parnell, 2008; Parnell et al., 2012).

2.3.1.2.1. Defenders

Defenders are mainly characterized by stability and certainty. They mostly seek the protection of their existing domain and monitoring present operations strictly (Parnell et al., 2012: 548). Regardless of the industry they operate in, firms compete mainly on pricing, delivery conditions, or quality; rather than being in search of new market opportunities or any product development (Douglas and Rhee, 1989: 439). Managerial capabilities have become prominent to improve productivity while reducing costs. Especially from this aspect, it corresponds to the cost leadership strategy (Anwar and Hasnu, 2016: 364).

The key concern of the defenders is to boost efficiency; thereby investments of organizations also serve this aim. Instead of investing in innovative processes or costly, high-tech solutions; they endeavor to benefit from one core technology (Miles and Snow, 1978: 551). However, such a strategy may fail to keep up with changing demands of customers, ensure effectiveness, or survive in the turbulent conditions. On the other hand, economic stagnation and crisis times are not considered such threatening even create advantages for defenders (Akbolat, 2009; Ülgen and Mirze, 2013).

2.3.1.2.2. Prospectors

Prospectors act in the almost opposite manner with defenders. They are known as initiators, first movers, experimenters, and pioneers. Unlike defenders who perceive the environment as static, prospectors are more conscious about the dynamic structure of the environment (Parnell, 2012: 548). Therefore, environmental scanning is considered as a priority for them since they are always in search of new

markets, new technologies, and new opportunities so on. Innovativeness has precedence over profitability for such organizations. The flexibility of the structure, smoothness of communication, and centralization of decision making is critical to prospectors' success. They also concentrate on R&D, marketing functions, and product development to create continuous change. In this respect, prospectors can shape or reorient the industry. So, its competitors may face uncertainty or be forced to react to such changes. The weakest point of prospectors is to fail inefficiency (Miles and Snow, 1978: 553). Accordingly, prospectors share common characteristics with Porter's differentiation strategy (Anwar and Hasnu, 2016: 364).

2.3.1.2.3. Analyzers

Analyzers try to reach common ground, a balanced point between defenders and prospectors. Intending to create a safety zone, this strategy pays regard to only the strengths of both strategies. In other words, they are looking for new opportunities and innovative solutions while effectively maintaining their existing operations. They also tend to imitate what prospectors develop while maintaining their viable activities which allow them to increase their sales (Miles and Snow, 1986: 63). However, this strategy requires dual perspectives in terms of employed technology, managerial actions, organizational processes so on. Therefore, managers are expected to be more careful and diligent to achieve efficiency and flexibility at the same time (Miles and Snow, 1978: 555).

2.3.1.2.4. Reactors

Reactors align with firms which become stuck-in-the-middle. They fail to develop a proactive and systematic strategy to respond to environmental changes. Just in case that they are forced to take some actions or give reactions they do (Anwar and Hasnu, 2016: 64). No clear strategic approach can be associated with reactors. When organizations fail to pursue the other three adaptive strategies; they can become reactors. Since reactors do not have consistent or stable patterns in their

distinctive competence perceptions, they are inclined to be a lower performer (Miles and Snow, 1978: 557).

2.3.2. Resource-Based View (RBV)

The second main approach in the strategic management literature that addresses the issue of competitive advantage is the resource-based approach (RBV). Although the view based on the Ricardian model (Peteraf, 1993; Kraaijenbrink et al., 2010), explicit notion of RBV was first mentioned by Birger Wernerfelt in the article "A Resource-Based View of the Firm" in 1984 (Foss, 1998: 133). The popularity of the concept started after the mid-1980s, numerous researchers including Rumelt (1984), Barney (1991, 2001), Dierickx and Cool (1989), Prahalad and Hamel (1990), Grant (1991), Peteraf (1993), Amit and Schoemaker (1993), Teece et al. (1997) and Foss (1998) have made significant contributions on this concept. In particular, Jay Barney's determination of the characteristics required for sustainable competitive advantage has popularized the theory in strategy and other literature (Cerit, 2014: 237).

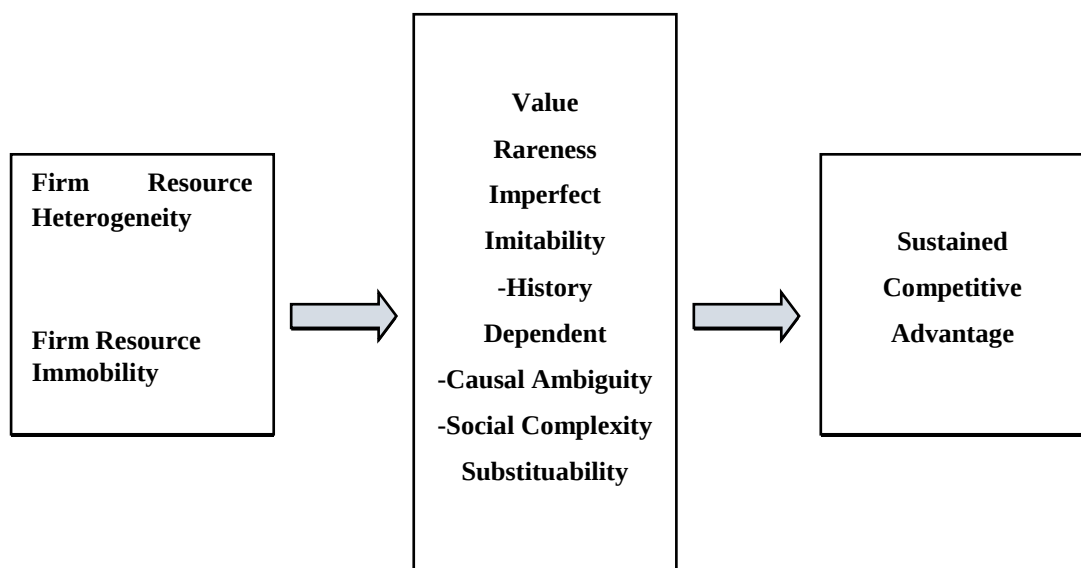
Unlike industry-based view which asserts that the most important factor in strategy formulation is the external environment, RBV propounds the significance of internal characteristics of the firm. The focal point is the relationship between strategic resources, capabilities, competencies of a firm, and its performance. (Barney, 1991; Peteraf, 1993). According to this view, all firm's resources and capabilities require to be analyzed and appraised in the strategy formulation process to reveal superior performance and to gain competitive advantage (Grant, 1991: 115).

Both resources and capabilities are known as driving factors of RBV. Some authors have addressed both terms interchangeably as synonymous terms (Ray et al., 2004: 24), whereas there are also authors who have stated that the two have different meanings (Amit and Schoemaker, 1993; Dierickx and Cool, 1989; Grant, 1991). For example, Grant (1991: 119) explained the difference between these two concepts as '*while resources are the source of a firm's capabilities, capabilities are the main source of its competitive advantage*'. Resources can be defined as possessions or assets comprising of physical, financial, technological, and human resources which

are controlled by the company. They facilitate to achieve organizational goals (Größler, 2007: 252). Whereas, capability refers to an ability to aggregation, coordination, and deploy of required resources whether owned or outsourced by the company (Amit and Schoemaker, 1993; Grant, 1991).

RBV indicates that the main reason for profit/rent differences arises from firm-specific resources and capabilities (Barca, 2002; Eraslan, 2014). Otherwise, no difference could be expected between the performances of the companies adopting the same strategy within the single industry. Barney (1991) postulated 2 main causes of this suggestion: Firstly non-homogeneous distribution of the resources. Despite operating in the same environmental context, not all firms have identical resources. Even if they have an equal number of plants, equipment, labors; historical background of the firm, interpersonal relations, managerial capabilities, know-how, reputation, organizational culture, etc. lead to creating distinctive and socially complex structure (Barney, 1986; Dierickx and Cool, 1989). Secondly, imperfect mobility/perfect immobility of those resources and capabilities impede to produce the same products or services. Trade barriers and transaction costs can be taken as a precaution to duplication of firm resources (Peteraf, 1993: 183-184).

Figure 16: Formulation of Sustained Competitive Advantage in RBV



Source: Barney, 1991: 112.

Barney (1991) posited that there exist four criteria, see Figure 16, that companies wishing to achieve sustainable competitive advantage must meet: *valuableness, rareness/uniqueness, the difficulty of imitation, and non-substitutability*. According to him, the value of the resources and capabilities depends to allow a firm to thrust its strength forward, exploit opportunities while absorbing weaknesses, and ward off threats. Therefore, harmonization and integration of internal characteristics and external environmental context are some of the prerequisites for the company's success (Größler, 2007: 251).

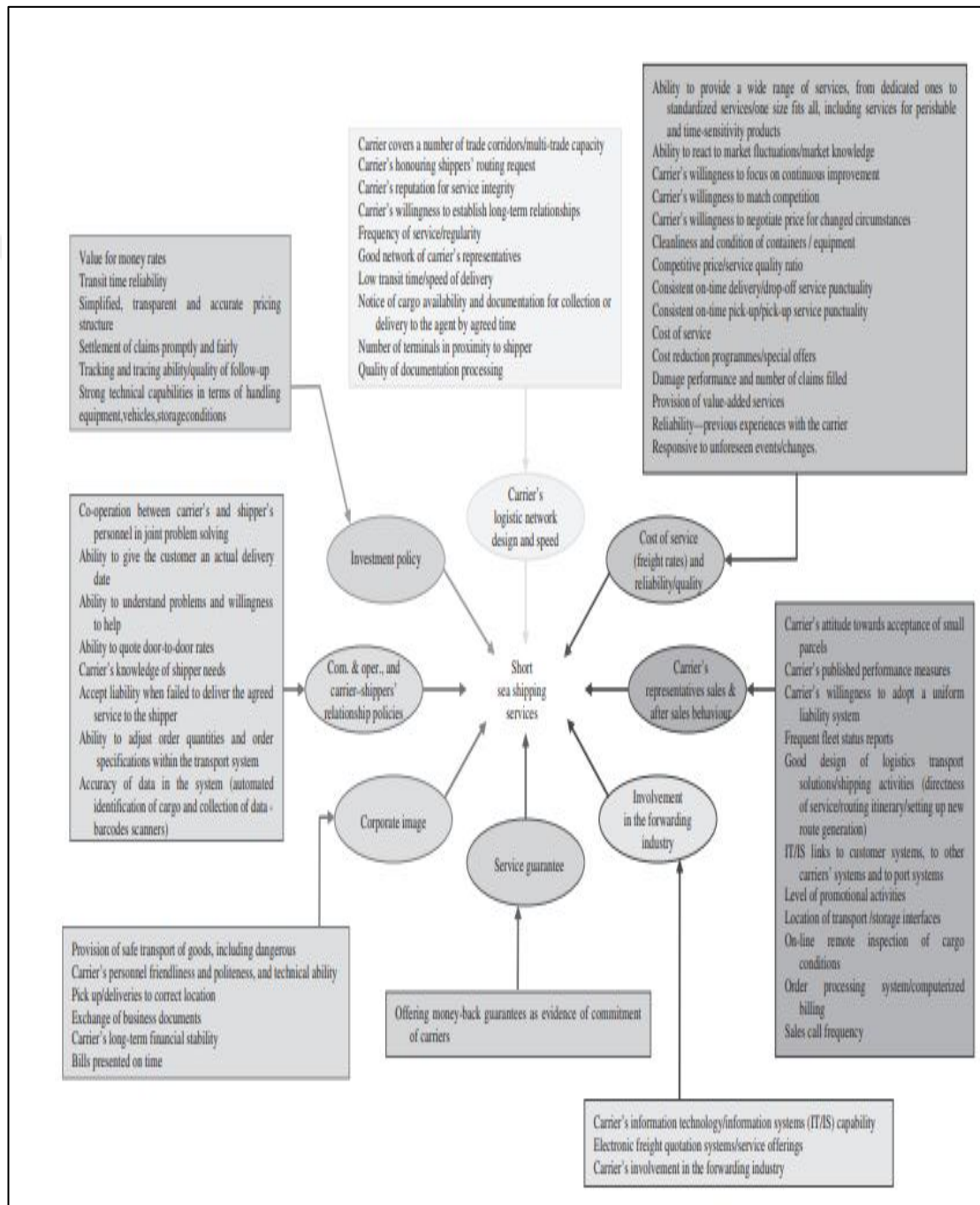
2.4. COMPETITIVE STRATEGIES OF RO-RO COMPANIES

The proliferation of international trade mainly relies on free and efficient transportation of cargoes from the point where production begins to the consumption place. Playing a crucial role in the global transportation system, the liner companies assist the progress of international trade not only through physical transportation but also via participation in the global economic system. The globalization process is directly associated with the ability of such companies to sustain competitiveness while enabling effective and efficient services (Panayides and Wiedmer, 2011: 25). Ng (2009) suggested that the competitiveness of SSS depends on specifically two main criteria: monetary cost and time requirements. Expanding this view, Christodoulou and Kappelin (2020) maintained that competitiveness of Ro-Ro services is determined by several factors including economic, timing (frequency, transit time, punctuality), environmental, service-related (capacity, reliability, safety, and flexibility), port-related, geographical, technological, cargo-related, and commercial-operational (carrier-shipper relationship) factors. According to Huang (2013), companies that seek higher service quality should consider price of service, transit time, safety of cargo, responsive operation, prompt response, intermodal service, professional staff, and reputation.

Evaluating service variables and attitudes in SSS, Casaca and Marlow (2005) proposed eight factors; see Figure 17, to consider in developing a robust strategy. These are corporate image, cost of services and quality/reliability, carrier's logistics

network design and speed, service guarantee, investment policy, carrier/shipper relationship policy, carrier's representatives' sales, and after-sales behavior, and involvement in the forwarding industry. They also recommended the implementation of total quality management to provide better services.

Figure 17: Relationship Between the Service Variables and the Service Factors.



Source: Casaca and Marlow, 2005: 377.

Generally, in the maritime sector cost leadership and differentiation strategies are pursued by shipping companies with the aim of designing their value chains, resources and capabilities (Panayides, 2003; Lagoudis et al., 2006; Lindstad et al., 2015; Yuen et al., 2017). Porter (1996) proposed that since each strategy requires a very distinctive set of value chain activities, one of them should dominate the other in order to obtain a sustainable and strong market position. Adopting either strategy is critical to enhance customer satisfaction and sustain businesses (Yuen and Thai, 2015: 171).

Cariou (2008) mentioned three fundamental trends shaping the liner industry as well as strategy formulation as vertical integration, horizontal integration, and investment on bigger ships. According to Ng (2012), underlying motivations of such changes are the expansion of international trade, advent of new markets, division of labor on a global scale, regionally specialization in the production, and improvements in the multimodal supply chains. He summarized main trends as restructuring, differentiation, and scale economies which mean utilizing from mega-sized vessels to provide more frequent services with more capacity. Midero and colleagues (2005) posited that cooperation influences the efficiency of a firm. Cooperation has been associated with the formation of merger and acquisitions (M&A), and strategic alliances in the liner shipping context. Such trends also bring about considerable enlargement of ship sizes and lower freight rates. However, the options of Ro-Ro companies are relatively limited than container companies. Because port dues or canal charges may be doubled and become loss maker after a certain size. Besides, safe transport capability and stability of the ship may be jeopardized.

Panayides and Cullinane (2002) asserted that liner shipping companies can gain competitive advantages through strategic alliances, cost reduction, economies of scale, pricing and shipper relation, vertical integration and logistics strategy, regulations, and M&A. For them, five objectives have underpinned strategic actions:

1. *Financial objectives*: profit maximization, boosting the wealth of shareholders, sharing capital investment and minimizing financial risks,
2. *Economic objectives*: utilizing economies of scale and lower the costs,

3. *Strategic objectives*: widen geographical coverage, access to the new markets, enhance in terms of purchasing power,

4. *Marketing objectives*: better satisfaction of customer requirements via offering higher frequency, reliability, flexibility and network expansion,

5. *Operational objectives*: increase the service frequency, vessel planning, and coordination to a global extent (Panayides and Cullinane, 2002: 196).

Panayides and Cullinane (2002) expostulated adopting Porter's strategies in the liner shipping by saying generic strategies are inadequate to comprehend and explain competitive advantage. However, they did not present any empirical evidence to support their assertion. They supported RBV which accentuates the need to acquire unique, defensible, and valuable resources and capabilities with the aim of leading the firm to long run above-normal performance. However, its competitive advantages may become irrelevant if the pace of changes is high (Niamié and Germain, 2014: 43). Considering all the above-mentioned aspects together, Porter's generic strategies will be addressed in the liner shipping context:

Cost leadership (Low cost): Essential questions of the liner shipping economics include cost-cutting, creation of route network systems, and accomplishment of scale economies (Panayides and Cullinane, 2012: 198). More specifically, a firm's competitiveness proceeds from its structural features and ship owner's management style which allow concentrating upon cost control, technical management of vessels in the most cost-effective ways, and adopting price competition strategies (Lagoudis and Theotokas, 2007: 97). With cost leadership strategy, a liner shipping company aims to minimize total cost through optimizing capacity utilization and decreasing the number of service features that cause waste of economic resources and inefficient allocation (Styhre, 2009: 421). In the same vein, the firm aspires to standardize its services, to succeed in economies of scale via operational activities or co-operations (strategic alliances and M&A), to adopt lean SCM, to centralize firm's functions and facilities, to tighten financial accounting practices and to minimize all other costs and expenditures regarding value chain activities such as procurement, IT, HR and so on (Yuen et al., 2017: 1-3). The highest profits with this type of strategies can be achieved if competing products or services are undifferentiated and offered at similar prices. Especially after the

abolishment of the conference system which leads nearly a monopolistic structure, competition in the liner industry has enhanced. When pressure over the pricing process is removed, firms that adopt cost leadership become the winners (Panayides and Wiedmer, 2011: 36). To sum up, the cost is the most prominent factor to maximize shipping companies' profit and to improve their effectiveness.

Differentiation: The maritime industry, especially liner shipping has undergone substantial changes since the 1980s. As a consequence of changes in the market dynamics, customer demands, laws and regulations; those firms have to keep up with changes. They should better understand customer needs by shifting their paradigm to more customer-oriented way and being aware of the required value-adding attributes describing the sector (Lagoudis et al, 2006; Lagoudis and Theotokas, 2007). In this context, firm strategies need to reformulated for better supply chain practices or connection of producer's and customer's value chains should be enhanced (Lagoudis and Theotokas, 2007: 98). Notteboom and Winkelmanns (2001) suggested that such changing trends in the shipping industry force the shipping companies to satisfy changing customers' taste and preferences, to broaden geographic coverage, to diversify service ranges, and to improve service quality. Similarly, Shin and Thai (2015) pointed out the importance of building superior customer service experience to create loyalty and brand identity. Lorange (2001) underlined how innovation is critical to differentiate shipping services. Gadhia (2011) indicated options of differentiation for shipping firms as offering more frequent and direct services, ensuring the reliability of the deliveries, door-to-door services, intermodal or logistics service support, multi-port structure, adopting IT solutions, etc. In addition to them, Juga et al. (2008) further emphasized the significance of responsiveness to customers' demands and claims, warehousing option, terminal operations to achieve more competitive advantage. Yang and Sung (2016) documented safe cargo transport capability, polite attitude in serving, quick and correct response as the top three requirements of customer satisfaction. According to Delfmann et al. (2002), providing value-adding services, managerial support, or financial services can also be sources of differentiation for shipping companies. Yuen et al. (2017) stated that when differentiation strategies are implemented by shipping firms successfully, it enables these firms to attract more

customers, create customer loyalty, and consequently request premium charges and growth in sales. To enhance differentiation practices, shipping firms should consider:

- a. Time performances i.e. reliability, speed, and frequency of shipments,
- b. Customer relationships by means of brand-building activities, enabling responsive customer services and advertising,
- c. Quality enhancement including safety and security of shipments (Yuen et al, 2017: 4).

On the other hand, Pathak (2015) proposed that since the shipping sector is considered as 'commoditized', offered services may be perceived as homogeneous which makes customers reluctant to pay premium prices. Consequently, liner companies may have difficulty investing in innovations or offer additional value by use of differentiation. In case that firms offer something different, the herd mentality of the traditional shipping system paves the way for imitation of these offerings by rivals.

Jenssen and Randy (2006) asserted that newer or specialized branches of shipping, involving Ro-Ro, necessitate more innovation and differentiation to get higher market share. More particularly, product-process innovation results in better market position, positive financial results, and higher bargaining power for such markets. Accordingly, continuous focus on innovation is crucial to minimize operating costs while creating premium value for customers.

Focus: Well-conceived transportation systems should provide geographical concentration and specialization besides enabling a good network among producer and consumer parties (Ng, 2012: 6). Ro-Ro companies may choose the customer segment, business line, or a geographic market to focus on. In case that concentration on a particular, niche market; shipping companies can defend their positions in a market where the competition level is minimal (Gadhia, 2011: 1433). Such companies may determine fewer calling ports or deploy bigger ships on a limited number of routes. Concentration strategy reinforces the company to build a close relationship with the customer. From this aspect, it facilitates understanding of their needs so that increase customer satisfaction. Moreover, it may create a favourable position for small players to maintain their existence and competitiveness by

allowing the transfer of their scarce resources to a niche market (Lorange and Datson, 2014, Panayides and Wiedmer, 2011).

2.5. FIRM PERFORMANCE

Firm performance reflects the success degree which has been achieved through strategies, operational activities, or overall efforts at the end of a certain period. It can be defined as the ability of a firm to reach its goals via utilizing its resources effectively and efficiently (Daft, 2000: 12). In other other words, the effectiveness and viability of a strategy can be assessed with performance measures.

The firm performance concept refers to a multifaceted structure that makes it hard to understand. No consensus exists in the literature on which measurement criteria are the most suitable and applicable to all firms. The main reason is that evaluation differs based on the perspective of the observer, employed criteria, and the period of time observation performed (Snow and Hrebiniak, 1980: 318). Furthermore, a performance that is considered perfect in one sector may be weighed as midlevel or poor in another sector. Benchmarking is critical to determine whether a firm performs well since gaining a competitive advantage depends on competitors' actions (Allen and Helms, 2006: 438-439). Jusoh and Parnell (2008) explained three conventional manners of performance measurement as financial, market-based, and subjective.

Financial performance is indicated as the most frequently employed measurement criterion of firm success (e.g. Anwar and Hasnu, 2016; Dess and Davis, 1984; PertusaOrtega et al., 2009; Phongpetra ve Johri, 2011). It contingents upon accounting-based factors such as Return on Investment (ROI), Return on Equity (ROE), Return on Sales (ROS), Return on Asset (ROA), Economic Value Addition (EVA) and profitability. Such measures are useful for monitoring whether the company successfully reaches its economic objectives. Because they enable managers to evaluate the efficiency of operational activities, investments, and resources. However, financial indicators may fail to demonstrate the present performance of the firm since financial ratios stem from historical data. In the same vein, many scholars have criticized such financial measures for being unreliable and

easily influenced. Managers may pretend to show firm performance better than its actual condition. Besides, variations of accounting practices also allow some confusions or manipulations (Pertusa-Ortega et al., 2009; Spanos and Lioukas, 2001)

Panayides (2003) emphasized that obtaining financial data can be challenging in some industries including shipping. Kumar et al. (1997) asserted that when financial data is unattainable or inconvenient, a subjective measurement can become an alternative. The subjective approach refers to a softer structure that measures how performance is perceived by shareholders, customers, or managers so forth. It is a beneficial tool for gaining insight into organizational processes and outputs, which is not possible to be provided through financial measurement (Jusoh and Parnell, 2008).

Tan and Thai (2014) underlined the significance of market-related and operational criteria separately while Gentry and Shen (2010) considered market performance as a manifestation of operational competitiveness and effectiveness. In the literature, some criterion such as sales growth and market share have been addressed either in financial (e.g. Yang et al., 2009; Yılmaz, 2016) or in-market performance (e.g. Kim, 2006; Tan and Thai, 2014). These two indicators have drawn a great deal of attention regardless of indicator categorization. For instance, Thai (2017) grouped them under "strategic performance" while Panayides et al. (2010) termed them "competition performance". The significance of market share stems from associated power with it. A firm having a higher market share is more likely to rule over the industry. Such advantage provides cost advantage through economies of scale, higher bargaining power and entry barrier. It refers a source of competitive advantage which allows the firm to maintain its position. On the other hand, sales growth reveals how successfully a firm's operations are performed (Tahrallı, 2014: 33). Various factors support enhancing market performance. Creating a strong brand image, ensuring both customer and employee satisfaction, taking right and timely marketing actions, building customer loyalty, being flexible, and reliable in terms of pricing or delivery can be considered among these factors.

2.5.1. Firm Performance in Shipping Industry

Performance measurement has been a prominent topic in the shipping industry. No consensus is built on which criterion is the best to apply shipping companies. Various indicators have been considered in numerous empirical studies. Some examples of them as follows:

Jenssen and Randoy (2006) applied a questionnaire on 46 shipping companies operating in Norway to discover the impact of innovation on their performances. They deployed four measurement types involving performance measurement, innovation measurement, both organizational and inter-organizational measurements. To ascertain variations among companies, each hypothetical judgment was tested on three clusters. Firstly all firms were evaluated together, then firms that adopted high-level differentiation strategies were considered separately.

Although they work on maritime companies operating in different fields, several authors preferred to classify performance criteria into two broad categories like customer service performance and financial performance. For example, Yang et al. (2009) conducted their research on Taiwan-based container shipping companies. They evaluated customer service performance utilizing customer loyalty, customer satisfaction, and service quality. On the other hand sales growth rate, profit rate, ROS, reduction of operational cost, and market share were deployed to analyze financial performances of the companies. Likewise, Yorulmaz and Birgen (2016) used the same classification but they adapted measurement criteria from Kim (2006) to their maritime transport companies based study. Nevertheless, the criteria overlap with those used in the study of Yang et al. (2009) with the only exception of sales growth rate. In another research by Yang (2012) which was carried out in the freight forwarding industry, customer service performance was measured through 3 criteria which are: customer satisfaction, service quality, and customer loyalty. On the other hand, financial performance was measured via the sales growth rate, profit rate, and market share.

Panayides et al. (2010) criticized the lack of performance measurement in shipping and emphasized the necessity of comprehensive literature to find out which measures and methods to be beneficial for enhancing performance measurement

results. To better understand the performance dynamics of the shipping industry, they set a framework that demonstrates appropriate measurement criteria compiled from a wide range of related studies. They described eleven different performance dimensions (competition, financial, nonfinancial, inventory management, quality, Balanced Score Card (BSC), market-based, firm survival, firm excellence, market efficiency, and operational efficiency) comprising of more than 80 criteria. Among them, the competitiveness of the companies was measured with the sales growth rate and market share.

Another study conducted on container shipping by Tseng and Liao (2013) explained the linkage among supply chain integration (SCI), IT, and firm performance within the context of RBV. In addition to customer service and financial performance, the study also measured the market performances of the 124 companies. They asserted that response time for customer complaints, new market development, and better reputation can be ranked as the most noticeable criteria rather than widely accepted other criteria such as ROA; cost reduction, sales growth so on. Similarly, Lirn et al. (2014) made a notable difference in terms of performance measurement. Since they aimed to find out how green shipping management capability have an impact upon firm performances, environmental performance measurement such as reduction of noise, garbage, emissions, etc. were adopted along with canonical criteria including sales, market share, customer loyalty and profit before tax.

Kang et al. (2015) investigated how financial strategies affect the economic performance of shipping companies. Their sample was composed of a total of 64 containers, dry-bulk, and tanker companies listed in BSI (Bloomberg Shipping Indices). Both EVA and Tobin's Q methods were applied to assess firms' performances based on data belongs to the 2004-2010 period. Although 5 kinds of financial ratios were evaluated in the study, the authors reported that profitability (ROE) and leverage ratios (LR) have higher determinative impacts on performances of under-research firms compared to efficiency, liquidity, or asset growth ratios.

Yılmaz (2016) examined the performance in two dimensions as behavioral and financial in the study where yacht charter companies' competitive strategies were aimed to be determined. Unlike the aforementioned studies, she addressed customer

loyalty and customer satisfaction in behavioral performance in addition to employee satisfaction, employee turnover rate, and organizational image. Besides, she adopted eight criteria regarding financial performance including sales growth, market share growth, ROA, strengthen of competitive position, etc.

Tan and Thai (2014), and Lee (2019) worked on firm performance in the strategic alliances' context. While Tan and Thai (2014) divided performance into two broad categories as market performance (market share, sales growth, market development, reputation&image, and customer satisfaction) and operational performance (service quality, responsiveness, flexibility, cost reduction, dependability, and technological efficiency); Lee (2019) assessed several criteria within the logistics and strategic performance measurement scope which were adopted from Panayides and Song (2008).

2.6. RELATIONSHIP BETWEEN COMPETITIVE STRATEGIES AND FIRM PERFORMANCE

Strategy is significant in the shipping sector due to being a facilitator to recognize business opportunities, assisting in monitoring business activities, forming a framework to enhance external and internal collaboration. Also, supporting objectivity in decision making and problem-solving, guiding effective resource allocation, neutralizing threats, providing managerial consistency in shipping firms reveal how it is crucial to this industry (Gao and Yoshida, 2013: 14). Despite all these importance of the concept, there exists a scant literature review both on strategy formulation and its implementation in the shipping industry context (Niamié and Germain, 2014; Panayides, 2003). Studying strategies of the shipping industry, Niamié and Germain (2014) highlighted that strategy topic based on the shipping industry has started to get more scholars' attention especially since 2004. They found just three articles that were edited before the 2000s. In addition, they reported that the greater part of those papers was carried out based on Porter's and Ansoff's strategies. Other papers were employed RBV, dynamic capabilities, and chain approach (Niamié and Germain, 2014: 6). Pursuant to Niamié and Germain's paper, differentiation, cost leadership, and concentration strategies are mostly attributed to

define business-level strategies. Due to the lack of studies focusing on competitive strategy and firm performance relationship within maritime industry context, various studies on different sectors are examined in this section. A summary of 30 studies were outlined in Table 12 to provide better understanding about this relationship.



Table 12: Literature Summary

	Panayides (2003)	Yilmaz (2016)	Dess and Davis (1984)	Kim and Lim (1988)	Wright et al. (1991)	Kumar et al. (1997)
Sample	Ship management companies at Cyprus, Germany, Hong Kong, Netherlands, Norway, Singapore, the UK and the US.	Yacht charter agencies in South Aegean region	Manufacturing firms	Korean Electronics Companies	Screw machine industry	USA- health care industry
# of questionnaire	408	73	78	54	56	159
Scale	Seven-point Likert scale	Five-point Likert Scale	Five-point Likert scale	n/a	n/a	7-point Likert-type scale
Research Model	Competitive strategy-performance	Competitive strategy-performance	Competitive strategy-performance	Environment, Generic Strategies, and Performance	Competitive strategy-performance	competitive strategy-organizational performance
Competitive Strategy	Porter	Porter	Porter	Porter and Miller	Low cost, differentiation, hybrid strategies, stuck-in-the-middle	Porter- pure cost leadership, pure differentiation, focus, hybrid form
Performance	Subjective	Behavioral and Financial	Financial	Financial performance	Objective and subjective	Subjective
Methods	Correlation analysis, cluster analysis, SPSSpc+	SPSS, regression analysis, T-test	Factor analysis, F-test, ANOVA, cluster analysis	Factor analysis (Varimax rotation), ANOVA, cluster analysis	Cluster analysis, ANOVA	Cluster analysis, MANCOVA, correlation analysis

Source: Compiled by author

Table 12: Literature Summary (cont.)

	Helms et al. (1997)	Yamin et al. (1999)	Olson and Slater (2002)	Powers and Hahn (2004)	Ge and Ding (2005)	Parnell and Hershey (2005)
Sample	Adhesives and sealants SMEs	Australia- manufacturin g firms	USA- service and manufacturin g firms	USA- banking industry	China- manufacturin g firms	Texas and Mexico- manufacturin g firms
# of questionnaire	70	120	>200	98	371	415
Scale	n/a	Five-point Likert scale	Five-point Likert scale	7-point Likert-type scale (strategy), 5- point Likert- type scale (perf.)	Five-point Likert-type scale	Three-point scale
Research Model	competitive strategy- business performance	Competitive Strategy - Competitive Advantage - organizational Performance	Competitive strategy- performance	Critical competitive methods - generic strategies - firm performance	Market orientation- competitive strategy- performance	Competitive strategy- performance
Competitive Strategy	Porter	Porter	Porter and Miles & Snow (Prospectors, Analyzers, Low-cost defenders, differentiated defenders)	Porter (General differentiation, focus, stuck-in-the- middle, cost leadership, customer service differentiation)	Competitive Strategies (Ding & Syed, 2001) - Cost Leadership - Innovation - Quality enhancement	Porter and Miles&Snow (Low cost, reactor, analyzer, low cost- differentiation, prospector)
Performance	Financial and non- financial	Financial and non-financial	Customer perspective, Internal business perspective, Innovation and growth perspective, Financial perspective	Financial	Financial and market perf.	Satisfaction with org. Perf.
Methods	Cluster analysis, ANOVA	Varimax & Oblimin), maximum likelihood	Balanced Scorecard	Factor analysis, ANOVA, cluster analysis,	Conf. Fac an.,multiple reg. anl.,SEM	Factor analysis, cluster analysis

Source: Compiled by author

Table 12: Literature Summary (cont.)

	Allen and Helms (2006)	Jusoh and Parnell (2008)	Acquaah and Yasai-Ardekani (2008)	Pertusa-Ortega et al. (2009)	Leitner and Guldenberg (2010)	Ortega (2010)
Sample	Working adults from diversified businesses	Malaysian manufacturing firms	Ghana-SMEs	Spanish firms	Australian SMEs	Spain-IT sector
# of questionnaire	226	120	106	164	100	253
Scale	Seven- point Likert-type scale (strategy), five point Likert-type scale (performance)	Seven- point Likert-type Scale	Seven- point Likert-type Scale	Seven- point Likert-type Scale	Five point Likert-type scale	Five point Likert-type scale
Research Model	Strategic practices-competitive strategy-performance	Competitive strategy-performance measurement	Competitive strategy-performance	Competitive strategy-firm performance	Competitive strategy-performance	Competitive strategy-technological capabilities-firm performance
Competitive Strategy	Porter (Cost leadership, differentiation, focus, focus-cost leadership, focus-product differentiation)	Miles&Snow	Porter (Low cost, differentiation, hybrid strategies, stuck-in-the-middle)	Cost leadership, marketing differentiation, innovation differentiation, stuck-in-the-middle	Porter (Differentiation, cost efficiency, combination, strategy change)	Porter
Performance	Financial and non-financial	Objective and subjective	Objective and subjective	Financial and non-financial	Objective and subjective	Subjective
Methods	Factor analysis, regression analysis	Factor analysis, ANOVA	ANOVA, multiple regression analysis, correlation analysis	Correlation analysis, regression analysis, F-test, T-test	ANOVA, correlation analysis, regression analysis	Factor Analysis, Hierarchical Regression Analysis

Source: Compiled by author

Table 12: Literature Summary (cont.)

	Yaşar (2010)	Nandakumar et al. (2011)	Parnell (2011)	Phongpetra and Johri (2011)	Akbolat and Işık (2012)	Teeratsiri kool et al. (2012)
Sample	Gaziantep carpeting sector	UK - the electrical and mechanical engineering sectors	Retail companies in Argentina, Peru, and the USA	Thailand automobile manufacturing sector	Turkey- health sector	companies operating in Thailand
# of questionnaire	165	124	576	254	165	101
Scale	n/a	Seven- point Likert-type scale	n/a	Six- point Likert-type scale (0-5)	Five - point Likert-type scale	Five - point Likert-type scale
Research Model	competitive strategy- Porter's value chain- firm performance	Competitive strategies - performance	Strategic competence- competitive strategy- performance	Competitive strategies- functional strategies- performance	Competitive strategies - performance	Competitive strategies – performance measurement - performance
Competitive Strategy	Porter	Porter (cost- leadership ,differentiation ,integrated strategies; stuck-in-the- middle)	Porter	Porter (cost leadership, differentiation, cost focus, differentiation focus and integrated)	Porter	Porter
Performance	Financial	Objective and subjective	Objective	Financial and market performance	Objective and subjective	Financial and non-financial
Methods	Regression analysis, F- test, t-test	Common method variance (CMV), t- test, ANOVA, least significant difference (LSD) method, Correlation analysis	Factor analysis, SEM	Confirmatory factor analysis, SEM, path analysis	t-test, ANOVA, chi square	SPSS version 11.5, factor analysis, correlation, regression, and path analysis

Source: Compiled by author

Table 12: Literature Summary (cont.)

	Huo et al. (2014)	Agyapong et al. (2016)	Anwar and Hasnu (2016)	Linton and Kask (2017)	González-Rodríguez et al. (2018)	Kalippean et al. (2018)	Gorondutse and Hilman (2019)
Sample	manufacturing companies in Shanghai, Guangzhou and Beijing	Ghana-micro and small family firms	Joint stock com. Operat. in Pakistan	Sweden-SMEs	hotel managers in Spain	Malaysia-hotel industry	Nigeria's lodging industry
# of questionnaire	604	258	320	81	97	114	58
Scale	n/a	Seven-point Likert-type scale	n/a	Seven-point Likert-type Scale	Seven-point Likert-type scale	Seven-point Likert-type scale	Seven-point Likert-type scale
Research Model	Supply chain integration – competitive strategies - firm performance	Competitive strategy-organizational capabilities-firm performance	Competitive strategy-performance	Entrepreneurial orientation-competitive strategy-performance	Competitive strategy-industry forces, firm assets-firm performance	Hybrid competitive strategy-strategic capability-organizational performance	Competitive strategy-performance
Competitive Strategy	Porter (cost leadership and differentiation)	Porter (cost leadership and differentiation)	Miles & Snow	Porter (cost leadership and differentiation)	Porter and RBV	Porter (combination of differentiation and low cost)	Porter
Performance	Operational and financial	Subjective	Financial	Financial	Market performance and profitability	Subjective	Financial
Methods	Hierarchical linear regression exp. factor analysis	CMV, confirmatory factor analysis, corr. anl. hierar. multiple reg. (HRM)	Scoring method	Qualitative comparison analysis	Partial Least Squares (PLS), Bootstrapping (5000 subsamples), SEM	BSC	SPSS 18, PLS 3, CMV

Source: Compiled by author

Panayides (2003) is one of the few researchers who studied the relationship between competitive strategies and performance in the maritime industry. In his comprehensive work on ship management companies, he asserted that the industry has fiercely competitive characteristics due to mergers and acquisitions between key players. With this regard, another factor evaluated in the study was how competitor orientation affects performance. Study findings supported the existence of a positive relationship between competitive strategies and ship management companies' performance. In other words, companies pursuing a competitive strategy tend to perform well than those who don't follow. However, unlike Porter (1980), Panayides presented that a pure cost-leadership strategy doesn't lead to obtain superior performance. What common for both researchers are consensuses that applying differentiation strategy increases the company's performance. For Panayides, performance improvement can be ensured especially when economies of scale and a broader range of service offerings are achieved. He proposed those following combination strategies rather than pure ones are more preferable for better performer companies. Moreover, making competitor analysis affect significantly their performance in a positive way.

Another study conducted in the maritime sector was carried out by Sevinç and Guzel (2016). Her study aimed to discover marina enterprises' competitive strategies and to analyze their implementations. Based on data collected from 42 marinas located in Turkey, she concluded that marinas mostly apply differentiation strategy. However, the differentiation level may vary due to ownership structure, founding year, management style, and the number of employees. Foreign-invested, younger, private, or high in employee number marinas have more tendencies to promote differentiated activities. Furthermore, they emphasized those sources of competitive advantages for yacht enterprises spring mainly from location, followed by quality and pricing, and lastly IT usage. Similarly, Yılmaz (2016) applied her research to figure out which generic strategies are pursued by yacht charter agencies and how such strategies are associated with those agencies' performances. Just as marinas, yacht charter agencies also were found inclined to adopt differentiation strategies at most and cost leadership at second. However, research findings indicated that none of the under-researched agencies use a focus strategy.

Considering performance indicators, the effect of cost leadership on financial performance was found significant. Nevertheless, the same significant relationship was not observed between differentiation and financial performance.

Due to the lack of literature regarding competitive strategy and performance relationships in the maritime context, previous studies exploring these variables in various sectors should be considered. For instance, Dess and Davis (1984) conducted a study consisting of three stages that cover the grouping of companies based on the strategies they intended. They asked industry experts to rank competitive strategies based on significance level for their companies. Then, they employed a cluster analysis that followed by performance evaluation to determine how to perform each strategic group. They assumed that companies sharing similar strategic orientations constitute strategic groups. Also, they asserted that some business groups tend to show relatively higher performances. Especially the sector, size of the company, the technology used by the companies, product lines, and management structure were taken into consideration in the sample selection to keep them as comparable as possible. Considering ROA as a performance indicator, they found that adopting a cost leadership strategy yield higher profits than pursuing others. When an evaluation was made in terms of growth in sales, it was seen that the focus strategy enables higher performance than cost leadership and differentiation strategies. In the case of joint evaluation of both performance measurement criteria, it was revealed that the cost leadership strategy constitutes the strategic group that provides the highest average organizational performance for the sample in question.

Kim and Lim (1988) analyzed the link among environment, strategy, and performance in the Korean electronics sector. Although Korea is one of the most developed countries in the world today, it had been ranked among developing countries until that date. In this regard, the study was one of the pioneering studies investigating the strategy-performance relationship in developing countries. They proposed four strategic groups; cost-leadership, both marketing and product differentiations which correspond to not only Porter's (1980) but also Miller's (1986) studies. Among those strategies, product differentiation was stated as the most preferred one since the characteristics of the electronic industry require a diverse range of products. Further, findings revealed that Korean electronics companies tend

to adopt strategy combinations rather than pure forms. Authors highlighted that if firms do not have enough negotiation power and intense competition seen in the market, they should pursue a differentiation strategy to achieve superior performance. Otherwise powerful companies in terms of bargains incline to be cost-leader by the virtue of economies of scale in order to maximize their performances. Also, Kim and Lim confirmed Porter by saying that when firms have a loud and clear strategic orientation and adopt competitive strategies well, they will demonstrate superior performance than those who do not achieve the same and stay in a 'stuck-in-the-middle' position.

Wright et al. (1991) applied a questionnaire to 56 firms operating in the screw machine industry and developed their hypothesis suggested that competitive strategies may lead to bidirectional impact. Put it differently, they maintained that there are 6 different strategic positions in performing low cost, differentiation, and hybrid strategies depending on the effectiveness or inefficacy of firms on implementing those strategies. For example, while the cost leaders must be more effective than their competitors to be considered successful, success in differentiation has been attributed to the ability to prevent competitors. Also, being 'stuck-in-the-middle' is an indication that hybrid strategies fail. Nevertheless, the results of the study refuted these assumptions of the authors and revealed that only three of these six hypotheses were meaningful. Subsequently, it turns out that businesses that pursue pure low cost and differentiation strategies perform poorly, but perhaps differentiation is slightly more effective than low-cost thanks to high pricing. After cluster analysis, a group of hybrid strategy followers was found as top performers. Unlike other performance measure 'ROI', relative growth in market share was found meaningless.

In his study conducted in the USA health-care industry, Kumar (1997) confirmed Porter's assertion which maintains that firms should choose pure forms of generic strategies to achieve superior performance. He argued that firms adopting pure competitive strategies outperform those that follow hybrid strategies and become 'stuck-in-the-middle' position. Because low-cost strategy requires cost control, conflictingly differentiators seek more innovative solutions by employing higher technology, better patient support with a high number of employees and

broader service ranges bring in high cost. On the other hand, his paper indicated that the best performing hospitals are the cost-focused ones. However, it is hard to minimize the range or number of services to be focused on, which allows companies to demonstrate better performance comparing other profit organizations.

After a comprehensive literature review, Helms et al. (1997) examined the relationship between competitive strategies and organizational performance, based on the discussion of whether Porter's main competition strategies, differentiation, and cost leadership can be applied together or not. Authors verified that when the adhesives and sealants firms enforce hybrid strategies, they can obtain advantages of both low-cost and differentiation strategies, in turn, generate higher profits. Further, they ascertained whether the size of companies has an impact on competitive strategies and performance. Findings demonstrated that medium or large companies tend to follow cost leadership or combination strategies, whereas smaller firms adopt differentiation strategies. Nonetheless, there is no evidence of firm size's determinative impact on performance.

Yamin et al. (1999) tackled the relationship among generic strategies, competitive advantage, and organizational performance in Australian manufacturing firms. Under the study, organizational performance comprises financial management, financial performance, leverage, and market effectiveness. Also, companies that pursue generic strategies were classified into three categories based on how intensely they apply the strategies. These are low, medium, and high. They propounded that the companies putting both differentiation and cost leadership strategies into operation at a high level are named "stars". Such companies are more likely to show higher organizational performance than all other groups.

Olson and Slater (2002) argued that regardless of the characteristics of firms, paying equal attention to all measurement criteria in the balanced scorecard is counter-intuitive. Because each firm has its dynamics which make them idiosyncratic. They posited that firm performances should be assessed with multiple measurement criteria. Studying a balanced scorecard, they aimed to find out how to balance scorecard criteria can be associated with Miles and Snow's (1978) generic strategies to achieve higher performance. The defender strategy was synthesized with Porter's generic strategies and employed as differentiated defender and cost

defender strategies in this study. Appropriately, firms that pursue cost defender strategy are apt to underperform other strategy followers. Differentiated defenders and cost defenders differ according to their perspective on the customer, even though their priority measurements were stated as financial ones. Irrespective of the level of performance; innovation and growth criteria preponderate over other dimensions from the prospector point of view due to seeking creative ideas and products, desire to be a pioneer in the industry, etc. Study findings provided evidence that different strategies should be measured based on different dimensions of the balanced scorecard owing to the unbalanced importance of measurement criteria for each strategy.

Research made by Powers and Hahn (2004) analyzed competitive strategies used in the US banking industry to discover how these strategies are influenced by competitive methods and correspondingly how they affect firm performance. Several lines of evidence has supported that Porter's generic strategies can be applied to the banking industry. Cluster analysis was employed to find out crucial competitive methods associated with these strategies. Accordingly, the relationship between broad differentiation, focus, cost leadership, customer service differentiation, and 'stuck-in-the-middle' strategies and firm performance were examined. In this case, the firm performance was addressed as financial performance (ROA) due to the fact that the research conducted in a financial service sector. The most obvious and significant finding that emerges from the analysis was that banks pursuing a cost-leadership strategy reveal superior performance over those who follow stuck-in-the-middle. Contrary to expectations, in terms of performance, this study did not find any significant difference between following one of the focus strategies, customer service differentiation, or broad differentiation and stuck-in-the-middle. These findings conform to Miller (1992) who posited that cost-leadership strategy becomes efficient in such industries where consumers more likely to be sensitive to price changes like banking.

In their study, Ge and Ding (2005) investigated how competitive strategy is effective as a mediator in the relationship between market orientation and a firm's marketing and financial performance. Though Porter's cost-leadership strategy was employed in the research; innovation and quality enhancement strategies were used

in return for differentiation strategy. In the study conducted on Chinese manufacturing companies, Ge and Ding found that market performance is positively affected only by customer orientation whereas negatively influenced by competitor orientation. When moderating effect of competitive strategies is considered, the authors concluded that innovation strategy exerts the most powerful positive effect upon marketing performance via satisfying changing consumer needs and preferences, concentration on product research and developments, and customer retention. Conversely, as an unexpected outcome, the effect of cost leadership on market performance was found negative. The most likely causes of this result might be a failure in the fulfillment of product improvements, lack of offerings, and absence of customer satisfaction while endeavoring cost minimization.

A study carried out by Parnell and Hershey (2005) draws attention to its three distinctive features. Firstly, both prominent typologies of Miles and Snow (1978) and Porter (1980) were considered together on a common sample. Secondly, what aimed was to elucidate especially the link between hybrid strategies and performance. Thirdly, it is a cross-country analysis since the research was conducted in the USA and Mexico simultaneously. It clarifies cultural and structural differences between countries. However, the study failed to demonstrate how these countries differ from each other in terms of strategy or performance. Authors gave countenance to utilizing hybrid strategies to result in higher performance. Yet, they posited that if strategy dimensions are inconsistent or conflicting, performance in terms of satisfaction may decline.

Allen and Helms (2006) examined which kind of relationships exist between strategic practices and Porter's competitive strategies. To do this, a survey was conducted on 226 working adults in which required perceived performance was evaluated by comparing rivals in terms of total revenue growth, total asset growth, net income growth, market share growth, and overall performance, etc. Findings pointed out companies embracing differentiation strategy should prioritize innovation, while minimization of distribution and logistics costs is recommended for cost-leadership followers. Generic strategies can be successfully connected to organizational performance via using critical strategic practices. Thus, chosen practices are as crucial as pursuing certain strategies to optimize performance.

Jusoh and Parnell (2008) studied the relationship between competitive strategy and performance measurement in their paper about Malaysian SMEs. Since most of the past studies included the Western Countries and the UK, the practice of the study was carried out over Malaysia to see whether a significant difference exists between developed countries and such emerging countries. They assessed the competitive strategy with the approach proposed by Miles and Snow. Although prospector, defender, and analyzer strategies were considered in the scope, the reactor approach was excluded from the research due to the fact that it was not seen as a high-performance strategy. In the study, a questionnaire consisting of 12 items were used to evaluate the competitive strategies. To determine to what extent organizations use multivariate performance measures, 29 items based on dimensions of the balanced scorecard were evaluated. Moreover, the performance was addressed in many aspects including R&D, quality, cost, delivery, new product development, productivity, sales growth, financial indicators, etc. Accordingly, firms that adopt the defender strategy outperform prospector firms in terms of financial performance indicators such as return on investment and investment cash flow. Whereas firms that choose the prospector strategy perform better than defenders in terms of market share change, which is not a financial performance indicator. When it comes to innovation indicators, prospector and defender strategies perform better. But, the analyzer strategy shows higher performance in indicators that not related to innovation.

Acquaah and Yasai-Ardekani (2008) discussed how applying Porter's generic strategies affect performance results. They had two aims: Firstly, to bring out whether firms employing hybrid strategies have performance superiority over firms following pure strategy forms. Secondly to uncover the impact of 'stuck-in-the-middle situation' on firm performance. Therefore, the researcher applied a questionnaire to 106 SMEs in another emerging country Ghana. While the cost-leadership questionnaire consisted of six factors and differentiation consisted of seven factors, hybrid strategy and 'stuck-in-the-middle' were employed as dummy variables. Along with firm ownership, firm size, market competitive intensity, and business sector were included as control variables. Findings demonstrated that differentiation, cost-leadership, and hybrid strategies have positive impacts on firm performance; yet the same positive and significant link does not exist between 'stuck-

in-the-middle' strategy and performance. As a result, adopting one of these three strategies paves the way for incremental performance compared to 'stuck-in-the-middle'. Further, it was indicated that rather than pursuing only a cost-leadership strategy, combining it with a differentiation strategy provides more benefit to enhance performance.

Pertusa-Ortega et al. (2009) applied a questionnaire to 164 Spanish firms that perform varying sectors to determine whether combination strategies are feasible to pursue. Moreover, they investigated if these strategies create an incremental performance over other firms that follow pure strategies or those choosing a 'stuck-in-the-middle' strategy. Unlike pure cost leadership, differentiation strategy was addressed in two sub-dimensions namely marketing differentiation and innovation differentiation. Research findings indicated that firms adopting combination strategies are more likely to deliver an outstanding performance comparing those following pure or 'stuck-in-the-middle' strategies. Especially innovation differentiation becomes a contributing factor in superior performance in this case.

Leitner and Guldenberg (2010) carried out their study on 100 small and medium-sized entrepreneurial Australian firms from seven different industries. They examined four dimensions including differentiation, cost-efficiency, hybrid strategy, and strategy change. The main debate of the study was to find out whether SMEs that pursue fixed strategies are more successful than those who change. The authors claimed that a hybrid strategy is a feasible strategic alternative for SMEs in the long term. In terms of profitability and growth (both turnover and employment), it has been proven in SMEs that adopting a particular strategy provides better performance than not employing any strategy. Correspondingly, they concluded that companies pursuing a hybrid strategy perform better than firms with no competitive strategy in regards to growth and profitability. Also, those firms can derive much more profits comparing firms that adopt a differentiation strategy. In spite of everything, no significant difference was found related to better turnover or employment growth rates between pure and hybrid strategies. One of the noteworthy findings was that firms changing competitive strategies from time to time more likely to outperform firms that have no clear strategy. This result may be explained by the fact that they tend to change their strategies to take different opportunities in order to perform

better when they deem necessary. However, there was no strong evidence that firms changing their strategies show superior performance than firms following persistent strategy.

In his research, Ortega (2010) examined the moderating impact of technology on competitive strategy and performance relationships. He concluded that the effect of marketing-oriented differentiation strategy and cost-oriented cost leadership strategy on performance is stronger within the presence of technological opportunities. Furthermore, particularly in the case of quality and cost-oriented methods, the impact of technological performance is expected to be higher once marketing targeted competition strategies are adopted.

Yasar (2010) conducted a case study in the Gaziantep carpet industry to explore the relationship between competitive strategies and firm performance by taking Porter's value chain activities as mediators. In his study, the firm performance was measured through ROA, ROE, and ROS. Under the study, firm infrastructure is affected by competitive strategies, specifically by differentiation. It was indicated as the most significant variable among whole value chain activities when considering the impact on firm performance. The paper concluded that the relationship between competitive strategies and firm performance wasn't significant. Thereby, the author suggested that cost leadership and differentiation strategies should be applied together by practitioners to achieve superior performance.

Nandakumar et al. (2011) aimed to assess the viability of Porter's typology in terms of explanatory power on organizations' performance differences and to search out the relationship between generic strategies and organizational performance. Strategic orientation of the companies' was identified based on an assessment of strategic activities of them by comparing with competitor's position for 5 years. The performance was measured both objectively (ROA and ROS) and subjectively (relative competitive Performance and objective fulfilment). Findings demonstrated that adhering only to cost leadership or differentiation strategy brings about higher performance than the 'stuck in the middle' situation. On the other hand, employing 'hybrid strategy' was indicated as better in comparison to cost-leaders or differentiated companies in terms of subjective performance measurement. Yet, no

significant influence on financial performance was seen when hybrid strategies were applied.

Parnell (2011) discussed the relationship between strategic competence, competitive strategy, and performance in retail companies in Argentina, Peru, and the USA. There are major cultural and structural differences between the USA and the two South American countries including management styles, economical environment, organizational structures, the pace of adaptation to changes which also lead to differences between competitive strategy and performance relationship. Therefore, same hypotheses were tested within the scope of the research for all three countries, and the national differences encountered were considered during the evaluation. To find out whether the emerging economies confirm the approach of Porter (1980) or not, the impact of the strategy on performance was explored in each of the mentioned countries. Research findings supported Porter's assertion by confirming a positive relationship among three generic strategies and performance. Furthermore, it's proven that there are significant relationships between all three generic strategies and performance for the USA, differentiation, and performance for Peru, cost leadership, and performance for Argentina. Also, research affirmed that strategic competencies' prominence and their impacts on performance differ from one strategy to another. For instance, differentiation seems more associated with technological capabilities; the focus is affiliated with marketing capabilities while management capabilities are relatively more influential for cost leadership.

Phongpetra and Johri (2011) applied a questionnaire to 254 executives from various departments of twelve firms performing in the Thailand automobile manufacturing sector. RBV and Porter's generic strategies were considered in creating the study structure. Pursuantly, cost leadership, differentiation, cost focus, differentiation focus, and integrated form of cost leadership and differentiation strategies were analyzed and measured. In addition to finding out how competitive strategies affect financial and marketing performances, they aimed to demonstrate the impact of different departments as functional strategies on those performances, as well. Researchers found that all those competitive and functional strategies have positive effects on both financial and marketing performances. When ranked by importance for managers, the top three competitive strategies were listed as follows:

cost-focus, cost leadership, and a combination of cost and differentiation strategies. On the other hand, the ranking of functional strategies showed that the most significant one is manufacturing, whereas the least significant indicated finance. It is a surprising result that cost-oriented companies were found to not care about finance in their functional strategies.

In another study conducted on the health care industry, Akbolat and Işık (2012) applied a questionnaire to 165 hospital managers. What aimed in this study was to determine the stance of Turkish hospitals about following business strategies, to ascertain which strategies are adopted by them, and to explore the relationship between their strategies and performances. Findings indicated that more than 80% of the sample prefers pursuing a specific strategy, specifically, more than half of them adopt a differentiation strategy. This preference is more dominant in private hospitals. Irrespective of which strategy is pursued, hospitals that employ any strategy were found to be more successful than those do not. However, excepting the servitization format, no statistically significant difference was found between the characteristics of the hospitals and the strategies they follow.

Teeratonsirikool et al. (2012) conducted research on companies operating in Thailand. Their research aimed to find out the effects of performance measurement in the relationship between competitive strategy and performance. The mediating role of performance measurement on this relationship was examined with hypotheses developed in a theoretical framework. While previous studies in the literature have investigated the indirect effect of performance measurement on the relationship between differentiation strategy and performance; in this study, the scope was widened and examined through two basic strategies in Porter's model. As a result of the study, it is seen that although cost leadership does not affect performance; differentiation strategy has a strong relationship with firm performance. On the other hand, both cost leadership and differentiation strategies have been found to be strongly connected with performance measurement. The authors proposed that accurate and appropriate performance measurement of competitive strategies a prerequisite for creating and sustaining competitive advantage.

Just as Ge and Ding (2005), Huo et al. (2014) examined the effect of competitive strategies as a mediator in their study. Yet, this study was conducted to

discover their mediation role in the relationship between SCI and firm performance. While SCI was addressed under three main dimensions as internal, process- and product integration, the performance was measured both operationally and financially via the mediation of cost leadership and differentiation strategies. Out of three SCI dimensions, only internal integration was found as a major positive influencer on both kinds of performances. While process integration is an important determinant of operational performance, product integration is strongly related to financial performance. Findings provided evidence that utilizing one of these integration practices more likely to become efficient under a particular business strategy. The mediation of different strategies does not influence these practices in the same way. For instance, the authors emphasized that firms adopting cost-leadership strategy tend to increase their financial performance in case of internal integration. On the other side, this financial outperforming situation can be enabled in the case of process integration in differentiation strategy mediation.

Agyapong et al. (2016) made research on small-sized family companies located in Ghana. Authors contended that the performance of these companies is highly influenced by both managerial and innovation capabilities. Therefore, in this paper mediating the role of these capabilities on the competitive strategy and subjective performance that was addressed as productivity growth, sales growth, profit growth, and net profit, the relationship was investigated. Researchers found that managerial capabilities exert a powerful effect on both cost leadership and differentiation strategies. The most likely cause of this conclusion is that obtaining inputs at lower prices, utilizing technological advancements to minimize total costs might be stem from strategic managerial decisions. Likewise, these decisions give rise to satisfy customer needs with unique, high-quality, modern products and to gain loyal customers. Although no direct significant relationship was found between low-cost and performance, findings supported the positive mediating role of managerial capabilities competitive strategies and performance. When it comes to innovation capabilities, they were found more strongly related to differentiation than the low-cost strategy.

Anwar and Hasnu (2016) applied a questionnaire to 320 companies from twelve different sectors trading on the Karachi Stock Exchange, in Pakistan. The

country is known as unstable in terms of economic and political structure. Thus, consistency during the different time periods was also considered. They employed objective performance measurement to find out how Miles and Snow's (1978) strategies affect financial performance (ROCE, ROS, ROE, and ROA) based on seven years of data of those companies. Not only pure forms of defenders, analyzers, prospectors, and reactors; but also hybrid forms of those strategies which are namely DA-like (defender-analyzers) and PA-like (prospector-analyzer) strategies were analyzed and measured. Accordingly, researchers found that Pakistani firms are liable to use such hybrid strategies rather than pure forms. Another critical point is that large companies prefer to be reactors or prospector-analyzer, while small ones tend to be prospectors, defender, or defender-analyzer. On the other hand, firms following combination strategies generally demonstrate higher performance. When only pure strategies were evaluated, it is emphasized that prospector companies do not perform as successfully as defender or analyzer companies. A strategy-performance relationship also differs from one sector to another. This result may be explained by the fact that each industry has distinctive characteristics, dynamics, target customer groups, competitive forces, etc.

Linton and Kask (2017) suggested that competitive strategies are associated with an entrepreneurial orientation (EO) to boost performance improvement. In their paper, the effect of three overemphasized sub-dimensions of EO -which are namely proactiveness, risk-taking, innovativeness- and Porter's widely, accepted strategies -cost leadership and differentiation- on higher performance achievement were tackled. Within this framework, the authors proposed three new strategies. These are 'Orginalizers', 'Systematizers', and 'Evaluators'. Accordingly, orginalizers are closely related to differentiation strategy which requires taking more risks, being more innovative to serve exclusive, tailor-made, luxury products, and creating value for consumers' needs and preferences to easily satisfy them. Systematizers are more likely to be price-sensitive, even sometimes their huge initial investments make them risk-taker, so they do not seem as proactive or innovator companies. From this aspect, they are associated with the cost-leadership strategy. On the other hand, evaluators embody different particulars of both strategies and resemble hybrid strategies. Providing that firms follow differentiation strategy lends countenance to

innovations and proactivity tends to perform better. In other words, they concluded that differentiation strategy should be pursued either pure or combined with a cost-leadership strategy.

González-Rodríguez et al. (2018) alleged that a firm's performance is influenced not only by its competitive strategy but also by outside forces include rivalry, a firm's resources, and capabilities. Therefore, this study explored RBV and positioning views' effect, in addition to Porter's strategies, on the hotel's performance. This contribution makes it different from previous studies in the literature. They applied a questionnaire to 92 hotel managers in Seville, Spain. Similar to Pertusa-Ortega et al. (2009), the business strategy scale was grounded on Miller's (1988) paper covering innovation and marketing differentiation and cost-leadership strategy. Furthermore, the firm performance was analyzed as profitability and market performance and measured subjectively. First of all, the study concluded that the RBV and positioning approaches have complementary effects in terms of reciprocity. Yet, it was proven that those are not suitable to be used simultaneously. Findings conform to the assertions of Porter (1980) that emphasize a combination of cost-leadership and differentiation does not bring about higher profits. On the other hand, research findings provided evidence that firm asset has a significant impact on market performance both directly and indirectly through the agency of innovation differentiation. However, no direct link was found for firm assets and profitability. Although both dimensions of differentiation strategies were perceived as positive influencers on market performance by managers, cost leadership's impact on market performance was voted in negative influencers.

Similarly, Kaliappen et al. (2018) conducted their research on 3* to 5* hotels, but in a completely different country, Malaysia. The study was designed to investigate the mediation effect of managerial and technical capabilities in the competitive strategy and organizational performance relationship. Yet, only a combination of the low cost-differentiation strategy was taken into consideration. Authors found that hybrid strategies lead to reinforcing performance outcomes. They confirmed the findings of Parnell (2011) who found a positive mediator role of strategic capabilities between business strategy and performance. They maintained that those capabilities are positively influenced by followed strategies. At this point,

better employment of managerial and technical capabilities brings in superior performance for firms adopting hybrid strategies.

Under Gorondutse and Gilman's (2019) study which analyzes Nigeria's lodging industry, performance appeared to be unaffected by cost-leadership strategy. In contrast, employing a differentiation strategy has a significant effect on the performance of the hotels. These findings may be somewhat limited. Because a narrow perspective was employed owing to using a cross-sectional method and using only quantitative performance measurement. From this aspect, it shares similar characteristics with studies of Phongpetra and Johri (2009) and Huo et al. (2014).



CHAPTER THREE
DETERMINATION OF COMPETITIVE STRATEGY AND FIRM
PERFORMANCE RELATIONSHIP IN RO-RO COMPANIES OPERATING
IN TURKEY BY USING ISM AND MICMAC

This thesis was undertaken to determine an optimal business-level strategy that brings about competitive advantage and superior firm performance for Ro-Ro companies operating in Turkey. Ro-Ro industry has an idiosyncratic characteristic that is not appropriate to implement generalized strategies. Even deep-sea and short-sea Ro-Ro transportation like night and day. Hereupon, exploring the strategy-performance link has been a continuing concern for Ro-Ro companies' managers that aware of longevity in such competitive environments depend on taking the right strategic actions. However, previous studies on the industry have not dealt with a strategy-performance relationship.

The first chapter of this thesis attempted to provide a general overview of short sea Ro-Ro transportation and its current position in Turkey to deepen the knowledge on distinctive market dynamics. As mentioned in the research questions, this paper seeks to determine critical competitive strategy components and firm performance indicators of Ro-Ro companies operating in Turkey. For this aim, the second chapter highlighted the theoretical background of the study and explained how previous studies identified both concepts and their relationships. Based on the comprehensive literature reviews, seventeen competitive strategy components, and eight firm performance indicators, which formed a ground for interviews to be evaluated, were chosen.

In the final chapter of this thesis, the methodological approach will be discussed. At this point, semi-structured interviews will be conducted with experts who are well-informed about the Ro-Ro industry. They will be asked for identification and ranking of significant components of competitive strategies and firm performance. To examine conceptual relationships and the level of interdependence among these components, a form will be prepared. Then obtained data will be analyzed through Interpretive Structural Modelling (ISM). Afterward, ISM results will give us a chance to develop a structured model that visualizes all

relationships; and to classify variables via MICMAC analysis in order to determine the importance level of each. Thuswise, we will be able to make critical strategy recommendations to Ro-Ro company managers for improving firm performance.

3.1. POPULATION DETERMINATION

For the purpose of the study, Ro-Ro companies operating in Turkey are chosen as the main focus to determine competitive strategy and firm performance relationship. Considering distinctive features and market dynamics of short-sea and deep-sea shipping, this research concentrates principally on Ro-Ro lines that operate over short hauls. In the same vein, the unlikeness of competitive factors between cabotage and international markets narrow down the research's scope. Therefore, international Ro-Ro companies that are actively performing Ro-Ro operations in Turkey between January and August 2020 have been considered the key target of the research.

The majority of the international Ro-Ro transportation activities of Turkey were carried out over 25 lines by eight Ro-Ro companies at the end of August 2020. The below-listed companies constitute our research population:

- *European market:* DFDS, Ulusoy Ro-Ro
- *Mediterranean market:* Akgünler Shipping, Palfreight
- *Black Sea market:* Cenk Group, Ukr Ferry, Avrasya Shipping, Sea Lines

3.1.1. DFDS (Formerly U.N. Ro-Ro)

Danish shipping and logistics group DFDS has become a leading market player in the Turkey-Europe Ro-Ro market via the acquisition of 98.8% of Turkey's largest Ro-Ro freight operator U.N. which had annually 300 thousand trucks carriage capacity in this market. The acquisition is 100% made by the newly established subsidiary DFDS Turkey Denizcilik ve Tasi Yati AS and the acquired company is included in the Mediterranean Business Unit after the acquisition. DFDS Annual Report, 2019: 111). The acquisition has strongly contributed to the shipping network of DFDS since U.N. Ro-Ro was operating a fleet consisting of 12 owned large Ro-

Ro vessels on five strategic routes between Turkey (Ambarlı, Pendik, Mersin) and EU (Bari, Patras, Toulon, Trieste). Current lines of the company as follows (DFDS, 2020).

1. Pendik – Trieste (four round trip sailings per week)
2. Yalova – Trieste (three departures per week)
3. Ambarlı – Trieste (three departures per week)
4. Mersin – Trieste (two sailings every week)
5. Yalova – Sete (three sailings every week)
6. Pendik – Bari (two sailings every week)
7. Marmara – Patras (two round trip sailings per week)

3.1.2. Ulusoy Ro-Ro

Ulusoy Ro-Ro started its operations in the Black Sea region (Samsun-Novorossiysk line) in 1994 with Ulusoy- 1 vessel having 40 trailer capacities. The company commenced the Cesme-Trieste line with two vessels with a capacity of 92 trailers in 2000. Growing demand for this line stimulated Ulusoy to renew its fleet with more capacity vessels in 2003. Within the same year, the company acquired management rights of Cesme Port for 30 years. Today, Ulusoy Ro-Ro is still operating its four vessels on the Cesme-Trieste line as 3 round trips per week. Apart from Ulusoy Ro-Ro and Cesme Port that are affiliated companies of Ulusoy Seelines; various business units including Ulusoy Ship Management, Ulusoy Ship Agency, and Ulusoy Logistics Transportation and Container Services have supported companies' operations and allow the company offers a wide range of value-added services (Ulusoy, 2020).

3.1.3. Akgünler Shipping

Currently, Akgünler Shipping is the company with the largest passenger and freight transport capacity in the Turkish Republic of Northern Cyprus. The company's fleet includes 2 catamaran ships, 2 Ro-Pax, and 1 Ro-Ro ship. Active lines of the company as follow (Akgünler Denizcilik, 2020):

1. Taşucu-Girne-Taşucu
2. Mersin-Mağusa-Mersin

3.1.4. Palfreight

Palfreight is the sole carrier giving combined transportation with Ro-Ro services from Turkey to Jordan through Haifa Port and provides the best logistics solutions with this service specifically for time-sensitive cargoes. Ro-Ro ships depart from Haifa every Thursday; departures from Mersin are performed every Monday. Transit time between Mersin and Haifa takes 24 hours (Palfreight, 2020).

3.1.5. Ukr Ferry

Ukr Ferry, having Ukraine's national carrier status, was established in 1995 by a group of shipping professionals. Under Ukrainian law, the company enjoys the status of a designated shipping company for implementation of several intergovernmental agreements on the joint operation providing train ferry crossings in the Black Sea (traceca.org, 2013). The network of regular both rail and ro-ro ferry services enables a wide range of connections along the following strategic Black Sea routes (Ukrferry, 2020).

1. Port of Chernomorsk (Ukraine) - Port of Varna (Bulgaria)
2. Port of Chernomorsk (Ukraine) - Port of Poti/Batumi (Georgia)
3. Port of Varna (Bulgaria) - Port of Batumi (Georgia)
4. Port of Chernomorsk (Ukraine) - Port of Karasu (Turkey)

3.1.6. Cenk Group

Cenk Group was established as a shipbroker and agency company in 1986. Agency services were started given by Cenk Group to automotive lines in 1993. After conducting these services for 13 years, the company began Ro-Ro transport operations by carrying automobiles of several international auto manufacturers (Cenk Group, 2020). The company also made a partnership with Neptune Lines that support

and facilitate the company's car carriage operations for more than 10 years. Similarly, a joint venture (Karadeniz Ro-Ro) was carried out with Ulusoy Ro-Ro between 1997 and 2004 in the Ro-Pax carriage segment to gather and manage their marketing, purchasing, and reservation activities under a single roof (Aslan, 2017: 56). Currently, the company is regularly operating two Ro-Pax vessels on two Black Sea lines; company offers 2 round trips per week on each line (Cenk Group, 2020).

1. Zonguldak – Targoviy Port (Chernomorsk)
2. Haydarpaşa – Ribni Port (Chernomorsk)

3.1.7. Sea Lines

Sea Lines initiated its operations in 2011. The company performs two roundtrips per between Karasu (Turkey) and Chornomorsk (Odessa) (Sealines, 2020).

3.1.8. Avrasya Shipping

Another relatively younger company that has operated in the Black Sea region is Avrasya Shipping. The company maintains its operations with 8 Ro-Ro and 4 containerships in Samsun-Novorossiysk and Samsun-Tuapse lines.

3.2. SAMPLING AND DATA COLLECTION

Scientific research utilizes quantitative and qualitative methodologies in the analysis and modeling of numerous phenomena. Predominantly in the papers exploring strategy and performance relationship, data have been collected through questionnaires, and then analyzed by quantitative methods such as SEM (Structural Equation Modeling), path analysis, exploratory/confirmatory factor analysis, and regression or correlation analysis. To check the confidence of the results, reliability tests in which a minimum of fifty participants are required to ensure reliability have been used (Terzi, 2019: 54). However, the small domain of the population and paucity of knowledgeable experts with strategy formation and performance

evaluation encouraged the researcher to employ qualitative research. This approach deals with the explanation and understanding of the dynamics of social relationships and offers a more flexible and targeted structure compared to quantitative approaches. Qualitative methods deepen the understanding of a complex problem by producing in-depth and explanatory information (Queirós et al., 2017: 369-371).

In the social sciences, more particularly in management studies, awareness of qualitative methods and inductive reasoning has grown since they enable an observer to explore and interpret the inherent meanings and processes of the probed subjects through interviews, field notes, conversations, etc. (Göçer, 2015: 88). The research was conducted using the ISM technique that is characterized by qualitative nature. Thereby, during the implementation of the ISM method, the opinions of experts on the subject are sought. Nevertheless, there is no consensus on how many experts are needed to be included. In the literature, many authors have asserted that an expert team consisting of three to five people is favorable to carry out ISM (i.e. Zhou et al., 2019; Çalışkanoğlu, 2020). Janes (1988: 148) found that a maximum number of participants should be eight to ensure the quality of debate. As the expert group size increases, responses are more likely to be in contradiction.

To achieve the aim of the study, literature related to competitive strategies and firm performance was thoroughly reviewed. In the following phase, semi-structured interviews were designed to explore essential competitive strategy components and firm performance indicators. A semi-structured interview is the most frequently used qualitative research format (Kallio et al., 2016: 2955). Face-to-face interviews were composed of open-ended questions and conducted through Skype due to Covid-19. Experts were chosen based on the judgmental sampling method in which people are chosen based on their knowledge and experience regarding the investigated field and phenomena. Criteria for selecting the expert group were as follows:

For academicians,

- Having a bachelor/postgraduate degree in maritime-related programs,
- Having studies or work experience in the Ro-Ro industry.

For field experts,

- Being mid- or high- level managers within the international Ro-Ro companies that operating in Turkey (especially managers of strategy development, sales, and marketing, operation departments, etc.),
- At least ten years of experience.

Table 13: General Profile of the Interviewees

Expert	Profession	Residence of the organization	Experience	Date of the interview	Duration of the interview
FE1	Owning Manager	İstanbul	10-15 years	14.04.2020	85 minutes
FE2	Strategy Development Manager	İstanbul	15+ years	16.04.2020	75 minutes
FE3	Deputy General Manager	İzmir	15+ years	19.04.2020	50 minutes
AE1	Lecturer	Yalova	10-15 years	22.04.2020	90 minutes

Source: Author

Between the dates of 14.04.2020 and 22.04.2020, interviews were conducted with three field experts who are working for large scale Ro-Ro companies, and one academician who graduated from deck department in bachelor and management in master, and had directorship experience in Ro-Ro companies. The general profile of the interviews and the experts are summarized in table 13.

Due to the time-consuming structure of the interviews, experts were informed about the main objectives of the research, fundamental terms, and criteria that were abstracted from the literature to be evaluated before meetings. Thus, the quality and validity of the responses could also be enhanced. Experts were asked to specify environmental factors affecting the Ro-Ro industry, and competitiveness of their company in order to gain better insight regarding market dynamics. Then, they were further asked to evaluate determined strategy components and firm performance indicators. According to the elicited information and suggestions they gave, a list of

the criteria was revised and an ISM form was created. In the follow-up process, a pilot study was performed to prevent any possible error in understanding or writing (Altunışık et al., 2012: 92). ISM forms were sent to three experts (two academicians and a field expert) to test the comprehensibility and accurateness of the format before distribution to sample.

Table 14: General Profile of ISM Experts

Expert	Profession	Residence of the organization	Experience
FE1	Owning Manager	İstanbul	10-15 years
FE2	Strategy Development Manager	İstanbul	15+ years
FE3	Deputy General Manager	İzmir	15+ years
FE4	Sales Operation Manager	İstanbul	10-15 years
FE5	Sales Marketing Manager	İstanbul	10-15 years
AE1	Lecturer	Yalova	10-15 years
AE2	Assistant Professor	İstanbul	5-10 years

Source: Author

To assess whether and how the competitive strategies and firm performance indicators are interlinked, affirmed version of the ISM form was distributed via e-mails to seven experts. As seen in Table 14, five of whom were the mid-to high-level managers working for Ro-Ro companies, and two of whom were academicians. While one of the academicians was selected due to his studies on the Ro-Ro industry, the main reason to choose the other one was his management experience in Ro-Ro companies' operation and human resource departments. In the final stage, interrelationships in the model of competitive strategy components and firm performance indicators were developed based on gathered information through ISM forms.

3.3. DATA ANALYSIS METHOD

Complex relationships, situations, or issues with a great number of factors interacting at various dimensions cannot be smoothly understood and modeled into a clear, cognizable structure. Thus, methods enabling simplification and comprehension of subjects are necessary to make rational decisions. ISM is an interactive management approach that assists researchers, either individuals or groups, in dealing with such complex issues (Alawamleh and Popplewell, 2011: 7). It is a modeling technique applied in complicated circumstances to convert an imprecise, poor, and unstructured intellectual model into a structured, understandable, and well-defined system, specifically in the case that concerned elements are subjective (Kannan et al., 2009: 43). Therefore, it facilitates the identification of structure within a system consisting of related elements and the creation of an opportunity to analyze it from several perspectives.

ISM is a qualitative technique developed by Warfield in 1974 to understand the complex relationships between variables related to an issue. In the ISM method, factors that directly or indirectly influence the system are enframed into an exhaustive systematic model. It aids to brought order and direction to the complex relationships existing between the numerous elements of a system (Kannan and Haq, 2007; Majumdar, 2016). The direct and indirect connections between the variables define the situation much more accurately compared to individual variables which are considered separately (Sharma and Bhat, 2014: 202). The basic characteristics of ISM can be represented by three main dimensions. Firstly, its interpretive attribution stems from the judgment of the expert group since they decide whether concerned variables are associated or how they interact. Being structural denotes the extraction of outcome from a set of variables (Attri et al., 2013; George and Pramod, 2013). In other words, ISM disintegrates an intricate system into various subsystems (factors/elements) and forms a multilevel structural model (Verma et al., 2018: 4818). Last but foremost, particular relationships and general structures can be visualized in a digraph model thanks to being a modeling technique. Portraying the structure of a complex system helps to comprehend it better. Accordingly, ISM can be considered as an effective means for managing complex issues (Chander et al., 2013: 177). This method is developed to be a well-established, proven, and broadly accepted modeling technique which used to analyze interrelationships among the

factors affecting the system (Faisal et al., 2006; George and Paramod, 2013). Warfield (2005) prescribed a number of requirements in order to use these communication tools, including:

- Provision/term as to scientific elements inclusion,
- Means for representing a complex set of interrelations,
- Means for revealing that complicated set of relations which allow researchers to make continuous observation, investigation or modification of these relationships,
- Congruence with perceptions of the originators' and analytical processes,
- Easiness of learning or making inferences by the multidisciplinary audience (Attri et al., 2013: 4).

ISM approach is defined as an interactive learning process that is particularly intended to be used by groups (Muduli et al, 2013: 54). It enables the systematic implementation of a graphical method that establishes a contextual relationship between several elements and efficiently forms a directed graph. Through ISM, information can be presented via a direct graph or matrix. It portrays the hierarchy of factors/variables and the structure of a complex situation, problem, or issue in a system regarding the field of study (Khanam et al., 2015: 201). ISM approach helps decision-makers whereby realistic modeling of the problem. It provides a guideline that allows them to objectively synthesize a hierarchy of the variables grounded on the mathematical conclusion, given one-to-one links between variables. Therefore, the relationship direction and order of the variables are worth considering by the decision-makers in this analysis (Singh et al., 2018: 14). Within this context, clarification of thought, problem-solving, team building, and group learning can be benefited through applying ISM (Janes, 1988: 153).

Besides ISM, Analytic Hierarchy Process (AHP) and Analytic Network Process (ANP) techniques have drawn the researchers' attention in modeling multi-criteria decision making. AHP is used for ranking selective criteria through following a hierarchy strictly, while ANP deals with looser structures. Unlike these two methods, ISM handles a set of different directly and indirectly associated criteria and is structured into a comprehensive model. Even though ANP is indicated as more useful in non-linear problems than AHP that fails to manage complicated problems,

ISM solves complex problems much more effectively (Shahabadkar, 2012). Another distinguishing characteristic of ISM compared to other methods such as the Delphi and SEM is that it necessitates fewer expert opinions to assess the criteria. In the Delphi process, most of the researchers face challenges in collecting a sufficient number of responses via surveys (Barve et al., 2007). Considering all together, ISM can be chosen as an advantageous method in understanding and analyzing complex networks/problems.

ISM methodology has been used for both long-term plannings which require a high level of abstraction, and for processing and structuring details regarding an activity or problem at a more concrete level. Application fields of ISM can be exemplified as vendor selection, product or process design, strategic planning, financial decision making/outsourcing decisions, engineering problems, knowledge management, human resources, risk assessment, complex technical problems, supply chain management, and competitive analysis (Attri et al., 2013; Chang et al., 2013; Sushil, 2012; Lee et al., 2010).

The contribution of the ISM technique has been seen in different fields. Bolaños and colleagues (2005) adopted the ISM approach in enhancing the decision-making process within a group of managers performing in diverse functional areas. Faisal et al. (2006) used the ISM method to comprehend dynamics among several information risk factors perceived by Indian manufacturing SMEs and to form a hierarchy of relevant factors for risk mitigation, while Diabat et al. (2011) conducted similar research for supply chain risks in the food industry under the favor of a case study. Saatçioğlu and Özmen (2010) applied ISM and MICMAC to explore various innovation barriers in Turkey and to submit solution-oriented recommendations. Likewise, Movahedipour et al. (2017) analyzed barriers encountered in the sustainable supply chain implementations based on a case study. Azevedo et al. (2013) defined and ranked performance measurement parameters employed in the automobile industry through ISM and MICMAC. Also, Jain and Raj (2016) used ISM in conjunction with SEM and GTMA (Graph Theory Matrix Approach) for analysis and modeling performance variables considered in flexible manufacturing systems. Khanam et al. (2015) conducted their research on the information, communication, and technology sector. They probed and modeled the conceptual

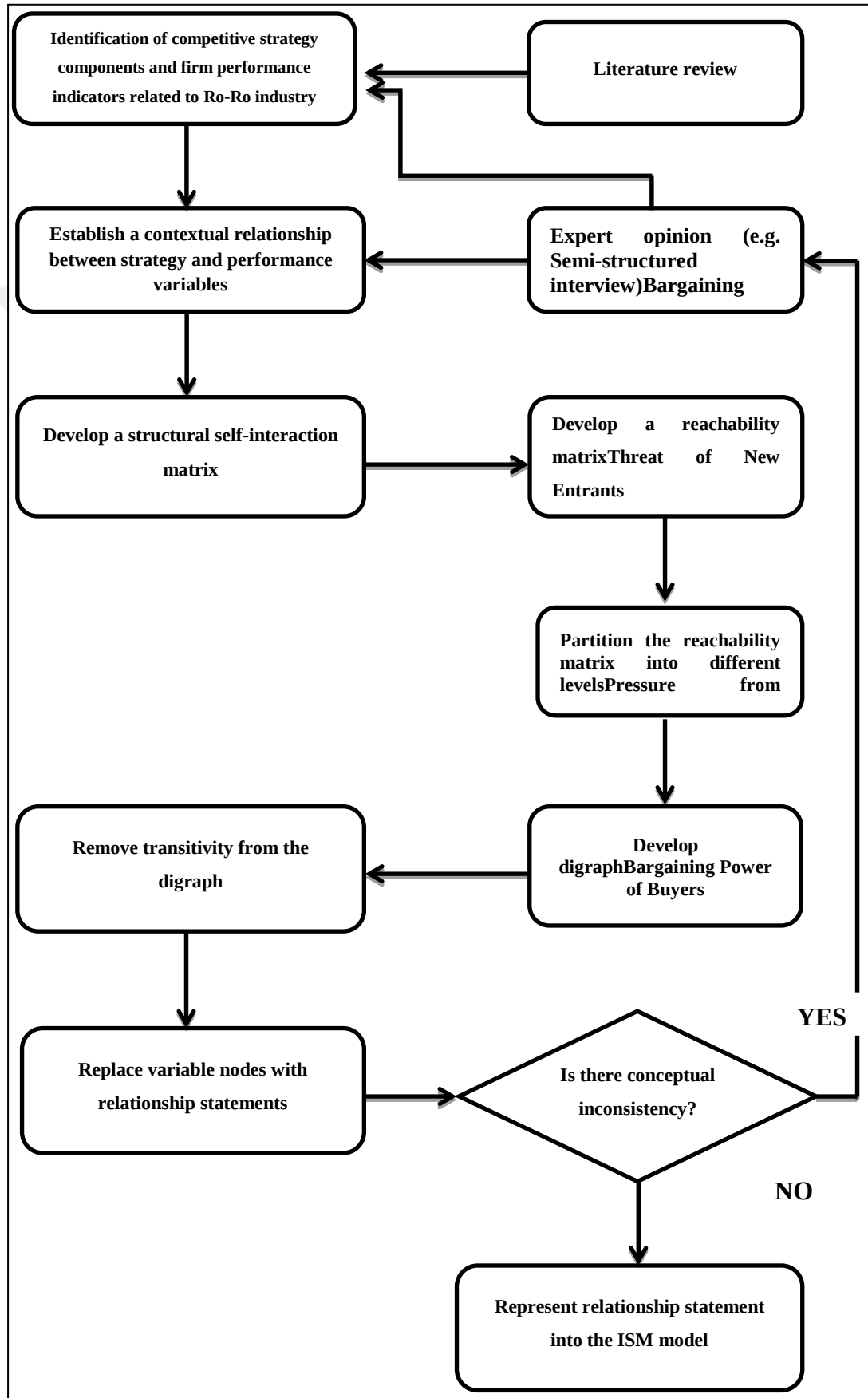
relationship between TQM (Total Quality Management) enablers and IT resources through ISM and MICMAC. Because ISM is indicated as an effective means to choose between alternatives. For instance, it was adopted by Kannan and Haq (2007) in vendor selection, and by Jain and Banwet (2013) in strategic alliance partner selection. Furthermore, Hussain et al. (2016) combined ISM with ANP to choose the best supply chain management alternative. Majumdar et al. (2016) applied ISM and MICMAC to evaluate environmental factors influencing the software development process. In the same vein, Muduli et al. (2013) assessed how behavioral factors affect green supply chain management practices while Meng et al. (2018) investigated leading factors of third-party logistics providers' selection process in a sustainable manner. The literature also presented evidence of the applicability of ISM in the competitiveness analysis. To illustrate, using ISM and MICMAC techniques, Qureshi et al. (2007) established a model of logistics outsourcing relationship parameters in order to improve shipper firms' productivity and competitiveness. Similarly, Verma et al. (2018) explained variables that improve supply chain competitiveness. Another analysis of competitiveness was carried out by Singh et al. (2018) on Indian electronic manufacturers by adopting fuzzy MICMAC and AHP methods in addition to ISM.

The ISM process initiates with the identification, prioritization, and classification of the elements in a system. Afterward, the relationship between the hierarchy and causality of the identified elements is represented through a multi-level structural model. The series of steps involved in the ISM technique are as following (Alawamleh and Popplewell, 2011; Attri et al., 2013; Chander et al., 2013; Khanam et al., 2015):

- I. Factors affecting the problem under consideration are identified based on literature review, and expert opinion which could be got by a survey, interview, or any group problem-solving technique.
- II. Establishment of the contextual relationship between the factors determined in the first step. This reveals the relationship signifying whether or not one factor leads to another.

- III. A Structural Self-Interaction Matrix (SSIM) of factors that demonstrates the pair-wise relationship among factors of the system under investigation is developed.
 - IV. Based on SSIM, an initial reachability matrix is formed and checked for the transitivity of the contextual relation which is the main assumption in ISM.
 - V. The reachability matrix is obtained in the fourth step to be partitioned into different layers.
 - VI. A directed graph is sketched depending on relationships given in the reachability matrix, also transitive links are omitted.
 - VII. The final digraph is transformed into an ISM, by replacing factors with corresponding declarations.
 - VIII. The developed ISM model is checked for conceptual inconsistency; accordingly, modifications are made if necessary.
 - IX. MICMAC analysis of the model is applied.
- The flow chart of the ISM method is given in Table 15.

Table 15: Flow Diagram For Preparing ISM Model



3.3.1. Structural Self-Interaction Matrix (SSIM)

In forming SSIM, conceptual relationships between the factors are conceived relying on opinions of experts chosen from the sector, academia, and/or government considering the investigated problem. Brainstorming, idea engineering, nominal group technique, or in-depth interviews are among the most preferred management techniques using for data collection and identification of related factors (Chander et al., 2013: 177).

Conceptual relations denote that one factor leads to or helps to realize another factor. To identify kinds of linkages, various phrases such as ‘enhances’, ‘contributes to’, ‘aggravates’, ‘confirms’ and ‘precedes’ etc. might be employed (Bolanos, 2005: 880). Four notations (V, A, X, and O) are indicated to specify directions of the relationships between two factors (i and j).

- V represents a relation direction from i to j which means that factor i will affect factor j,
- A represents a relation direction from j to i which means that factor i will be affected by factor j,
- X represents a mutual interaction between i and j which means that both factors will affect each other,
- O does not represent any relationship between i and j which means that factors are unrelated.

3.3.2. Reachability Matrix

The initial reachability matrix is composed of binary numbers (0 and 1) assigned as substitutes for V, A, X, and O. Guideline for the conversion of conceptual relationships represented through one of these notations into a binary matrix according to substitution rules (Muduli et al., 2013: 55) are given below:

- When (i, j) cell in SSIM is V, then (i, j) entry is replaced by 1 whereas (j, i) entry is turned to 0.
- When (i, j) cell in SSIM is A, then (i, j) entry is replaced by 0 whereas (j, i) entry is turned to 1.

- When (i, j) cell in SSIM is X, then both (i, j) and (j, i) entries are replaced by 1,
- When (i, j) cell in SSIM is O, then both (i, j) and (j, i) entries are replaced by 0.

Following to formation of the initial reachability matrix, the transitivity rule is applied to generate the final reachability matrix (Katiyar and Barua, 2012: 4). The transitivity rule propounds that in the case where the indirect link exists, a relationship is expected to be appointed among these factors. To illustrate, factor 'A' is related to the factor 'B', and 'B' is related to factor 'C', then 'A' necessarily has a relationship with 'C'. In this context, all relationships within the binary matrix actualizing this condition but assigned as '0' are transformed into '1'. If the transitivity rule is failed to be satisfied, SSIM is reassessed and properly modified by providing experts' feedback regarding transitive relationships (Chander et al., 2013: 178). Based on rearranged SSIM, the process is rehearsed until the reachability matrix satisfies all requirements of the transitivity rule (Sushil, 2012: 89). The final analysis is conducted depending on the final reachability matrix that obtained at the end of all revision processes.

The final reachability matrix points out both the driving and dependence powers of each factor. The driving power of a specific factor indicates the total amount of the factors (containing itself) it affects, whereas dependence power demonstrates how many factors (involving itself) exert an influence over the factor. Conducting MICMAC analysis, which will be explained in detail later, enables a classification of probed factors into four clusters as 'autonomous', 'dependent', 'linkage', and 'independent' based on driving and dependence powers (Khanam et al., 2015: 207).

3.3.3. Level Partitions

The final reachability matrix manifests not the only number of the influenced or influencing factors but also reveals reachability and antecedent sets. The reachability set points out which factors are influenced by a particular factor. On the other hand, factors affecting the considered factor constitute an antecedent set.

Common factors of those two sets are termed intersection set. In a case where the reachability set of a factor is identical with its intersection set, this factor is positioned at the top of the hierarchy. Being a top-level factor within the hierarchy refers that no other factor above its layer might be influenced by this factor. Subsequently, the factor is separated from other factors and the same process is reiterated to find out top-level factors in the next stage. These partition transactions are repeated until the level of each factor in the hierarchy is determined. Accordingly, a final digraph that visualizes all of those elements, their relations, and relative interdependencies are built. Based on this digraph, the ISM model can be developed. At the final phase, the conceptual inconsistency of the model can be checked in order to assure whether the findings offer a significant insight related to the addressed issue (Faisal et al., 2006; Kannan et al., 2010).

3.3.4. MICMAC Analysis

MICMAC is used as an abbreviation of the French term '*Matrice d'Impacts Croises Multiplication Appliquee a un Classement*' which is translated into English as '*Cross-Impact Matrix Multiplication Applied to Classification*'. It was developed in 1973 by Duperrin and Godet as an operational method for ranking elements of a system and has become a critical juncture for structural analysis since the mid-1970s (Jain and Banwet, 2013: 299). Through MICMAC, the role of different variables related to a system can be better analyzed and understood. MICMAC analysis unveils concealed variables via considering indirect relationships and feedback loops. The main objective of this technique is to assess and classify variables based on their dependency and driving power. It enables one to elucidate how an element will conduct within the system and how it can be controlled (Khanam, 2015: 211). The variables/factors are segregated into four distinct categories as given below:

1. *Autonomous factors*: These factors are characterized by weak dependency and low driving power. Disconnection of this type of factor from the system is relatively easier compared to other categories since they have just a few or poor relations.

2. *Dependent factors*: Factors constituting this cluster resemble autonomous factors in terms of weak drive power. However, high-level dependence power brings about a strong connection between these factors with the entire system.
3. *Linkage factors*: This category involves factors with a high level of dependence and driving powers that interactively affect the system. For this reason, any change or modification related to these factors should be delicately made by considering other factors as well.
4. *Independent factors*: These factors are associated with strong driving whereas low dependence power. Factors incorporated into linkage or independent clusters are the ones indicated as the 'key factors' due to a high level of driving power (Attri et. al, 2013; Majumdar et al., 2016).

3.4. FINDINGS

Based on ISM and MICMAC analysis, this section presents the main findings of the study in detail.

3.4.1. Identification of Variables

The criteria were identified contingent upon literature review and semi-structured interviews with the experts from the Ro-Ro companies and academia. Three experts who either directly or partially involved in the determination of the competitive strategies were drawn from various departments of the Ro-Ro companies. The expert team with whom interviews were conducted, comprised one owning manager, one strategy development manager, and one deputy general manager. An academician from the field of maritime transportation and management with experience in Ro-Ro companies was also consulted for validation of the identified competitive strategy components and firm performance indicators. Initially, seventeen competitive strategy components and eight firm performance indicators were identified which were finally reduced to twelve strategic and three performance criteria based on validations from the chosen experts. The identified variables are summarized below and presented in Table 16.

Table 16: List of Identified Variables

<i>Competitive Strategy</i>	<i>Sub-Criteria</i>	<i>References</i>
Cost-Leadership	Capacity utilization	Styhre (2009), Nandakumar et al. (2011), Grant & Jordan (2014), Lindstad et al. (2016), Yuen et al. (2017), Adland et al. (2018), Christodoulou & Kappelin, (2020)
	Economies of scale	Panayides (2003), Casaca & Marlow (2009), Pertusa Ortega et al., (2009), Leitner & Guldenberg (2010), Panayides & Cullinane (2012), Grant & Jordan (2014), Wilmsmeier, (2014), Haralambides (2018)
	Competitive pricing	Panayides (2003), Lagoudis & Theotokas (2007), Ortega (2010), Lam (2014), Morales-Fusco et al. (2018)
	Cost-cutting measures	Panayides (2003), Nandakumar et al. (2011), Teeratsirikool et al. (2012), Grant & Jordan (2014), Yuen et al. (2017)
Differentiation	Innovativeness and R&D	Ge & Ding (2005), Jenssen & Randøy (2006), Phongpetra & Johri (2009), González-Rodríguez et al. (2018), Gorondutse & Helman (2019)
	Reputation & reliability	Panayides (2003), Casaca & Marlow (2005), Ortega (2010), Tan & Thai (2014), Christodoulou & Kappelin (2020)
	Quality enhancement	Reed et al. (2000), Amoako-Gyampah & Acquah, (2007), Jusoh & Parnell (2008), Casaca & Marlow (2009), Verma et al. (2018)
	Customer orientation & responsiveness	Lagoudis et al., (2006), Lagoudis & Theotokas (2007), Juga et al. (2008), Yuen & Thai (2015), Pathak (2015), Yang and Sung (2016)
	Operational flexibility	Notteboom & Winkelmans (2001), Bergantino & Bolis (2004), Casaca & Marlow (2005,2009), Gadhia (2011), Tan & Thai (2014), Christodoulou & Kappelin (2020)
	Value-added services	Lu (2000), Delfmann et al. (2002), Casaca & Marlow (2005), Kaynak & Zeybek (2007), Gadhia (2011), Pathak (2015)
	Safety and security of the shipment	Lam & Van de Voorde (2011), Yang & Sung (2016), Han et al. (2017), Yuen et al. (2017), Christodoulou & Kappelin (2020),
Focus	Concentration	Panayides (2003), Panayides & Wiedmer (2011), Gadhia (2011), Ng (2012), Lorange & Datson (2014)
Firm Performance	Market share	Jenssen & Randøy (2006), Yang et al.,(2009), Panayides et al. (2010), Lirn et al. (2013), Tan & Thai, (2014), Yilmaz (2016)
	Return on sales (ROS)	Ge and Ding (2005), Yaşar (2010), Panayides et al. (2010), Yang (2012), Kuo et al. (2017), Shin et al. (2018)
	Customer satisfaction	Kim (2006), Yang et al. (2009), Yang (2012), Tan & Thai (2014), Yorulmaz & Birgen (2016)

Source: Compiled by author

1. **Capacity utilization:** High level of capacity utilization is essential to the economic feasibility of the Ro-Ro operations since it measures the productive efficiency of the companies (Christodoulou and Kappelin, 2020: 2). Vessel capacity utilization is usually defined as a ratio, between the transported units and maximum

units within a specific time period. For Ro-Ro shipping, capacity utilization can be calculated by dividing transported lane meters to maximum lane meters. Capacity utilization, just as ballast ratio and sailing speed, refers to a critical input in macroeconomic models of the freight market since it directly affects overall fleet productivity. The higher level of capacity utilization means the more transportation operations having fleet will be carried out per time unit. Moreover, it is also a key component for microeconomic models of the firm/vessel profitability by affecting unit transport costs (Adland, 2018: 191-192). Achieving capacity utilization enables companies to avoid waste of economic resources and inefficient allocation (Styhre, 2009: 421).

2. **Economies of scale:** Economies of scale refers to reducing per-unit costs (i.e. cost/dwt or cost/slot) by an increasing volume of production, storage or transportation, etc. Scale economies comprise potential cost reductions and economic advantages associated with greater levels of productivity. It leads companies to lower cost structures (i.e. manning costs, shipbuilding costs, and fuel costs) and higher profits (Haralambides, 2018). In the usage of resources, reaping economies of scale provides considerable competitive advantages for companies to keep survival and reach prosperity. Two kinds of economies of scale are directly linked with the shipping industry: External and internal. In the external economies of scale, the size of the shipping company is used as a reference point for unit cost calculation. On the other hand, calculation of unit costs in the internal economies of scale contingents upon the size of individual transportation units such as container, vessel, shipment, and port. When the number of output increases, long-run production costs decrease (Wilmsmeier, 2014: 17). To achieve economies of scale, shipping firms have made mergers and acquisitions, investments in enormous newbuilding programs.

3. **Competitive pricing:** Competitive pricing involves taking the product and market status of the competitors in the target market into account while setting product/service prices. Accordingly, companies set prices based on rivals' prices, costs, strategies, and market offerings. Companies adopting this strategy have three alternatives in price-setting: pricing below competition, pricing on the same level, or pricing above the competition. For standard products or services which have limited features or functionality, a company may offer competitive low prices to grab

customers' attention and increase sales (Ortega, 2010: 1277). In the Turkish Ro-Ro industry context, customers of the Black Sea and Middle East markets are indicated as less demanding in terms of service variety compared to the European market. Therefore, cost becomes a leading deterministic factor in carrier selection. Within this respect, competitive pricing is considered as offering relatively lower prices for standard services in this study.

4. **Cost-cutting measures:** Cost management is a strong constituent of a company's success and profitability. Most companies implement several cost-containment measures to manage costs. Cost-cutting includes various procedures adopted by the management of a specific company to reduce expenses regarding procurement costs, employee salary or compensation, traveling costs, outside professional services, and so on (Mashau and Makhunga, 2018: 120). Ro-Ro companies tend to take strategic steps such as route optimization, eliminating value-added services, speed reduction, streamlining the supply chain, outsourcing, downsizing or closing facilities, etc. to lower costs (Yuen et al., 2017: 5). Thus, cost-cutting comprises cost awareness, management, monitoring, and incentives to control, reduce and prevent costs.

5. **Innovativeness and R&D:** Shipping companies are recommended to be cognizant of recent trends in new product/service/process developments and implementation of the innovation (Pathak, 2015: 10). Because, innovativeness and R&D have been demonstrated to be major drivers to gain competitive advantage and achieve greater performance in an international and dynamic marketplace (Jenssen and Randøy, 2006: 330). By doing so, companies can design new processes, systems, and practices to improve products or services on offer to protect or even enhance their position. They use more up-to-date and better technologies or techniques than competitors to differentiate their offers. This novel approach smooths the way for companies to adapt themselves to changing requirements and the urge to enter untested markets (Çam, 2002: 161). Within the Ro-Ro shipping context, there are innovation opportunities in the areas of inter-and multimodal transportation, supply chain integration, new ICT solutions for cargo handling, and so forth.

6. **Reputation & reliability:** Shipping has been an integrated element of the customers' supply chains. Hence, reliability has also been excessively significant inefficient planning and superior performance for customers. Reputation and reliability depend on various factors including prompt response to shipper's complaints and claims, accurate documentation, reliability of offered sailing schedules, etc. (Lu, 2000: 91). Forming a good reputation requires consistency and trustworthiness that directly affect effectiveness and credibility in reaching key stakeholders, being customers in the first place. Reputable firms are expected to be more responsible, accountable, and visible. Such companies are less likely to conduct negative behaviors, in turn; customers are more likely to trust in their reliability and integrity. Since the main secret of the success of differentiation is based on the inimitability of these features and their perception of customers as special and valuable, reputation and reliability can be considered as one of the attractive tools of the companies (Amoako-Gyampah and Acquah, 2007: 578).

7. **Quality enhancement:** Quality enhancement or improvement refers to constant effort to improve products/services, to augment employee skills and involvement, and to achieve excellence in operational processes. Giving more weight to the quality improvement processes to differentiate offerings enables companies to boost the durability and reliability of the firm to build customer loyalty (Çam, 2002: 161). Customers are more willing to pay premium prices for products or services that they perceive as superior quality, especially when their cargoes are associated with high risks or sensitivity such as cars/vehicles, refrigerated goods, and hazardous products. For this reason, realizing continuous quality improvements is mostly a necessity to achieve and maintain superior economic performance and customer satisfaction (Stewart, 1999: 33). Moreover, adopting a differentiation strategy based on superior quality in the competition can lead a company to become a market share leader.

8. **Customer orientation & responsiveness:** There can be various factors in maritime transportation including sailing ports, transit time, convenience, customer service, price, etc. which influences customer perception to evaluate whether the service is better than the rival or not (Lagoudis and Theotokas, 2007: 100). Customer orientation means focusing on customers' demands while shaping

business processes to respond to their needs and complaints in a timely/correct manner. It is a kind of organizational culture that accentuates the customer as the center of attention in strategic planning and execution. Responsive, customer-oriented companies outperform rivals via incorporating buyer-desired attributes into their services like providing responsive customer services, higher frequency and speed, and configuring value chain activities to effectively satisfy customers' needs better (Yuen and Thai, 2015: 171).

9. **Operational flexibility:** Operational flexibility indicates the ability to structure firm resources and operational activities according to changes in customer demand and market conditions. Considering the unpredictable and ever-changing nature of today's business environment and customer requirements, flexibility has become one of the most significant factors for supply chain effectiveness (Christodoulou and Kappelin, 2020: 6). Carrier's logistics network design is expected to reach a wider geographical scope through responsive multimodal transport chains with reasonable frequency to satisfy final demand in a timely manner (Casaca and Marlow, 2009: 2). Ro-Ro companies tend to form strategic alliances, vertical or horizontal integrations to enhance their resources, to differentiate offerings, to take benefit from synergy, expertise, and flexibility. In this way, companies can effectively deal with uncertain situations and better respond to changing needs, and consequentially, improve firm performance (Yousuf et al., 2019: 48).

10. **Value-added services:** Value-added services are defined as *“the collection of activities within a company or a supply chain resulting in the creation of a product or service valued by the consumer”* (Foulds and Luo, 2006: 196). It means putting additional form, feature, or functions on the basic services and represents all kinds of activities that are not directly associated with conventional transport services offered by Ro-Ro operators. Besides core carriage services, they can offer additional services such as documentation, adopting IT solutions, customs clearance, terminal operations, intermodal transportation, agency operations, reefer, extra handling, door-to-door services, etc. which are valued by customers. Such services are unique to the particular customers to satisfy their expectations and extend over the company's standard service program. If a firm seeks to achieve a competitive advantage over its competitors, it must augment its value for customers

by performing these activities more efficiently and professionally than its rivals. Better satisfaction of customer requirements through value-added services can improve a firm's competitiveness, and as a result, higher profitability.

11. **Safety and security of the shipment:** Considerable concerns have grown about the safety of the Ro-Ro vessels, especially in terms of stability and damage conditions. The Det Norske Veritas research reports demonstrated that 43% of Ro-Ro losses could be attributed to operational faults and the shift of cargo (IMO, 1997). Ro-Ro is undoubtedly a specific type of vessel that requires well-calculated planning and special consideration for the carriage of vehicles. Therefore, customers desire the completion of the transportation process most safely and securely. Ro-Ro companies can incorporate these attributes into their services by improving service quality, investing in younger ships and technological solutions, training staff, complying with several rules and regulations, and so forth. Considering the value of the transported vehicles or freight that loaded to a truck, which can be more valuable than the vehicle itself, the overall shipment process must be carried out with due diligence (Yuen et al., 2017: 4). Interoperability between land and maritime domains and integration among different transportation modes also must carefully arranged by whole actors participating in the process. Thus, tailored services with special arrangements can be demanded by customers who are willing to pay premium prices.

12. **Concentration:** Well-designed transportation systems should enable geographical concentration and specialization besides providing a good network between producer and consumer parties (Ng, 2012: 6). Ro-Ro companies may choose a specific consumer group, geographical segment, or service line to confine their services to canalize all resources, efforts, and expertise on it. In case that concentration on a particular, niche market; shipping companies can defend their positions in a market where the competition level is minimal (Gadhia, 2011: 1433). Such companies may determine fewer calling ports or deploy bigger ships on a limited number of routes. Concentration reinforces the company to build a close relationship with the customer which facilitates understanding of their needs so that increase customer satisfaction. Also, it may create a favorable position for small players to continue their existence and competitiveness by allowing the transfer of

their scarce resources to a niche market (Lorange and Datson, 2014; Panayides and Wiedmer, 2011).

13. **Market share:** Nowadays most companies are forced to expand and reinforce market share, which is defined as *'the portion of a market controlled by a specific company or product'*, in order to survive and maintain in the dynamic global market. It is the most significant gauge firms can use to assess the effectiveness of any potential revenue-generating endeavors and is calculated by dividing a firm's sales revenue by the total revenue of the market (Ren, 2010: 58). The significance of market share stems from associated power with it. A firm capturing a higher market share is more likely to rule over the industry and yield the highest profits. For this reason, firms use market share as a comparison tool to discover its strength of competitiveness in the industry compared to other firms operating in the same industry on a specific time period (Silver, 2007: 13).

14. **Return on sales (ROS):** It is a ratio that reveals how efficiently a firm is able to generate operating profits from its revenues. ROS, which is also called, operating profit margin, is used to assess the performance of the firm by analyzing what percentage of the firm's total revenue being converted into the net income. This ratio is an extremely significant metric to work out the health of a firm.

15. **Customer satisfaction:** Customer satisfaction is a measurement that determines how customers are contented with a company's services, products, and capabilities. The description of the term is given in the Oxford dictionary (2010) as *"fulfillment of one's wishes, expectations, or needs."* It plays a mirror role and reflects positive feelings and evaluations about customer fulfillment. Therefore, customer satisfaction can be used as an essential tool for understanding the expectations of customers on how experienced goods and services benefit them. The notion of customer satisfaction is multidimensional and comprehensive (Shokouhyar et al., 2020: 102). To satisfy customers, numerous different factors including cost, quality, customer complaints, etc. should be taken into consideration and improved. Consequently, enhanced customer satisfaction provides various key benefits for the firm such as strong customer loyalty, attracting new customers, better reputation, lower failure costs, repurchasing intention, higher economic returns, and so forth (Anderson et al., 1994: 55).

3.4.2. Structural Self Interaction Matrix (SSIM)

To investigate the interlinkages among the twelve competitive strategy components among each other, and with three firm performance criteria, the ISM form was sent to seven experts. Experts were requested to identify the extent to which variable helps to achieve another. Note that the contextual relationship for each variable, the presence of linkages among any two variables (i and j), and the associated direction of the relationship were grounded on the questions that were asked in the expert panel. Within this regard, all experts were requested to evaluate each possible pairs of these fifteen variables. Assessments were addressed via V (i helps to achieve j), A (j helps to achieve i), X (i and j help to achieve each other), and O (i and j are unrelated) symbols as it can be seen in table 17.

Table 17: Structural Self Interaction Matrix (SSIM)

Variables		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Cost Leadership	1. Capacity utilization	V	V	V	O	O	O	A	A	O	O	A	A	X	X	
	2. Economies of scale	V	V	V	A	O	O	A	A	O	O	A	X	V		
	3. Competitive pricing	X	V	X	A	O	O	A	A	O	A	A	X			
	4. Cost-cutting measures	V	V	O	A	A	O	A	A	O	O	A				
Differentiation	5. Innovativeness and R&D	V	V	X	X	V	V	X	X	V	V					
	6. Reputation and reliability	X	V	X	A	A	A	A	A	X						
	7. Quality Enhancement	V	V	V	A	X	A	O	A							
	8. Customer orientation and Responsiveness	X	V	X	A	X	X	X								
	9. Operational flexibility	X	V	V	X	X	X									
	10. Value-added services	V	V	V	A	O										
Focus	11. Safety and security of the shipment	V	V	V	O											
	12. Concentration	V	V	V												
Firm Performance	13. Market share	A	A													
	14. Return on sales (ROS)	A														
	15. Customer satisfaction															

SSIM demonstrates that:

- “Capacity utilization” affects all investigated Ro-Ro firms’ performance variables. It is found in reciprocal interaction with “economies of scale” and “competitive pricing”. The variable is affected by “cost-cutting measures”,

“innovativeness and R&D”, “customer orientation and responsiveness”, and “operational flexibility”. However, there appears no relationship between capacity utilization and some variables such as “reputation and reliability”, “quality enhancement”, “value-added services”, “safety and security of the shipment”, and “concentration”.

- Similarly, “economies of scale” also affects firms’ market share, customer satisfaction, and ROS. Besides, “competitive pricing” is affected by economies of scale. The variable and “cost-cutting measures” are found to be affecting each other. “Innovativeness and R&D”, “customer orientation and responsiveness”, “operational flexibility and “concentration” help to achieve economies of scale. Yet, “reputation and reliability”, “quality enhancement”, “value-added services”, and “safety and security of the shipment” don’t have any relation with the economies of scale.
- “Competitive pricing” has a mutual affection with “cost-cutting measures”, “market share”, and “customer satisfaction”. Unlike other firm performance indicators, “ROS” has a unidirectional relationship with this variable since it doesn’t lead to competitive pricing. Just as “capacity utilization” and “economies of scale”, competitive pricing is found affected by “innovativeness and R&D”, “customer orientation and responsiveness”, “operational flexibility”, and “concentration”. In addition, “reputation and reliability” is also reported as a positive influencer over Ro-Ro firms’ competitive pricing. “Quality enhancement”, “value-added services”, and “safety and security of the shipment” are found unrelated to competitive pricing.
- “Cost-cutting measures” stimulates ROS and customer satisfaction. Surprisingly, unlike other variables, no influencing effect of cost-cutting measures on “market share” is found. Moreover, it differentiates from other cost leadership components since it is affected by “safety and security of the shipment”. Achievement of this component is also supported by “innovativeness and R&D”, “customer orientation and responsiveness”, “operational flexibility”, and “concentration”.
- “Innovativeness and R&D” helps to achieve all differentiation, focus, and firm performance criteria. Among them, relationships are reported as bilateral between “innovativeness and R&D” and “customer orientation and responsiveness”, “operational flexibility”, “concentration”, “market share”.

- “Reputation and reliability” component has mutual relationships with “quality enhancement”, “market share”, and “customer satisfaction”. It is enhanced by the implementation of “customer orientation and responsiveness”, “operational flexibility”, “value-added services”, “safety and security of the shipment”, and “concentration” in the Ro-Ro firms. Although the variable results in higher “ROS”, having a high level of ROS doesn’t contribute to reputation and reliability.
- “Quality enhancement” is found unrelated to cost leadership components. Unexpectedly, no positive interaction between quality and “operational flexibility” is reported as well. On the contrary, just like “reputation and reliability”, a positive two-way relationship is determined between quality enhancement and “safety and security of the shipment”. All determined firm performance criteria can be accomplished when quality enhancement is provided. To increase quality, Ro-Ro firms are also expected to ensure “customer orientation and responsiveness”, “value-added services”, and “concentration” on a target market.
- Contrary to the "quality enhancement" dimension of the differentiation strategy, "customer orientation and responsiveness" and "operational flexibility" are found as supporting means to achieve all cost leadership components. Customer orientation and responsiveness element both positively affects and is affected by "operational flexibility", "value-added services", "safety and security of the shipment", "market share", and "customer satisfaction" at the same time. "Concentration" is found a facilitator of customer orientation and responsiveness which brings about higher ROS.
- "Operational flexibility" generally has a similar tendency with "customer orientation and responsiveness" in terms of conceptual relationships. They differ only in the relation with "quality enhancement", "concentration" and "market share" dimensions. As previously mentioned, no meaningful relationship is indicated between operational flexibility and quality enhancement. While market share is affected by the operational flexibility, the same influencing effect isn’t observed from the market share to flexibility. On the other side, “concentration” is found both an affecting and affected criteria for operational flexibility.
- In the same vein with “quality enhancement”, any significant relationship among “value-added services” and cost leadership components is not reported.

Moreover, this component is found unrelated to “safety and security of the shipment”, as well. In other respects, focusing on a specific market or customer group enables Ro-Ro firms to offer more value-added services. All performance criteria are promoted by offering such services; however, none of them is noted as one of the drivers stimulating value-added services.

- Experts indicated that Ro-Ro firms can make way for greater “market share”, “ROS”, and “customer satisfaction” through “safety and security of the shipment”. Considering the cost-leadership strategy, “cost-cutting measure” is pointed out as the only criteria affected by the safety and security of the shipment. In the differentiation context, solely “value-added services” is found unrelated to this variable. Likewise, concentration doesn’t associate with the safety and security of the shipment.
- The focus strategy which is labeled as “concentration” is found useful to increase “market share”, “ROS” and “customer satisfaction”. Ro-Ro firms that pursuit this strategy may yield better results by combining it with differentiation strategy, more particularly, “quality enhancement”, “customer orientation and responsiveness”, and “operational flexibility”. It is obvious when reciprocal relationships among those criteria are taken into consideration.
- All firm performance indicators have either one or two-way relationships with competitive strategy components. ISM results corroborate the validity and compatibility of the performance criteria with determined strategic actions. Ro-Ro firms that properly implement those strategic actions are more likely to put in greater performance. When conceptual relationships among performance indicators are evaluated together, it is seen that customer satisfaction increases the ROS that also results in higher market share.

3.4.3. Initial Reachability Matrix

The initial reachability matrix for competitive strategy components and firm performance indicators which is obtained by replacing X, A, V, O by 1 and 0 is exhibited in Table 18.

Table 18: Initial Reachability Matrix

Variables		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Cost Leadership	1. Capacity utilization	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1
	2. Economies of scale	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
	3. Competitive pricing	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1
	4. Cost-cutting measures	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1
Differentiation	5. Innovativeness and R&D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6. Reputation and reliability	1	1	1	0	0	0	0	0	1	1	0	0	1	0	0
	7. Quality enhancement	1	1	1	0	1	0	0	0	1	1	0	0	0	0	0
	8. Customer orientation and Responsiveness	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
	9. Operational flexibility	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1
	10. Value-added services	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0
	11. Safety and security of the shipment	1	1	1	0	1	0	1	1	1	1	0	1	0	0	0
Focus	12. Concentration	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0
Firm Performance	13. Market share	0	0	1	0	0	0	0	1	0	1	1	0	1	0	0
	14. Return on sales (ROS)	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	15. Customer satisfaction	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0

3.4.4. Final Reachability Matrix

The final reachability matrix is created by considering the transitivity links derived from the initial reachability matrix. These links aid to ensure the consistency of the evaluated connections, and guarantee that all feasible interpretive linkages are incorporated into the model. Transitivity links were checked and revised by

consulting on expert opinion. After incorporating the transitivity as explained in the fourth step of the ISM method, the final reachability matrix is demonstrated in Table 19 where the dependence power and driving power of each variable are also seen. Driving power is the sum of each row, and refers to the total number of variables (including itself) which it may help to accomplish. Dependence power, on the other hand, is the sum of each column and can be defined as the total number of variables (including itself), that may help to accomplish it. These dependent and driving powers will be later used for the categorization of competitive strategy components and firm performance indicators into the four groups, namely dependent, independent, autonomous, and linkage variables.

Table 19: Final Reachability Matrix

Indicators	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Driving Power
1. Capacity utilization	1	1	1	0	0	0	1	0	0	0	0	0	1	1	1	7
2. Economies of scale	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	7
3. Competitive pricing	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	7
4. Cost-cutting measures	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	9
5. Innovativeness and R&D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
6. Reputation and reliability	1	1	1	0	0	0	0	0	1	1	0	0	1	0	0	6
7. Quality enhancement	1	1	1	0	1	0	0	0	1	1	0	0	0	0	0	6
8. Customer orientation and respon.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
9. Operational flexibility	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
10. Value-added services	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0	8
11. Safety and security of the shipment	1	1	1	0	1	1	1	1	1	1	0	1	0	0	0	10
12. Concentration	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	14
13. Market share	0	1	1	0	0	0	0	1	0	1	1	0	1	1	0	7
14. Return on sales	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	3
15. Customer satisfaction	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	7
Dependence Power	13	15	15	4	5	6	8	8	8	11	7	8	11	9	8	

3.4.5. Partitioning Reachability Matrix

Based on the final reachability matrix, the reachability and antecedent sets for each variable is discovered. The reachability set includes the criterion itself and other criteria to which it may reach, while the antecedent set involves the criterion itself and the other criteria which may reach it. Afterward, the intersection of both sets is derived for all variables. Once a variable's reachability and intersection sets are comprised of the same criteria, it will be expelled from the other variables as seen in Table 20.

Table 20: Iteration 1

<i>Strategy Component</i>	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
1.Capacity utilization	1,2,3,9,13,14,15	1,2,3,4,5,8,9,12	1,2,3,9	
2.Economies of scale	1,2,3,4,13,14,15	1,2,3,4,5,8,9,12,13	1,2,3,4,13	
3.Competitive pricing	1,2,3,4,13,14,15	1,2,3,4,5,6,8,9,12,13,15	1,2,3,4,13,15	
4.Cost-cutting measures	1,2,3,4,5,6,13,14,15	2,3,4,5,8,9,11,12	2,3,4,5	
5.Innovativeness and R&D	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	4,5,8,9,12,13,14	4,5,8,9,12,13,14	
6.Reputation and reliability	3,6,7,13,14,15	4,5,6,7,8,9,10,11,12,13,15	6,7,13,15	
7.Quality enhancement	6,7,11,13,14,15	5,6,7,8,9,10,11,12	6,7,11	
8.Customer orientation and responsiveness	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	5,7,8,9,10,11,12,13,15	5,7,8,9,10,11,12,13,15	
9.Operational flexibility	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	1,5,8,9,10,11,12,15	1,5,8,9,10,11,12,15	
10.Value-added services	6,7,8,9,10,13,14,15	5,8,9,10,11,12	8,9,10	
11.Safety and security of the shipment	5,7,8,9,11	5,6,7,8,9,10,11,13,14,15	5,7,8,9,11	1
12.Concentration	1,2,3,4,5,6,7,8,9,10,12,13,14,15	5,8,9,12	5,8,9,12	
<i>Performance Criteria</i>	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
13. Market share	2,3,5,6,8,13,14	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	2,3,5,6,8,13,14	1
14.Return on sales	5,13,14	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	5,13,14	1
15.Customer satisfaction	3,6,8,9,13,14,15	1,2,3,4,5,6,7,8,9,10,11,12,15	3,6,8,9,15	

In Iteration 1; safety and security of the shipment (criterion 11), market share (criterion 13), and ROS (criterion 14) are all found at level 1. Thereby, these criteria are positioned at the top of the ISM model. After removing those criteria, the same process is reiterated until all criteria within the model are positioned.

Table 21: Iteration 2

Strategy Component	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
1.Capacity utilization	1,2,3,9,15	1,2,3,4,5,8,9,12	1,2,3,9	
2.Economies of scale	1,2,3,4,15	1,2,3,4,5,8,9,12	1,2,3,4	
3.Competitive pricing	1,2,3,4,15	1,2,3,4,5,6,8,9,12,15	1,2,3,4,15	2
4.Cost-cutting measures	1,2,3,4,5,6,15	2,3,4,5,8,9,12	2,3,4,5	
5.Innovativeness and R&D	1,2,3,4,5,6,7,8,9,10,12,15	4,5,8,9,12	4,5,8,9,12	
6.Reputation and reliability	3,6,7,15	4,5,6,7,8,9,10,12,15	6,7,15	
7.Quality enhancement	6,7,15	5,6,7,8,9,10,12	6,7	
8.Customer orientation and responsiveness	1,2,3,4,5,6,7,8,9,10,12,15	5,7,8,9,10,12,15	5,7,8,9,10,12,15	
9.Operational flexibility	1,2,3,4,5,6,7,8,9,10,12,15	1,5,8,9,10,12,15	1,5,8,9,10,12,15	
10.Value-added services	6,7,8,9,10,15	5,8,9,10,12	8,9,10	
12.Concentration	1,2,3,4,5,6,7,8,9,10,12,15	5,8,9,12	5,8,9,12	
Performance Criteria	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
15.Customer satisfaction	3,6,8,9,15	1,2,3,4,5,6,7,8,9,10,12,15	3,6,8,9,15	2

In Iteration 2; competitive pricing (criterion 3), and customer satisfaction (criterion 15) have identical reachability and intersection sets. Thus, they are positioned at level 2. After removing customer satisfaction from the table, transactions are repeated for competitive strategy components.

Table 22: Iteration 3

<i>Strategy Component</i>	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
1.Capacity utilization	1,2,9	1,2,4,5,8,9,12	1,2,9	3
2. Economies of scale	1,2,4	1,2,4,5,8,9,12	1,2,4	3
4.Cost-cutting measures	1,2,4,5,6	2,4,5,8,9,12	2,4,5	
5.Innovativeness and R&D	1,2,4,5,6,7,8,9,10,12	4,5,8,9,12	4,5,8,9,12	
6. Reputation and reliability	6,7	4,5,6,7,8,9,10,12	6,7	3
7.Quality enhancement	6,7	5,6,7,8,9,10,12	6,7	3
8.Customer orientation and responsiveness	1,2,4,5,6,7,8,9,10,12	5,7,8,9,10,12	5,7,8,9,10,12	
9.Operational flexibility	1,2,4,5,6,7,8,9,10,12	1,5,8,9,10,12	1,5,8,9,10,12	
10.Value-added services	6,7,8,9,10	5,8,9,10,12	8,9,10	
12.Concentration	1,2,4,5,6,7,8,9,10,12	5,8,9,12	5,8,9,12	

In Iteration 3; two components of cost leadership strategy, capacity utilization (criterion 1) and economies of scale (criterion 2), and two components of differentiation strategy, reputation and reliability (criterion 6) and quality enhancement (criterion 7) are found at 3rd level of the ISM model.

Table 23: Iteration 4

<i>Strategy Component</i>	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
4.Cost-cutting measures	4,5	4,5,8,9,12	4,5	4
5.Innovativeness and R&D	4,5,8,9,10,12	4,5,8,9,12	4,5,8,9,12	
8.Customer orientation and responsiveness	4,5,8,9,10,12	5,8,9,10,12	5,8,9,10,12	
9.Operational flexibility	4,5,8,9,10,12	5,8,9,10,12	5,8,9,10,12	
10.Value-added services	8,9,10	5,8,9,10,12	8,9,10	4
12.Concentration	4,5,8,9,10,12	5,8,9,12	5,8,9,12	

In Iteration 4; reachability and intersection sets of cost-cutting measure (criterion 4) and value-added services (criterion 10) are found overlapping. Therefore, both criteria are positioned in the fourth level of the model and are separated from the table.

Table 24: Iteration 5

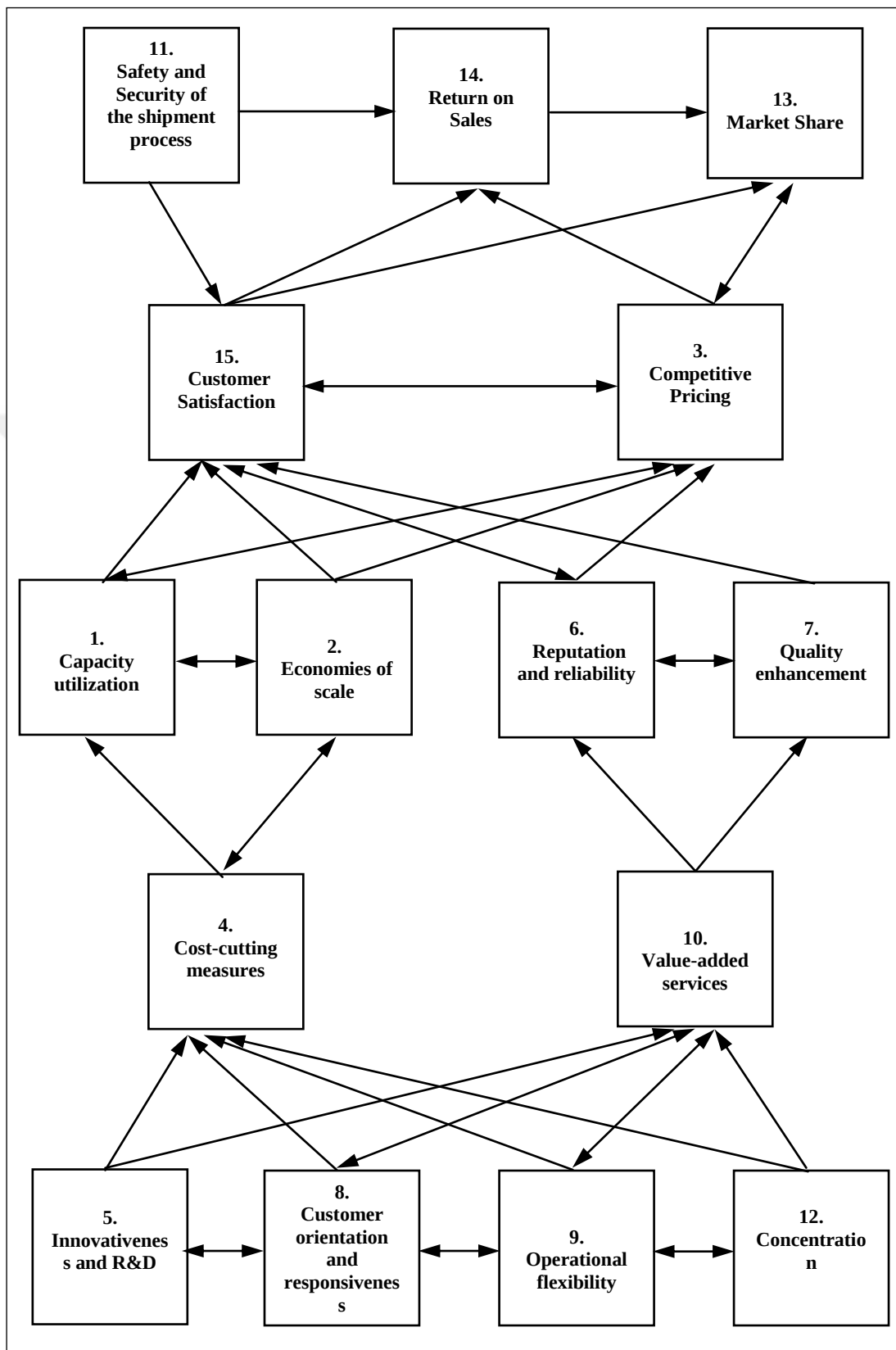
Strategy Component	<i>Reachability Set</i>	<i>Antecedent Set</i>	<i>Intersection Set</i>	<i>Level</i>
5. Innovativeness and R&D	5,8,9,12	5,8,9,12	5,8,9,12	5
8.Customer orientation and responsiveness	5,8,9,12	5,8,9,12	5,8,9,12	5
9.Operational flexibility	5,8,9,12	5,8,9,12	5,8,9,12	5
12.Concentration	5,8,9,12	5,8,9,12	5,8,9,12	5

All remaining four criteria, namely innovativeness and R&D (criterion 5), customer orientation and responsiveness (criterion 8), operational flexibility (criterion 9), and concentration (criterion 12) are found having the same reachability and intersection sets in iteration 5. Due to no more criteria left for iteration, they are positioned at the bottom of the hierarchy within the ISM model.

3.4.6. Development of ISM Model

Pursuant to five iteration processes, the ISM model is developed, and conceptual relationships among variables are shown by arrows from i to j. In case that two variables help to achieve each other, it is demonstrated by a double-headed arrow. No connecting lines or arrows are used for unrelated variables. Figure 18 visualizes the final digraph which is converted all relationships into the ISM model.

Figure 18: ISM Model



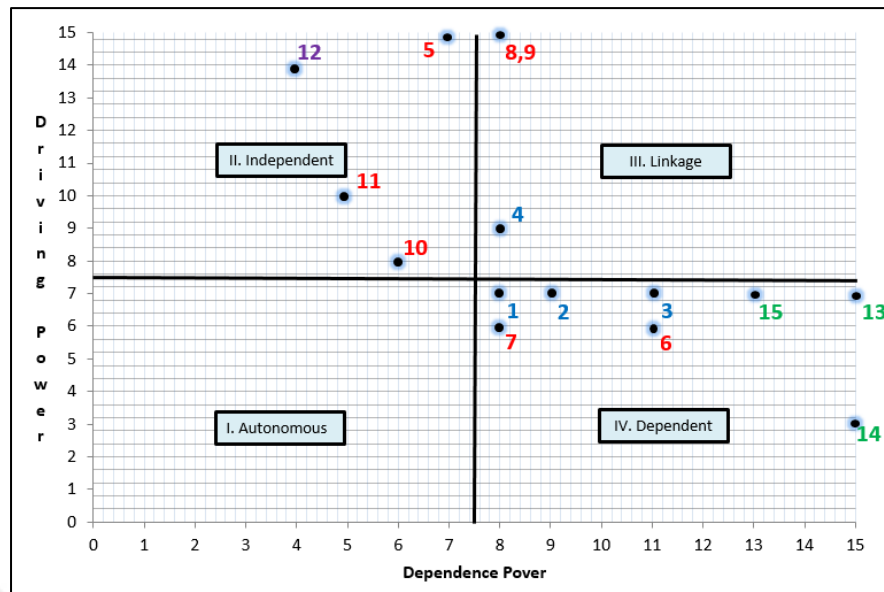
As shown in the model, variables are arranged in five levels in a hierarchical structure. Criteria at the higher level of the hierarchy are driven by the criteria at the lower levels. Innovativeness and R&D, customer orientation and responsiveness, operational flexibility which are integral parts of differentiation strategy, and concentration are located at the bottom of the ISM model. These strategy components affect all other competitive strategy components (including cost-leadership criteria) and firm performance indicators. All these four strategic components directly have influence over cost-cutting measures and value-added services. Taking cost-cutting measures enable Ro-Ro companies to achieve other cost leadership components, the capacity of utilization, and economies of scale.

On the other hand, providing value-added services allows these companies for providing a quality enhancement in services, creating firm reputation and reliability. Except for the quality enhancement dimension, the other three criteria at the third level support companies to offer competitive prices. Taken together, all strategy components leads to greater firm performance. Achieving customer satisfaction is found as a precursor of the other determined firm performance indicators, ROS and market share. One of the most significant findings of the study is the place of the safety and security of the shipment in the model. It is positioned at the top of the hierarchy with ROS and market share. As a crucial component of differentiation strategy, the safety and security of the shipment are mainly affected by other strategy components. Evaluating firm performance indicators together, market share is determined as the leading measurement criteria for Ro-Ro companies that are operating in Turkey.

3.4.7. MICMAC Analysis

This study has attempted to explore the interrelationships among various competitive strategy components and firm performance indicators. Several useful implications for practicing managers can be drawn from the ISM application. The MICMAC diagram as presented in Figure 19 has helped to categorize all the variables into four distinct clusters.

Figure 19: MICMAC Analysis



Source: Author

Cluster I reveals autonomous variables that have both weak driving and dependence powers. These variables are relatively isolated from the whole system since they have few poor relationships with other variables. In this study, none of the evaluated criteria was positioned in the cluster of autonomous variables. This finding may confirm the hypothesis that competitive strategies are directly associated with firm performance.

Cluster II demonstrates independent variables such as innovativeness and R&D (criterion 5), value-added services (criterion 10), safety and security of the shipment (criterion 11), and concentration (criterion 12). These variables are key enablers of greater firm performance since they have strong driving power but weak dependence.

Likewise, Cluster III which includes cost-cutting measures (criterion 4), customer orientation and responsiveness (criterion 8), and operational flexibility (criterion 9) is of the essence for Ro-Ro firms' success. Any change in these variables may affect other variables, in turn; they are also heavily influenced by modifications or alterations on other variables in the model.

Lastly, strategy components such as capacity utilization (criterion 1), economies of scale (criterion 2), competitive pricing (criterion 3), reputation and

reliability (criterion 6), quality enhancement (criterion 7), and firm performance indicators namely market share (criterion 13), return on sales (criterion 14), customer satisfaction (criterion 15) are seen in the Cluster IV. Being dependent variables, they are characterized by high dependency yet weak driving power on other variables. Although the sphere and magnitude of such variables are relatively limited, strong dependency on other variables results in deep connections to the entire system.



CONCLUSION

The Turkish Ro-Ro industry has a great potential to progress due to being a strategic transfer point where Asia, Europe, and Africa almost intersect; having infrastructure, port/terminal investments, and logistics projects. From this aspect, the market has called considerable attention of Ro-Ro operators who want to enter the market. However, numerous attempts of new entrants to start operation or the struggle of existing operators for survival have failed mostly because of financial reasons.

Changing the structure and trends of the global markets have influenced shippers' demands which force shipping companies to reform their business strategies and processes to satisfy these needs in the best possible way. Concordantly, choosing an optimal strategy to achieve financial gain and longevity has been a key consideration for Ro-Ro companies operating in Turkey. For this reason, understanding essential competitive actions and their effect on firms' performance is of capital importance. Nevertheless, there has been little discussion regarding competitive strategy and firm performance relationship in the shipping context, and none of them has been carried out specifically in Ro-Ro shipping. The present research was designed to identify and rank components of competitive strategies adopted by Ro-Ro companies operating in Turkey, explore and assess the interrelations among those components and firm performance indicators, draw up a conceptual framework visualizing linkages among them, and propose beneficial strategies for Ro-Ro managers to boost firm performances.

In order to reach the aim of this study, the literature on competitive strategy and firm performance subjects was reviewed comprehensively in the second chapter. Within this context, seventeen competitive strategy components, and eight firm performance indicators were identified. Conducting semi-structured interviews, the most suitable variables for the Ro-Ro industry were evaluated by experts. At the end of this process, a total of fifteen critical variables were determined, four of them are components of cost leadership, seven of them are differentiation components, and one of them is focus strategy, while three of them are firm performance indicators. More particularly, cost leadership strategy was addressed through capacity

utilization, economies of scale, competitive pricing, and cost-cutting measures. Innovativeness and R&D, reputation and reliability, quality enhancement, customer orientation and responsiveness, operational flexibility, value-added services, and safety and security of the shipment process were grouped under differentiation title. While focus strategy was considered as concentration; market share, ROS, and customer satisfaction were ranked as the feasible performance measures in the Ro-Ro companies operating in Turkey.

In this research, customer orientation and responsiveness, operational flexibility, innovativeness and R&D were found as the most critical strategy components in terms of driving power over other variables which includes all components of cost leadership strategy. This finding is consistent with those of Jenssen and Randøy (2006) who assert that newer or specialized branches of shipping including Ro-Ro necessitate more innovation and differentiation to get a higher market share. Concentration, safety and security of the shipment, cost-cutting measures, and value-added services were the following essential strategic components. When managers make critical decisions regarding these components, all other related criteria should be delicately considered as well. Because, any amendment and change on them, either directly or indirectly influence other strategic actions of the company or thus firm performance. These findings clarify the **first research question**, in which the critical components of the competitive strategies for Ro-Ro companies operating in Turkey were asked.

As respects to the **second research question**, the relevance of competitive strategy and firm performance is clearly supported by the current research findings when considered no autonomous variable was found and highness of dependence power of the firm performance indicators. This also proves the consistency and reliability of the determined criteria through literature review and semi-structured interviews. Through ISM analysis, regardless of having a big or solely a minor influence, all contextual relationships and interrelations among those criteria were modeled to provide better comprehension and visualization.

Market share was found as the most deterministic indication of firms' success of Ro-Ro companies operating in Turkey. It would not be a wrong statement to say that having a higher market share allows companies to gain cost advantage through

economies of scale, to offer more competitive prices thanks to higher bargaining power. Moreover, results have shown that innovativeness and R&D, operational flexibility, firm reputation and reliability have been affected by market share. Likewise, innovativeness and R&D is the only criteria that ROS has driving power on it. While, as might be expected, customer satisfaction is a prerequisite for greater ROS and market share. To ensure customer satisfaction, Ro-Ro companies should put topmost emphasis on operational flexibility, customer orientation and responsiveness just as to gain market share. Taken together, it means that yielding a high level of profits gives market leaders a transfer opportunity its sources to invest in new technologies, bigger ships or terminals, acquisition of other Ro-Ro shipping companies, widening geographical coverage by initiating new lines and services including door-to-door operations. All mentioned opportunities contribute to company image, to increase the credibility of the firm appreciated by stakeholders, and to enhance customer satisfaction.

Even the first look at these results gives rise to the thought of Ro-Ro companies should pursue differentiation strategy, midlevel driving powers of capacity utilization, economies of scale, and competitive pricing also demonstrate the non-negligible significance of cost leadership for greater performance, especially when a company focuses on a narrow segment. Succeed in the implementation of differentiation strategies become grounds for realizing low costs. This also accords with Jones and Butler's (1988) study which found that if demands for innovative, quality, exclusive products increases; firms will effort to build more capacity which leads them to keep down the costs through economies of scale. On the other side, lowering costs enable companies to invest in expanding logistics networks, new technologies, enhancing quality management practices, improving service qualifications, and so on. Hence, it could conceivably be hypothesized that rather than being contradictory, cost leadership and differentiation strategies incline to present complementary and reinforcing effects on each other. Overall, these findings strengthen the idea that adaptation of pure strategies cannot be a realistic aim of Ro-Ro companies. This outcome is contrary to the strategic purity view of Porter (1980) and several authors (e.g. Campbell-Hunt, 2000; Dess and Davis, 1984; Hughes et al., 2010; Hambrick, 1983; Lahtinen and Toppinen, 2008) who corroborate with him.

Ever-changing market dynamics and customer requirements have exhorted Ro-Ro companies to put a premium on time, quality, service range, and quality without ignoring the cost concerns of customers. Therefore, hybrid strategies may create more benefits for such companies to achieve better firm performance in the long run. These results are in line with previous studies (e.g. Acquaah and Yasai-Ardekani, 2008; Allen and Helms, 2006; Baroto et al., 2012; Jones and Butler, 1988; Kumar et al., 1997; Leitner and Guldenberg, 2010; Manev et al., 2014; Miller, 1992; Miller and Dess 1993; Panayides, 2003; Pertusa-Ortega et al. 2009; Yasai-Ardekani and Nystrom 1996) which found that firms can pursue a combination of differentiation and cost leadership strategies which best fit their present conditions and enhance firm performance. As mentioned by Panayides (2003), performance improvement can be ensured especially when economies of scale and a broader range of service offerings are achieved. Yasai-Ardekani and Nystrom (1996) emphasized that a cost leadership firm may reduce its vulnerability to a minimum through performing a differentiation strategy. In a like manner, Pertusa-Ortega et al. (2009) mentioned that realizing cost leadership in the best way gives a firm chance to transfer its profits to better marketing activities, improve product/service qualifications, enhance quality management practices; thereby strengthening its position in terms of differentiation. Moreover, Acquaah and Yasai-Ardekani (2008) emphasized that when firms simultaneously employ cost leadership and differentiation strategy, it paves the way for strengthening their market presence and position through value-creating activities. Similarly, Miller (1992) suggested that complex and flexible characteristics of hybrid strategies enable companies to get a relatively stronger and defensive position against five forces threat compared to pure strategies. Since extreme volatility, uncertainty, external forces, and other threats, in our research period the major influencer was Covid-19, have led to sudden changes in the market dynamics and work environment; Ro-Ro companies need to be attuned to the necessities of the time. All in all, adopting a hybrid strategy may be more feasible and profitable for Ro-Ro companies operating in Turkey. By doing so, benefiting from various advantages of both cost leadership and differentiation strategies, and thus, they can obtain and sustain superior performance in the long time period.

In consideration of maritime companies, a study by Panayides (2003) shares some similarities with this paper. Panayides found that performance improvement can be ensured especially when economies of scale and a broader range of service offerings are achieved. His study attached priority to economies of scale and competitive pricing, but emphasized the significance of differentiation in applying those strategic actions to maintain superior performance for longer periods. Even his study was carried on ship management companies located in six different locations; our findings regarding Ro-Ro companies operating in Turkey are consistent in terms of suitability of hybrid strategy usage within shipping industry. Yet, this paper provides better understanding about strategy-performance linkage thanks to visual representation of each conceptual relationship within ISM model.

Consequently, regarding the **third research question**, it is recommended Ro-Ro company managers synthesize differentiation with cost leadership strategy. They should keep up with technological advances and offer innovative solutions. Customer needs should be correctly analyzed, and satisfied in the most timely and kindly way possible. In this regard, employing competent human resources who are able to accurately understand and respond to customer requirements as well as voyage frequency, logistics network, value-added services of companies rise to prominence. Notwithstanding, being a favorable aspect of Ro-Ro transport, the cost advantage is also required to be preserved. Moreover, the safety and security of the shipment must be ensured since any damage on Ro-Ro cargoes or freight carried on Ro-Ro cargoes may cause exorbitant cost burdens. Therefore, regardless of adopting which generic strategy is adopted, each strategic action should be mindfully planned and implemented.

Through strategic alliances, mergers, and acquisitions, or customer agreements; companies can better fulfill customers' diverse requirements including cost, time, network expansion, coordination to a global extent, and so forth. As for Ro-Ro operators, such partnerships and agreements lead to various advantages such as profit maximization, boosting the wealth of shareholders, sharing capital investment, and minimizing financial risks. These strategic actions have been contributing factors in the successful implementation of generic strategies as well. It

is proposed Ro-Ro companies operating in Turkey to practice hybrid strategies via taking the aforementioned actions into their agendas.

The findings of this research should be judged in consideration of some constraints. First of all, the main limitation of this study is that the small sample size didn't permit employing quantitative methods. To develop a full picture of competitive strategy-firm performance linkage within the Ro-Ro industry, future researchers will be needed to promote quantitative techniques with larger sample groups. The present thesis is the first study exploring strategy-performance relations through ISM. Therefore, subjectivity and openness to bias are the weakest aspects of using the ISM method which has qualitative nature. However, conducting semi-structured interviews with different experts and an increase in the number of experts participating in the second phase alleviated these negativities to some extent and enhanced the reliability of the study. From this point of view, further works aiming to find out contextual relationships among strategy and firm performance variables in different industries can employ the ISM method. On the other hand, since the study was carried out during Covid-19 restraints and accordingly changing job conditions, it was challenging to make contact with managers of Ro-Ro companies. Moreover, the distinctive characteristics of the three major Ro-Ro markets of Turkey make this research results less generalizable. Findings could be varied in other geographical regions or industrial segments. Thereby, the competitive strategy and firm performance relationship of Ro-Ro companies operating in different regions can be also investigated as a further research suggestion.

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