



SWOT Analysis on Marine Transport Companies of Iran: a case Study

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ABSTRACT: Strengths – weaknesses – opportunities – threats (SWOT) analysis is one of the well-known management tools for strategic planning. Although papers published in different journals have discussed different subject that used SWOT analysis, it is found that there are no researches which applied SWOT analysis in the marine transport companies in Iran. On the other hand the economic and social effect of the sea on its neighbours live is undeniable. Consequently, the objective of this paper is to analyse the internal and external environment of the marine transport company in Iran with SWOT analysis method and then to give a number of solutions and strategies for promoting the development of marine transport companies. Firstly, a general review of SWOT analysis is presented, next, the research method conducted through 5 steps; include research and data collection, questionnaire design and survey, brainstorming, SWOT analysis and strategy recommendations. Results indicated that Iranians government encourages the development of these companies and positively support them, but the sanctions in recent years, created a difficult and complex situation for these companies.

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1- Introduction

Nowadays managers are faced with the serious challenges; globalization, daily changes in technology, customer satisfaction and competition among organizations, result in a great evolution in business environment. In these modern days, managers should not only know about domestic markets, but also they should be aware of foreign markets and should gather sufficient data about many foreign competitors. An increasing trend towards globalization stems from the immense power of technology and reshapes the industry and has profoundly influenced the ways to compete. Meanwhile, evolution in both globalization and technology along with new customer-oriented challenges require a new type of leadership, in a way that managers prepare to manage change in a dynamic environment. Also, organizations are forced to make changes to improve their strategies and performance. Otherwise, their reputation and survival would be threatened and destructed [1].

There is no doubt that, management and strategic planning, allow the company to act in creative and innovative ways to shape their future. This method of planning causes the organization to have an innovative manner. Meanwhile, it guarantees a bright and fruitful future for the company. One of the well-known management tools for strategic planning is strengths-weaknesses-opportunities-threats (SWOT) analysis. The SWOT analytical method is widely used for strategy formulation by constituting an important basis for learning about the situation of the studied Subject and for

designing future strategies to solve the emerging problems [2-4].

No one can ignore the importance of the sea transport in the economy and people's lives. Although, coastal zones occupy less than 15% of our planet, about 37% of the world populations are accommodated in a band of 100 km, so, roughly 50% of world's population is living in a 200 km range [5]. Also, it is expected that three quarters of the world population will reside in the coastal zone by 2025 and human activities originating from this small land area will impose an inordinate amount of pressures on the global system [6].

Marine transport is the most vital method of transportation used in the world and it has a major role in promoting and facilitating international trade with the share of 70-80% in international trade. This share includes approximately 9 billion tons in terms of tonnage of commodity, consisting of same shares of the petroleum, dry cargoes and bulks, and non-bulks [7]. As a matter of fact, profitability of coastal countries is directly related to their needs, abilities and cultures, because the maritime policy of these countries will be developed based on these specifications. This policy is defined in terms of national maritime strategy and economic, military and political goals. Achieving these goals depends on the proper and effective utilization of human resources, tools and equipment, rules and regulations and effective management of resources. Finally the country could become one of the local maritime powers.

In the globalized world today, efficient and cost-effective transportation systems that link global supply chains are the engine fuelling economic development and prosperity. As 80 percent of global merchandise trade by volume carried within

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sea and handled by ports worldwide, the strategic economic importance of maritime transport as a trade enabler cannot be ignored. The trade competitiveness of all countries-developed and developing alike, and including landlocked countries-depends heavily on effective access to international shipping services and port networks [8].

The 2013 edition of the review of maritime transport, estimated that “the global seaborne trade will increase by 4.3 percent, with the total reaching over 9 billion tons in 2012 for the first time ever”. This is the result of growing domestic demand in China and increased intra-Asian and South-South trade, seaborne trade improve subject to persistent downside risks facing this kind of trade. Freight rates have remained low and volatile in the various market segments (container, liquid and dry bulk) [8].

Maritime transport is facing a new and complex environment that involves both challenges and opportunities. Of all the prevailing challenges, however, the interconnected issues of energy security and costs, climate change, and environmental sustainability are perhaps the most unsettling. Climate change in particular continues to rank high on the international policy agenda, including that of shipping and port businesses. Turning to the opportunities, these include-to name but a few-deeper regional integration and South-South cooperation; growing diversification of sources of supply; and access to new markets, facilitated by cooperation agreements and by improved transport networks (for example the Panama Canal expansion). On the other hand, the sea has a very important role in the Iranian economy. According to the above-mentioned, it is well known that having accurate planning in maritime shipping companies is one of the most important principles of their success. According to geographical location of Iran and access to open water and the role of the sea in the economy of the country, research on the comprehensive and functional planning of companies active in the field of maritime transport is essential. So, in this research, we use SWOT analysis method to comprehensively analyse the internal strengths and weaknesses and external opportunities and threats in the marine transport companies of Iran.

1- 1- The status of Iran’s marine transport industry

Iran, located in the south west of Asia, covers a vast area of 1648000 km², which is known as strategic and oil-rich region of the Middle East. Iran is connected to open seas through the Persian Gulf and Hormoz Strait, which connects it to the Oman Sea and Indian Ocean. In the north of Iran there exists the largest closed sea of the world, The Caspian Sea, along which three of Iran’s coastal provinces are situated (Fig. 1).

Iran’s geographical advantages are numerous in marine areas. Receiving approximately 3000 km of coastline, access to the sea on the north and south of the country, access to the Oceans (Indian Ocean), setting the rural area along the north-south transportation corridors and CIS¹ connectors to the waters of the south are the major advantages of the geographical features. The portion of cargo transit from ports in Iran is about 71 percent that shows the purpose of ocean transport and maritime trade and commerce in Iran, but it is still possible to improve the position of the mode of transportation in the foreign commerce of the nation [9, 10].



Figure 1. Iran’s map with its coasts in the north (Caspian Sea) and in the south (Persian Gulf and Oman Sea) [9]

Due to the connection to open seas, most of Iran’s main commercial ports are located in the southern coast from which 86% of Iran’s needs are imported. These ports are Bandar Imam in Khuzestan province, Bushehr in Bushehr province, Shahid Rajaei in Hormozgan province, and Chabahar in Sistan VA and Baluchestan province. Although these ports play a vital role in Iran’s economy, but they have not been able to create a uniform and harmonized development in Iran’s southern coastlines, mainly because they are around 800 km apart [9].

Marine industry of Iran is tackling with problems and restrictions during a long period of time. Although the relative investment in this industry is somewhat effective, but despite of all efforts, plans and executive programs have failed. Lack of a coordinated policy and strategy, was the two main factors, which cause the formation of multi-layer bottlenecks in the development of the maritime industry. Consequently, the purpose of the current study is to determine the quadrant position of the Marine Transport Company of Iran on SWOT diagrams. Second, it is also designed to determine the best strategy to be implemented based on the quadrant position on SWOT diagram.

2- SWOT analysis

2- 1- A General literature review of SWOT

SWOT analysis is a classic and commonly strategic planning instrument [11]. According to Dias [12] the term SWOT is an acronym for the words Strengths, Weaknesses, Opportunities and Threats. Strengths and weaknesses are internal variables that can be controlled by the agency that executes the program, while opportunities and threats are external variables, thus, not under the control of organizations, though, in some cases one can exert some influence. In regard to the benefits of SWOT analysis, Sorensen and Engström highlighted the encouraging learning in regard to a situation and the consequence reflections [13].

By using the framework of strengths, weaknesses and external opportunities and threats, this instrument provides a simple method to estimate the best way to formulate strategies. This instrument helps the planners of what outcomes usually achieved, and what subjects should be considered by them [14]. This technique was created by Stanford University in

¹ Commonwealth of Independent States

the 1960s and 1970s for business companies [15]. It is found that there are no researches which applied SWOT analysis in the marine transport company in Iran. For a brief literature review, here some researches are expressed that used SWOT Analysis analysis in different issues.

Hansen [16] investigated the SWOT analysis of the transport system in Cambodia identifying path to higher efficiency and sustainability. The research demonstrated the high potential and practical benefits of non-governmental international cooperation between universities, academic staffs and students from developing and developed countries. In 2013, Shojaee et al. [17] employed SWOT analysis in the Iran Khodro automobile industry company. They analyzed the situation of Iran's economy and business climate and its transportation system.

In 2009, Markovska et al. [18] used SWOT analyses for the national energy sector for sustainable energy development. The result of SWOT analyses pointed to the progressive adoption of the European Union (EU) standards in energy policy and regulation as the most important achievement in the energy sector.

In 2013, Xingang et al. [19] employed SWOT analysis of shale gas in China and finally four kinds of different development strategies are were formulated to provide certain references to the development of China's shale gas industry.

3- Methodology

The SWOT analysis method is applied in this study for analyzing the current internal and external environment, concerning the marine transport companies in Iran. Furthermore this analysis is carried out to formulate strategies for increasing productivity and company's performance against the complicated international changing environment. SWOT analysis is intended to maximize strengths and opportunities, minimize external threats, transform weaknesses into strengths, and to take advantage of opportunities along with minimizing both internal weaknesses and external threats [20-22]. The further utilization of SWOT is usually based on qualitative and quantitative analysis of internal and external factors, as well as capabilities. A SWOT analysis needs to be flexible; environment change with time and an updated analysis should be made frequently. Furthermore, SWOT analysis is neither cumbersome nor time-consuming and is substantially effective, because of its simplicity [23].

The SWOT approach involves systematic thinking and comprehensive diagnosis of factors relating to a new product, technology, management, or planning [24]. It is used extensively in strategic planning, where all factors influencing the operational environment are diagnosed in great detail [25].

SWOT Framework - a 2 x 2 matrix - should be practice in a group of key members of the team or organization. First, it is important to know clearly about the purpose of the key changes and the team or organization in which the SWOT analysis will be undertaken. Once these questions are clarified and agreed upon, one can begin by brainstorming idea and then having it sharpened and clarified in the discussion. Estimation of the internal capacity will help to identify: the position of the project or organization, the resources which can be utilized and the problems which have to be resolved [26]. Subsequently, we can identify where/when new resources,

skills or new partners will be needed. When thinking about strength, it is necessary to think about examples of the real success and what is their explanation. An estimation of the external environment tends to focus on what is happening outside the organization or on fields that are not yet affecting the strategy but may influence later (both positively and negatively). It's important that we consider what actions and solutions that may arise. Level of correlation should be viewed from 2 sides/directions in the terms of both internal and external conditions [27].

The strategy that can be planned for the institution based on the SWOT matrix is shown in the box numbers 5 (SO strategies), 6 (WO strategies), 7 (ST strategies) and 8 (WT strategies) in Table 1. Inclusion of development programs at boxes 5, 6, 7 and 8 should be sorted by their priority [28].

Table 1. Strategy Based on a Position of SWOT Matrix

SWOT Matrix	Strengths 3	Weaknesses 5
Opportunities 1	5	6
Threats 2	7	8

SWOT is devised to define strategies to maintain and enhance the organization's strengths, to reduce the risks arising from weaknesses and, at the same time, take the advantage of the opportunities and reduce threats [29]. Obviously, the strategies which build and utilize more strength and opportunities and simultaneously less weaknesses and threats will be prior to others [30].

In this research, a SWOT analysis is applied to assess the internal and external environment in the field of maritime transport in Iran. For this research, one of the biggest maritime transport companies in Iran is selected. The company has started its activities since the early 50's and now with close to 70 ships and 4,000 operating personnel and staff is one of the biggest companies in the world in the maritime transport company. Company officials wanted to know what practical measures and policies must be put in their company for 5 years ahead to have a sustainable business. They wanted to evaluate the conditions, markets and also their current situation. Therefore, SWOT analysis was proposed. For this research, we used the framework of Jingzheng et al [31]. But we tried to improve its different phases. The framework of this research consists of 5 steps which are represented in Figure . 2.

Step 1: Research and data collection: The purpose of this step is to collect the related data concerning the research topic that could effect effect on the performance of the company. These data involve anything that could be useful in our results such as reports, literatures, documents, books, statistics,

legislations, papers in marine industry and etc. All of these data were collected and classified.

Step 2: Questionnaire design and survey: For identification of internal factors (strengths, weaknesses) and external factors (opportunities and threats) we used questionnaire. The Cochran formula has been used to determine the number of required questionnaires in this research [32]. To do this, we first needed an estimate of the number of eligible applicants to answer the research questions. According to a study of the number of eligible individuals, we reached about a thousand people including managers, consultants, assistant managers and senior staff of companies. Therefore, total size of population was estimated at 1,000. The formula for calculating the minimum sample size is as follows :

$$n = \frac{N * p * q * Z^2}{\epsilon^2 (N - 1) + Z^2 * p * q} \quad (1)$$

Where,

Z= represents confidence; if confidence at 90%, Z=1.65

P= Percentage of people in the community with the desired attributes (0.9 was assumed).

q= Percentage of people in the community who do not have the attribute (0.1 was calculated).

ε= acceptable error (0.05)

n= minimum sample size

N= population size

According to the above formula, the minimum number of required questionnaires is 90. In this study, finally 100 questionnaires were collected with a response.

In this regard, the designed questionnaires were assigned to 100 experts, including top managers, middle managers, some stakeholders and some expert researchers, and they were asked to fill the questionnaire during May to July in 2014.

Table 2 shows the demographic information of respondents in this survey. It should be noted that internal managers were asked to fill the questionnaires contained internal factors while macro managers and decision-makers outside the national oil company were asked to answer about external factors. Therefore, two different types of questionnaires were prepared. At the end of the survey, a total of 88 responses were received. Some of the most important factors have been shown in Tables 4 and Table 5.

Step 3: Second questionnaire: After collecting and categorizing the results of the first questionnaire, weaknesses, strengths, opportunities and threats were identified. Subsequently, at the brainstorming meeting, experts in related areas, without a background for the subject, are present to resolve the specific issue; second questionnaire which was about the responses to each of the cases identified in the first questionnaire were addressed to experts so as to identify ways to use strengths and opportunities to overcome the weaknesses and threats ahead. In other words, the SWOT matrix was first prepared using the first questionnaire and then, by using the second questionnaire, solutions were investigated to use the strength and the opportunity to dominate the weaknesses and the threats. Table 3 shows the demographic information of respondents of second questionnaire.

Step 4: SWOT analysis. In this step we applied the results of 3 past steps and all the factors and threats are discussed, analyzed and specified by using the SWOT analytical method as described previously.

Step 5: Strategy recommendations. At the end, SO strategies, WO strategies, ST strategies, WT strategies are specified by brainstorming meeting.

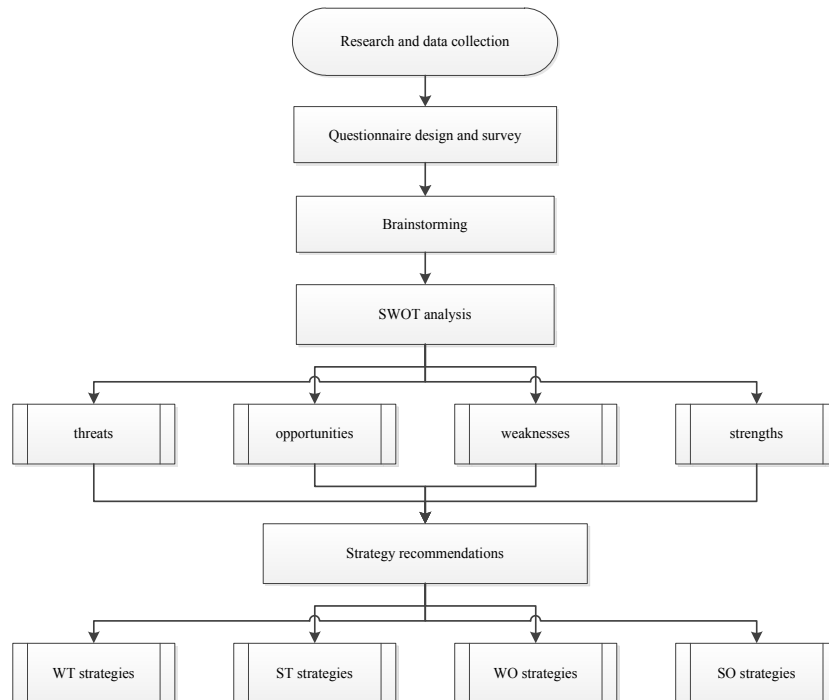


Figure 2. The steps of applied method

Table 2. Demographic information for respondents of first questionnaire (Number of 88 respondents)

Profession			Ages (year)			Work experience (year)			Degree of education		
Staff	Line	Manager	<25	25<<35	35<	<10	10 <<20	20<	Diploma or illiterate	Bachelor	Master or PhD
34	30	24	17	41	30	33	29	26	18	48	22

Table 3. Demographic information for respondents of second questionnaire (Number of 9 respondents)

Profession				Ages (year)			Work experience (year)		
University teacher	DBA student	MBA student	Strategic planner	<25	25<<35	35<	<10	10<<20	20<
3	3	1	2	2	2	5	5	-	4

Table 4. Internal Factor Analysis Summary (IFAS)

NUM	Strengths	Weaknesses
1	The good performance of staffs	Domestic shipyards delays in delivering ship orders
2	Proper utilization of resources	Shortage of financial resources
3	Experience during the war	Unable to pay foreign currency because of sanctions,
4	Experience of recent sanctions against Iran	Delay in procurement of parts and supplies for ships
5	Technical and operational capability in all areas of human resources and staff	Low efficiency and low quality of organization website
6	Employees high incentives for effort in organization	The weakness in preparation of short-term capital
7	Experience to deal with the Pirates	Tax rules and regulations of Iran
8	Establishment and operation of insurance agency	Focus in purchasing one type ship
9	Reputation of the company in the world	Reduce the level of ships standard
10	Efficiency of local qualified manpower	Access to corporate knowledge databases

Table 5. External Factor Analysis Summary (EFAS)

NUM	Opportunities	Threats
1	Government support of maritime transport companies	Possibility to export through alternative ways like roads and air
2	Existence huge mineral reserves in Iran	Sanctions against Iran and its industries
3	Marine tourism, travel services	Competitors take advantage of advanced technology
4	Professional foreign-trained forces and take advantage of them	The rise of environmental crises
5	Increased investment in Iran tourism industry	Reduce transport costs and freight
6	Increased demand for raw materials and fuels	Pirates threats
7	Utilizing new engines to reduce fuel consumption of ships	The Persian Gulf War
8	The emergence of new economic powers such as China and India.	Lifting the sanctions and return of other companies in the export cycle of Iran
9	Friendly relations with neighbouring countries	Suppliers of spare parts may suspense their cooperation because of sanctions
10	The strategic geographical location of Iran	Diversity of competitors income portfolio

4- Results and discussion

4- 1- Identification of Internal and External Factors

In this study 40 Opportunity, 36 Threats, 68 strengths and 41 weaknesses were identified for a specific company. Internal factors are the company's strengths and weaknesses. Based on Focus Group Discussion (FGD) and the answer of questionnaires confirmed in the case study of this research, summary of internal factors or the Internal Factor Analysis Summary (IFAS) is shown in Table 4.

External factors are the corporate environment, composed of opportunities and threats. Based on Focus Group Discussion (FGD) and the answer of questionnaires confirmed in the case study of this research, summary of external factors or the External Factor Analysis Summary (EFAS) are shown in Table 5.

4- 2- Determination of strategies

According to the SWOT analysis, a portfolio of strategies was obtained by matching the internal factors, including 'Strengths' and 'Weaknesses' with the external indicators including 'Opportunities' and 'Threats'. Employing Strengths to overcome on Threats (ST) and converting them to Opportunities (SO) and also using of Opportunities to eliminate Weaknesses (WO) and avoiding threats due to weaknesses (WT) are the methods of SWOT analysis which are used in this research. Then, the list of strategies are scoring based on experts opinions. The most important results of the SWOT analysis are sixteen SO strategies, eight WO strategies, six ST strategies, eight WT strategies.

SO strategies:

1. Formation of professional groups in different areas for decision making
2. Formation of Regular meetings and training sessions with international firms to exchange knowledge and establishing mutual marine and maritime agreements, rights, rules and regulations with foreign countries.
3. Supplying spare parts, repairs and accessories from Iranian companies
4. Broadening the corporate income portfolio by entering new businesses
5. Cooperation with the countries of the Caspian region to enter new markets
6. Development of the International Maritime Training Centers
7. Upgrade standards of company in line with international standards for entry into more international markets
8. Creating domestic brands in ship inspection based on the rules and regulations of the big international maritime transport Company
9. Applying the potential of cross-border education to train young workers
10. Expanding fleet of transport in various areas including LNG and LPG & chemical carrier
11. Formation of Cultural workgroups in the company to create a sense of unity, empathy and attunement within organization which could simplify achieving strategic goals.
12. Create innovation and suggestion procedures in the company
13. Organizing and participating in national and international courses and conferences to keep up to date company employees

14. Vast Potential of education facilities and holding applicable Workshops to Improve Employees Performance

15. recruit native employees

16. Trying to establish connection with global shipping market by continually International Advertising

WO strategies:

1. Direct and continuous relationship with the relevant internal organization
2. Upgrade the company standards in line with international standards for entry to international markets
3. Increasing cooperation with the Ministry of Petroleum of the Islamic Republic of Iran and the Ministry of Transport and the Ministry of Industry and Mining for Investment and Development Activities
4. Improve relations with domestic and foreign banks to expedite the process of transferring money
5. Development of financing solutions through internal resources like the stock market and investment companies, banks, bonds, securities and etc.
6. Using the company's experienced and qualified experts to teach the young and inexperienced staff through implementing Knowledge Management system
7. Create a software system and a strong network within the organization to eliminate bureaucracy and further accelerate in activities
8. Design and implement procedures for talent identification of employees to take advantage of the talent potentials in the organization

ST strategies:

1. Offering different facilities and incentives for special and regular customers
2. Cooperation with domestic and foreign shipbuilding companies to fulfil company's needs quickly
3. Taking advantage of the knowledge and technology to reduce the fuel consumption of ships
4. Founding working groups to analyze and predict the market approaches to provide solutions for the company in different business sectors for agility in regard to future changes and evolutions.
5. Improving service quality to customer satisfaction
6. Risk management by setting up a professional department of risk management

WT strategies:

1. Cooperation with local companies and employ and improve their abilities and continue the cooperation after the lifting of the sanctions
2. Create domestic institutions for classification and Standardization, supporting them and develop a long term cooperate.
3. Utilizing the company with a system of competency assessment
4. Creating a knowledge management mechanism to keep and utilize the knowledge and experience in the company
5. Cooperation with other public and private military organizations to protect ships from marine risks
6. Operational recruiting from crowded families to achieve more employees' commitment to their hard jobs.
7. Developing control and planning groups for repairs and regular visits to keep up to date fleet and prevent damage
8. Sale or disposal and replace the fleet over 15 years old

In order to realize where the mentioned strategies were coming from, it should be said that in each of SO, WO, ST and WT sections, proposed strategy was emergent from the combination of each one (or more than one) of the items of IFAS with EFAS Tables. As an example, 9th proposed item of SO strategy (applying the potential of cross-border education to train young workers) was obtained from 5th item of IFAS Table in strength column (technical and operational capability in all areas of human resources and staff) with 4th item of EFAS Table in opportunity column (professional foreign-trained forces and take advantage of them). Table 6 showed some examples in this respect.

Table 6. Examples of how to extract each strategy

Strategies	IFAS (S/W)	EFAS (O/T)
SO (4 th item)	9 in S	2 & 6 in O
(9 th item)	5 in S	4 in O
WO (5 th item)	2 in W	1 in O
ST (3 th item)	5 in S	3 & 5 in T
WT (7 th item)	9 in W	2 & 9 in T

5- Discussion

Eventually, according to the infrastructure role of transportation especially marine transportation which has a significant role in the growth and development of international economic and also with consideration that Iran has a good accessibility to high seas, it has large and small ports, located in the north-south transit corridor, and also has neighbors/neighbours with high potential for exports; In short, the competitive environment in trade and transport of goods on a large scale is available there, company's strategic should be always put on development. By utilization of knowledge management and research and development (R&D) department, company should be put on the track of development and be pioneered in terms of new technologies due to sustainable development and increase its profitability. Company should strive for greater success and more profitability to reach to extended and diversified portfolio and with the increase, expansion and equipping fleet and create a multi-faceted transportation, take the markets lost within sanctions back and also enter to new markets. Since sanctions against Iranian industry hindered the significant growth of Iranian companies in the international arena, this company itself should have a special effort for international cooperation to evade sanctions and develop its markets.

6- Conclusion

In this study the strengths, weaknesses, opportunities and threats of Iranian marine transport industry have been identified. With the existence of huge mineral reserves and the strategic geographical location, Iran's marine transport industry has a bright future for development. The results of our analysis indicate that the Iranian government encourages the development of these companies and positively support them, but the sanctions in recent years, created a difficult and complex environment for these companies. After analyzing the environment and SWOT analysis, the major of strategies for this companies, can be cited as follows:

- Broadening the corporate income portfolio by entering

new businesses

- Upgrade standards of company in line with international standards for entry into more international markets
- Supplying spare parts, repairs and accessories from Iranian companies
- Trying to establish connection with global shipping industry by continually International Advertising
- Development of financing solutions through internal resources like the stock market and investment companies, banks, bonds, securities etc.
- Taking advantage of the knowledge and technology to reduce the fuel consumption of ships
- Risk management by setting up a specialized unit of risk management
- Developing a group to control and planning repairs and regular visits to keep up to date fleet and prevent damage

Regarding to the practical consequences of this study, it should be noted that by implementation the proposed strategies, efficiency of Iranian marine transport industry will be promoted. Therefore, more economic exchanges will be carried out through water and then more trade routes will be connected to Iranian ports. Finally, Iran's economic prosperity will be happened.

7- Future research suggestion

Future research on the strategic management could place particular attention on the marine transport company to have greater influence on improving the performance of companies. Further research could endeavour to use alternative approaches and other analysis to allow the companies to carry out their roles. To continue research on the topic, it is suggested to conduct a specialized study based on the type of goods that are being transported by different companies especially Iran's oil and gas products.

8- Limitation of the study

One of the limitations of this research was the reluctance of respondents to disclose the company's name and position. Due to the company's concerns in this regard, it was very difficult to research and build trust in response.

References

- [1] C.T. Hardwick, B.F. Land, *Gut Administrative Strategy and Decision Making*, South western pub., Cincinnati, (1996).
- [2] I.E. Nikolaou, K.I. Evangelios, A SWOT analysis of environmental management practices in Greek Mining and Mineral Industry, *Resources Policy*, 35(3) (2010) 226–234.
- [3] K.L. Lee, S.C. Lin, A fuzzy quantified SWOT procedure for environmental evaluation of an international distribution center, *Information Sciences*, 178(2) (2008) 531–549.
- [4] H.H. Chang, W.C. Huang, Application of a quantification SWOT analytical method, *Math Compute Model*, 43(1-2) (2006) 158–169.
- [5] P.R. Burbridge, A critical review of progress towards Integrated coastal Management in the Baltic sea region, G. Schernewski, N. Loser, (Eds.), *coastline Reports 2, Managing the Baltic Sea*, (2004) 63-75.

- [6] A. Pak, F. Majd, Integrated coastal management plan in free trade zones, a case study, *Ocean & coastal management*, 54(2) (2010) 129-136.
- [7] Review of maritime transport, United Nation publication, Palais des Nations, CH-1211 Geneva 10, Switzerland: United Nations Conference on Trade and Development (UNCTAD), 2012.
- [8] Review of maritime transport, united nation publication, New York, 2013.
- [9] A. Pak, M. Farajzadeh, Iran's Integrated Coastal Management plan: Persian Gulf, Oman Sea, and southern Caspian Sea coastlines, *Ocean and Coastal Management*, 50(9) (2007) 754-773.
- [10] B. Zehzad, B.H. Kiabi, H. Madjnoonian, The natural areas and landscape of Iran: an overview, *Zoology in the Middle East*, 26(1) (2002) 7-10.
- [11] M. Pesonen, M. Kurttila, J. Kangas, M. Kajanus, P. Heinonen, Assessing the priorities using A'WOT among resource management strategies at the Finnish forest and park service, *Forest Science*, 47(4) (2000) 534-541.
- [12] C.A. DIAS, Método de avaliação de programas de governo eletrônico sob a ótica do cidadão-cliente, 2006.
- [13] L. Sorensen, R.V.V. Vidal, E. Engstrom, Using soft OR in a small company-the case of Kirby, *European Journal of Operational Research*, 152(3) (2004) 555-570.
- [14] S.E. Jackson, A. Joshi, N.L. Erhardt, Recent Research on Team and Organizational Diversity: SWOT Analysis and Implication, *Journal of management*, 29(6) (2003) 801-830.
- [15] F. Vafaei, A.N. Harati, Strategic Management in Decision Support System for Coastal Flood Management, *International Journal of Environmental Research*, 4(1) (2010) 169-176.
- [16] I.A. Hansen, SWOT Analysis of Transport in Cambodia Identifying Paths to Higher Efficiency and Sustainability, Delf, Codatu XIII, 13th International Congress On Urban Transport, Vietnam, (2008).
- [17] M.R. Shojaee, F. Memari, A. Dastorani, SWOT Analysis in Iran Khodro Automobile Industry for Improving Productions, *International Research Journal of Applied and Basic Sciences*, 4(2) (2013) 332-336.
- [18] N. Markovska, V. Taseska, J. Pop-Jordanov, SWOT analyses of the national energy sector for sustainable energy development, *Energy*, 34(6) (2009) 752-756.
- [19] Z. Xingang, K. Jiaoli, L. Bei, Focus on the development of shale gas in China-Based on SWOT analysis, *Renewable and Sustainable Energy Reviews*, 21 (2013) 603-613.
- [20] O. Arslan, E.R. Ismail Deha, SWOT analysis for safer carriage of bulk liquid chemicals in tankers, *Journal of Hazardous Materials*, 154(1-3) (2008) 901-913.
- [21] R.W. Saaty, The analytic hierarchy process and SWOT analysis-what it is and how it is used, *Mathematical modelling*, 9(3-5) (1987) 161-176.
- [22] J.K. Panigrahi, P.K. Mohanty, Effectiveness of the Indian costal regulation zones provisions for coastal zone management and its evaluation using SWOT analysis, *Ocean & coastal management*, 65 (2012) 34-50.
- [23] D.L. Schmoldt, D.L. Peterson, D.G. Silsbee, Developing inventory and monitoring programs based on multiple objectives, *Environmental Management*, 18(5) (1995) 707-727.
- [24] P. Kotler, *Marketing Management: Analysis, Planning, Implementation and Control*, London: Prentice-Hall International, 1994.
- [25] M., Kurttila, M. Pesonen, J. Kangas, M. Kajanus, Utilizing the analytic hierarchy process (AHP) in SWOT analysis – a hybrid method and its application to a forest-certification case, *Forest policy and economics*, 1(1) (2000) 41-52.
- [26] G. Houben, K. Lenie, K. Van Hoof, A Knowledge-Based SWOT-Analysis System as an Instrument for Strategic Planning in Small and Medium Sized Enterprises, *Decision Support Systems*, 26, (1999) 125-135.
- [27] F. Rangkuti, Analisis SWOT Teknik Membedah Kasus Bisnis, reorientasi konsep perencanaan strategi untuk menghadapi abad 21, Cetakan ke 14 (2006).
- [28] H.W. Oetomo, L. Ardini, SWOT analysis in strategic management: a case study at Purabaya bus station, *Journal of Economics, Business and Accountancy Ventura*, 15(2) (2012) 171-186.
- [29] E.A. Capuano, Construtos para modelagem de organizações fundamentadas na informação e no conhecimento no serviço público brasileiro, *Ciencia da Informacao*, 37(3) (2008) 18-37.
- [30] L. Fahey, V.K. Narayanan, The Politics of Strategic Decision Making, in: *the Strategic Management Handbook*, 1983.
- [31] R. Jingzheng, S. Gao, S. Tan, L. Dong, Hydrogen economy in China: Strengths–weaknesses–opportunities–threats analysis and strategies prioritization, *Renewable and Sustainable Energy Reviews*, 41 (2015) 1230-1243.
- [32] W.G. Cochran, *Sampling techniques*. John Wiley & Sons, (2007).

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