THE INTERNAL AND EXTERNAL ENVIRONMENT ANALYSIS OF ROMANIAN NAVAL INDUSTRY WITH SWOT MODEL

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Abstract. *SWOT analysis is an effective method used for strategic planning to identify potential, priorities and creating a common vision of achieving the development strategy for a company. This should answer the question "Where are we?" involving the analysis of the internal and external environment generally and specifically. It used to evaluate the company environment factors.*

Only by taking into consideration the components of general environment : economic environment, social environment, political environment, legislation and pressure groups, a company will be able to adopt the particular way of action, which will assure its performance and advantages on present and potential competitors.

Keywords: opportunities, strengths, threats, weaknesses

1. Introduction

SWOT model (Strengths, Weakness, Opportunities and Threats) represents the established instrument used to analyze the internal and external environment, which a company functions in. Based on this model, the company's strategies can be formulated by combining internal environment factors, which are: strengths and weaknesses, with external environment factors: opportunities and threats.

A good knowledge of the environment, the interrelations between this one and the organization, its evolution, represent the base of politics and strategies elaboration and also, may be considered as a main condition for an efficient activity of the organization.

Speaking about the strategically answer of the company towards competitive environment, Reason showed that this answer has to satisfy three criteria (www-denis.kearney@ul.ie):

to be adequate to competitive environment pressures;
to be satisfactory to shareholders;
to be reliable, which means the company must have the necessary abilities and resources in order to generate the strategically answer asked for.

Strengths and weaknesses of the organization, internal environment, are important for resources, programs and organization in key points such as (Catrinescu, 2002): sells/marketing/distribution, management system/survey report, production efficiency/capacity, products /quality/price.

The opportunities and threats that a company confronts with may exist or may develop in the next points:

the own company industry where structural changes may be produced;

the market place, which can be deteriorated by economical and social factors;

competitiveness, where new dangers and opportunities may appear;

new technologies that may cause fundamental chances of products, processes etc.;

The achievement and practical use of SWOT analysis require the following steps (Catrinescu, 2002):

to identify strengths and weaknesses, as well as opportunities and threats;

to identify SWOT quadrant;

to formulate the concrete strategy.

SWOT quadrant identification can be realized in two different ways:

By placing the strategy, based on the elements of internal and external environment of the company, in one of the four quadrants of SWOT model; this placing is intuitively made by strategically managers and is applicable only to small companies;

By placing the strategy in one of the four strategically quadrants of SWOT model using the evolution matrix of company 's internal and external factors, which consider the importance coefficients γ_j and marks of each N_j factor that are used to calculate their weighted marks $\gamma_j N_j$ and, finally, the weighted score for all $\sum \gamma_j N_j$ factors.

Since SWOT quadrant is identified, the concrete strategy of the company can be formulated and that will depend on the company's concrete conditions.

SWOT analysis, as a model of total diagnosis, is also used to find out the economical and financial situation of a company.

This analysis includes (www-denis.kearney@ul.ie):

Opportunities of favorable chances which are considered to be the events and processes produced in the macro-environment and competitive environment that create favorable conditions for local naval industry to function and develop;

Threats or dangers which are considered to be the factors and events produced in the macro-environment and competitive environment that create unfavorable conditions for local naval industry to function and develop;

Strengths, represented by resources and abilities in fields such as: marketing, finance, human resources, technology and production, organization and management, that give emphasis to the local naval industry;

Weaknesses represent those aspects of local naval industry function in fields like marketing, finance, human resources, technology, production, organization and management that limit the efficiency or prevent the development of local naval industry.

For this purpose diagnosis are synthesized on components (production, quality, competition, rate of turnover, financial situation, management, staff etc.), by pointing out the strengths and threats of company's activity, as well as the malfunctions and their causes that may appear in the company's activity. The analysis uses scores system which allows calculating an average mark based on which the company may be placed in one of the following situations: economical viable or non-viable.

2. Romanian naval industry evolution during the last years

Romanian naval industry has 12 shipyards, 9 of them are centered on shipbuilding and 3 of them on repairs. Regarding the employees number the size of these 12 shipyards is the following:

1 shipyard with more than 5000 employees (SN Damen Galati);

3 shipyards with 3000-5000 employees;

3 shipyards with 1500-3000 employees;

5 shipyards below 1500 employees.

The large number of employees from Romanian Shipyards is due to high level of production integration, which can be compared with the level in Japan and Korea. This level is different from those in European shipyards, which generally exercise subcontracting.

In UE the most shipyards have below 1000 employees. Only 17 shipyards have a number of 1000-2000 employees and 28 large shipyards have together 64 000 employees (AWES, 2005).

From achieved production, because the internal market does not offer opportunities due to the capital lack, the ship production was orientated to the export, its weight has increased from year to year, reaching to represent 99% from total production of 2008 (ANCONAV, 2000-2008) (Figure 1).
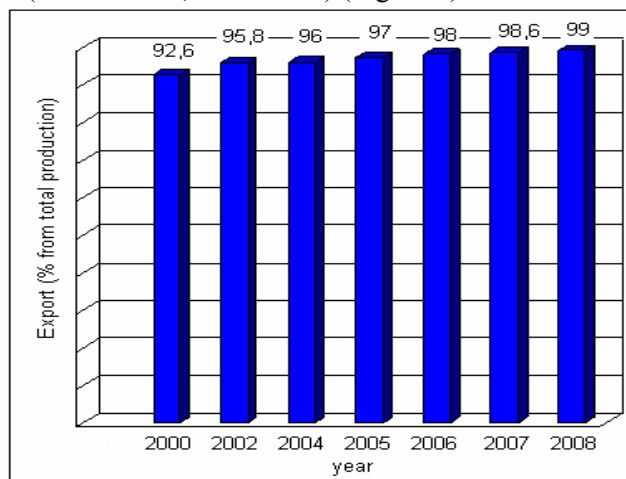

Figure 1. The export weight in total naval production

The evolution of shipbuilding production and repairs during 2000-2008 is presented in Figure 2.

Indicators	years								
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total production	201.5	204.5	205.5	207.15	209.78	212.6	218.95	221.07	222.74
1. Ship building, from which :	162.67	160.7	182.7	183	186.8	190.7	196.60	199.18	202.16
- complete propelled ships	69.8	86.4	108	109.2	112.3	115.4	120.0	121.6	124.8
- hulls, incomplete and unpropelled ships	92.87	74.3	74.7	73.8	74.5	75.3	76.60	77.58	77.36
2. ship repairs	38.31	42.84	21.15	22.6	21.3	20.1	20.85	20.69	19.8
3. conversions and changes	0.52	0.96	1.65	1.55	1.68	1.8	1.5	1.2	0.78

Figure 2. Romanian naval industry during 2000-2008

During 2000-2008 Romanian naval industry had an increasing evolution (Figure 3).
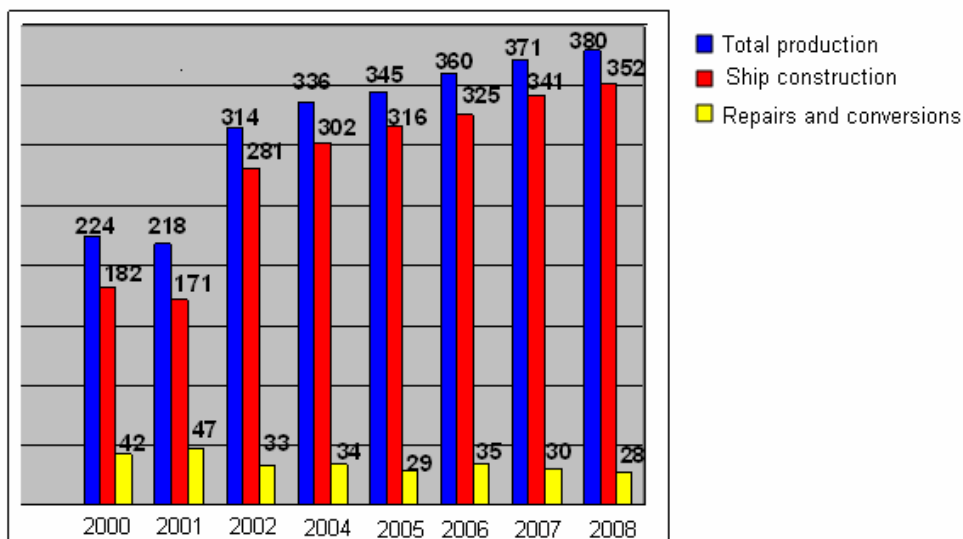

Figure 3. The evolution of ship production value in Romania

Shipyards build maritime ships and river vessels, the production being concentrated on ships such as: bulk carrier, port-containers, cargo tankers, LPG, and LNG, chemical tankers, Ro-Ro, coastal fishing ships.

Romania had 2,4% from international orders portfolio in cgt (compensated gross ton) at 01.07.2007 (ANCONAV, 2003-2008). Considering the ship type, the weight is the following:

0, 9 % tankers;

2,2 % bulk-carriers;

0,1 % port-containers;

5,6 % cargo.

Work productivity in Romanian shipyards is below the eastern European shipyards level (Stranschi, 2002; ANCONAV, 2003-2008) (Table 1).

Table 1

Work productivity for Romanian naval industry

Work productivity (hours-men/tonne)	Romania			Western Europe
	2000-2002	2003-2005	After 2006	
Total, from which:	200-140	140-90	80	40
hulls	100-70	70-45	35	19
plant	75-40	50-35	25	13
painting	25-20	20-15	10	8

For the year 2006, the forecast announces that the Romanian productivity will reach the Western European level, as a result of modern technologies and IT systems. As a condition to UE accession, the average work productivity will have to become at least equal with average work productivity of shipyards from the whole world, which is 88 hours/men/cgt (CESA, 2006-2007).

In the international industry and economy, naval industry has a modest place, by its weight in the industrial production value, PIB industry, active population and export (Table 2).

Table 2

Naval industry in Romanian economy

Indicators	Year	Percentage
Weight to active population in industry	2006	1,02
	2007	1,15
Weight to active population in the whole economy	2006	0,178
	2007	0,15
Weight to industrial production value	2006	0,712
	2007	0,715
Weight to PIB industry	2006	1,08
	2007	1,12
Weight to industry's export	2006	2,49
	2007	2,5
Weight to Romanian total export	2006	2,2
	2007	2,3

Considering the gradual increasing of maritime trading, as a result of the world economical growth and the ship volume, which are to be disablement and lost, as well as the implementation of some regulation concerning the safety of maritime transport and pollution warning, different specialized institutions, famous in the world (KSA, SAJ, AWES), concerning the external environment, that between 2005-2010 there will be an increase of ships demand, by almost 1% towards precedent period of time. In the same time in the last years the ship market had known a decrease of ship price, comparing to the precedent years, which had stimulated the increasing of new ships orders. Considering all these global tendencies, can be anticipated a favorable conjuncture for Romanian shipyards in the next periods (SAJ, 2007).

Regarding the ships structure KSA (Korea Shipbuilder's Associations) prognosis for the world level is the following:

Table 3

Prognosis for the ship market evolution, considering the types of ships (mil tdw)

Ship types/year	2009	2010	2012
Tankers	385,2	393,3	407,3
Bulk-carriers	290,5	293,4	302,4
Port-containers	85	87,8	90,6
Cargo	73	77,5	80,2

If we compare the world productivity at world level, we will discover some differences between Japan and western European countries and between the last ones and the new members of UE (Figure 4 and 5).
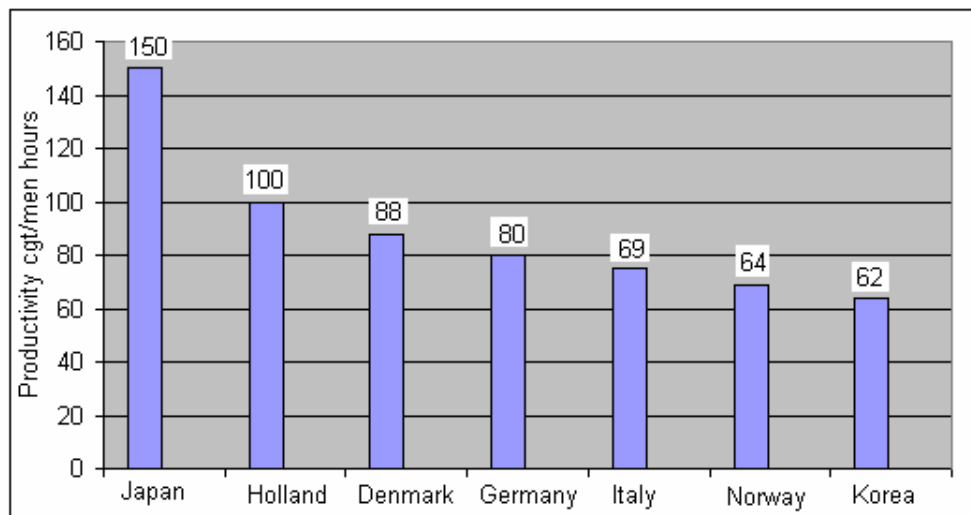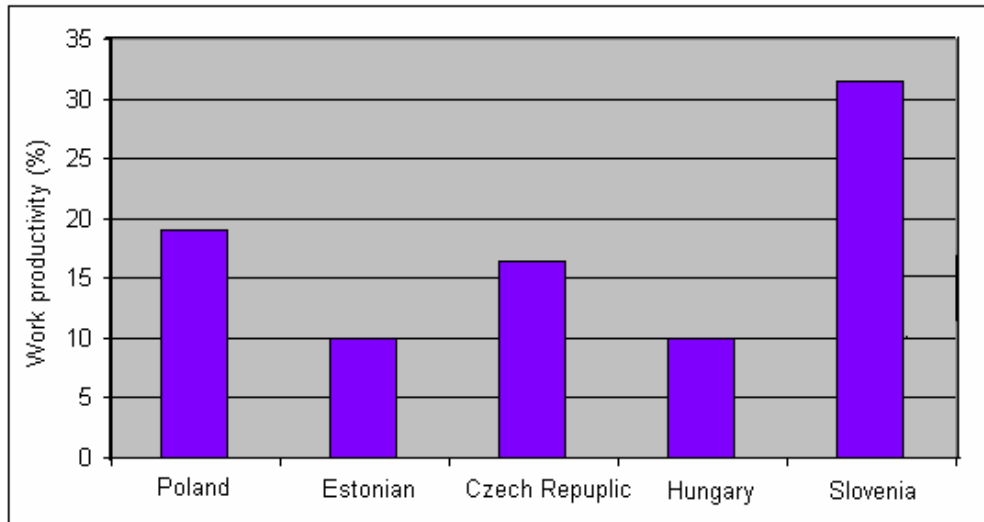

Figure 4. Work productivity of world naval industry (2007)

Source: www.nobe.pl
Figure 5. Work productivity of the new members of UE (compared with Germany=100%)

The production cost in shipyards is high in European countries, USA and Japan and low in China and the South East of Asia (KSA, 2007) (Table 4).

Table 4

Production cost in shipyard (2007, world average = 100 %)

Country	Production cost (index)
China	60
SUA	175
Western Europe	150
Japan	160
Korea	130
Scandinavian countries	152
South Europe	140
Balkan countries	125
South East of Asia	82
England	142
Middle Orient	105
Poland	128

Shipyards adjustment to external environment is realized through complex actions pointed to 4 factors: the ship-product, shipyard hierarchical position, the ship promotion in order to attract potential clients, the price for which the ship is accepted.

Beside these 4 factors, there are others, including political and macroeconomic factor, from which, the most important once are the market price, the trade rate, demand and competition.

These are the factors which marketing strategies are centered on.

3. SWOT analysis of Romanian naval industry

The analysis was made based on the information concerning Romanian naval industry.

Opportunities

Macro-economical situation

stable macro-economical environment;

favorable economical growth.

Competitive situation

growth tendencies for world export and international maritime and river transport;

favorable market conjuncture;

favorable geographical position (coming out of the Black Sea and over 1.000 km of Danube river);

specialized ships demand increase.

Strengths

Marketing

great stock of orders, all addressed to the export;

competitive prices;

the image of a reliable partner with traditional knowledge of ship building;

operation as western shipyards sub-contractor.

Finance

good profit (3-5%);

financial stability.

Human resources

qualified work force, famous abroad.

Technology-production

very good facilities: dry docks, shipways, sincrolift

specialized ship building abilities

abilities for ships overhauling and conversion

integrated I.T. system: projection – production –management

flexible organization

good management

utilization of other countries shipyards (Ukraine) as sub-contractor for Romanian shipyards

Threats

Macro-economical situation

lack of a banking system specialized in shipping;

lack of some mechanisms specialized in financing and bank guarantees;

slight tendency of national currency devaluation.

Competitive situation

aggressive market strategies of many countries (Korea, China, Croatia) for their development on the world ship market;

material expense increase tendency;

increase the cost of manual work as a result of the accession to European Union;

low possibilities to have access to the capital and money market.

Weaknesses

Marketing

lack of an aggressive market strategy.

Finance

difficulties in getting financing;

lack of monetary liquidity.

Technology-production

sub-utilization of the present production capacities;

low manual work costs;

constant investments increase (9-10% /year).

Organization management

low labor productivity;

low level of sub-contractors use a smaller development of environment protection management.

In table 6 are presented the grand strategies of general companies which include the quadrants of SWOT model (Stăncioiu and Militaru, 1999).

Table 5

Grand strategies of complex company's general level

SWOT quadrant	Grand strategies	Concrete strategies	
		Name	Application directions
I	Growth	Concentration	– On a market share – On a product
		Mergers and firms acquisition	– Peacefully – forced
II	Traction forces in risky external environment	Horizontal diversify	– in the branch conglomerate
		Mergers and firms acquisition	– Peacefully – forced
III	Restriction	Reorganization	– Readjustment – Assets sale – Shut down factories

SWOT quadrant	Grand strategies	Concrete strategies	
		Name	Application directions
		Bankruptcy	– Moratorium – forced liquidation
IV	Exceeding weakness	Joint Venture	– National – international
		Vertical integration	– Upstream – Downstream
		Horizontal diversify	– Conglomerate
		Mergers with other firms	– Peaceful consolidation

The next step is to draw out the evaluation matrix for internal and external factors.

The importance coefficients γ_j of factors have received values between (0) and (1) depending on factors considered influence over the naval industry success, so that $\sum \gamma_j = 1$.

Internal factors have received an N_j mark between (1) and (4) depending on the factor type: weak or strong. This way, $N_j=1$ for very weak factors; $N_j=2$ for weak factors; $N_j=3$ for strengths; $N_j=4$ for very strong factors.

In table 6 and table 7 are presented the evaluation matrix of internal factors and respective, the evaluation matrix of external factors which characterize the Romanian naval industry.

Table 6

Evaluation matrix of some internal factors (strengths, weaknesses)

CN	Factor name	Importance coefficient γ_j	Granted mark N_j	$\gamma_j N_j$
1	Great stock of orders, all addressed to the export	0,08	4	0,32
2	Competitive prices	0,10	4	0,4
3	Qualified work force	0,08	4	0,32
4	Very good facilities: docks, shipway, sincrolift	0,05	3	0,15
5	Modern technological processes	0,12	4	0,48
6	Low manual work costs	0,10	3	0,30
7	Specialized ships building abilities	0,05	3	0,15
8	Integrated IT system: projection- production- management	0,14	4	0,56
9	Good ship quality	0,09	3	0,27

CN	Factor name	Importance coefficient γ_j	Granted mark N_j	$\gamma_j N_j$
10	Sub-utilization of production capacities	0,05	2	0,10
11	Lack of an aggressive market strategy	0,02	1	0,02
12	A smaller development of environment production management	0,02	1	0,02
-	Weighted score $\gamma_j N_j$	1	-	3,09

Evaluation matrix of external factors was made using the same algorithm, considering a particular way of granting N_j marks, which is: $N_j=1$ for major dangerous factors, $N_j=2$ for medium influence factors, $N_j=3$ for factors whose answer for naval industry is over average, $N_j=4$ for factors to which the company responds accordingly.

Table 7

Evaluation matrix of some external factors (opportunities, threats)

CN	Factor name	Importance coefficient γ_j	Granted mark N_j	$\gamma_j N_j$
1	Stable macro-economical environment	0,10	3	0,30
2	Favorable market conjuncture	0,15	4	0,60
3	Specialized ships demand increase	0,10	3	0,30
4	Favorable geographical position	0,05	2	0,10
5	Growth tendency of world export and international transport	0,10	3	0,30
6	Lack of some mechanisms specialized in financing and banking guarantees	0,10	3	0,30
7	Material expense increase tendency	0,10	1	0,10
8	Low possibilities to have access to the capital and money market	0,10	2	0,20
9	Aggressive market strategies of some countries for their	0,10	1	0,10

CN	Factor name	Importance coefficient γ_j	Granted mark N_j	$\gamma_j N_j$
	development on the world ship market			
10	Increase the cost of manual work as a result of European Union accession	0,10	2	0,20
-	Weighted score $\gamma_j N_j$	1	-	2,50

After the weighted scores for evaluation matrix of internal and external factors were obtained, the next step was to settle the SWOT model quadrant in order to establish the Romanian naval industry position.

4. Conclusion

As a result of placing it in the SWOT model, the Romanian naval industry was situated in the first quadrant. The identification of the SWOT quadrant facilities the move to the final analysis's step - to formulate the concrete strategy.

According to grand strategies of complex companies' general level, there are four major strategies corresponding to the first quadrant, which are (Stăncioiu and Militaru, 1999):

1) concentration on a market share;
2) concentration on a product;
3) mergers and peaceful firms acquisitions;
4) mergers and forced firms acquisitions.

It is the responsible person's problem to decide which one of these strategies will be chosen.

The strategy which Romanian naval industry must choose is the concentration on a market share.
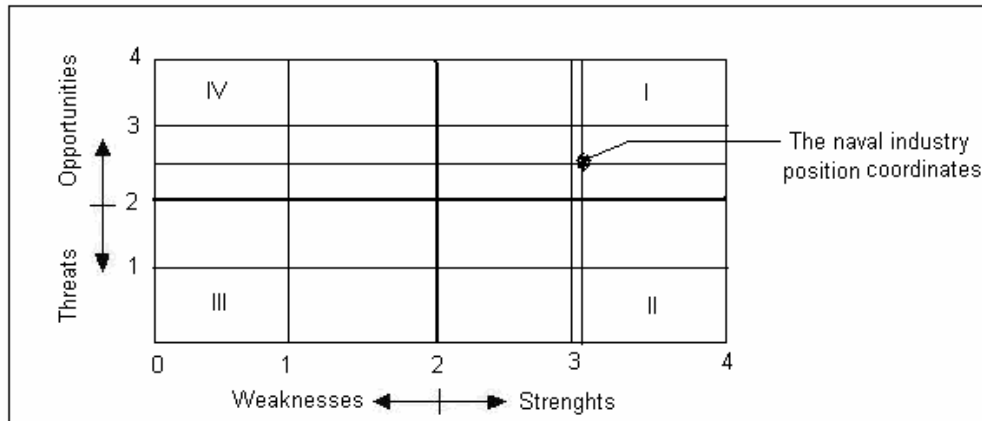
I - Growth strategies;
II - Propelling strategies under risk conditions;
III - Restriction strategies;
IV – Exceeding weaknesses strategies

Figure 6. SWOT model utilization in order to identify the strategically quadrant where the Romanian naval industry is situated

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