

STRATEGIC ANALYSIS OF AN INNOVATIVE ORGANIZATION USING NONCONVENTIONAL TECHNOLOGIES

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ABSTRACT: The strategic management of an innovative organization is the process in which managers establish long term orientation, propose performance objectives, develop strategies for achieving the objectives in accordance with the factors involved, internal and external. The external environment defines the vicinity of innovative organization and consists of those elements that directly influence it and over which it can exert a significant influence. In parallel with the analysis of external environment, the organization must carry out an assessment of commercial, productive, innovative, financial, organizational and human potential. Thus, it is possible to determine its ability to deal with threats and capitalize on opportunities. The analysis of external and internal environment must be followed by the construction of scenarios that represent an adequate solution by elaborating a set of alternatives of future of innovative organization that could materialize. The SWOT analysis of innovative organization evaluates the strengths and weaknesses of internal environment, respectively the opportunities and threats from the external environment.

KEYWORDS: nonconventional technologies, innovative organization, external environment, internal environment, the uncertainty matrix, the priorities matrix, the customer matrix, the producer matrix, the risk cube, the SWOT analysis, the strategies matrix.

1. INTRODUCTION

The Strategic Management was conceived as an evolved form of management, able to anticipate changes inside and outside the innovative organization and to ensure its ability to adapt to changes. Strategic management is a complex process of foreshadowing the evolution of long-term organization, in which the strategy formulation, its implementation and evaluation is permanently taking place. Strategic management involves establishing the position currently occupied by the innovative organization, as well as the position that is intended to be occupied, analyzing and forecasting the factors that may influence it. This refers to the knowledge of competition, the demand expressed on the market, the identification of objectives and interests and the development of skills that aim to contribute to the successful implementation of strategy of an innovative organization. [4].

The strategy of an innovative organization is the result of strategic option of Strategic Management regarding the paths to follow and the means that will be used to achieve the strategic objectives. The formulation of strategy of organization supposes to analyze the elements that could affect in the future its application. The organization's position is influenced by two categories of internal and external factors and by the two environments in which the organization operates internally and externally [3]. The analysis of external competitive environment was founded in 1980, by Michael Porter, by creating the model (Figure 1), which bears his name and which contains the following forces: the threat coming from the new entrants, the threat coming from the substitution products, the power bargaining of suppliers, bargaining power of consumers, level of rivalry between existing organizations [18].

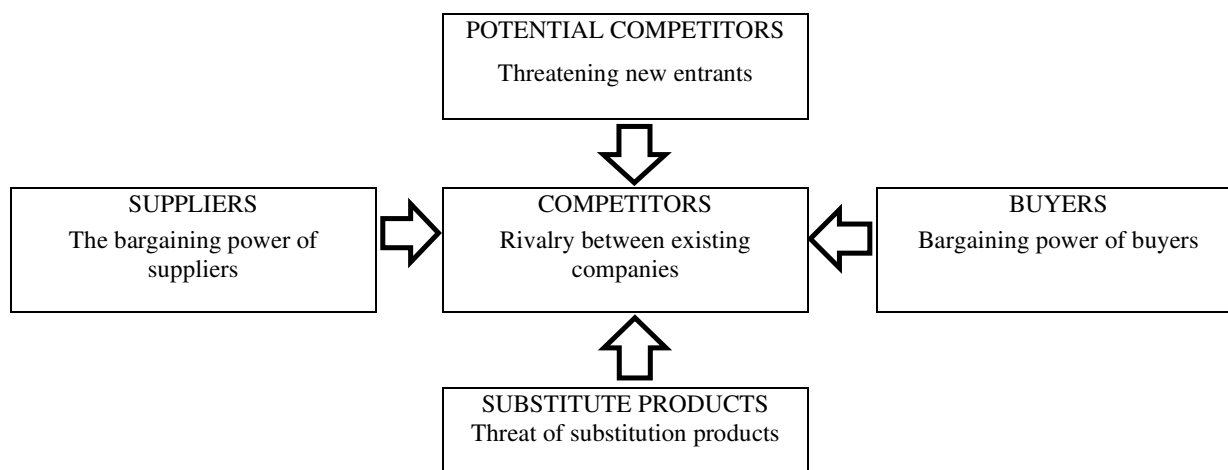


Figure 1. Michael Porter's Model [18]

2. EXTERNAL ENVIRONMENT ANALYSIS

The external environment of an innovative organization is influenced by the following general environment categories:

- The political-legal environment consists of elements of legal and political framework. The legal framework consists of all the laws, regulations and their application. The political component is given by the relational system created between the political power and the business world.
- The economic environment is represented by the elements of system in which the organization operates. The directions in which the analysis will be oriented are the state of economy, the evolutions in the monetary, capital, currency and labor market. The economic status can be characterized by the parameters of inflation rate, the interest rate, the unemployment rate, the budget deficit, the balance of payments and the trade balance.
- The socio-cultural environment consists of individual and group behavior patterns that reflect attitudes, values, habits. The system of values of organization will be elements in the development of businesses such as the attitude towards work, the attitude towards the protection of natural environment, the mobility of population, the demographic changes, the composition and the size of family.
- The technological environment consists of all the elements that define the current technology. Its quality is related to the discoveries and innovations with profound impact on the organization. Today's technology means continuous improvement of materials, design, methods or management and control systems. The most important factors defining this environment are the expenses for research, the rate of emergence of innovations, the speed of technology transfer, the rate of product renewal, the provision of equipment, the quality of infrastructure and the recruitment of specialized personnel [6].

The external environment is defined as the totality of factors, states, events and information whose continuous, periodic or random manifestations are likely to alter the balance of innovative organization using nonconventional technologies. The analysis of external environment must focus on two main directions: the analysis of general external environment and the analysis of competitive external environment. The external environment is dynamic, complex and uncertain. Dynamism refers to the rate

at which changes occur. The external environment with a low rate of change is considered stable, and the environment with an accelerated rate is considered unstable. The external environment is complex when the number of factors that compose it is high, the relationships between them are strong and the influences exerted on it are multiple.

Uncertainty derives from the fact that the phenomena that can affect the innovative organization are not easily detectable. The degree of uncertainty is the result of interaction between the level of complexity and the dynamics of environment. To identify this degree, the Uncertainty Matrix is used (Table 1). [1]

Table 1. The Uncertainty Matrix [1]

Environment	Complexity	
	Homogeneous	Heterogeneous
Stable	Low Uncertainty	Moderately Low Uncertainty
Unstable	Moderately High Uncertainty	High Uncertainty

The high uncertainty is characterized by a rapid rate of change, and the number of elements likely to influence the evolution of innovative organization is high. The low uncertainty is when the pace of change is slow and the elements that could affect the organization are in a small number. The process of analyzing the general external environment must be integrated into the decision-making system of organization. The analysis of environment must be continuous. The constant monitoring and analysis of events as well as the permanent adaptation of plan can be really useful in a strategic management approach. The approach must be carried out in a holistic manner. Political, economic, social and technological events must be viewed in their interdependence and not separately. Therefore, the analysis of external environment must be as an approach, comprehensive and integrative. The possibility of unpredictable events must be considered. In the analysis, an action plan must be established based on the estimates that most likely target the future. Detecting variations in the external environment involves a continuous process of environmental monitoring. In Strategic Management method to identify these factors, the Priority Matrix is used (Table 2) [25].

Table 2. The Priority Matrix [25]

Environment	Impact		
	Low	Average	High
High	Maximum Priority	Maximum Priority	Average Priority
Average	Maximum Priority	Average Priority	Minimum Priority
Low	Average Priority	Low Priority	Low Priority

3. MICHAEL PORTER'S MODEL

Michael Porter's model (Figure 1) contains the following forces: the threat coming from new entrants, the threat coming from substitution products, the bargaining power of suppliers, the bargaining power of consumers, the level of rivalry between existing organizations [18].

3.1 New entrants are organizations that are beginning to compete with existing organizations. They come with a desire to win and often have important resources. In front of them, however, several barriers arise: economies of scale, product differentiation, the necessary capital, disadvantageous costs independent of size of production, access to distribution channels, government policies.

- The economies of scale mean the phenomenon of lowering the average costs due to the increase of production volume. They can be present in any of activity fields of organization: production, supply, research-development, distribution, service and advertising.
- Organizations need to give a product a name that makes it identifiable by consumers, forcing new entrants to expenses they cannot afford. Gaining consumer loyalty requires regular advertising, proper promotion, and organization of service activity.
- Numerous areas require significant initial investments for research-development, advertising, distribution network or for providing production facilities and working capital.
- Existing organizations benefit from benefits that would translate into significant expenses for those who want to enter.

These advantages are related to: a favorable geographical positioning, possession of patents, access to raw materials, learning curve and experience curve.

- Given that distribution channels are used by existing organizations on the market, new entrants must convince member's offset channels to accept the product, offering price reductions, promotional incentives, steps that will reduce their profit.

If the barriers to entry are high, the organization will be forced to create its own distribution network.

- The government may limit or prohibit entry to a market by granting licenses or imposing quality standards. To these barriers are added the price reductions that the threatened can make, the use of additional resources or the reduced absorption capacity of market.

3.2 Substitution products are those goods that can be used instead of a particular product. Substitute products limit earnings in a sector of activity. The substitution is more profitable as the price-performance ratio is more advantageous for the new product and the lower the cost of transfer paid by the consumer.

3.3 The bargaining power of suppliers can be manifested by the threat that they will increase prices or diminish the quality of delivered products. Powerful suppliers will diminish the profitability of organizations where increases in input costs cannot be covered by rising prices. The degree to which suppliers can exert influence over the organizations to whom they deliver their goods or services depends on a number of factors:

- The products offered by the suppliers are not under threat of substitution products.
- Then the activity sector that uses the products of suppliers holds a small share in the sales of organizations.
- There are a small number of suppliers with a higher concentration than in the sectors to which they sell their products.
- The volume of deliveries to a particular sector is an important part of turnover of suppliers, it is obvious that the profits are dependent on the developments in the target sector and as a result they will be willing to practice reasonable prices.
- The product delivered by the supplier constitutes an essential component of production process and when the respective inputs are not storable.
- The products of suppliers are adapted to the requirements of customers or by changing the business partner a series of additional costs must be borne.
- Suppliers adopt a downstream integration strategy.

The main problems that need to be solved by an adequate sourcing strategy concern: the stability and competitiveness of suppliers, the allocation of quantities purchased on each supplier separately, the creation of levers to influence the selected suppliers.

3.4 Similarly, buyers can exert pressure on the organization that supplies their products, even if they are groups of buyers, not just industrial or commercial beneficiaries. Buyer power is greater if:

- The group of buyers obtains reduced profits, purchase a part of seller's output.
- The influence is amplified if the level of fixed costs is high in the sector from which the products are purchased so that the producer must operate at full capacity.

- The products purchased in the respective sector are standard or non-differentiated.
- The product has a significant share in the cost of production of beneficiary, which obliges him to carefully select the supplier and to attach a special importance to the size of price.
- The level of costs involved in changing the supplier is reduced.
- The product made is not important for its quality or for the services offered.
- The customer has complete information about the demand, prices and costs so that he can counter the supplier's claims.
- Customers decide and have resources for upstream integration.

The bargaining power of customers will diminish or increase over time as changes in buyer strategies occur.

3.5 The intensity of rivalry is given by the level of competition. Organizations are dependent on each other so that an action initiated by one will generate reactions from the other. Rivalry may arise because one or more competitors want to strengthen their market position. The degree of rivalry changes under the influence of changes that take place, the technological innovations, the acquisition of some organizations by other organizations or the transition to the maturity phase of activity sector [15].

4. THE CUSTOMER MATRIX

The Customer Matrix is a tool used to achieve sustainable competitive advantage (SCA). The variables of Customer Matrix are: the price perceived by the customer and the perceived use value (PUV). The strategic options represent the displacements to the 4 cardinal points (N, S, E, W) (Figure 2) [11].

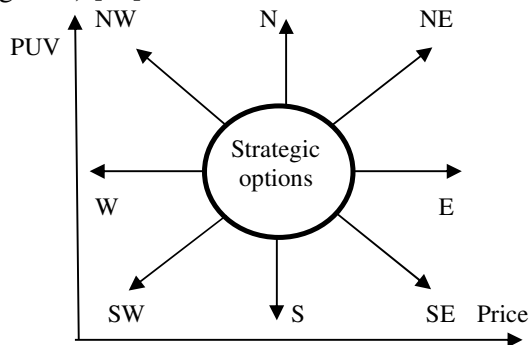


Figure 2. Displacements in the Customer Matrix [11]

- Moving to north (N) is the fundamental strategic option. The organization offers the customer a product at the same price, but with a higher value than that of competing organizations. Shifting the strategy north leads to an imitation reaction from the competition. The strategy

adopted in this case is to focus on a single market segment.

- Moving to west (W) is the main strategic option. The organization offers the customer a product with the same value, but at a lower price than that of competing organizations. Shifting the strategy to the west leads to an imitation reaction from the competition. The organization must always reduce costs and the adoption of this long-term strategy is difficult to achieve.
- Moving to northwest (NW) is the most useful and involves increasing the value (PUV) while reducing the perceived price. This strategy is possible when the organization acts in the directions defined by Michael Porter: cost reduction, and product differentiation by increasing quality. These directions are based on continuous innovation.
- Moving to south (S) involves reducing the PUV and keeping the price constant.
- Moving to east (E) involves increasing the price without the addition of PUV. The strategy can be profitable in crisis situations of various sectors of activity of innovative organization.
- Moving to the southeast (SE) involves increasing the price at the same time as reducing the PUV and is useful in the short term even if there is a monopoly in a certain sector of activity. The consequence is a strong damage to the image of innovative organization.

The use value of product (PUV) can be calculated using the relation: $PUV = \sum_{i=1 \dots n} p_i X_{ir}$, where: X_{ir} is the relative value of quality characteristics i , and p_i is the weight of quality characteristic i . For a best control of given weights p_i , they must satisfy the condition: $\sum_{i=1 \dots n} p_i = 100\%$, if p_i is expressed as a percentage or $\sum_{i=1 \dots n} p_i = 1$ if $p_i < 1$. Because the values of quality characteristics X_i are expressed in different units of measurement, they are relative. For this, we consider a standard scale at which the value 0 corresponds to the weakest value of parameter (X_{imin}), and the value 1, the best value of parameter (X_{imax}).

In order to assign a normed value on the scale 0... 1 to an effective value X_i , the interpolation relation is used: $X_{ir} = (X_i - X_{imin}) / (X_{imax} - X_{imin})$.

The construction of Customer Matrix consists in going through the step:

- Step 1: The elaboration of competitive strategy has as starting point the identification of market segments. It is necessary to distinguish whether a particular customer is part of market segment found. Their assessment is based on the analysis of weights given to the quality characteristics (PUV dimensions).

- Step 2: PUV dimensions are determined by asking customers what quality features they appreciate in a product. It is recommended to avoid questionnaires that lead to confirmation of producer's options.
- Step 3: Determining the weights for the PUV dimensions is done by asking customers what are most important quality characteristics appreciated and how the weights given to each quality characteristic should be distributed to a product.
- Step 4: Determine the PUV, based on the PUV dimensions and weights for own product and competition. If the input data (X_i and p_i) are correct then the performance evaluation should be between exaggerated levels of optimism and pessimism. In this way, a pro-competitive organizational culture is formed.
- Step 5: Position the products in the Customer Matrix based on the variables: the perceived use value and the price perceived by the customer. A good way to check is to revalue the Matrix positions with changes in market share.
- Step 6: Adopt specific strategies depending on the position of products in the Customer Matrix. The main competition takes place in a north-westerly (NW) direction.

5. THE PRODUCER MATRIX

The Producer Matrix is a tool for analyzing the internal environment of organization in relation to competitors in the industry. The variables of Producer Matrix are: unit costs and efficiency (Figure 3) [11].

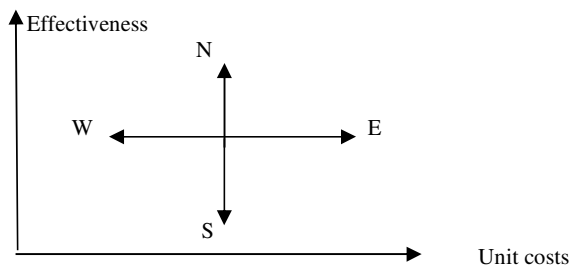


Figure 3. The Producer Matrix variables [11]

The Producer Matrix establishes the relationship between the unit cost and the competencies of organization creating the perceived use value (PUV) by the customer. There is an indirect link between the Customer Matrix and the Producer Matrix.

- The competitive advantage can be obtained as a result of moving to northwest (NW) in the Customer Matrix. The organization can only act on the Producer Matrix in two directions: reducing costs and increasing efficiency.
- Moving to west (W) in the Producer Matrix by reducing costs can be followed by rising prices,

which involves moving east (E) in the Customer Matrix.

- If the westward movement (W) is insignificant, in the Producer Matrix, an insufficient reduction of costs, it is unlikely that it can be maintained in the Customer Matrix, by reducing the price in conditions of high competition.
- The improvement of skills leads to a shift north (N) in the Producer Matrix, the effect being moving north (N), south (S) or not at all in the Customer Matrix, depending on the customer reaction to the quality characteristics of product.

The construction of Producer Matrix consists in going through the stages:

- Step 1: For cost analysis is used the value chain of Michael Porter which includes all the processes that contribute to the construction of product (Figure 4) [11].

Support activities	Infrastructure				Profit margin →
	Management				
	Technology development				
	Supply				
Input logistics	Manu- facture	Output logis- tics	Marke- ting and sales	Ser- vice	
Primary activities					

Figure 4. The internal value chain [11]

- Step 2: To define the market segment it is necessary to obtain the agreement of management team on the market segment to which the product is addressed. The Producer Matrix is elaborated to include the competencies of market segments on which the organization intends to launch.
- Step 3: In order to identify the essential competencies, the question that the management team must answer is: what are the operating competencies, system, focused on costs that the organization must have in order to win the market segment, on which it acts.
- Step 4: To assess the competencies of organization, the analysis must be extended to the main competitors in the market segment. The purpose of rating is to place competitors on the Producer's Matrix. The aggregate note of operating and system competencies is calculated using the relation: $N_{os} = \sum p_i C_{osi}$, where: C_{osi} represents the quota given to the operating or system competency i on a unitary scale and p_i is the weight given to the competency i . For a good control of weights p_i granted, they must satisfy the condition: $\sum_{i=1}^n p_i = 100\%$. The value of aggregate note (N_{os}) determines the position of vertical organization with the effectiveness in the Producer's Matrix. In order to determine the

position on the horizontal axis, information on the production costs of competitors is required. This refers to the profile of skills focused on reducing costs. This assessment allows the classification of competitors based on external information. The aggregate grade of cost-focused competencies is calculated using the relation: $N_{fc} = \sum p_i C_{fci}$, where: C_{fci} is the share given to competency i focused on costs and p_i is the share given to competency i .

- Step 5: Elaboration of competency Producer Matrix based on the aggregate grades determined in stage 4 are used to determine the coordinates of competitors. Depending on the position of organization in the Matrix, strategies for improving skills can be developed. The main competition takes place in the NW direction.

6. THE RISK CUBE

The Risk Cube is the strategy tool based on the analysis of combinations between the Customer Matrix and the Producer Matrix.

- Combination 1: The Customer Matrix has a high PUV and a high price of product. The Producer Matrix has a high efficiency and a high production cost (Figure 5).

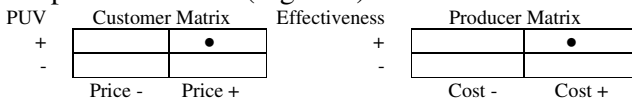


Figure 5. Combination 1 of two matrices [11]

- Combination 2: The Customer Matrix has a low PUV and a high price of product. The Producer Matrix has low efficiency and low production cost (Figure 6).

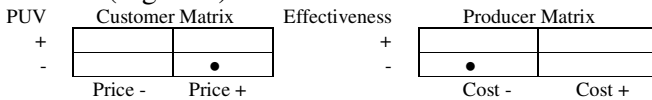


Figure 6. Combination 2 of two matrices [11]

- Combination 3: The Customer Matrix has a high PUV and a high price of product. The Producer Matrix has low efficiency and high production cost (Figure 7).

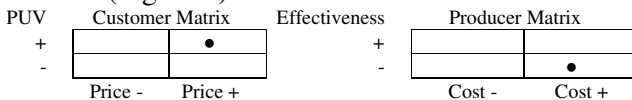


Figure 7. Combination 3 of two matrices [11]

- Combination 4: The Customer Matrix has a low PUV and a low product price. The Producer Matrix has low efficiency and low production cost (Figure 8).

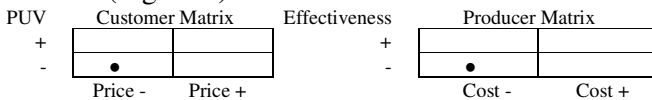


Figure 8. Combination 4 of two matrices [11]

- Combination 5: The Customer Matrix has a high PUV and a low price of product. The Producer

Matrix has a high efficiency and a low production cost (Figure 9).

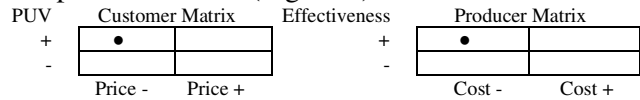


Figure 9. Combination 5 of two matrixes. [11]

- Combination 6: The Customer Matrix has a low PUV and a high price of product. The Producer's Matrix has low efficiency and high production cost (Figure 10).

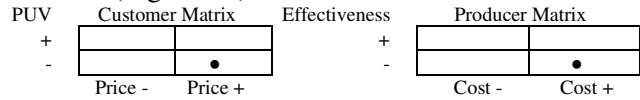


Figure 10. Combination 6 of two matrixes [11]

The Risk Cube helps to establish the most appropriate strategy of organization and contains the following steps:

- The relationship between the product and the market is established,
- Determine the requirements of customers in the market,
- The competencies of organization are analyzed.

If they are insufficient, it is established how the gap between the required and the current level can be covered. The problem can be solved by internal development, alliance or acquisition, each with a different degree of risk. These strategic options are the main variables of cube, the first option being internal development because it is the least risky (Figure 11).

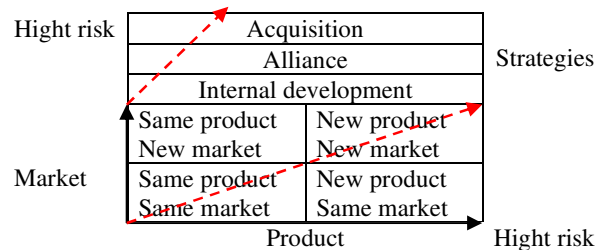


Figure 11. The Risk Cube variables [11]

The second option the alliance involves operating with a partner, over whom the organization has limited control, so, a higher level of uncertainty.

The third option, the acquisition, is even more risky because it is necessary to harmonize the competencies of all the organizations involved, a difficult process that can ultimately lead to an overall imbalance.

Risk analysis shows that it grows as the innovative organization moves away from the markets it operates and the products it makes.

- The first least risky option is to make the same product for the same market, the organization being based on internal development. If the product is in decline or the market is already saturated, the other three options with increasing

risk are considered: launching the same product in a new market, making a new product for the same market, launching a new product in a new market (Figure 11).

- The second option is to launch the same product in another market, which involves rebuilding the Customer's Matrix and that of producer to meet the new price and quality characteristics of market.
- The third option is to make a new product on the same market and only involves the change of Producer Matrix because the skills for achieving the new value of use perceived by the customer (PUV) and the costs of making the new product differ.
- The fourth option is to launch a new product in another market and will require updating both the Customer Matrix and the Producer Matrix.

These options can be achieved through internal development, alliance or acquisition in ascending order of risk.

In the Risk Cube, these strategic options can be characterized by a higher level of detail. Thus, for the same product strategy, the same market there is the following additional strategic options: keeping the current direction, withdrawing from the market, concentrating activities, increasing the market share. Maintaining the current direction of innovative organization is a useful strategy if the market share is high and a sustainable competitive advantage (SCA) has been obtained. The risk increases if the organization is not attentive to new trends that manifest themselves in the general external environment and to the evolution of competitive environment.

Withdrawal from the market is a useful strategy of innovative organization if the market share is small, external threats is stronger and its skills are reduced. Timely withdrawal of organization is a useful strategy if losses can be minimized and resources can be leveraged in other markets or in other industries. The condition is that the barriers to exit from the market are not high, high expenses and advance payments are irrecoverable.

Concentrating the activities of innovative organization is the useful strategy in the phases of economic recession. It implies the consolidation of position in the sectors of activity in which it has a more favorable position. The innovative organization withdraws from low-profit activities. The strategies associated with the concentration are: cost reduction based on cost-focused skills and market leadership strategy.

Increasing market share is essential in the maturation phases of a sector of activity. If the industry is in the

launch phase, competitors can evolve quickly and without increasing market share. The strategy is realized by methods that lead to movement to the northwest (NW) in the Customer Matrix.

The same product strategy, new market is characterized by a higher level of risk. It is necessary to develop a new Customer Matrix because changing the market involves new requirements related to PUV size and price. It is necessary to re-evaluate the position of innovative organization in the Producer Matrix.

New product strategy, the same market is riskier than any of strategic options presented. Even if the new product addresses the same market, it has different characteristics, requiring a change in the Customer Matrix. By default, the Producer Matrix must be developed to highlight the skills needed to make the new product. The strategy can be applied using the following methods:

- Making complementary products, taking over a new product on the basis of a license or franchise, making a new product through own research and development. The construction of complementary products presents the lowest level of risk because the strategy is the closest to the current activity. There is a risk of financing above the allowed limit of new activities in the profitable activity. This risk increases with the degree of expansion.
- The acquisition of a new product on the basis of a license or franchise has the advantage that the product has been tested on the home market. The product thus no longer requires additional investment in research and development. The risk is that the new market is different from the original one, and customers may have different preferences from those in the home market.
- Making a new product through your own research and development is the riskiest strategy. The strategy is appropriate for organizations with financial, human, informational and material resources. Innovation skills need to be doubled by operational skills, especially in marketing and sales activities to capitalize on high perceived value products (PUV).

New product strategy, new market presents the highest risk of strategies presented. If an organization has a large market share with another product, it can launch a new product in the same market, based on customer loyalty to the brand.

Once the strategies have been analyzed and adopted using the Risk Cube, it is necessary to evaluate and control the strategies by the management team and the staff at the lower levels of innovative organization using nonconventional technologies.

7. THE CASE STUDY

We have to evaluate the EDM machine made by suppliers from four countries: Japan (JP), Germany (DE), France (FR) and Romania (RO).

The stages of creating the Customer Matrix are:

- Step 1: Market segmentation. The product addresses a market segment formed by organizations in Romania, which use EDM processing for the active surfaces of molds. They are particularly interested in the precision and high quality of surfaces obtained.
- Step 2: Identify the dimensions of PUV. Users are interested in the following product features. Overall dimensions: (1) machine length (L), (2) machine width (l), (3) machine height (h), (4) machine mass (M), Work table dimensions: (5) table length (L_m), (6) table width (l_m), Working tank dimensions: (7) tub length (L_c), (8) the width of tank (l_c), (9) tank height (h_c), (10) maximum mass of machined part (m_p), Work rates: (11) X-axis travel (X), (12) travel on the Y (Y) axis, (13) travel on the Z axis (Z), Positioning accuracy: (14) positioning tolerance on the X and Y axes ($T_{pX,Y}$), (15) Z-axis positioning tolerance (T_{pZ}), (16) average positioning dispersion on the X and Y axes ($6_{\sigma X,Y}$), (17) Z-axis positioning average dispersion ($6_{\sigma Z}$), (18) reverse repositioning tolerance on the X and Y axes ($T^{-1}_{pX,Y}$), (19) Z-axis reverse repositioning tolerance (T^{-1}_{pZ}), Fast forward speeds: (20) the speed of fast advance on the X and Y axes ($v_{sX,Y}$), (21) fast forward speed on the Z axis (v_{sZ}), Productivity: (22) productivity in the copper / steel material pair ($V_{W,Cu/st}$), (23) productivity in the pair of graphite / steel materials ($V_{W,gr/st}$), Minimum Ra roughness of processed surface: (24) minimum torque at the copper / steel material torque ($R_{a,Cu/st}$), (25) minimum roughness at torque of copper / metal carbide materials ($R_{a,Cu/MC}$), Dielectric unit: (26) filter fineness (f), (27) dielectric fluid injection pressure (p_{inj}), (28) the suction pressure of dielectric liquid (p_{asp}), (29) coolant temperature (t_r), EDM generator: (30) maximum current stage (I_{max}), (31) minimum current stage (I_{min}), (32) maximum pulse time (t_{imax}), (33) minimum pulse time (t_{imin}), (34) maximum priming voltage (U_{0max}), (35) minimum starting voltage (U_{0min}).
- Step 3: Determining the weights of PUV dimensions. Weights p_i are awarded by a team of potentially qualified users. In order to reduce the subjectivity in the weighting, the p_{imed} average values given by the team members were determined. The sum of weights satisfied the

relation: $\sum_{i=1 \dots n} p_i = 100\%$. As users are interested in the accuracy and quality of surfaces processed, they have given greater weight to the characteristics: (14), (15), (16), (17), (18), (19), (24), (25), (26), (31), (33) and lower weights of characteristics: (1), (2), (3), (4), (5), (6), (7), (8), (9), (10).

- Step 4: PUV evaluation of products. The absolute values of X_i quality characteristics corresponding to the four products of companies from Japan, Germany, France and Romania, were centralized in Table 3. Depending on the weakest value of parameter (X_{imin}) and the best value of parameter (X_{imax}), for each quality characteristic i , a relative value was assigned on a normed scale from 0 to 1 based on the relation: $X_{ir} = (X_i - X_{imin}) / (X_{imax} - X_{imin})$. Using the relation $PUV = \sum_{i=1 \dots n} p_i X_{ir}$, PUV were determined for the four products, the resulting values being found on the last line of Table 3.
- Step 5: Determine the positions in the matrix. The positioning of products in the Customer Matrix based on the two coordinates (Price and PUV) was represented in Figure 12:

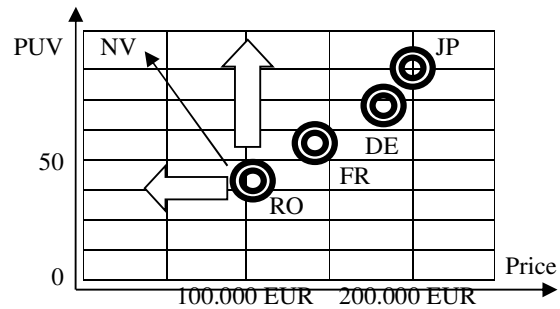


Figure 12. Customer Matrix for the four products [11].

- Stage 6: Development of strategy. The strategy necessary to obtain SCA for the Romanian organization is elaborated. The market segment to which the product is addressed consists of organizations in Romania, which do not have high financial resources and are therefore sensitive to the price variable. From this point of view, the Romanian product occupies a favorable position in the matrix in relation to the competitors. The prices of analyzed cars are influenced by the skills related to costs. In the current conditions related to the global economic crisis, the Romanian organization must continue to pursue westward movement (continuous cost reduction). In our country, the costs of production factors are relatively low compared to the rest competitors from Japan (JP), Germany (DE) and France (FR). But compared to other competitors in China, which enter the Romanian market in the current conditions of strong globalization, the

organization in Romania is inferior. Therefore, the Romanian organization must develop other skills focused on reducing costs. In terms of PUV size, the Romanian product is the lowest rated compared to competitors, so moving north remains the main strategic option. In order to ensure efficiency, it is based on the Romanian organization's focus on increasing the quality

characteristics that have been quoted with high weights, which aims to ensure performance on the accuracy and quality of processing required by users. As the competition takes place in the northwest (NW) direction, by composing the two movements mentioned above, the Romanian organization moves to the northwest (NW), aiming to obtain in perspective of SCA [11].

Table 3. PUV evaluation of products [11].

Nr.	Technical characteristic	JP		DE		FR		RO		p _{imed} [%]
		X _i	X _{ir}	X _i	X _{ir}	X _i	X _{ir}	X _i	X _{ir}	
1	L [mm]	3000	1	3500	0	3200	0,6	3400	0,2	1,5
2	l [mm]	2000	1	2500	0	2400	0,2	2300	0,4	1,5
3	h [mm]	2000	1	2100	0,5	2100	0,5	2200	0	1,5
4	M [kg]	2500	0	3100	1	2700	0,33	2900	0,67	1,5
5	Lm [mm]	600	0	800	1	700	0,5	750	0,75	1,5
6	lm [mm]	350	0	650	1	550	0,67	450	0,33	1,5
7	Lc [mm]	700	0	850	1	750	0,33	810	0,73	1,5
8	lc [mm]	400	0	700	1	600	0,67	480	0,27	1,5
9	hc [mm]	400	0	600	1	400	0	500	0,5	1,5
10	mp [kg]	300	0	450	1	380	0,53	420	0,8	3
11	X [mm]	300	0	450	1	400	0,67	420	0,8	1,5
12	Y [mm]	250	0	400	1	350	0,67	380	0,87	1,5
13	Z [mm]	250	0	400	1	380	0,87	380	0,87	1,5
14	T _{pX,Y} [μm]	5	1	10	0	10	0	8	0,4	4
15	T _{pZ} [μm]	4	1	8	0	6	0,5	6	0,5	4
16	6 _{σX,Y} [μm]	2	1	4	0	3	0,5	3	0,5	4
17	6 _{σZ} [μm]	2	1	4	0	3	0,5	3	0,5	4
18	T ⁻¹ _{pX,Y} [μm]	3	1	5	0	4	0,5	4	0,5	4
19	T ⁻¹ _{pZ} [μm]	3	1	5	0	4	0,5	4	0,5	4
20	v _{sX,Y} [mm/min]	1500	1	1800	1	1600	0,67	1200	0	1,5
21	v _{sZ} [mm/min]	700	0	900	1	800	0,5	800	0,5	1,5
22	V _{W,Cu/st} [mm ³ /min]	450	0,67	500	1	400	0,33	350	0	2
23	V _{W,gr/st} [mm ³ /min]	550	1	550	1	450	0,33	400	0	2
24	R _{a,Cu/st} [μm]	0,05	1	0,1	0,86	0,1	0,86	0,4	0	8
25	R _{a,Cu/MC} [μm]	0,1	1	0,2	0,86	0,2	0,86	0,8	0	8
26	f [μm]	5	1	10	0	6	0,8	6	0,8	4
27	p _{inj} [MPa]	0,1	1	0,1	1	0,05	0	0,06	0,01	3
28	p _{asp} [MPa]	0,05	1	0,03	0,33	0,02	0	0,02	0	3
29	t _r [°C]	4	1	6	0	6	0	4	1	1
30	I _{max} [A]	50	0,5	60	1	50	0,5	40	0	3
31	I _{min} [A]	0,5	0	0,5	0	0,4	0,25	0,1	1	5
32	t _{imax} [μs]	1000	0,67	1200	1	800	0,33	600	0	2
33	t _{imin} [μs]	0,5	0,56	1	0	0,8	0,22	0,1	1	5
34	U _{0max} [V]	200	0,55	250	1	180	0,36	140	0	3
35	U _{0min} [V]	100	0,33	120	0	100	0,33	60	1	3
TOTAL		PUV_{JP} = 68,58		PUV_{DE} = 49,46		PUV_{FR} = 47,24		PUV_{RO} = 41,56		100%

8. INTERNAL ENVIRONMENT ANALYSIS

For the elaboration of strategy, the results obtained previously in the process of strategic management, in the analysis of external environment must be coupled with those obtained in the analysis of internal environment, which concerns the following elements: the resources, capabilities and fundamental competences.

The analysis of internal environment groups the resources of organization in two categories:

- tangible resources: which can be quantified.
 - intangible resources: which cannot be quantified.
- Capabilities represent the ability of an innovative organization to use its resources in an efficient way so that their potential can be transformed into concrete results.

The fundamental competences are those characteristics, which contributes to the formation of personality of innovative organization, which differentiates it from other innovative organizations in the external competitive environment. As:

- The value chain analysis is the method proposed by Michael Porter in order to highlight the global income to which an organization makes its products, as well as its profit. The profit of organization represents the difference between the global revenues of and the costs related to the production of products.
- Financial analysis is an essential stage of internal environment analysis. It must focus on the areas of financial activity: profitability, debt, flexibility and solvency.
- Financial analysis is an essential stage of internal environment analysis. It must focus on the areas of financial activity: profitability, debt, flexibility and solvency.
- The commercial analysis will have in mind the structure of product portfolio, the analysis of products, the opinion of customers regarding the quality of products and services offered, the effectiveness of sales force, the distribution channels, the promotional and advertising actions.
- The analysis of production activity will focus on the production capacity in relation to the size of demand, the age of equipment and the equipment, the location of production units, the manufacturing processes used, the flexibility of productive apparatus, the level and structure of costs in relation to the competition, the availability of material resources, performance in terms of product quality.
- Organizational analysis consists in assessing the coherence between the organizational way, the demands of strategy followed expressed in the form of functional efficiency, the exploitation of economies of scale, the ability to react quickly and adapt to the demands of customers and the external context.
- The analysis of human potential will have a quantitative and qualitative dimension. On a quantitative level, it will target the size of number of employees and the structure by age, qualifications and sex. In the qualitative plan, the evolution of labor productivity is pursued, the existence of necessary qualifications for a certain strategic course, the satisfaction of employees, the social climate, the remuneration systems used, the fluctuation of personnel.

- The analysis of development research activity will focus on how it can conceive new products, improve the technical and qualitative parameters of existing products and develop new more efficient production methods in terms of cost and quality [6].

9. THE SWOT ANALYSIS

The situation of an innovative organization can be known from the point of view of internal and external environment.

- Strengths (S) translate into strengths and represent those competencies that give the organization competitive advantages over other organizations. Each organization can present a combination of strengths.
- Weaknesses (W) are translated by weaknesses and represent those characteristics that generate competitive disadvantages. Each organization can present a combination of weaknesses. Managerial studies show that only a small proportion of managers treat their weaknesses in an objective way.
- Opportunities (O) translate into opportunities and represent a combination of external elements, which produces significant advantages for the innovative organization. Opportunities are associated with the emergence of new markets or new technologies.
- Threats (T) means threats and represents a combination of external elements, which causes damage to the innovative organization. Threats are associated with changes in the external competitive environment in the sense of increasing one of forces of Porter Model (Figure 1).

The SWOT Analysis can be done both quantitatively and qualitatively. The quantitative strategic approach involves the following steps: listing the main internal factors, listing of main external factors, giving weight to these factors, so that the sum of weights is 1, calculating a total score, as a sum of products between the awarded scores and the weightings of considered factors.

The qualitative strategic approach involves the stages: listing the main internal factors that constitute the strengths of organization, listing the main internal factors that constitute the weaknesses of organization, listing the main external factors that constitute opportunities of organization, listing the main external factors that constitute threats to the organization, combining strengths with opportunities and generating SO Strategies, combining strengths with threats and generating ST Strategies, combining weaknesses with opportunities and generating WO

Strategies, combining weaknesses with threats and generating WT Strategies,

Table 4. The Strategy Matrix [25]

	Strong points (S)	Weaknesses points (W)
Opportunities (O)	SO Strategies (max-max)	WO Strategies (min-max)
Threats (T)	ST Strategies (max-min)	WT Strategies (min-min)

- SO Strategies use the strengths of organization to take advantage of opportunities of external environment. Strategies are aggressive and aim to create an advantage over competitors. Sometimes transfers or transformations of resources are needed to create the desired strategic capability,
- ST Strategies use the strengths of organization to reduce the threat of adverse situations. Threats that occur are avoided or the effects are mitigated through diversification strategies. The problem that arises is to choose the right direction for diversification,
- WO Strategies use opportunities to improve their internal characteristics or to avoid weaknesses. These strategies are reorientation and are characterized by a redirection of resources in the creation of new products imposed by the favorable situation,
- WT Strategies aim to avoid threats to the external environment, given that the weaknesses of organization are prevalent. The position is unfavorable and the defensive strategy aims to reduce losses and fight for survival [20].

10. CONCLUSIONS

Strategic Management is the most important component of management of an organization because it offers the general direction of development and implies the choice of objectives, the development of necessary policies and plans, the allocation of resources for the implementation of plans and the achievement of objectives. The vision, and also mission, and strategic objectives are the basic elements of Strategic Management. The strategic options reflect the directions in the sense that all the activities within the strategy will evolve to achieve the strategic objectives. The most important activity of strategic process is the strategic analysis, with which the strengths, weaknesses, opportunities and threats are evaluated. The Risk Cube is the strategic tool that helps the organization to establish the most appropriate strategy. In order to establish a correct strategy, the results of analysis of external environment must be harmonized with the results of analysis of internal environment of organization using nonconventional technologies.

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