

THE METHODS OF EXTERNAL ENVIRONMENTAL ANALYSIS IN HEALTH INSTITUTIONS

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Abstract

It is a fundamental necessity for health institutions to conduct an environmental analysis in order to protect themselves from threats arising from their competitors and to take advantage of prospective opportunities.

Choosing and implementing an environmental analysis technique appropriate to their organizational structure can enable health institutions to fittingly and sustainability position them for the future. Such an analysis technique can also create certain advantages for these health institutions for utilizing opportunities to full extent.

In this study, environmental analysis techniques are explained and discussed with examples from the health sector. Through observed examples from the health sector, we show that some health institutions choose to use a single environmental analysis technique, while others employ several analysis techniques together. It is believed that the explanations and discussions based on factual examples will help health institutions and health managers determine appropriate set of environmental analysis techniques, in in return can be used in developing evidence based and implementable strategies.

Keywords: External Environment Analysis, Environmental Analysis Methods

INTRODUCTION

The focus of strategic management in healthcare institutions is on establishing a positive relationship between the health institution and its environment. A dynamic and variable environment poses challenges for the health institution in terms of its ability to continue operating in such an environment and achieve its long-term goals. Therefore, the success of the health institution in such a dynamic environment depends on its ability to protect itself from threats and take advantage of opportunities. To protect the health institution from threats and take advantage of opportunities, the management must analyze the institution to identify its strengths and weaknesses.

The environment of a health institution consists of factors that directly or indirectly affect the institution. Some examples of factors indirectly affecting the institution are national political developments and changes in legal framework and regulations, domestic economic developments, technological changes and innovations, and international changes such as new patterns in the global markets. On the other hand, factors affecting the institution more directly may include changes in suppliers and insurance companies' strategies, shifts in patients' behavioral patterns, new strategies developed by competitors in the sector, and innovations in medical practices. Consequently, the first step in the strategic management process must be the analysis of the external environment. A thorough analysis of the factors in the institution's external environment will distinguish opportunities and threats. Opportunities are factors with potential to stimulate the institution to a more advanced position and provide benefits. Threats, on the other hand, are factors in the external environment that may halt or reverse the institution's development and may even end its existence. That is, the threats and opportunities have the potential to affect the institution's activities in future periods (Kavuncubaşı and Yıldırım, 2022:226-227).

The external environment also includes individuals and institutions with a significant potential to exert direct or indirect influences on the health institution. Hence, the strategic management process takes a close look at those individuals and institutions and assesses their potential effects in terms of threats and opportunities. Duncan et al. (1995) classify the external environment of a health institution into two clusters: the general environment and the healthcare services environment (the healthcare sector). The general environment includes individuals and institutions (such as construction companies, hotels, etc.) with no direct impact on the operation of the health institution. On the other hand, the healthcare services environment includes individuals and institutions (such as competing institutions, pharmaceutical manufacturers, health insurance companies, etc.). with direct effect the health institution.

Strategic management is about determining the position of the health institution in a rapidly changing environment. In this sense, the analysis of the external environment includes identifying, grouping, and interpreting the environmental conditions that affect the position of the institution. Furthermore, a comprehensive assessment of the external environment is necessary for both determining the vision, mission, values, goals, and objectives of the health institution and for evaluating the internal environmental conditions (Duncan, et al. 1995: 80-81). The information collected during the environmental analysis process can be grouped into six main categories (Fisk, 1994);

- i. Medical technology,
- ii. Government's health policy,
- iii. Health financing,
- iv. Competition conditions and rival institutions,
- v. Societal and demographic changes, and
- vi. Epidemiological problems.

This categorization implies that the *environmental analysis process* in fact refers to learning about the external environmental conditions. In what follows we

will discuss the main techniques used in the environmental analysis process.

PURPOSE OF THE STUDY

The aim of the study is to thoroughly examine the external environment analysis techniques that can be applied in the case of health institutions. Furthermore, we try to explain the importance and meaning of external environment analysis techniques from the perspective of health institutions. Most importantly, the study looks at how different researchers working on health institutions use external environment analysis techniques.

In the study, through recent empirical examples we show that in some cases it is possible to apply a single external environment analysis technique, while in other cases multiple external environment analysis techniques are employed by health institutions.

Another aim of the study is to show that external environment analysis can enable health institution managers to identify, group and interpret environmental factors that are thought to have potential to generate fierce threats and important opportunities.

METHODOLOGY

In accordance with the purpose of the study, we conduct a detailed and systematic review of the related literature on external environment analysis techniques. We provide a general assessment of the main findings of the literature regarding external environment analysis techniques that are thought to be usable by health institutions. In addition, we make use of the propositions of theoretical discussions and recent practical examples to group environmental analysis techniques and

illustrate the importance of each group from the perspective of health institutions.

TREND ANALYSIS

Trend in the case of external environmental analysis refers to general and regular changes occurring in external environmental factors over a long period of time. In this sense, trend analysis is a method used to examine the direction, magnitude and essence of changes in environmental factors over time. However, trend analysis is not a static analysis, rather it is a dynamic analysis that helps to produce predictions for the future based on developments that have occurred in the past. The idea behind trend analysis is that the future is an extension of the past. However, trend analysis requires an adequate amount of numerical times series data. We provide a summary of the steps in applying trend analysis below.

Step 1. Data Collection: In the first step, historical numerical data related to the environmental factor under examination is collected. To be able to obtain reasonable results from trend analysis, the data and data sources must be reliable. Since trends emerge over the long term, data from the past 10-15 periods is required.

Step 2. Preparation of Distribution Diagram: A distribution diagram is prepared by making use of the data collected in the first step. The distribution diagram allows for a visual understanding of the data. Figure 1 shows the distribution diagram of the rate of visits to private hospitals in Turkey by years (number of patients visiting private hospitals / population), while Figure 2 shows the distribution diagram of the average length of stay at these hospitals by years.

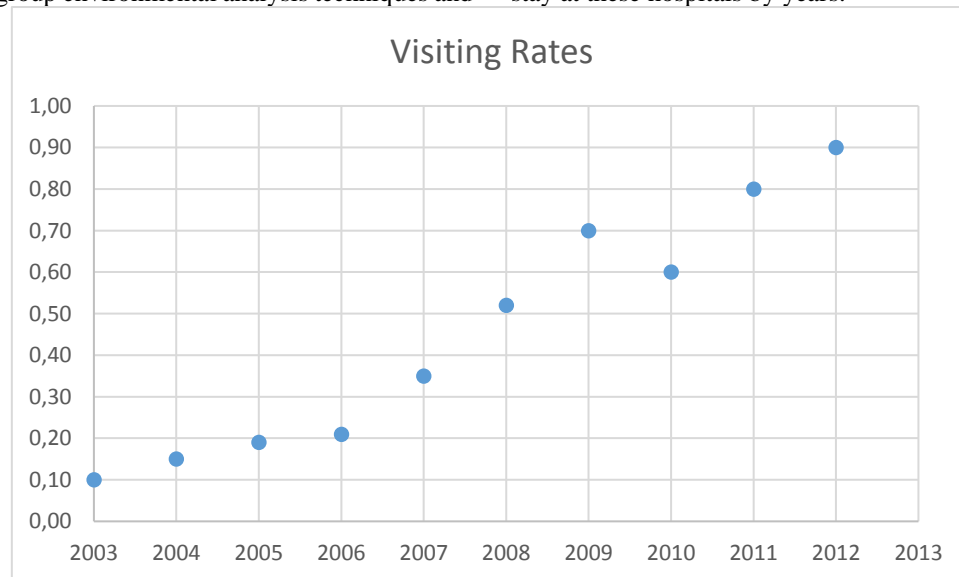


Figure 1. Visiting Rates to Private Hospitals by Year

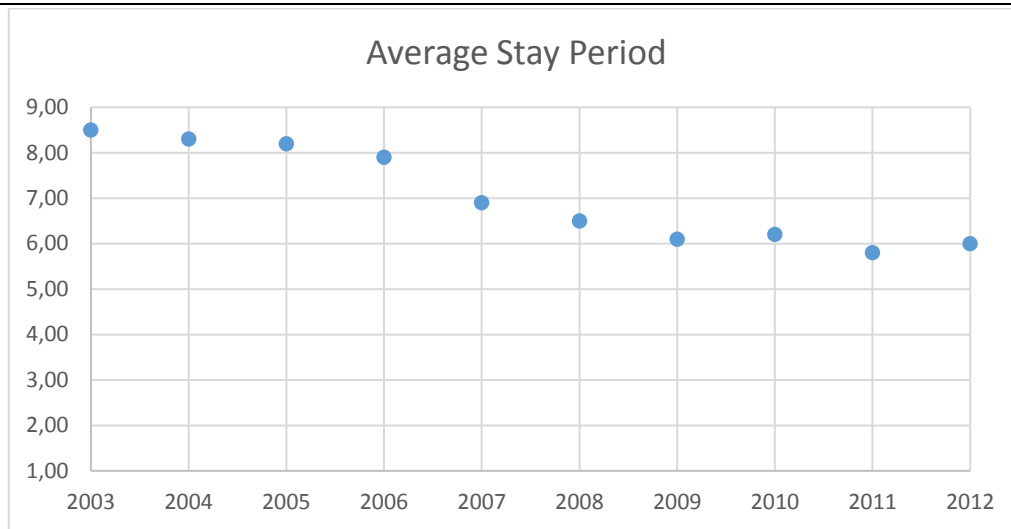


Figure 2. Average Stay Periods at Private Hospitals by Year

Step 3. Trend Prediction: Trend analysis is used to reveal how regular were the changes in the past. That is, trend prediction is to show how changes took place over time based on a statistical model. One such statistical model used to construct trend relations is based on

regression analysis. Figure 3 shows such a regression model and generated trend line for the rates of private hospital visits between 2003 and 2012.

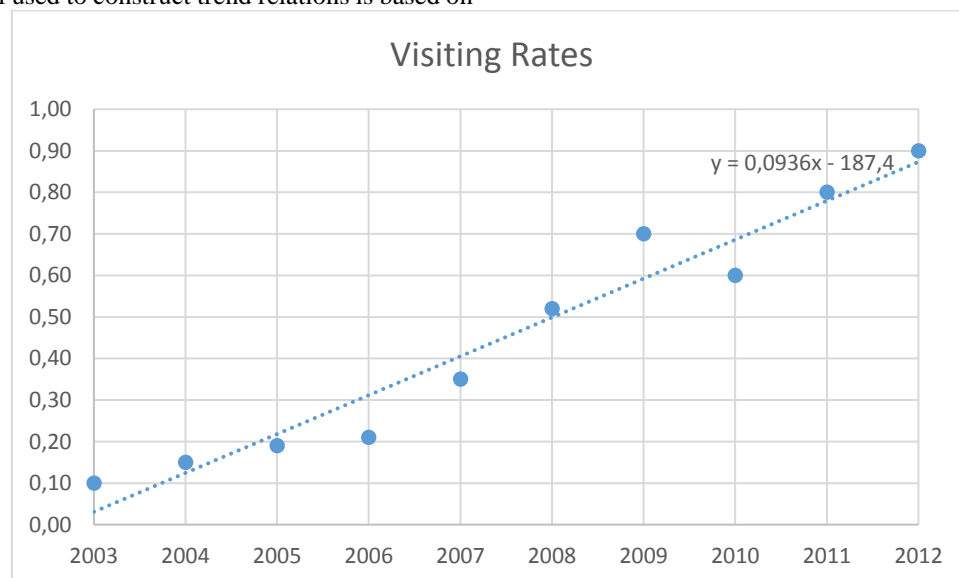


Figure 3. The Trend of Visiting Rates to Private Hospitals by Year

Step 4. Making Predictions for the Future: In this stage, predictions for future periods are generated using the regression equation calculated in the previous step. For example, the rate of visits to private hospitals in 2014 is predicted as:

$$Y = 0.0938 (2014) - 187.89 = 1.02$$

In other words, based on the developments of the last 10 years, it is expected that the rate of visits to private hospitals will increase to 1.0 in 2014.

Though trend analysis is a very useful method, it may lead to erroneous decisions by overlooking developments that may suddenly appear in the near future. For instance, the caesarean services market in Turkey had been continuously expanding until 2012. In 2002, the rate of births performed by caesarean operation was 21% of all births. It increased steadily (showing an upward trend) and reached 48% in 2012. If we had made a prediction for 2013 using the trend analysis method

in the first months of 2012, we would have certainly predicted that the caesarean rate would continue to increase. However, in May 2012, the Prime Minister and the Minister of Health announced that they are against caesarean births and that there will be restrictions on caesarean operations. This unexpected development was expected to force women to shift to normal delivery. Moreover, it also led service-providing health institutions to be more selective in providing caesarean services. Therefore, the trend analysis' prediction for 2013 would definitely be wrong.

Trend analysis carefully considering past developments can provide managers with a viewpoint on how the future environment will progress. Once managers have information about the conditions that may exist in the future, they should investigate the possible effects of these conditions on the health institution. From the perspective of a hospital that provides maternity care

services, government' initiative on restricting caesarean services may be considered as a serious threat, while the same government's population policies that discourage family planning can be understood as an opportunity. Hence, managers should gauge the threats

and opportunities created by the environmental factors, assess the degree of impact of these environmental factors on the health institution, and determine the trends in these factors to prepare for the future.

Table 1.

Evaluation Example for Women's Diseases and Maternity Hospital

Trend /Problem	Opportunity/Threat	Evidence	Degree of Effect on Health Institution	Probability of Trend Continuing
Government's Population Policy	Opportunity	Incremental increase in population growth rate	9	8
Government's Caesarean Policy	Threat	Restrictive policy preparation for caesarean	9	9
Health Literacy	Threat	Low women's health literacy rate	3	3
Private Practice	Threat	Number of private practices increased to 4	9	4
Medical Technology	Opportunity	New technologies are being developed	4	9

As shown in Figure 4, when the degree of impact of environmental factors is considered together with the probability of continuity of the trending behaviors of environmental factors, it becomes easier for managers to understand which environmental factors they need to

pay close attention to (Swayne et al., 2006: 77). It is clear that managers should give priority to environmental factors with a very high degree of impact and decide on the strategy that best responds to these environmental factors and changes in their dynamics.

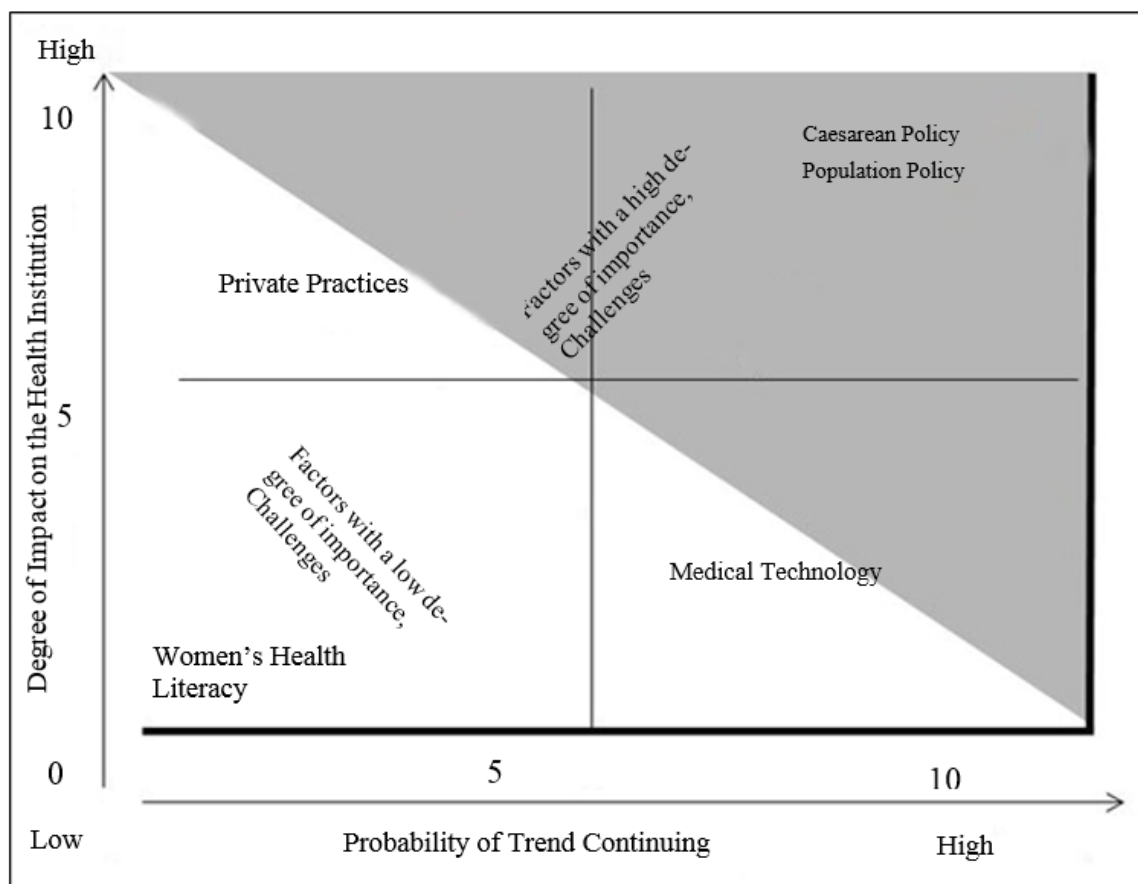


Figure 4. Environmental Trends and Challenges Matrix

ENVIRONMENTAL FACTOR EVALUATION (EFE) MATRIX

The main goal of environmental analysis studies is to identify environmental threats and opportunities. The External Factor Assessment (EFA) Matrix, devel-

oped to evaluate environmental threats and opportunities, is a tool that facilitates the summarization and evaluation of information related to political, economic, social, technological, legal, epidemiological, and international environmental factors. Hence, the EFA matrix guides managers on which environmental factors they

should focus on. The EFA matrix is developed in five stages. These stages are summarized below (Fred, 2011:80).

Step1. In the first step, through the environmental scanning, monitoring and prediction stages, 15-20 environmental factors that are considered important for the health institution are listed. The selected factors should contain both opportunities and threats. Developments related to environmental factors are presented in the example below.

Step 2: In the second step, a weight between 0-1 is assigned to each factor. The weights should reflect the

relative importance of each factor for the success of a health institution in the health sector. Opportunities are given higher weight than threats; however, if the threat is very serious, a higher weight can be assigned to the threat. The sum of the factor weights must be equal to 1. The weights can be determined by considering strong and weak competitors, or by using methods such as management jury or brainstorming by the upper management team. Nevertheless, the weights used should be specific to the health sector (industry). Table 2 provides an example of how different weights are assigned to different the factors.

Table 2.

Environmental Factor Weights	
ENVIRONMENTAL FACTORS	WEIGHTS (w_i)
OPPORTUNITIES	
F3. The number of patients visiting the hospital is constantly increasing.	0,16
F1. The insured population rate in the region is increasing.	0,15
F7. Doctors working at universities are given permission to work in private hospitals.	0,11
F8. The competitors do not have the capacity to update their medical technologies.	0,10
F10. New medical treatment methods are being developed.	0,05
THREATS	
F4. Efforts are being made to open a new rival hospital in the region.	0,15
F5. The prices of medical supplies and drugs are increasing.	0,08
F2. The SSI is working to lower service prices.	0,07
F6. The transition to the referral chain system is accelerating.	0,03
F9. The healthcare services market in the region is shrinking.	0,10
TOTAL	1,00

Step 3: In this step, each factor is assigned a score value between 1-4. The factor scores in this step reflect how well the strategies of the health institution align with these environmental factors.

The specific rules to assign score values are as follows:

- The strategies of the health institution align very well with environmental changes: 4 points.
- The strategies of the health institution align well with environmental changes: 3 points.
- The strategies of the health institution do not align well with environmental changes: 2 points.

- The strategies of the health institution do not align at all with environmental changes: 1 point.

We can explain how score values are assigned using Table 2. For instance, if the strategies of a health institution align very well with the development that there is "a constant rise in demand for the hospital (F3)", then 4 points will be given to that factor. If, on the other hand, the strategies do not align at all with this development, 1 point will be given to that factor. It is worth noting that while the factor scores are specific to the health institution, the factor weights determined in the second step are specific to the health sector. Table 3 exemplifies assigning the factor scores.

Table 3.

Environmental Factor Scores		
ENVIRONMENTAL FACTORS	WEIGHTS (w_i)	SCORES
OPPORTUNITIES		
F3. The number of patients visiting the hospital is constantly increasing.	0,16	4
F1. The insured population rate in the region is increasing.	0,15	3
F7. Doctors working at universities are given permission to work in private hospitals.	0,11	4
F8. The competitors do not have the capacity to update their medical technologies.	0,10	3
F10. New medical treatment methods are being developed.	0,05	3
THREATS		
F4. Efforts are being made to open a new rival hospital in the region.	0,15	4
F5. The prices of medical supplies and drugs are increasing.	0,08	2
F2. The SSI is working to lower service prices.	0,07	2
F6. The transition to the referral chain system is accelerating.	0,03	1
F9. The healthcare services market in the region is shrinking.	0,10	3
TOTAL	1,00	

Step 4: In this step, the factor scores and factor weights are multiplied to calculate the weighted factor scores.

Step 5: In the final step, the weighted total factor score is calculated by adding up all the weighted factor scores (Table 4). Regardless of the number of environmental factors used in the environmental factor evaluation matrix, the weighted total factor score will be equal to a maximum of 4 and a minimum of 1. The average weighted total factor score is 2.5. If the weighted total

score is close to 4, it means that the health institution responds very well to the threats and opportunities in the environment, meaning that the strategies applied by the health institution allow the institution to take advantage of environmental opportunities and protect against environmental threats. If, on the other hand, the weighted total score is close to 1, then it implies that the health institution is not able to take advantage of environmental opportunities and is exposed to environmental threats.

Table 4.

Weighted Environmental Factor Scores

ENVIRONMENTAL FACTORS	WEIGHTS (w_i)	SCORES (s_i)	WEIGHTED SCORES ($w_i \cdot s_i$)
OPPORTUNITIES			
F3. The number of patients visiting the hospital is constantly increasing.	0,16	4	0,64
F1. The insured population rate in the region is increasing.	0,15	3	0,45
F7. Doctors working at universities are given permission to work in private hospitals.	0,11	4	0,44
F8. The competitors do not have the capacity to update their medical technologies.	0,10	3	0,3
F10. New medical treatment methods are being developed.	0,05	3	0,15
THREATS			
F4. Efforts are being made to open a new rival hospital in the region.	0,15	4	0,6
F5. The prices of medical supplies and drugs are increasing.	0,08	2	0,16
F2. The SSI is working to lower service prices.	0,07	2	0,14
F6. The transition to the referral chain system is accelerating.	0,03	1	0,03
F9. The healthcare services market in the region is shrinking.	0,10	3	0,3
TOTAL	1,00		3,21

In our example, the weighted total score of the health institution is calculated as 3.21. Since this value is higher than the average value (2.5), it can be said that the health institution has developed strategies that are suitable for environmental changes. However, the fact that the calculated weighted total score (3.21) is less than the highest score of 4 implies that there are issues to be resolved and areas to improved for the health institution. The areas that need to be improved are related to environmental factors with a score value (s_i) below 4. For instance, it is necessary for the hospital to develop strategies applicable in cases of the full implementation of the referral chain (F6, score=1), the increase in medical material and drug prices (F5, score=2), and SSI's price restriction initiatives (F2, score=2). If the referral chain is fully implemented, then patients will not be able to apply to the hospital directly, as a result there may be a decrease in outpatient services in the hospitals. On the other hand, if the health institutions reduce the capacities of their polyclinics as a response to this decrease in the demand, it will lead to a decline in services to hospitalized patients, which is the most important output of the hospitals. To counter the decrease in the number patients, health institutions may assume the contribution payments of patients visiting their hospitals without complying with the referral system. Similarly, against SSI's price restriction initiatives, health institutions can im-

plement cost reduction and process improvement strategies. In case of a rising trend in drug and medical material prices, health institutions can develop operational strategies such as bulk purchasing, joint purchasing with other health institutions, rational drug use, and inventory management.

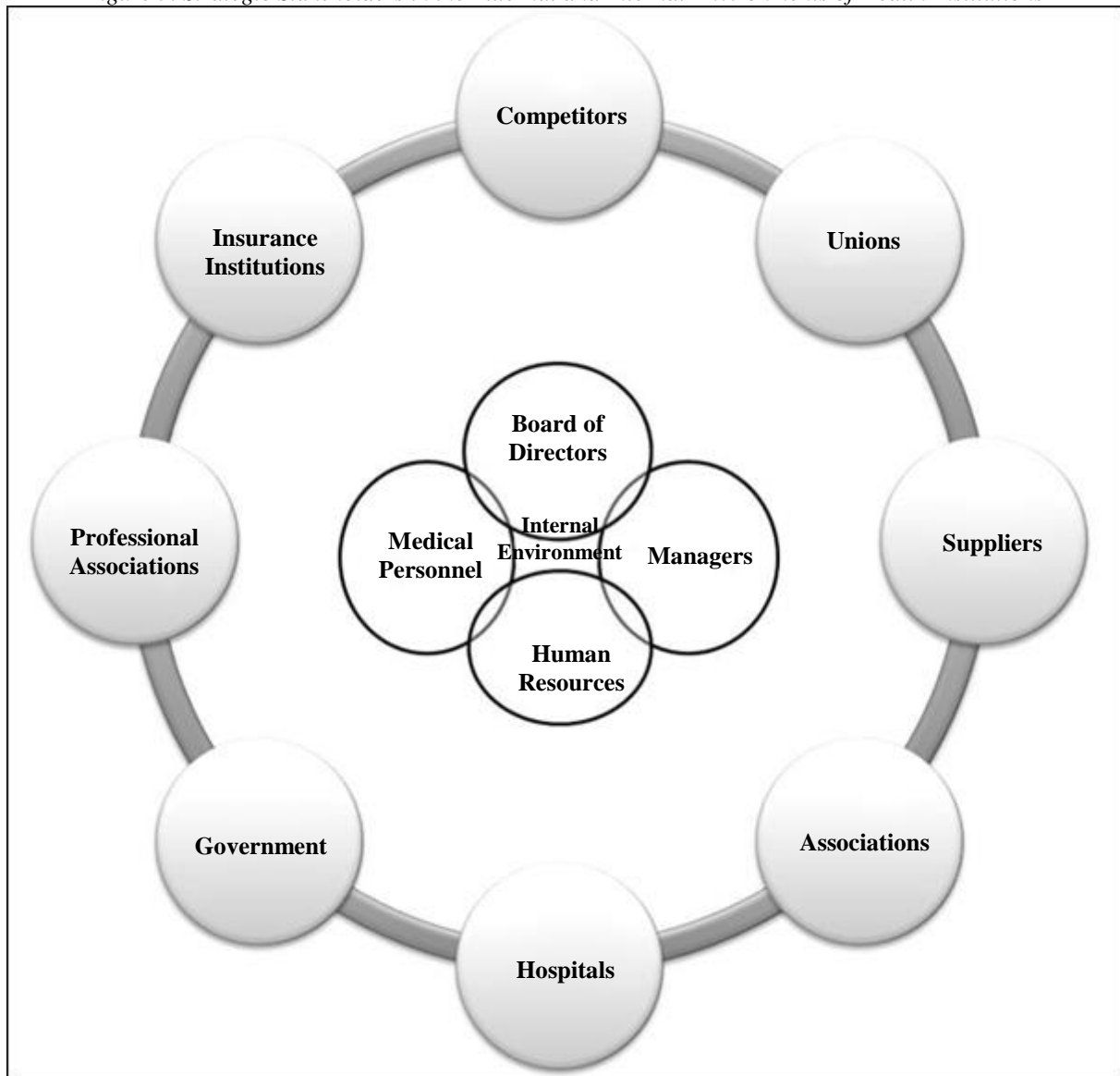
STRATEGIC GROUPS ANALYSIS

Health institutions interact with a large number of individuals, groups, and organizations within the external environment. All individuals, groups, and organizations that directly or indirectly affect the activities and performance of the health institution and have expectations from the health institution are defined as strategic stakeholders (Blair et al., 1995:289-290). However, not all strategic stakeholders are placed in the external environment; strategic stakeholders such as the board of directors, institution staff (especially medical staff), and managers are located in the internal environment. From this perspective, strategic stakeholders can be divided into two main groups: internal and external environment stakeholders. The analysis of strategic stakeholders is a study aimed at identifying the expectations, needs, interests, requests, and roles of individuals, groups and institutions that may affect the performance of the institution positively or negatively. When looked from the perspective of strategic stakeholders, strategic management can be defined as meeting the expectations of individuals and groups who have economic and

social interests directly or indirectly from the health institution. It is because the strategic stakeholders not only have an impact on the accomplishment of the health institution's goals, but also are affected by the

success of the institution (Freeman, 1984:24-25). Figure 5 demonstrates the strategic stakeholders in the external and internal environments of health institutions.

Figure 5. Strategic Stakeholders in the External and Internal Environments of Health Institutions



As illustrated in Figure 6, strategic groups can be divided into three blocs: (1) strategic groups situated in capital market, (2) strategic groups located in product/market, and (3) institutional stakeholders (Hitt, Ireland, Hoskisson, 2011:20). Strategic stakeholders in the capital market include banks and credit institutions that provide the health institution with necessary financial

resources, as well as shareholders who hold the shares of the health institution. The most important capital market stakeholders are shareholders. Shareholders are individuals and organizations that invest their financial resources into the health institution's shares and seek to gain earnings (such as dividends, increase in institution value) from their investments.



Figure 6. Main Blocks of Strategic Groups in the External and Internal Environments of Health Institutions

Patients, patient relatives, suppliers providing the hospital with resources, competitors, and professional associations are product/market strategic groups. Each strategic group in the product/market block has different expectations from each other. For instance, patients prefer the quality and efficiency of the health services to be improved, rather than the maximization of shareholders' profits. On the other hand, input (medicines, medical materials, etc.) providing suppliers want health institutions to stick to payment schedule. On the other side, rivals try to take business away from the health institution.

Internal strategic groups include managers, staff, consultants, and analysts working within the health institution. Internal strategic groups also have various expectations from the health institution; among these expectations are better pay, improved working conditions, larger social benefits, and recognition opportunities.

Analysis of strategic groups is carried out in four steps:

1. Identifying the strategic groups;
2. Determining the potential threat and support levels of the strategic groups;
3. Preparation of a strategic group map; and
4. Evaluation.

Step 1. Identification of Strategic Groups: A large number of internal and external environmental groups affect the health institution. Each strategic group has different expectations from the health institution. When developing mission, vision, objectives, and strategies, the expectations of strategic groups must serve as a guide. Since strategies are required to respond to these expectations, health institution managers must first identify the strategic groups they will address. After identifying the strategic groups directly or indirectly affecting the health institution and have their expectations clarified, health institution managers should list these groups in the first column of the strategic group evaluation table (Table 5).

Table 5.

Strategic Groups Analysis Evaluation Table

Strategic Groups	Potential Threat Level	Evidence	Potential Support Level	Evidence
Board of Directors				
Competitors				
Medical Personnel				
Insurance Institutions				
Suppliers				
Shareholders				
Professional Associations				
Union				
Finance Institutions				
Banks				
Government				

Step 2. Determination of Potential Threat and Support Levels: The effects of strategic groups on the health institution may be supportive or threatening. "Threat and support (opportunity)" should not be seen as two opposing endpoints. That is, the opposite of sup-

port is not a threat, but the absence of support. Similarly, the opposite of a threat is not support, but the absence of a threat. More specifically, a strategic group that has a high level of support may also pose considerable threats. However, some strategic groups may not

provide any support or pose any threat to the health institution. Therefore, in the second stage of the strategic group analysis it is important to evaluate the type (support and/or threat) and the degree of impact each group has on the health institution's performance through determining these groups' needs, demands, expectations, and interests (Webber, Peter, 1983:32-33). These evaluations should be evidence-based; that is, evaluations should not be made with vague, uncertain, and inconsistent information.

Strategic communities can be determined using non-numerical methods such as Delphi technique and

nominal group technique, as well as numerical methods such as external environment factor analysis and trend analysis. For example, a private hospital can use trend analysis to calculate the growth rate of the market and the market shares of rival hospitals and make inferences about the potential threat and support levels of competitors.

According to Savage et al. (1991), as shown in Table 6, a strategic group's potential support and threat for the institution depends on various specific conditions.

Table 6.

Conditions Determining the Potential Support and Threat Levels of Strategic Groups		
CONDITIONS	SUPPORT LEVEL	THREAT LEVEL
Strategic groups control the basic resources (inputs) that the health institution requires.	Increase	Increase
Strategic groups do not control the basic resources (inputs) that the health institution requires.	No effect	Decrease
The strategic group is stronger than the health institution.	No effect	Increase
The power of the strategic group is equal to the power of the health institution.	No effect	No effect
The strategic group is less powerful than the health institution.	Increase	Decrease
The strategic group may take a supportive attitude towards the health institution.	Increase	Decrease
The strategic group may take an obstructive attitude towards the health institution.	Decrease	Increase
The strategic group does not take any attitude towards the health institution.	Decrease	Decrease
The strategic group can form a coalition with other strategic groups.	No effect	Increase
The strategic group can form a coalition with the health institution.	Increase	Decrease
The strategic group does not pursue any coalition.	Decrease	Decrease

After the evaluations about the potential support and threat levels of strategic groups are completed, the results are summarized on the same table. Table 7 below provides an example of strategic groups evaluation.

Table 7.

Strategic Groups Analysis Evaluation Table				
STRATEGIC GROUPS	POTENTIAL THREAT LEVEL	EVIDENCE	POTENTIAL SUPPORT LEVEL	EVIDENCE
Board of Directors	2	Board members have not posed any threat to the hospital, but there are increasing disputes among board members.	10	The board is providing additional resources to the hospital.
Competitors	10	New competitors are emerging, the hospital is increasing its capacity and plans to lower the difference rate taken.	3	Efforts to find a compromise to work together with rivals are ongoing.
Medical personnel	8	Due to the transfer of two of our doctors to other hospitals, the clinic's capacity utilization rate has decreased by 60%.	9	80% of the costs are generated by physician decisions. A 5% increase in physician productivity has resulted in a 9% increase in hospital revenues.
Insurance Institutions	9	SSI made a cut of 8% on the invoice amount last year. The hospital's loss of income is approximately 3 million TL.	9	60% of the hospital's income is generated by payments made by SSI. There are no delays in SSI payments.
Suppliers	7	Material prices are increasing. There have been delays in material delivery due to late payments to suppliers.	7	Suppliers provide high-quality products. There have been no complaints.

Shareholders	2	3% of our shareholders protested the general assembly's decisions and sold their shares.	6	Shareholders are satisfied with the dividend distribution rate.
Professional Associations	3	No investigations have been opened regarding our physicians and healthcare staff.	3	No problems have been encountered with professional organizations.
Union	7	Last year, there was a loss of 2500 working hours due to a slowdown in business and disruptions in services.	3	Positive relationships are being developed with the union leadership. The worksite representative is complying with HRM policies.
Financial Institutions	6	A need for financial resources has emerged for new investments.	6	The possibility of lowering interest rates is present.
Patients	9	The rate of patients coming for check-up examinations has decreased.	9	40% of the hospital's income is made up of the difference taken from patients.
Government	6	The Ministry is implementing restrictions on physician employment.	6	Restructuring of public debt is on the agenda.

Step 3. Creation of the Strategic Group Map: A strategic group map is created to determine the position of each strategic group based on the information in the strategic group evaluation table (Table 7). The potential

support level is on one axis and the potential threat level is on the other axis of this map. Figure 7 depicts the strategic group map and the strategic group types according to their positions on the map.

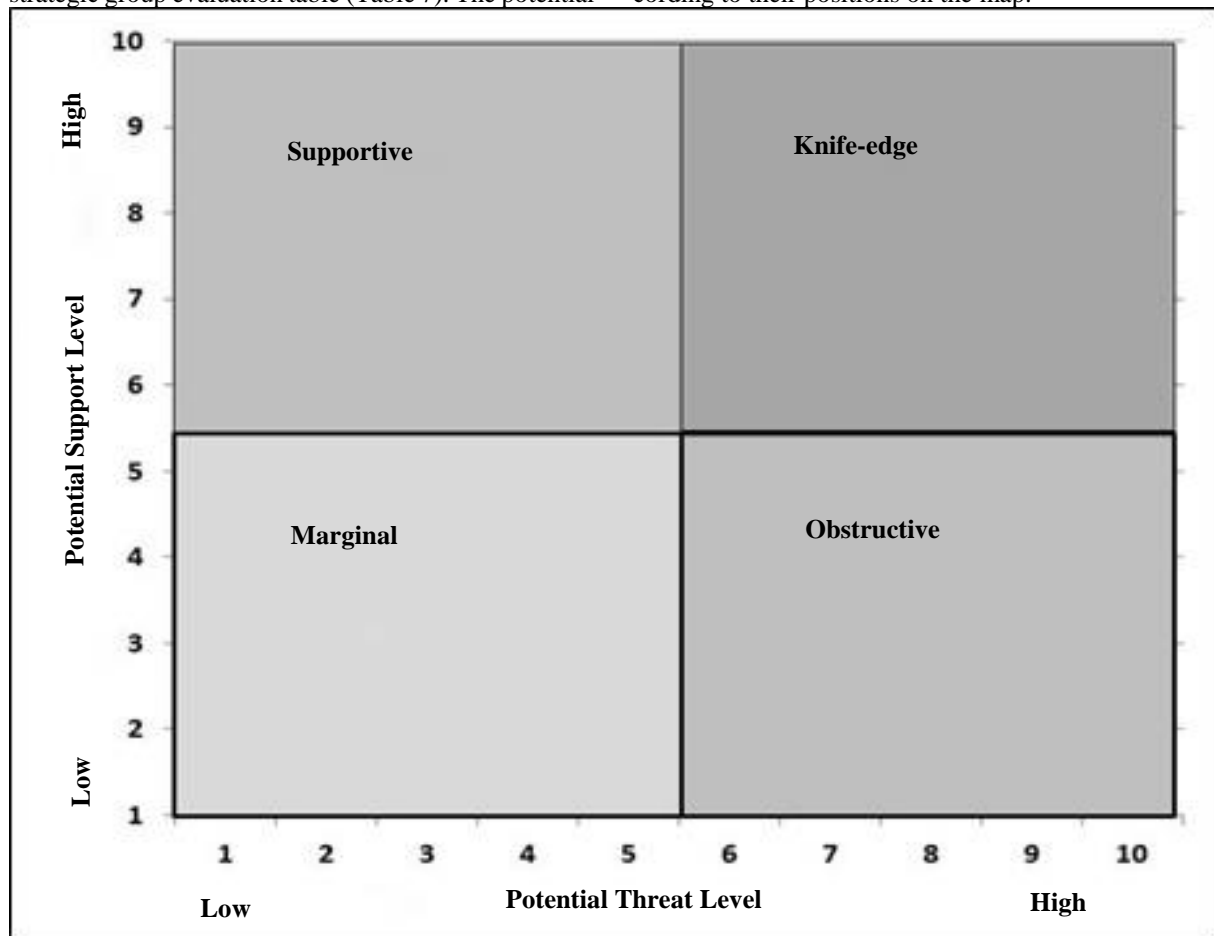


Figure 7. Strategic Group Map

a. Knife-edge: Strategic groups located in this zone provide high levels of support to the health institution, while also creating high levels of threats. Medical staff (doctors), insurance companies, financial institutions, and suppliers may be examples of these groups.

b. Supportive: These are the most ideal strategic groups. They provide strong support to the health institution and do not pose any threat. Members of the health institution's board of directors, other institutions

affiliated with the health institution or affiliated companies, shareholders can be examples of supportive strategic groups.

c. Obstructive: These groups constantly and highly threaten the health institution. Rival institutions and governments that adopt a policy of continuous price limitation can be examples of these groups.

d. Marginal: These are groups that do not pose significant support or threat to the health institution. Volunteer organizations and professional organizations can be examples of these groups.

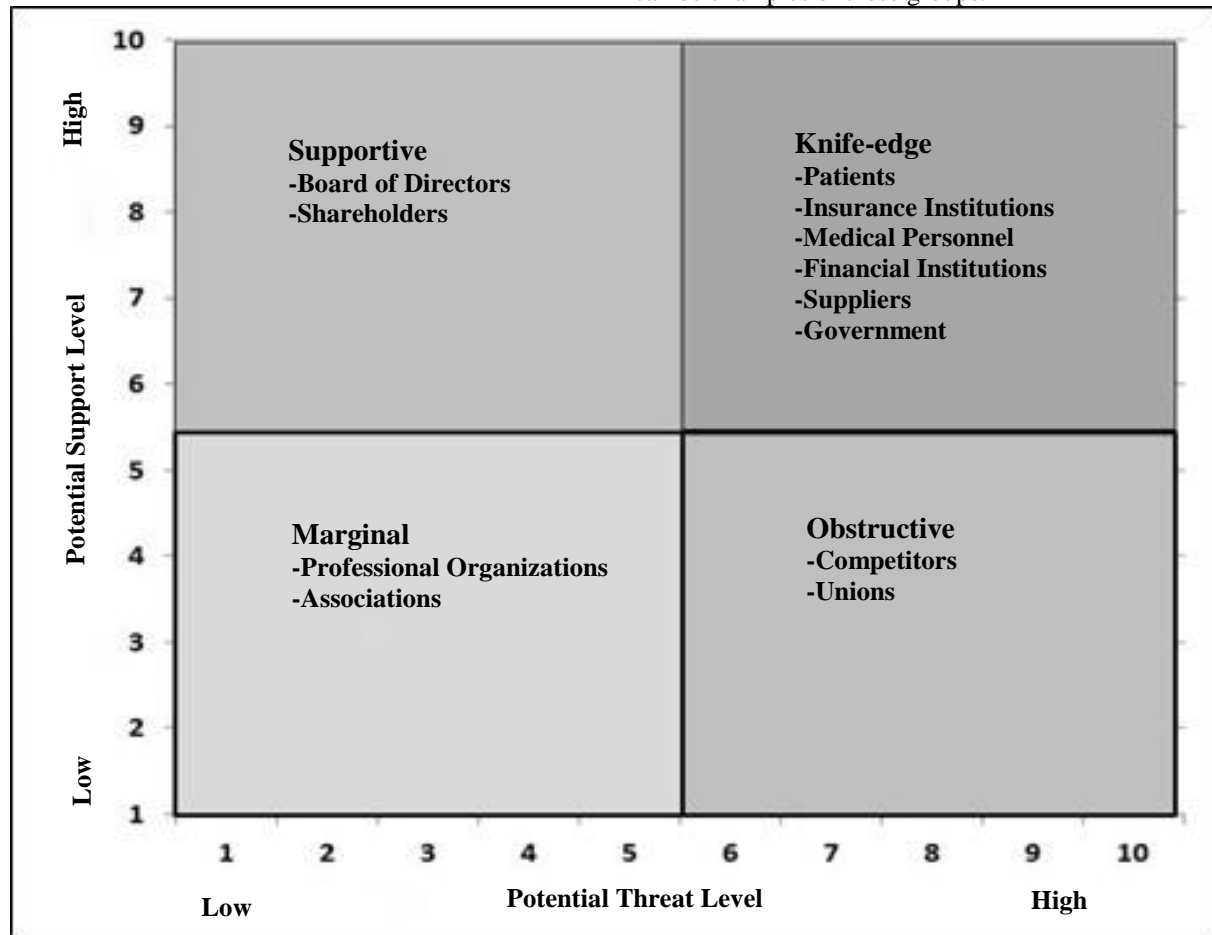


Figure 8. Strategic Group Map and the Positions of Strategic Groups on the Map

Step 4. Evaluation Stage: The primary intention of strategic group analysis is to determine how the health institution should respond to the expectations of groups in its internal and external environment that affect its mission, vision, objectives, and performance.

Because each strategic group has different levels of support and threat for the health institution, it is essential to develop and implement different strategies for each strategic group. The strategies suggested by Savage et al. (1991) are provided in Figure 9.

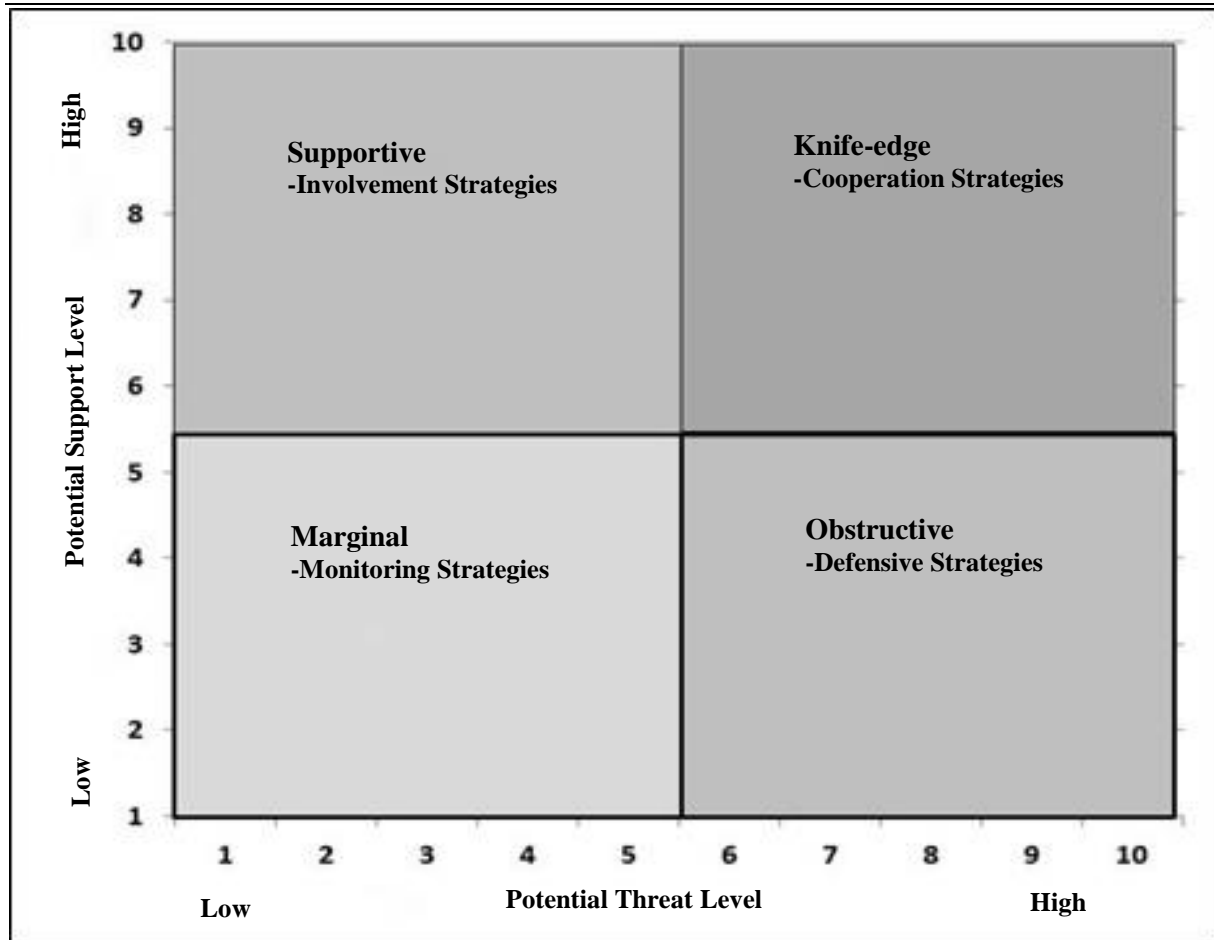


Figure 9. Strategies Suggested by Savage et al. (1991)

Supportive strategic groups are groups that do not pose a threat to the health institution and have a high potential for support. These types of strategic groups are highly beneficial for the health institution. Therefore, managers should develop close relationships with supportive strategic groups and actively involve them in the process of strategy formulation and decision-making.

Marginal strategic groups are those that do not provide any support or present any obstruction to the health institution. Examples of marginal strategic groups are professional organizations, civil society organizations, and other non-governmental organizations. Among these organizations, professional organizations are very important for the health institution because lead the development and improvement of professional standards. Although marginal strategic groups do not have a significant positive or negative impact on the health institution, it is still essential not to overlook these groups. On the contrary, it would be beneficial for health institution managers to continuously monitor marginal strategic groups. For instance, professional organizations' actions such as work slowdowns or strikes are generally not carried out unexpectedly but are usually planned and scheduled in advance. Therefore, monitoring these organizations can help health institutions construct appropriate responses to these actions.

The best strategy to follow against the obstructive strategic groups which present major threats to the

health institution is defensive strategy. The negative effects of obstructive strategic groups such as the rival health institutions are attempted to be prevented through defensive strategies. In case of a harsh competition, one of the most effective defensive strategies is takeover strategy.

The knife-edge strategic groups are the most difficult to manage and are vital from the perspective of health institutions. These groups have a high potential for support and threat, and therefore, they may at any moment become supportive or obstructive strategic groups for the health institution. Consequently, the managers of the health institution must construct collaborating strategies against such groups. It is because, with a collaboration strategy, it may be possible to both protect the institution from the potential threats of knife-edge strategic groups and take advantage of the opportunities they create. For instance, a hospital may engage in a long-term agreement with a pharmaceutical warehouse for its medicine needs. In this way, the hospital can protect itself from the pharmaceutical warehouse's potential threats such as unexpected price increases and delays in medicine supply. Furthermore, the hospital can develop positive relationships with pharmaceutical companies by collaborating on social projects. For example, a hospital that provides free eye screenings in the local schools can obtain free eye drops from a pharmaceutical company. Of course, patients constitute the most important knife-edge strategic group. Hence, the managers of the health institutions must ensure that patients receive services that are both

scientifically good quality (technical quality) and that meet patients' expectations (patient satisfaction). Research on patient satisfaction has shown that satisfied and dissatisfied patients develop different behavioral patterns. Satisfied patients share their satisfaction with 3-5 people, while dissatisfied patients convey their dissatisfaction to 20-30 people. In other words, a dissatisfied patient has a greater impact level the image of the hospital than a satisfied patient.

ADVISING RECEIVED FROM EXPERTS

Experts need to work together in groups to solve complex problems (Van de Ven, Delbeco, 1971). Experts are individuals who have a high level of technical knowledge and skills in a specific area. Environmental factors can change over time and managers may face uncertainty about how these changes can affect the health institution. Furthermore, managers may not have enough data or information to make decisions. When there is not enough data on the environmental factors being studied, it becomes necessary to seek the opinions of experts in the field. However, for expert opinions to be useful in management decisions, there must be consensus among expert opinions. If expert opinions are vastly different, it becomes impossible to use them in the decision-making process. There are various techniques that aim to achieve consensus among expert opinions in the health field. The most notable of these techniques are the Delphi technique and the nominal group technique (Black, 2006:133-134). These techniques aim to synthesize different opinions and predictions of experts to form a consistent viewpoint (Andrew and André, 1971; Hutchings et al., 2012). Expert opinion approach is also used to generate information in other environmental analysis techniques explained above.

DELPHI METHODOLOGY

The Delphi technique is a method that aims to bring together expert opinions regarding the environmental factors (law, economics, medical technology, etc.) and use them to reach a consensus on the issue at hand (Cantrill, Sibbald, Buetow, 1996). In the first stage of the Delphi method, experts of the topic are carefully chosen. These experts can be selected from among the managers or staff of the health institution, or from educational and research institutions such as universities. The number of experts generally ranges from 5 to 20. The second stage of the Delphi method is the survey application stage. In this stage, multiple surveys are conducted. The first survey includes general questions about the topic being studied. The responses from the experts are analyzed, and a second survey is developed for issues on which there is no consensus and sent back to the experts. The responses from the second survey are analyzed, and a third survey is developed for issues on which there is no consensus and sent back to the experts. The survey application is repeated until experts reach a consensus on all issues at hand.

There are four basic distinctive dimensions in implementing the Delphi technique (Rowe, Wright, 1999):

1. Anonymity: The identities of the experts should be kept undisclosed; that is, the experts should

not know each other. The fundamental aim of the anonymity feature is to prevent experts from influencing each other. In the Delphi method, since experts do not know each other or do not meet face-to-face, the "bandwagon effect", being influenced by the opinions of the majority, does not occur; experts try to respond to survey questions in their own ways (Ozcan, 2009).

2. Repetition: The survey is not applied once in the Delphi method; the survey is repeated until a consensus is reached among experts. The first round of surveys usually contains open-ended questions. Open-ended questions enable experts to look at the issues from a wider perspective. In the second and subsequent rounds, the scope of the questions is narrowed, and Likert-type scales are used.

3. The Integration of Expert Opinions: Statistical methods are used to determine if there is consensus among experts. For example, the mean, standard deviation, and range of responses to a survey question are calculated. Then, the coefficient of variation (standard deviation/average) is computed (Sharon et al., 1998). High range of variation and coefficient of variation indicate that there is no consensus among experts. On the other hand, low coefficient of variation for questions implies that there is consensus among experts. Therefore, new rounds of survey do not include issues on which there is agreement among experts.

4. Controlled Feedback: After examining the descriptive statistics of the data obtained from each round of survey, feedback is given to experts about whether a consensus has been reached on the issues. In this feedback, experts are provided with descriptive statistics such as mean and standard deviation of their responses to the questions. After each feedback, experts can change their opinions.

The Delphi method is an economic (cost-effective) method. Since there is no interaction among members, it is not possible for members to influence each other. However, the Delphi method also has drawbacks. The agreement reached may be incorrect due to unclear or ambiguous questions. Since the identities of experts are kept undisclosed, the selected experts may respond to the survey questions arbitrarily without feeling a sense of responsibility or obligation. Also, since this method takes a long time to complete (for example, one year or more), experts included in the analysis may change, which can lead to misrepresenting findings in the surveys (Özcan, 2009).

NOMINAL GRUP METHODOLOGY

The main goal in the nominal group technique, like the Delphi technique, is to achieve consensus among expert opinions. In the nominal group technique, in the first step, the expert group is brought together to generate original ideas and solutions on specific environmental factors or problems; then, in the next step, comprehensive discussions take place on these original ideas or solutions until a consensus is reached (Hutchings et al., 2011; Dewar et al., 2003). The main difference between the nominal group technique and the Delphi method is the absence of anonymity, meaning that experts know each other and interact with each other.

In essence, the nominal group technique is a five-stage process. In the first step, experts on the issues at hand are identified and invited to the meeting. The number of experts in the nominal group technique ranges from 7 to 10. The meeting is facilitated by a moderator. Materials such as a blackboard, a flipchart, colored pens etc. should be available in the meeting room (Horton, 1980). A "U" shaped seating arrangement is created in the meeting room.

In the second stage, the moderator briefly defines the problem. Then, group members work independently for 5-10 minutes to develop solutions for the problem and write these ideas on small note cards (Dewar et al., 2003).

In the third stage, the moderator collects the note cards prepared by the experts and writes the solution proposals on the cards on a board or flipchart that can be seen by everyone.

The fourth stage involves group discussions. The moderator allows group members to speak about each proposal, and tries to get comments, criticisms, and contributions. In this stage, each member explains his proposals to the group. The moderator's role in this stage is to prevent any group member from dominating over the other group members (Rouhbaugh, 1981).

In the fifth stage, the developed proposals are voted on by the members. Specifically, members are asked to choose their three or five preferred proposals. Based on the number of votes, a prioritization (ranking of importance) of the proposals is prepared. Statistical methods and criteria used in the Delphi method can also be used in the Nominal group technique to determine if there is an agreement among the experts.

THREAT VULNERABILITY ANALYSIS

Each health institution has unique characteristics, resources, and values that facilitate its activities and enable it to achieve its goals. SRI International, which developed the vulnerability approach, refers to these unique characteristics, resources, and values as underpinnings (Webber, Peters, 1983:44). According to the vulnerability model, when external and internal environmental factors negatively affect these underpinnings, the health institution will face threats. Examples of these underpinnings include:

- Service quality,
- Efficiency in service delivery,
- Knowledge and skill levels of the institution's staff,
- Institution's market share,
- Institution's technological capabilities,
- Institution's acceptance by society,
- Institution's reputation and prestige in society,
- Institution's identity, and
- Management philosophy and corporate values.

The stages of vulnerability analysis are summarized below:

Step 1. Determining Environmental Factors that can Threaten the Health Institution: In the first step, dynamics of external and internal environmental factors with potential to pose threat for the institution are identified by employing trend analysis and expert opinions (Delphi and nominal group technique). Table 8 provides examples of environmental threats for a private hospital. absenteeism

Tablo 8.

Examples of Environmental Threats for a Private Hospital

Environmental Threats	Evidence/Resources
Rise in inflation.	Central Bank statistics, sectoral reports.
SSI maintaining the service prices constant.	Statements of government and SSI.
Emergence of new competitors.	Environmental scanning and monitoring studies.
Changes in service usage preferences of society.	Customer satisfaction studies.
Problems with employment of qualified workforce.	Government imposing employment limits on private hospitals.
Implementation of a new referral system.	Ministry and SSI's initiatives.
Decrease in employee motivation.	Complaint statistics, staff turnover rates, and absenteeism rates.
Competitor hospitals investing in new technologies.	Environmental scanning and monitoring.

Step 2. Determining the Probability of Threats Occurrence: In the second step, the likelihood of the identified threats occurrence is estimated. That is, managers study the developments related to the threatening circumstances and try to make predictions about the probability of these threatening events occurrence. A it

was case in the first step; trend analysis or expert opinions can be employed to determine the probability of threats occurrence. Table 9 provides examples of predictions about the probability of threatening factors occurrence.

Tablo 9.

Examples of Probabilities of Threats Occurrence

Environmental Threats	Probabilities of Threats Occurrence
Rise in inflation.	3-Medium (50%)
SSI maintaining the service prices constant.	5-Very High (90%)
Emergence of new competitors.	4-High (70%)
Changes in service usage preferences of society.	1-Very Low (10%)
Problems with employment of qualified workforce.	4-High (75%)
Implementation of a new referral system.	1-Very Low (15%)
Decrease in employee motivation.	2-Low (30%)
Competitor hospitals investing in new technologies.	4-Medium (50%)

Step 3. Determining the degrees of Threats' Impacts on the Health Institution: Along with the probability of threats occurrence, it is also important to know the impact level of threats on the health institution. Even if the probability of a threat occurrence is high, the impact level on the health institution may be insignificant. For instance, a large private hospital may not be affected as much by the restrictions on physician employment imposed by the Ministry of Health as a small hospital would be. In fact, such a development

could be an opportunity for a large private hospital because they may be able to attract physicians from small hospitals. Furthermore, small private hospitals may not be able to take advantage of growth opportunities (opening new clinics, offering new services, etc.) due to restrictions on physician employment and thus lose competitiveness against larger hospitals. Hence, managers should rate the impact level of each environmental threat on the health institution. Table 10 provides an example of threat rating.

Tablo 10.

An Example of Threat Rating

Environmental Threats	Probabilities of Threats Occurrence	The Degree of Impact of the Threat on the Health Institution
Rise in inflation.	3-Medium (50%)	4-High
SSI maintaining the service prices constant.	5-Very High (90%)	5-Destructive
Emergence of new competitors.	4-High (70%)	4-High
Changes in service usage preferences of society.	1-Very Low (10%)	2-Medium
Problems with employment of qualified workforce.	4-High (75%)	3-High
Implementation of a new referral system.	1-Very Low (15%)	1-Insignificant
Decrease in employee motivation.	2-Low (30%)	2-Medium
Competitor hospitals investing in new technologies.	4-Medium (50%)	5-High

Step 4. Formation of a Threat Vulnerability Matrix: A threat vulnerability matrix, as shown in Figure 10, is formed to evaluate the probability of the

emergence of threats and the degrees of impacts these threats have on the health institution cumulatively.

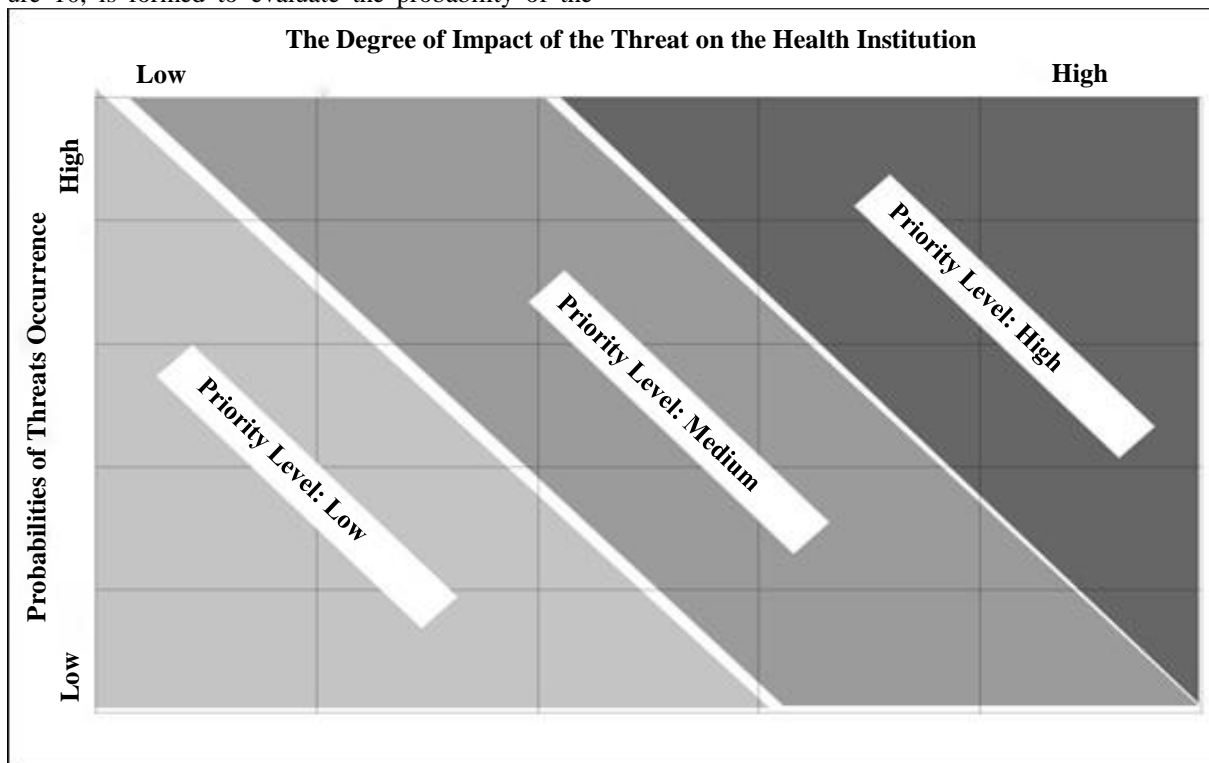


Figure 10. Threat Vulnerability Matrix

Threat vulnerability analysis guides managers on which environmental factors they should focus on more. Managers should primarily focus on environmental factors that have both a high probability of occurrence and a high degree of impact on the institution. These factors are high-priority factors that have the potential to create destructive effects on the health institution. When developing strategies, managers should first focus on high-priority factors, then, in order, medium-

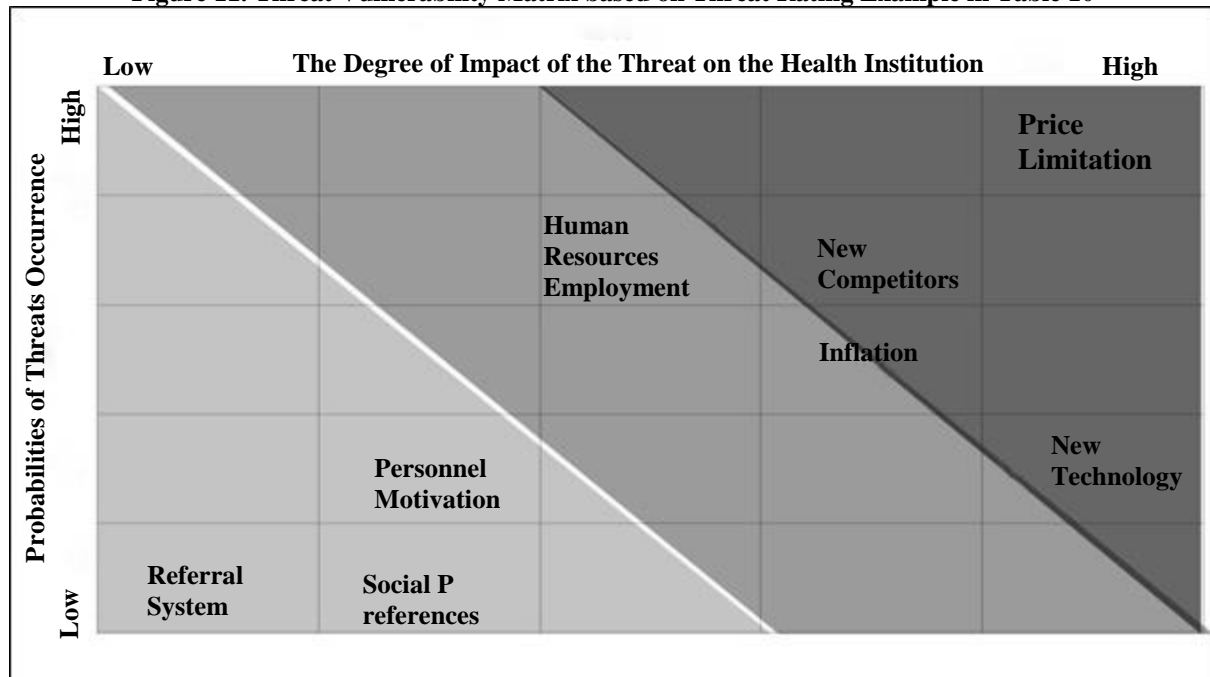
priority and low-priority factors should be given weight.

Figure 11 shows the threat vulnerability matrix prepared using the information given in Table 10. The most important issue for the health institution is SSI's price limit regulation. Another environmental development with a high priority level is the intensification of competition (new competitors emerging, competitors beginning to use new technologies). In the face of these

conditions, a health institution would be expected to implement strategies primarily focused on cost savings. Cost reduction strategies can also positively affect the health institution's competitiveness. A health institution

that faces problems in finding qualified personnel can implement strategies aimed at increasing the productivity of existing personnel (through rewards, overtime payments, better operating room planning, etc.).

Figure 11. Threat Vulnerability Matrix based on Threat Rating Example in Table 10



CONCLUSION

Environmental analysis is a process of collecting and evaluating information about the environment. Various techniques are used in analyzing the external environment. Environmental analysis techniques are management tools that help understand the dynamics of change of the external environment and external factors. Health institution managers can use environmental analysis techniques to develop evidence-based strategies that can respond to environmental factors and developments.

Trend analysis is a useful method, but it has a drawback that it can miss out on abrupt developments that may arise in the near future. As a result, findings of trend analysis can lead to wrong decisions under such circumstances. Therefore, it is recommended to use the method in conjunction with other appropriate methods to overcome this limitation.

Environmental Factor Evaluation Matrix is a useful tool for health institutions as it presents the environmental opportunities and threats in a table format, making it easy for health institution managers to use the data.

The main aim of strategic group analysis is to determine how the health institution should respond to the expectations of groups in the internal and external environment that affect the mission, vision, objectives, and performance of the health institution. In this sense, it can be reasoned that different strategies should be developed and implemented for each strategic group based on the potential threat and support level of the specific strategic groups, which are called supportive strategic groups, marginal strategic groups, obstructive strategic groups, and knife-edge strategic groups.

Expert utilization technique, Delphi technique, and nominal group technique are commonly used to gather expert opinions and generate original ideas and solutions related to specific environmental factors or problems. The main objective of these techniques is to bring together individuals who are experts in a particular field and to have them collaborate to provide insights and solutions on the topic at hand.

According to the vulnerability assessment technique, each health institution has unique characteristics, resources, and values that facilitate its operations and enable it to achieve its goals. In this technique, these unique characteristics, resources, and values are termed as underpinnings. According to the vulnerability assessment model, when external and internal environmental factors negatively affect these underpinnings, the health institution will face significant threats. In this case, this technique can signal to health institution managers which environmental factors they need to focus on more.

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