



**SCENARIO ANALYSIS REVIEW WITH COVID-19 CASE STUDY: WORLD
CITIZEN HEALTH IDENTITY**

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ABSTRACT

Global, economic and political trends, social differentiation, the effects of new technologies on the environment and society's restructuring, in business areas; trends such as new business styles, employment patterns, technological development and new professions, education and training trends, new scientific paradigms, spiritual and religious trends on a global scale, world peace and warfare, global governance, South-North relations and the future of regional-scale economic blocs Being able to design more effective management models and be prepared for uncertainties by predicting the possibilities are factors that strengthen the management skills of managers. The aim of this study is to provide basic information about the scenario analysis method used for civil administration planning in the West for about seventy-five years and to spread the studies on the subject in the literature. The fact that strategic management and planning concepts are frequently encountered in studies in the field of management has also led to the need for scenario analysis and scenario planning studies, which are an important technique for strategic management. Based on this need, this study aims to reveal the basic lines by sampling the Covid-19 scenario after summarizing the history of the subject.

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INTRODUCTION

Being able to predict the future, including numerous possibilities and uncertainties, and manage these predictions is an important problem for both states and companies. The power to be able to see where we will be in a year or five years is going to be one of the important factors that will provide an advantage in competition. For this reason, understanding the future has been one of the most fundamental quests of people since the day they came to earth. Today, nothing has changed in this need. After the 20th century, scientific methods have tried to support the quest to predict the future, which is unique to the individual and has not been scientifically proven, such as sense vision, reading the star map, and having a strong sixth sense.

Although these methods are different from the social science methods used to understand the present and the past, they also benefit from social sciences at many points. It is seen that the researches made to understand the future begin by saving the future from the temporal obscurity.

Earl Joseph, who embodied this timeframe, suggested that the future should be studied under five headings (1974: 178). These times are;

1. Short near future: up to 1 year
2. Near future: 1-5 years
3. Middle future: 5-20 years
4. The distant future: 20-50 years
5. It will come too far: 50 + 1 year

When the studies on the future are examined, it is noteworthy that a common attitude is followed in time classification. However, many techniques are in an effort to make studies based on evidence. Under general headings, we can list these studies as follows:

1. **Trend Impact Analysis (TIA):** In this method, political, social, cultural, technological etc. future projections are made assuming that trends will continue in the next three / five years (Firminger, 2003; Gordon, 2003). It is seen that this method is generally the dominant understanding in formal and academic future discussions. Significant

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deviation of what will happen in the future from current trends is also not expected.

2. **Dynamic System Analysis and Computer Modeling:** In this analysis, it is tried to show how the variables in different areas interact with each other within a certain time period within the framework of the system approach and modeling is carried out with the help of a computer.
3. **Simulations and Games:** The phenomenon of seeing how these variables interact over time by placing variables taken from real life into a computer model or game is called simulation or game (Banks, 1998; Rausch, 2003). Participants can be computers or people. With computers, people play the "if-if" game and see what consequences will come as a result of their choices.
4. **Cross Impact Analysis (CIA):** It is a quantitative technique that is used to investigate possible future events and the mutual effects of these events on each other and tries to reveal the conditional probability of an event in cases where various events occur or not (Dalkey, 1972: 350; Gordon and Stover, 1978; Turoff, 2002: 205; Gordon, 2003). In other words; it is the finding of which options are possible and which are not possible as a result of placing the preferences for one variable with another variable in a table so that all possible combinations of preferences appear.
5. **Technological Impact Assessment:** Predicts the possible effects of innovations in technology on human, society and environment.
6. **Environmental Impact Assessment:** This method, which is mostly used in the field of future predictions in the construction sector, is used to predict the effects of new structures on the environment. Building permission is given within the framework of these predictions.
7. **Social Impact Assessment:** It is an assessment made with the aim of predicting the possible effects of a particular development on the society or community.
8. **Future Wheels:** It is a method that defines the primary, secondary and tertiary consequences of trends and events (Styles and Goddard, 2004: 68; Glenn, 2003; Snyder, 1993). It's a kind of quick brainstorming method. The aim of this method is to quickly predict three possible futures that may occur. In this approach; in the future, if something happens for the first time or if the value of something that has happened before increases or decreases, it is taken from the assumption and by placing this assumption at the center, predictions are made within the three most likely future frames.
9. **Science Fiction:** It is a future story method mostly encountered in cinemas. Science fiction does not pretend to see the future, but science fiction scenarios written on some subjects write technologies that are not available at the moment, or at least unknown to the majority of humanity and that will be discovered later. For example, Arthur C. Clark wrote communication satellites even before they were used in science fiction stories.
10. **Intuition and Intuitive Foresight:** Intuitive foresight is understanding something that could not be seen or understood before with an intuition, not as a result of an analytical approach. The intuitive approach is a kind of sixth feeling. In a period where the world is changing very rapidly and it is not possible to access and absorb all of the information, making decisions based on intuition has become even more important.
11. **Short, Medium and Long Term Planning:** Making short, medium and long term planning is also an effort to see the future. Because while the plans are being made; it is assumed that the already existing phenomenon and process will continue, those that do not exist will emerge and the existing phenomenon and process at the planning stage will end in the future.
12. **Correlation Tree:** The correlation tree method is to create a comprehensive map of the order and order of events in order to finally reach the point you want to go at a time from where you are now.
13. **CERT / CPM Analysis:** This future vision method was developed by NASA within the framework of the flight to the moon program. It aims to make a very complex planning with a large number of people. This technique is started with the correlation tree method and the analysis is developed by adding new information layers. In order to reach a goal, the starting point and all alternative routes that can be reached to reach the goal are mapped. Then, the costs and time factors that all these alternative routes will cause are presented. The least cost and the way to reach in the shortest time is thus created.
14. **Delphi Method:** It is a method based on a structured process to gather information from a group of experts and synthesize the collected information by taking opinion feedback in a controlled manner through a series of questionnaires (Ludwig, 1997: 2; Buckley, 1995: 18; Rowe and Wright, 1999: 355; Yousuf, 2014: 2; Okoli and Paulowski, 2004: 20; Gordon, 2003). In this method, developed by the American Air Force think tank RAND, a group of experts on the subject being researched are brought together. They are asked which development is the most likely (or preferred) and when it will occur. At the same time, they are asked to put forward the reasons for their answer. Results are summarized and returned to experts. The experts evaluate and modify the responses of others and ultimately a future conclusion is reached at the best possible point of consensus. The logic behind the Delphi method; to remove and overcome the disadvantages of traditionally "consultation by commissions" forms, especially those related to group dynamics.

Apart from these future research techniques, another technique is the future scenario technique. The future scenario technique is one of the most effective techniques used in future research. A CIA study provides the following lines on when to use the future scenario: Future scenarios are "useful when a situation is seen as too complex or when the outputs of an outcome evaluation are so uncertain that it cannot be credited."¹

Theoretical Background

The concept of the scenario was introduced in the 1950s in the context of future design by Herman Kahn, who worked at RAND, the think tank of the American Air Force. In his book "Thinking About the Unthinkable" written in 1962, Kahn argued that American decision makers should consider a nuclear war with the Soviet Union and be prepared for all

¹This resource is compiled from online lecture notes on the subject. For detailed information see: Tradecraft Review-A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis, Vol.2: 3, June 2005, Sherman Kent School.

possible consequences. According to Kahn, serious consideration of the most extreme examples, even if temporarily, pulls us out of our peaceful world and strongly revives our dreams (1962: 185). This will give people the opportunity to think outside the dominant way of thinking and to enrich thinking within the framework of different future scenarios.

Kahn and Wiener state that the script is one of the main tools for dealing with the imaginary future in different ways and to mobilize and discipline the imagination (1967: 264). However, to reduce the future scenario to mere illusion would be to underestimate it too lightly. The future scenario emerges by shaping the imagination over the knowledge within the framework of logic. In other words, it aims to transform our dreams into thinking about the future (Oppenheimer, 2009: 4). The future scenario is not carrying what we know about the past into the future. However, future scenarios may be related to the past. For example, in a scenario to be prepared by antiterrorist experts working on Al Qaeda after Al Qaeda attack on the World Trade Center in New York with a bomb vehicle, the inclusion of the attack to be carried out by aircraft in the scenario is not to carry the past to the future, but it is obvious that it has a relationship with the past.

Future scenarios are mental fictions attempted to save the future from complete obscurity and to establish calculable futures. A future scenario is a sufficiently vivid, rich and detailed portrait of a plausible future world. With Schoemaker's statement, scenario planning is a disciplined method of imagining possible futures (1995: 25). The purpose of the scenarios is not to say what will happen in the future, but to reveal what can happen (Lembert et al., 2008: 7).

Peter Schwartz, one of the most famous names in the future scenario, says that the scripts are "stories about the way our world can take tomorrow, enabling us to recognize and accept the changing aspects of our present environment" (1991: 3). Thus, decision-makers evaluate threats, opportunities, strengths and weaknesses within the framework of "if something happens".

With future scenarios, companies seek answers to the questions of how markets will shape in the future and how they should be positioned. Armies investigate how the enemy armies can develop their weapons, strategy and warfare tactics, and how they should be positioned in a future war. Intelligence organizations take the approach of thinking the unthinkable. In fact, the future scenario is a good method to bring experts and non-experts together and to search for the future together.

While doing this, we do not only use data such as demographic future projections and production projections, which are easier to calculate / predict. When it is claimed that an impossible change in the system of values or a technology that is distant today and that is not thought may exist in the future, "data" that is so extreme that it is said "if the world turns upside down" finds its place in the scenario flow of the future scenario.

Those who plan the scenario can see the problems, challenges and opportunities that the future will bring from this scenario. In other words, future scenarios are of great importance for every organization that makes strategic planning (Schoemaker, 1995: 25). The future scenario is a plausible explanation of what might happen, not what will happen in the future. The

future scenario reflects two common mistakes in the decision-making process; it also prevents the mistakes of underestimation and exaggeration (Schoemaker, 1995: 27).

The Royal Dutch / Shell group, which started to work very early on future scenarios, responded very quickly and effectively to the 1973 OPEC oil crisis, the increase in oil prices in the early 1980s and the collapse of the USSR, and overcame these processes with the least damage possible. Shell's managers may not have seen the future, but they were mentally more prepared for changes than their competitors (Fost and Edmonston, 1998: 10). Because scenarios change the mental maps of the future as Pierre Wack, the founder of Shell's scenarios, said (Wilson, 1990: 20).

In future scenarios, probable futures are tried to be predicted through fictions such as "if this happens, this result will occur". Thus, scenario owners also try to direct the possible future as they foresee. Future scenarios; It is used by politicians, large companies, intelligence agencies and general staff to predict the possibilities of the future and to better understand the future. Managers who expand their dreams in order to see the possible future will not be faced with a surprise effect when confronted with unexpected opportunities or threats (Schoemaker, 1995: 25).

At the beginning of the 20th century, Brigadier General Billy Mitchell suggested that planes could sink ships over naval battles by bombing them from above. When American Secretary of War Newton Baker read this article, he said, "This view is so stupid and impossible that I am willing to be in the pilothouse of the ship to be shot, while the plane wants to shoot a ship from the air." Naval Minister Josephus Daniels was skeptical enough to say, "This man should write a novel." Even the respected Scientific American magazine would be accused of making the claim in 1910 that the plane would revolutionize the future naval warfare (Schoemaker, 1995: 25).

Future Scenario Types

Studies on future scenarios have shown that basically three different types of future scenarios are applied in studies. The first and most common future scenario type was RAND, and the scenario type of RAND was later developed by the oil company Shell and shaped by the Global Business Network (Lembert, 2008). The scenario type that emerges in this way is called the RAND-Shell-GBN method. The second scenario type is the type known as La Prospective Ekol, developed by the French Gaston Berger and Michel Godet. The third type is the type named Probabilistic Modified Trends performed by Ted Gordon and Olaf Helmer at RAND (Lembert, 2008).

Differences of Future Scenario Technique from Other Methods

Future Scenario technique; Contingency planning is very different from sensitivity analysis and computer simulation, which aim to investigate how a project is affected by various variables and how sensitive it is to these changes.

Contingency planning is a research conducted to determine the uncertainty of only one variable and the uncertainty of this variable. There is only one data in this research model and there is only one emergency or exception, which constitutes the uncertain variable. The Future Scenario investigates the common effect of many different unknowns that are side by side and of equal value (Schoemaker, 1995: 26).

Sensitivity analysis also searches the result of the difference in one variable by keeping all other variables constant. While future scenarios change many variables, they do not seek to keep some of them constant (Schoemaker, 1995: 26-27). So future scenarios are far beyond the output of a mixed simulation model.

Technical Concepts Used in Future Scenarios and Their Meanings

All social, political, technological etc. that should be taken into account while establishing the future scenario. Elements should be placed in conceptual frameworks. These will make the scenario as easy to understand as it is to be written.

Paradigm: The term used to express the problematic to be studied. For example; Aviation Sector After Covid-19 Pandemic.

Paradigm Shift: If a paradigm loses its effect and another paradigm begins to appear, this is called a paradigm shift.

Basic Trends: The process that continues by increasing or decreasing its effect in the political, social, economic, technological or cultural field is defined as the main trend within the scope of the scenario. When some basic trends come together (eg 4-6 basic trends) they form the dynamic for the scenario.

Assuming that the International Aviation authorities came together and made a scenario study where the paradigm was the Aviation Sector after Covid-19 Pandemic. In the next part of the study, while explaining the concepts used for the scenario, we can revive the technique through this example. In this scenario titled "The Future of Aviation Sector After Covid-19 Pandemic"; Main trends, a) Reorganization of flight safety in countries affected by the epidemic, b) Increasing measures against global epidemics, c) Evaluating Covid-19 as September 11 for the aviation industry, d) Each of the actions / processes such as adding those who do not comply with the measures to the no-fly lists can be listed in terms of the time period mentioned. When the four basic trends listed above are brought together, an application in the form of a "World Citizen Health Identity" can be designed as the output of the scenario in order to open global flights safely again and to take measures against future epidemics from now on.

Dynamics: It is the concept used to explain the elements that are formed by the combination of basic trends and have the power to drag the examined process to a certain point. In other words, dynamics are the forces behind the story of change in the script. Schwartz, dynamics; It defines the factors that move the plan of the scenario and determine the outcome of the story (1991: 101-102).

A dynamic in scenarios; It can be related to different dimensions such as internal politics, foreign policy, economic, cultural, technological, social and demographic. Each scenario has different dynamics according to its subject. For example, in a scenario study that will be based on "The Needs of Students to Study in Higher Education in the Next Decade", demographic, technological and cultural dynamics will be emphasized, while foreign policy dynamics will probably not be effective in such a scenario. Overall, while we are non-political dynamics pointless to accept such a scenario today who migrated to Turkey with the civil war in Syria and the need for higher education that have faced hundreds of

thousands. At this point, while a study conducted in 2000 did not need to focus on the issue of Syrian students, the idea that one of the policy makers might have considered, considering the mobility in the region and the possibility that Europe will not be very keen on immigration from Muslim countries, and that would probably be deemed unnecessary by those doing this study, it has become a necessity today. At least run such a scenario when discussing the future of higher education in 10 years in 2010 and even today, the Syrian students would have to be treated enables proactive about the migratory status of Syrian academics to Turkey.

Predetermined Elements: What is meant by "predetermined elements" in a scenario; they are events that are happening or are certain to happen but the results have not yet emerged (Wack, 1985: 77). The difference of predetermined elements from trends is that they can be easily placed in the scenario, but they do not have a causal link that will directly affect the outcome of the scenario. Predetermined elements are often understood when identifying key trends and dynamics. In the scenario designed for this study, the "predetermined element" was shown as finding the proper vaccine.

Basic Uncertainties: Although there are important determinants in the scenario, events whose character, significance or consequences are unknown are called "fundamental uncertainties". Basic uncertainties are one of the most important factors in setting up the scenario. The constructor of the scenario has to reveal the uncertain events that will be effective in producing the most uncertain and specific result (Schoemaker, 1995: 28). Basic uncertainties can be "known unknowns" or "unknown unknowns".

Regarding the fundamental uncertainties, Wack says: "By carefully examining some of the fundamental uncertainties, we have reached a deeper understanding of their interplay, which in itself shows us what is certain and inevitable and what is not." This means that careful examination will show the researcher the difference between raw uncertainty and fundamental uncertainty. That is, there may be a predetermined element that seems uncertain in some cases (1985: 76-78).

In a scenario analysis, dynamics must be known and causality relationship must be established in order to fully understand the basic uncertainties. Therefore, Schwartz argues that basic uncertainties and predetermined issues cannot always be seen as separate categories, and that they overlap at times (1991: 108).

For the scenario example of this study, the most important of the basic uncertainties, namely "critical uncertainty", is shown as not knowing when the pandemic will end.

Wild Cards²: What is meant by "wild cards" in future scenarios; it is a basic unknown that is very unlikely to occur, but when it does, it has huge consequences. Such basic unknowns, called strategic surprises in the intelligence language, are called wild cards in scenarios. According to Bernstein, (2000: 54) if told in the context of a script, the "September 11 Attacks" would be a perfect wild card. The scenarios known as "wild card" scenarios among the future

²For more information on this topic see: Dewar, James A. Assumption-Based Planning: A Tool for Reducing Avoidable Surprises, Cambridge University Press, 2002 or Dewar, James A. Carl H. Builder, William M. Hix and Morlie H Levin, Assumption-Based Planning: A Planning Tool for Very Uncertain Times, Santa Monica, Calif.: RAND, MR-114-A, 1993.

scenarios can be based on the basic uncertainty that will produce big and profound results if they are small. So in this study wild card is the Covid-19 Pandemic itself.

Scenario Flow: Scenario flow, on the other hand, is to put forward the paradigm about the future that is told in the form of a story, if the scenario predicts a paradigm shift, the paradigm shift is determined, the trends are sorted and the dynamics form these trends. At this stage, the interactions between dynamics and predetermined issues and the interplay between critical uncertainties should be explained in a logical way.

The Future of Aviation Sector After Covid-19 Pandemic Scenario Study

Main Actors: All aviation companies serving in the aviation industry and governments.

Scenario Subjects

Successful results of vaccination studies,
The failure of states to agree on vaccination,
Aviation companies' failure to adopt a single airspace application in global flights,
Diplomatic troubles hinder global practices.

Main Trends:

a) Reorganization of flight safety in countries affected by the epidemic,
b) Increasing measures against global epidemics,
c) Evaluating Covid-19 as September 11 for the aviation industry,
d) Each of the actions / processes such as adding those who do not comply with the measures to the no-fly lists can be listed in terms of the time period mentioned.

Predetermined Element: finding the proper vaccine.

Uncertainties: The cure system, the end of the pandemic and mutation of the virus.

Critical Uncertainty: not knowing when the pandemic will end.

Wild Card: Covid-19 Pandemic

Scenario Outcome: World Citizen Health Identity

How to Build a Future Scenario?

The process of establishing a future scenario should be realized with the participation of experts and decision makers related to the subject and should be formed within the framework of a structured brainstorming study (Oppenheimer, 2009: 6). Although it takes 1-2 days of work to establish a scenario, this period can be extended considering the complexity of the issue and its multi-factor nature. In addition, preliminary studies on the subject can determine how long the time will be.

In a CIA study, the following determination is made regarding the inception phase of the scenario establishment: "The effort to be put forward depending on how detailed the future project will be; it may require substantial investment in time, analytical resources, and money. An analysis team; The organization can spend several hours or days brainstorming and developing many future scenarios.

In addition, large-scale work (including outside experts) may involve a "workshop" of several days, with participants coming together. Such an initiative often requires the special skills of scenario developers and the availability of environments to perform these activities.³

When constructing a future scenario, we divide our knowledge into two. The first of these is a) information that we believe we know and can know, while the second is b) information that is uncertain or impossible to know. What we know is mostly about the past and the present. However, we accept that we

know some issues regarding the future, such as demographic and technological developments (Schoemaker, 1995: 28).

The information we do not know is, for example, the results of the elections to be held two years later, whether the European Union will survive in 2023, whether the researches will make the treatment of Covid-19 possible, or whether the imbalances in the economy will result in a global financial crisis. The future scenario is the creation of alternative futures by bringing together the known and the unknowns in an internal consistency.

In establishing a future scenario, it is not necessary to plan all possible futures for every uncertainty. What needs to be done is to simplify it and put forward an adequate scenario. For example, in a scenario based on increasing interest rates in the future, three scenarios such as low increase, medium increase and high increase will be sufficient instead of giving all possible numerical increases (Schoemaker, 1995: 28).

A future scenario is established in 10 stages. These stages may sometimes increase or decrease depending on the technique used or the institution or people who created the scenario.

First Stage: Defining the Scope

In order to establish a future scenario, the first thing to do is to determine the subject and question of the future scenario (eg global climate change) and the time it will cover (next 10 years). Whatever is expected from the scenario, the subject should be chosen accordingly, with clearly defined boundaries. Because it will be revealed at this stage whether there are methods that can answer the question to be asked better than the scenario technique.

The best (or most applied) time frame for future scenarios is 5 to 10 years. If the time scope of the scenario is for the next 10 years, it should be determined what changes occurred in the subject that constituted the subject of the scenario in the past ten years. Probably, changes can be expected in the next 10 years as much or more than in the past 10 years (Schoemaker, 1995: 28). Reasons of past transformations should be examined and expectations should be shaped in the light of these investigations (Schoemaker, 1995: 31).

Of course, changes in the past do not always provide evidence for future changes. Our exemplary future scenario examining "The Future of Aviation Sector After Covid-19 Pandemic"; If it moves from the assumption that the results of past epidemics will also exist today, it may be driven to a wrong point. Because the response of humanity to every epidemic and epidemic has not been the same. Therefore, in scenario studies where the subject is health, it will be rational to focus on the situation with the approach that there is no disease, there is a patient.

Stage Two: Identifying Key Actors

What should be done in the second stage of creating the future scenario; It is to determine the main actors. Who will be the main actors of the subject whose scenario is set in the next 10 years? What are their current positions, interests? What might be the different interests of these actors under different circumstances? How have the interests and perceptions of these actors changed in the last 10 years? How have the relationships between these actors developed? (Schoemaker, 1995: 28).

³This resource is compiled from online lecture notes on the subject. For detailed information see: Tradecraft Review-A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis, Vol.2: 3, June 2005, Sherman Kent School.

The main actors in our sample scenario; All aviation companies serving in the aviation industry.

Third Stage: Identifying the Main Trends

What are the main political, economic, cultural, legal, technological, foreign policy and other trends that will affect the subject studied in the specified time? The point to consider here is that some of the key trends should differ in different scenarios. Because if all basic trends are the same in every scenario, it will not be possible to talk about different scenarios.

The main trends identified in the third stage, which will affect the actors and will differ in some aspects in each scenario, should be briefly explained. The effects of these basic trends on the actors forming the subject of the future scenario should be determined.

For the sample scenario, the measures taken by aviation companies in past outbreaks can be considered as the main trend. Moreover, epidemics, which are as old as human history, have been experienced in terms of the aviation industry for a short period of 100 years. Therefore, the measures taken by aviation companies and authorities in the last 100 years against epidemic diseases should be considered as the main trend.

Fourth Stage: Determination of Basic Dynamics

While many studies in this field explain the construction and stages of the scenario, the basic trends and basic dynamics are evaluated together. However, it is known that basic trends and basic dynamics do not have the same meaning. As mentioned above, a basic dynamic is formed by the combination of 4 to 6 basic trends. At this point, this work differs from Schoemaker's scenario study with the studies in the field. Because Schoemaker does not see the study of fundamental dynamics as a separate stage.

Fifth Stage: Determination of Basic Uncertainties

The fifth stage should be determined; What are the main uncertainties that will affect the subject studied in the time period studied and what effect they will reveal in which results (Schoemaker, 1995: 28-29). Uncertainties often mean how an ongoing process will turn out.

It is uncertain who will win the elections in future scenarios. Whether Iran's ongoing nuclear research will result in a nuclear bomb is uncertain. In summary, in the future scenario, the uncertainties, which are the main part of the scenario, are processes that are somehow related to the main actors and whose outcome is unknown.

An important uncertainty for the sample scenario of this study is the availability of the Covid-19 vaccine and whether the whole world can be vaccinated and how long it will take.

Sixth Stage: Creating the General Framework of Future Scenarios

In the sixth stage, basic frameworks of future scenarios should be established with the emergence of basic trends, basic dynamics and basic uncertainties. One of the methods that can be used here; it could be creating a positive scenario and a negative scenario. Another method is to set the scenarios on these uncertainties by selecting the two most important uncertainties or more (Schoemaker, 1995: 29). While doing

this, it is recommended that the participants do not make statements such as "nothing like this can ever happen" or "nothing else is possible". The approach that should be preferred should be in the form of "This development is not very likely, but if this development happens then such a development may become possible" (Oppenheimer, 2009: 8). For the scenario sample designed for this study, four different scenario subjects based on the following uncertainties can be presented.

- Successful results of vaccination studies,
- The failure of states to agree on vaccination,
- Aviation companies' failure to adopt a single airspace application in global flights,
- Diplomatic troubles hinder global practices.

Seventh Stage: Checking the Internal Consistency and Reasonableness of the Scenario

To save a scientifically-based future scenario from being a conversation and to transform it into a future scenario is only possible by constantly monitoring its internal consistency and rationality. There are at least three criteria to test the internal consistency of a scenario. The first of these criteria is the compatibility of the selected trends with the trends in the selected time period. In cases where there is no adaptation, these trends should be removed from the scenario (Schoemaker, 1995: 29).

Of course, the predictions that can be developed about how the basic trends selected within the framework of the scenario will develop are not meant here. Implied; they are anachronistic tendencies that do not exist and cannot exist.

The second point to be considered; One of the factors that cannot coexist is to be removed from the scenario. For example, zero inflation and full employment cannot be together (Schoemaker, 1995: 29).

The third internal consistency criterion is about whether the main actors are positioned correctly. For example, it is unlikely that a country will consciously choose to weaken itself, or there is a mistake in a scenario that suggests that a company chooses to take losses. If such an actor positioning is still preferred, this goal should be clearly justified in the scenario (Schoemaker, 1995: 29).

Eighth Stage: Developing a Learning Scenario

After building simple future scenarios and testing their internal consistency and rationality, the stage of development of the scenario has now started. At this stage, learning scenarios will be developed in order to search and learn the future rather than using it for decision making. It is now the target to identify strategically important issues and scenario of possible results and trends around these issues. Although trends are important in all scenarios, they may have varying degrees of importance in different scenarios (Schoemaker, 1995: 29).

Another thing to do in the eighth stage is to give the scenarios a name that is easy to remember, summarizes well and is striking.

Ninth Stage: Determination of Research Topics

In the eighth stage, understanding about the uncertainties and trends in the scenario is strengthened through the learning scenario and the research is continued to enrich the scenario. The learning scenario will help to learn the blind spots in the

scenario. For example, is how one of the actors behave in the developed scenario has been correctly determined by the scriptwriters?

When we place this point in the scenario designed for the study; If a single application is developed for the aviation industry, the scenario should clarify questions such as its applicability all over the world.

What needs to be done in the ninth stage is to consider the possible behavior patterns of the actors of the scenario whose framework has been formed and matured, and to investigate them based on their past behavior, if possible, and to identify healthy research topics.

Tenth Stage: Development of Quantitative Models

After conducting the proposed research in the ninth stage, the internal consistency and plausibility of the scenarios created should be reviewed. At this stage, it should be discussed whether specific interactions based on quantitative models can be developed between scenarios. If such a modeling is possible, it can be said schematically “if this happens, this result will come” and probability values can be determined for each idea.

How are the final scenarios judged to be good? The first criterion is relevance. To be successful, there must be a link between the scenario and the users’ mental maps. The second criterion is internal consistency. Third, there should be different representations of the future in different presentations of a topic. The last criterion is that each scenario should define a situation that will exist for a while (Schoemaker, 1995: 30).

Using Delphi Method in Scenario Planning

The most important step that can be applied to make scenario planning more effective is the implementation of the Delphi method within the framework of the scenario planning technique. In the Delphi method, subject experts come together with the brainstorming method and reveal their views about the future gradually.

The benefit of this application is to benefit from experts in discussing the different dimensions of the scenario (such as economic developments, technological developments) and identifying basic trends, basic dynamics, and basic uncertainties. Technical contributions to be made by subject experts will ensure that the future scenario is set on a more realistic ground. This technique, which consists of three stages, can be explained as follows.

Delphi Technique First Stage

1. Bring the participants together.
2. Ask open-ended questions on the topic.
3. Clarification of the topic, wait for the discussion to bring the issue to light. Delphi Technique

Second Stage

1. When the first round is over, ask the participants to rank the findings of the first round according to their importance.
2. Which of these trends is most important to us?
3. What changes should we reconcile immediately?
4. Which changes are risky?
5. Work on reaching a compromise around plausible possibilities.

Delphi Technique Third Stage

1. At the end of the second round, associate the priorities with the structure.
2. What do these prioritized changes mean for our operations?
3. After all the stages are completed, the ideas are coded with the help of computer programs and the relationships between the ideas are revealed as a result of their mathematical values, taking into account the values they take in order of importance. This is how the idea with the highest statistical probability emerged, and thus the most likely scenario in the future is reached.

Questions We Should Ask

Preparing a scenario for the future means asking questions about the future first of all. It should not be forgotten that asking the right questions about the future may be even more important than finding the right answers (Fost and Edmonston, 1998: 8) Of course, it is not possible to know the answers to some of the questions asked.

1. You know what you know?
2. You know what you don’t know?
3. You don’t know what you don’t know?
4. What do you think you know but don’t really know?
5. What are taboos and confidential information - What are inviolable - What are the red lines?
6. Denials - what are you actually painful to know and therefore do not know?
7. What are the dangers and benefits of not knowing something?

The answers to these questions can be considered as key points that will increase the success in the scenario. The following can be done to ask the right questions:

1. Ask the experts what they know and do not know.
2. Read the work done on the future.
3. Read the research on unknown issues in the subject you are researching.
4. Speculate how the unknown might become known.
5. Sample Scenario Study

In this study, the scenario technique was tried to be explained in general terms, and the road map that experts or managers who will work using this technique should have while drafting the future scenario was also tried to be exemplified through the example titled “The Future of Aviation Sector After Covid-19”. Assuming that such a study is done by experts, it is fictionalized that a result such as “World Citizen Health Identity” may come out as the outcome of the scenario. Therefore, with this study, scenario technique was tried to be transferred to decision makers. It was previously emphasized that determining the boundaries of the scenario for the participants who will brainstorm is as important as setting the scenario. For this reason, those who want to use the technique must determine the general lines and the participants should be prevented from moving away from the scenario due to the different ideas that will emerge. The results in the example presented in the study; It will differ according to the underlying trends, dynamics, critical uncertainty, wild cards and scenarios that uncertainties will reveal. When all the scenarios that emerge are scored by the same participants, the scenario with the highest probability and the least probable

scenario will be reached within these issues and the specified limits.

This study, which aims to increase awareness on the subject, can be developed with quantitative methods and can be enriched with the additions of researchers who are interested in the field.

CONCLUSION

The concept of scenario, which is used in many fields today, has become more common with the combination of both descriptive and mathematical techniques. Among many possibilities, especially thanks to computer programs; the scenarios with the highest probability of realization and the lowest can be easily identified. At this point, the scenario technique, which enables companies and governments to make long-term planning for an uncertain future, appears as an issue that should move forward when examined from many angles. Scenario planning, which is an important strategic management technique especially for planners, is currently limited to military use in our country and does not have high recognition in civilian life, both in academia and in the business world. It is a method that can be applied in terms of increasing the ability to predict the future for strategic plans that have been observed to be made almost everywhere in the last decade. For this reason, adaptation of this technique, which has been used for more than fifty years in the world, first of all universities, then public institutions and the business world is important for global targets.

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