

The Application of Scenario-Based Planning in SMEs

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Abstract

This paper aims to provide an introduction to scenario-based thinking and planning and to encourage the use of this method in Small and Medium Enterprises (SMEs) by entrepreneurs. Because of their nature and size, the activities of SMEs in dynamic and indefinite environments are more than large companies. To maintain competitiveness, they have to anticipate market environmental changes and to be able to match their business activities to those changes. Scenario-based planning is a tool that can provide such capability. It increases companies' power in facing with environmental changes and decision makers will consider more aspects in selecting alternatives. The present paper reviews scenario-based analysis and its application in market forecasting. In parallel with this goal, some explanations in relation to scenario-based planning, historical background, applications and method of its use are presented first. Then, its application in SMEs is reviewed and finally, research model will be presented.

Key Words: Decision Making, Market Forecasting, Scenario-based Planning, Small and Medium Enterprises (SMEs.)

Introduction

Man has always been seeking to understand future since a long time ago. Yet, future study is a relatively new research field whose domain encompasses all areas of theoretical knowledge and scientific prowling of man. Scenario writing and/or scenario-based planning is one of the methods for identifying the future. Identification of uncertainty nature has formed the greatest and longest man's effort during his lifetime. Werner Heisenberg, one of the greatest late physicists, believes that uncertainty is basically within the essence of nature. His Principle of Uncertainty questions man's capability to fully understand the truth. Of course, uncertainty in our interpretation does not mean that we are not able to know about future; rather, uncertainty is that we do not know that how problems, processes, decisions and accidents will form future. Uncertainty should not be confused with probability. Probability is a quantitative issue which may be guessed by considering the past process, but uncertainty is of a different nature. If future is a process or a course of which we are not aware, we can say that we are facing with uncertainty (Saadat, 1993). Scenario is a descriptive story of justified alternatives that addresses a special part of the future. Scenario is defined in the dictionary as "General Design of Natural/Expected condition of Accidents". To define it more specifically, we can say that scenario is a descriptive story of justified alternatives that addresses a special part of the future (Gad, 1997). Scenario is the appearance of future. It is not a prediction. The goal of scenario making is to develop thinking about the future and to broaden the range of alternatives that may be considered by us. Scenario is a set of facilities which are related to the future. Future is unknown and scenario teaches us how to think about uncertainty (Kahen & Viner, 2000).

The main difference between scenario and other forecasting methods is that scenario making is a qualitative method related to descriptive symmetries that reviews the course of evolutions from the present time up to

the future. In other words, scenario making is directly related to strategic thinking and not to strategic planning. This is because strategic planning includes values, perspective, mission and objectives while strategic thinking is involved in market realities and its regulations, understanding new characteristics of market, and exploration of business jumps (discontinuities) which in turn are associated to involvement of middle management, creativity, being aware of industry and competitors, systematic view, concentration on strategic intention and intelligently opportunism. All these subjects contribute in understanding the scenarios. Scenario making is associated with thinking quality. Currently, we observe the world by considering the current situations of the world and we evaluate everything under the influence of occurrences around us. Our look to the world is a conditional one which is dependent on our cultural fundamentals which in turn restricts our view to the future. In this way, the main objective of scenario-based view is to break limitations and hesitations to change them into certainty (Porter, 1985). Scenario-based planning helps an organization in evaluating actions in each decision and taking feedback to render the necessary modifications. Long term scenarios can help in developing the evaluation center of an organization. Several case studies have indicated that considering the characteristics of scenario-based planning and especially the aforesaid characteristic, it can significantly help in the improvement of an organization's performance (Volcari and Riberio, 2009).

The studies made on scenario-based planning have been more involved in the process of this tool and have less studied its role in market forecasting. Moreover, in this paper, in addition to reviewing this method in the forecasting of market, its role in strategic thinking of entrepreneurs in SMEs as well as in changing the mental model of the entrepreneur (founder director) as the result of involving in the process of scenario-based planning - instead of assigning this duty to the strategic teams in large organizations in former studies - will be studied. At the end of the paper, the model taken from the research will be proposed.

Research Literature

Scenario-based Planning

Scenario-based planning is a strategic tool that has significantly increased within the recent decade. It is also a common tool for strategy development (Tapinos, 2012). Scenario-based planning attracted much attention since it was first introduced by Royal Dutch Shell in 1960s and a common tool has remained from that for most the countries of the world (Walk, 1985). In the last studies made by Hoj Kin San et al. (2006), it was found that more than one-third of the Briatish companies use this tool (Hodkinson et al., 2006). Lineman and Klien (1982) have also reported similar statistics about the American and European companies (Lineman and Klien, 1983).

Most of the existing methodologies agree that scenario-based planning based on the case study of Shell Company has been presented in the paper of Walk (1985) (Wilson, 2000). In the 1970s, Shell Oil Company and SRI Consultation Company separately used models that although they were scenario making, they were similar to strategic planning (Grant, 2003). Shell was among the first companies that had a considerable progress in scenario writing and its execution in the advanced commercial environments. The method by which the company could anticipate and manage the oil shocks that occurred in the early 1970 and could react sooner and more successful than its competitors (Walk, 1985). There is a special section for scenario making in that company. Hayden believed that the goal of scenario formulation was to observe the world and to help the organizations adapt to that.

The main elements of a scenario include (Minzburg et al., 1998): driving forces, logic, plot and final condition. By driving forces, it is meant two groups. The first includes the forces that can influence on the scenario from environment, such as economic, social, and environmental forces and technological processes. Driving forces can be placed in a general classification in the sections related to society, technology, economy, politics and environment. The other group includes institutional activities such as different business organizations, political parties, governmental agencies and regional and global

institutions. By scenario logic, it is meant the process and manner of plot. In other words, rationality of activities and processes required for a scenario are considered in this section. Why driving forces have such behavior? The logic and justification of each behavior originated from driving forces are understood in this section. Each plot or scenario story links the current situation to the final situation.

Chermak and Linhamp (2002) have prepared a broad review of the definitions and outputs of scenario-based planning. Most of these definitions agree with the fact that scenario-based planning is related to creating an image of future instead of dealing with uncertainty conditions (Kahneman and Clien, 2010). As a result, scenario-based planning is a strategic planning tool for development, thinking about possible future conditions and development of routes (Shomiker, 1995).

Cognitive Advantages of Scenario-based Planning

Scenario-based planning has been mentioned for several times as a strategic tool which is capable to improve the process of decision making and this is due to its cognitive advantages (Missner & Volf, 2013). Scenario-based planning has been specifically shown for nourishment of strategic thinking, development of mental models of decision makers and reduction of prejudices (Misner & Wolf; 2013, Chermak; 2005, Chermak; 2004).

Milkman et al. (2009) made a study on how to improve decision making and came to the conclusion that scenario-based planning is a technique that makes judgment errors ineffective and improves strategic decisions (Milkman, 2009). This technique is directed towards wise decisions by the decrease of prejudices (Larik, 2004). Non-prejudice in strategic decisions requires active engagement in planning and decision making and as a part of planning and decision making process, only use of suitable tools and efficient techniques have achieved hopeful results (Lark, 2004; Kahneman & Klin, 2010; Kahneman et al., 2011). The main goal of scenario-based planning is to develop pictures of future as much as possible. (Vunder Hijden, 2005) and this enables managers to consider presumptions or outputs of a decision that they ignored before (Mizner & Volf, 2013). This broad view shows that success reduces prejudice and improves the quality of decision (Sol & Kliman, 2004) (figure 1). In addition, scenario-based planning considers the viewpoints of both domestic and foreign beneficiaries equally and external view results in development of decision makers' views in the field of perspective (Shomiker, 1995).

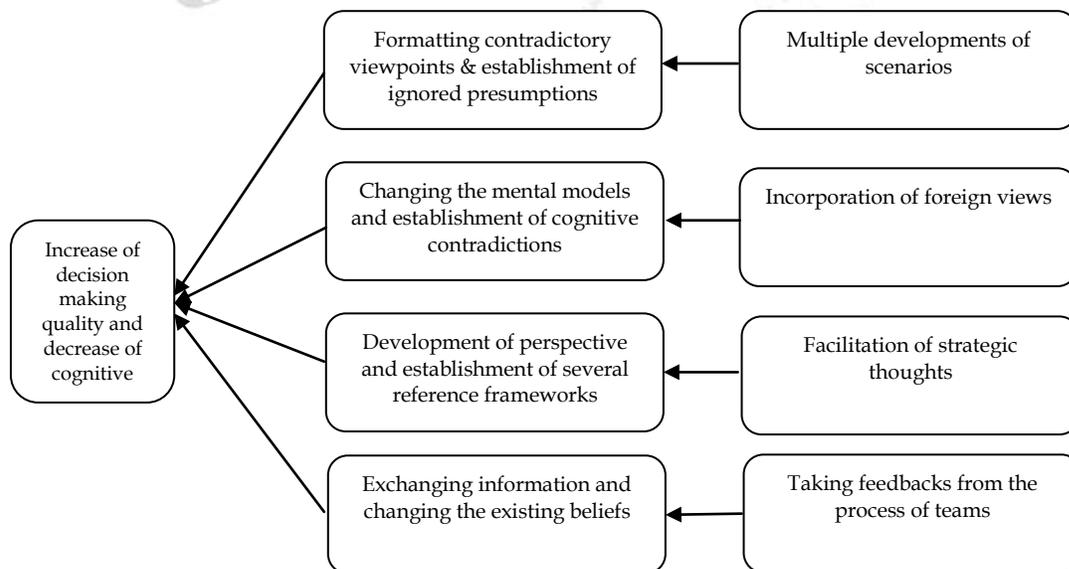


Figure 1. Source: Sol & Kliman (2004)

Process of Scenario-based Planning

The main idea of scenario-based planning was used by the strategic teams that intended to strengthen strategic thinking and uncertainty signs in foreign environments (Tapinos, 2012). Vandi Hiden et al. (2002) believed that the value of scenario-based planning lies within the process for development of future alternatives and is not necessarily inside the made story (Vunder Hijden, 2002). Most of the authors and those who had referred to Shell Company propose a similar process for a scenario-based planning that includes eight stages (Schwartz, 1996; Vunder Hijden, 1996; Walk, 1985). The first six stages include scenario development and the two last stages are related to strategy development. These two stages form scenario-based planning (figure 2).

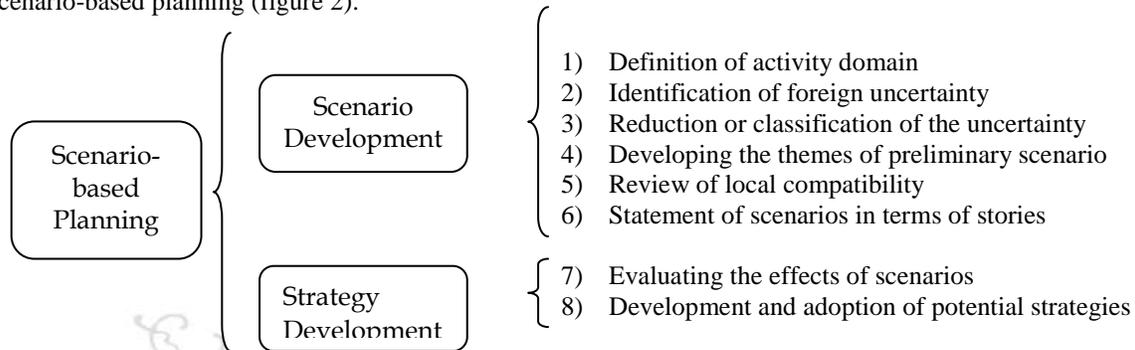


Figure 2. Source: Tapinos (2012)

Taking feedback in a scenario-based planning is a main element which increases the levels of information exchange among the participants and may change the existing beliefs and presumptions (Galini Sky & Kary, 2004).

Scenario-based planning and Development Strategy

Scenario-based planning does not aim at accurate forecasting of future; rather, it serves for a better access to rational routes towards different scenarios and development of comprehensive strategies (Shomaker, 1995). Most processes of the published scenario-based planning provide a clear relation for strategy codification. Some of the authors consider scenario-based planning only in relation to strategy development (Tapinos, 2012). For example, Wilson (2000) describes four types of scenario-based planning considering its complicatedness (Wilson, 2000):

- 1) The most fundamental approach is scenario-based planning based on evaluation of sensitivity/risk. A special decision strategy is used to explore potential outputs.
- 2) Strategic evaluation is the most complicated approach of scenario-based planning which will be used to evaluate the suitability of existing long term strategies against future scenarios.
- 3) In a more advanced level there are Planning and Scenario Focus. Developed strategy options are tested in comparison to developed scenarios.
- 4) In a more complicated level there is scenario-based planning as strategy development in which the intensity of scenario is evaluated against key factors of each of the strategic combined options, in the manner that it determines its own desired environment.

Market Forecasting

Once there is no uncertainty and everything is controlled, no forecasting is required. Forecasting differs from planning. Planning deals with what the world should be, but forecasting is involved in the fact that what the world will become. Planners use forecasting methods to observe the consequences of planning options. If the anticipated consequences are satisfactory, they will then review the program and will go on

new forecasts. This process continues until the forecasting consequences are satisfactory (Armstrong, 2001). Market forecasting is a necessary tool for supplying new products, production planning, determination of the required inventory and establishment of a desired distribution method. Selection of forecasting method is an important issue in forecasting process; however, there are other issues which are also important in market forecasting such as reducing forecasting errors, establishment of a reliable forecasting method and assigning forecasting responsibilities (Rousta et al., 2010).

Reducing Forecasting Errors

Wrong presumptions form the main reason of error in forecasting. When anticipating the sale, a manager should consider presumptions concerning the future. Therefore, the rationality of these presumptions should be reviewed. Another issue in relation to reducing forecasting errors is to anticipate the logic of the obtained figures. All forecasting methods, whether quantitative or qualitative, highly require a managerial judgment. In these methods, the application, number and type of information and other factors including weighing the information are decided. This reveals an important point and it is that one cannot accept a blind conclusion in using each method. Experience and Correct judgment are always the necessary aspects in the forecasting process (Rousta et al., 2010).

Establishment of Reliable Forecasting Methods

The result of the forecasting method which is prepared accurately includes reliable market forecasting. Superior forecasting methods have the following conditions (Rousta et al., 2010).

- 1) Accurate evaluation and testing of forecasting options
- 2) Accurate selection of informative data
- 3) Information about the possibility of forecasting errors
- 4) Accurate definition of presumptions which form the basis of forecasting
- 5) Permanent consideration of occurrence and correction of former forecasts and their effectiveness in the future anticipations.

Forecasting of Market Demand

One of the duties of marketing includes evaluation of the existing demand. A marketer should be aware of different levels of market including potential market, available market, eligible available market, target market and captured market (Rousta et al., 2010). In playing their roles, marketing managers need to measure the current and future needs of market. Market is defined as a complex consisting of potential and actual consumers of goods.

In a market, consumers are interested in goods, own income and access to goods. Marketers can achieve total demand proportional to the chain in which a basic number is multiplied by successive percentages. Market regional demand may be estimated by using market structural review method or market operating index method. For actual estimation of sale in an industry, the competitors should be known and the sale of each of them should be estimated by using special methods.

Finally, companies become aware of their relative situation in the industry by estimating market contribution of competitors (Rousta et al., 2010). To estimate the future sale, a company can use a sale forecasting method or a combination of sale forecasting methods. These methods are different depending on their answers to the following questions: What do consumers say, what do they do, or what have they done? Methods for investigating buyer's intention, combination of sellers' viewpoints and expertise comment are used to find what people say. Market tests are used to find what people do. To find what people have done, time series analysis methods, directory indexes and statistical analysis of demand should be considered. Selection of the best method depends on the company's goal of forecasting, type of goods, availability of information, and level of trust in them (Rousta et al., 2010).

Research Background: Scenario-based Planning and Market Forecasting

Scenario-based analysis is not a method based on numerical forecasting. Despite sale personnel and directors who believe that combinational methods usually provide a numerical forecasting, scenario-based analysis output includes illustrations in relation to future situation. As a result, it is a story-based technique. This analysis may be usually used for market forecasting in two ways.

The first method is the exploratory method in which process analysis is used to specify the current situation. Process analysis requires the anticipator to specify the specifications of current market and market trend to make progress towards future. Future events are shown based on process analysis and a description of future process and final situation is prepared.

The second viewpoint is normative viewpoint or jumping viewpoint. Here, jump anticipates the future by/without considering the last process. In this case, it may occur in two forms, static jump which forms story-based description of future and makes it as a reference point and future modeling; and dynamic jump which provides a story-based description of future and links that to our plan for the condition of recent activities. Dynamic jump viewpoint includes applying and linking future conditions to current strategies and programs of company in the relevant regions (Topinos, 2013) (figure 3).

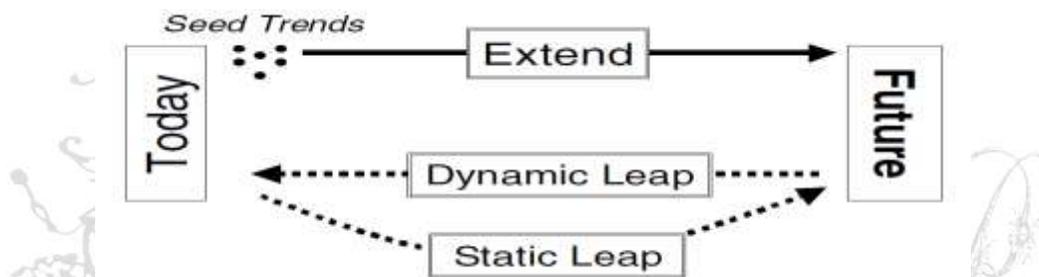


Figure 3. Source: Keneth (2006)

Use of scenario-based planning in market forecasting is subject to environmental conditions. As we know, in business environment discussion we face both predictable and non-predictable environments. In a predictable environment, we face predictable changes, in the manner that when we look to the past history of an organization we observe the sequence of some events from which a behavioral model can be specified for that organization. In addition, the effects of these events on the process of future activities can be anticipated. In this environment, the discussion of scenario-based analysis is very easy and will be possible by using process analysis. Therefore, in this environment we can anticipate future market by using the findings, knowledge and behavioral model of organization and also by using scenario-based planning (Shojaee, 2002).

But in an unpredictable environment in which we face with unpredictable changes, events occur whose effects in the future are not definite and future is ambiguous for us. Use of scenario-based planning in such an environment is more difficult because of we want to plan by using the former method and by the organizational process, we will certainly fail .as a result, we will face a crisis. In such environment, we should change behavioral model of the organization, i.e., our work shall not be based on organizational process. This will be possible by using scenario-based planning. In fact, scenario-based planning helps us not to seek only the available information, but to consider challenging issues as well, where the organization cannot continue with the routine procedure and has faced problems and crises which may not be solved or removed by ordinary management and the organization has to execute ultra-ordinary management by changing the structure and framework. Now, if an organization does not perform that, it will fail. The organization that needs an ordinary management will also fail if it is administrated ultra-ordinarily management. In fact, there must be a balance between these two cases (Shojaee, 2002). Market

forecasting is the same. Sometimes, organizations should make forecasts based on its process and sometimes it is necessary to break the organization's behavioral model so that other issues may be anticipated. As a tool for forecasting, scenario-based planning helps us to establish a balance.

In this method, the stages of scenario-based planning are somewhat changed, in the manner that (Tapinos, 2013):

- 1) In this stage, unpredictable situations should be completely described. It should also be specified that which of the market changes can be anticipated and which cannot.
- 2) In this stage, the mentioned changes should be ranked based on unreliable levels and their effects (Miller & Waller, 2003).
- 3) In this stage, it should be specified that which of the resources of organization has a competition advantage for it (Barni, 2001; Chaharbaghi and Inch, 1999).
- 4) To make a scenario theme, we should write different scenarios considering uncertainty conditions (Shomaker, 1995).
- 5) From among the written scenarios, we should select one of them and should search more. Our criterion for selecting a scenario is based on the level of challenge they provide (Brin, 2004).
- 6) In this stage, it should be specified that if the resources which were specified in stage 3 as competition advantages are sustainable in the scenario and if they remain enforceable in the future or they will be weakened (Brin, 2004).
- 7) SWOT matrix should be used as a strategic tool for development of strategies so that we may use strategic options for development of a scenario (Brin, 2004).

By using this method and by specifying uncertainty issues, an organization can step forward both in predictable and unpredictable environments because it considers both conditions. On the disadvantages of some of the forecasting methods using qualitative method, it has been mentioned as follows:

The quality of such forecasts highly depends on anticipator's characteristics. An anticipator that is unfamiliar with a special market or has a poor judgment will make a wrong forecasting (Rousta et al., 2010). But, as it has been mentioned in the advantages of scenario-based planning, one should consider all aspects and should measure different external and internal possibilities and should act based on them. In such case, the anticipator cannot ignore a market and act poorly. In addition, as we mentioned before, decision errors are reduced in this method and decision making quality will increase. As a result, there will be no poor judgment.

Scenario-based Planning in SMEs

Although the cost and complicatedness of the process of scenario-based planning which make its execution difficult for many SMEs, its application in the said enterprises is not impossible. Execution of scenario-based planning in SMEs will change and challenge the individuals' mental model about the external environment (Johnson, 2008; Verity, 2003) and this automatically enjoys an advantage. Once the effect of scenario-based planning is included, it will never be stopped. Instead, the next steps for elevation of current scenario are made due to receiving a feedback from the competitive environment. Rite and Goodvin (1999) state: Once the initial events occur in a scenario, the decision maker will be able to reveal the future. These initial points can be distinguished among the data that influence on the decision. Finally, the appropriate action can be made against the future and even new opportunities may be captured. This attitude is based on the Ingwar's (1995) concept of conscious awareness. He considers conscious awareness as a combination of past memory, experiencing actual events in new situations and concept of events that have not occurred yet. He calls the capacity of acquisition and awareness of future concepts as *Future Memory*. This type of memory is used in forecasting planning including storage of data for future and behavior control. He argues that when the future is foreseen by scenario planning, this provide the capability to compare the future events. Once a link is established between motivator and occurrence, the inputs of scenario-based planning can be understood and interpreted. In this way, manager or owner of a business

will be able to select and interpret the concepts of messages of environmental information. Therefore, searching a possible future as scenario-based planning provides future memory which influences on the mental model of manager or owner of business so that he may distinguish important signs of external environment and interprets them in a progressive role and can adopt appropriate measures.

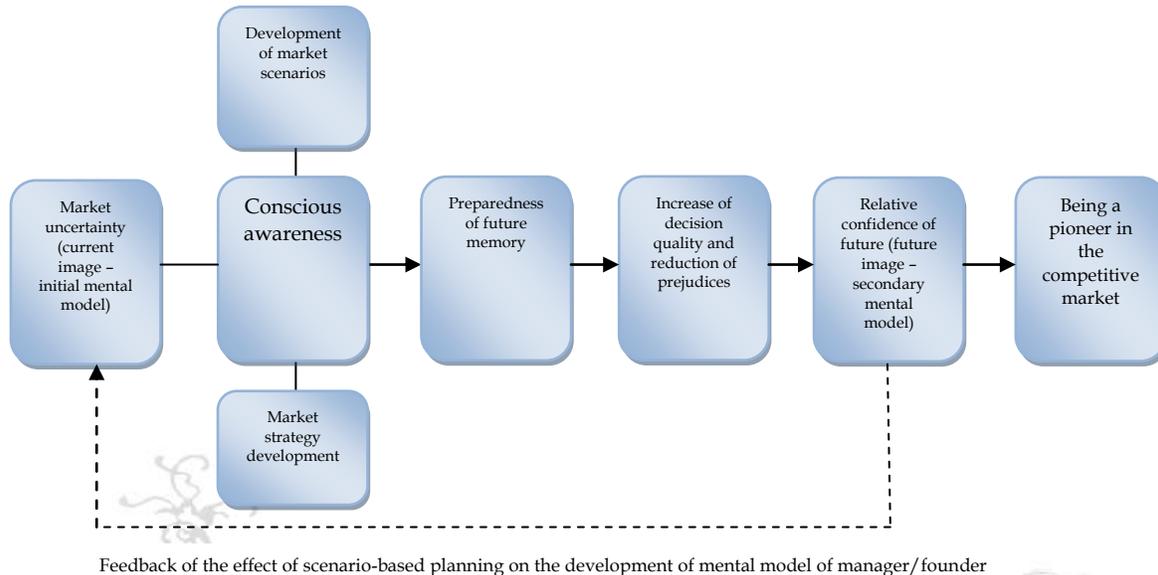


Figure 4. The Research Model

In SMEs environment, John Stone (2004) found that owners or managers of these businesses use internal and external non-competitive networks of their enterprises for informal future search of external environment. This issue depends on several subjects:

- It allows the owners or managers of these small and medium businesses to develop future memories to have a better understanding of external environment.
- It allows the owners or managers of these small and medium businesses to include possible options.
- It allows the owners or managers of these small and medium businesses to have better situations for obtaining market opportunities.
- It allows the owners or managers of these small and medium businesses to test the programs against most pessimistic scenarios.

Based on the research model (figure 4), scenario-based planning in competitive markets with high certainty will help entrepreneurs to achieve a more developed mental model and to guaranty its progressive nature. In other words, development of a mental model is indebted to achievement of a memory specific to future. This efficient memory is the result of obtaining a conscious awareness which is indebted to scenario-based planning. This process will be changed to a more integrated and more developed form over time by receiving feedbacks.

Conclusion

Search future in competitive environments is highly important because it helps SMEs to improve their understanding of surrounding environment and provides them with future-oriented decisions. Therefore, small and medium businesses can follow the essence of scenario-based planning without involving in a formal process and its relevant costs in large companies. Scenario-based planning is a tool that helps us in achieving this goal. It is a tool that in addition to reducing decision making prejudices, increasing the quality of decisions and development of future strategies, can be used as a tool for forecasting of market.

However, the effect of scenario-based planning on the forecasting of market process in small businesses has not been well understood yet. This paper intends to provide explanations related to this method and its outstanding role in development of future alternatives and to study its usability in SMEs. To achieve the capability of activity in complete markets, entrepreneurs should provide conditions in which their mental model can adapt to market changes. This will be fulfilled by obtaining a conscious awareness through development of valuable scenarios, strategy and obtaining feedbacks from competitive environments over time.

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