Scenario Planning in Organizations: Theory vs. Implementation

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Dedication
This project is dedicated to my parents, my wife and children to be, and my siblings
Abstract

There are many theories in scenario planning and some of them have different views on given issues. In some cases the relation between some theories is not clear. This situation led to a question- “how do scenario practitioners convert scenario theory into practice?” Due to the many theories and conflicting views, I hypothesized that scenario practitioners have difficulties in changing theory to practice and reflecting back to theory from practice.

In order to answer the question and also to test the hypothesis, I studied Copenhagen Institute for Future Studies (CIFS) and Ferring Pharmaceutical as cases. Two employees from CIFS were interviewed with open-ended questionnaire and one employee from Ferring responded to few selected questions through an email correspondence. The data were analyzed in relation to the knowledge in the literature and the results among other findings revealed that the relationship between scenario theory and practice is subjective and that practitioners have no problem in moving between theory and practice.
CHAPTER ONE

1.0 Introduction

Human life is characterized by decision making. Humans always try to decide on good courses of actions in order to obtain or maintain favorable conditions and to avoid the unfavorable ones. But all decisions that human beings make are not about the past, only few of them are about the present (even with that there is still an element of future between the decision point and the action) and most of the decisions that humans make are about the future (Polak, 1973 in Miller, 2007). We think about the future all the time (Miller, 2007), we talk about it often, mostly to ensure gains and avoid losses. But the future, as we all know, “is so opaque to see through”, to know what is going to happen; which partly accounts for the failure of most decision makers. Our experiences are at best limited to the past and present, making it difficult to confidently speak of what will happen in the near future. Nonetheless, futurists have developed various methods and techniques to study the future in order to have a fair knowledge about the future for decision making. Forecasting is one of those future studying methods (Schwarz, 2007).

Forecasting, or quantitative forecasting as (Schwarz, 2007) calls it, relies primarily on the technique of extrapolating data and trends (Schwarz, 2007). It operates on the primary assumption that the past is the prologue for the future (Ewing, 1979), with further assumption that the environment of an organization is unlikely to change significantly (Ackoff, 1989). Forecasting is optimistic about the linear relationship between past and future (Schwarz, 2007) and therefore could be the “best” method of studying the future in an environment where change is incremental with an existing historical data as either a starting point or where the probabilities can be assessed easily (Heijden, 2005). But in situations where the environment is so complex and dynamic with higher uncertainty, forecasting as a method has disadvantages that render it unreliable for studying the future.

Miller (2007) identifies two intrinsic disadvantages of forecasting. One is its dependence on the past. Forecasting is so optimistic that the relationship between the past and the
present will continue to be linear but that could be deceptive; there can be a point in time where future behavior changes structurally which could lead to a sudden break of the relationship with the past (Heijden, 2005). The second disadvantage is that forecasting is preoccupied with what is likely to happen. Miller (2007) describes this as less remarked danger, which tends to obscure outcomes that may be unlikely but still possible and potentially more desirable.

The dynamic nature of current society further makes forecasting as a future studying method unpopular. Society’s fast rate of change so fast (almost daily: especially with regards to technologies) renders useless the past records on which forecasting relies. The unreliability of forecasting as a future study has lead to emergence of scenarios which considers environmental uncertainties in the studying of the future as a favorable method.

Scenarios are defined as narrative stories that follow particular paths into the future based on research, trends, and the key concerns of the managers who will use them (Korte and Chermack). Scenario technique is based on the fact that “there is both uncertainty as well as predictability in business environment” (Heijden, 2005). Scenario stories are constructed by the combination and permutation of those predetermined elements and the uncertainties in business environment (Heijden, 2005). The predetermined elements and the uncertainties are paired to form scenarios in a number of steps or stages of process known as scenario planning. Scenario technique is therefore favored over the forecasting method, because it deals with both prediction and uncertainty.

Human society has now become more dynamic, complex and uncertain than before, so studying future environment with consideration of uncertainties makes scenarios a strategic tool. Scenarios of late are being used by both public and private organizations for strategic planning. But despite its wider usage there is still a controversy in the literature regarding what scenarios are.

In literature, for instance, there is no consensus on what framework scenarios belong to (Bradfield et al., 2005). Terms such as planning, thinking, forecasting, analysis and learning are commonly attached to the word scenario (Bradfield et al., 2005). Again, “the literature reveals a large number of different and at times conflicting definitions, characteristics, principles and methodological ideas about scenarios” (Bradfield et al.,
There seems to be a mismatch between what scholars refer to as scenarios and practitioners’ definition of the same concept. Scholars, on realizing this mismatch or conflicting views, have set to resolve the issues surrounding scenarios by straightening out records in scenario planning, which is a methodology for scenario development. The argument may be that “if the right formula is rightly applied, the right answer is definite”. So if scenario planning is understood and applied in the same way by both practitioners and academicians there is a tendency that the controversies around the scenarios would be resolved.

As an attempt to clear the doubts around scenarios, Bradfield et al. (2005) narrated the evolution of scenario planning and further described the basic schools of thought from which principles of most of the models for scenario planning are developed. The existing schools of thoughts according to Bradfield et al. (2005) are the intuitive logics school, the probabilistic modified trends school and the La Prospective School. These schools are described in chapter two. Scenario planning, like any other discipline, needs to have a sound theoretical basis on which practitioners and researchers can rely on. Chermack (2003) proposes a theory of scenario planning using Dubin’s (1978) eight-step theory building methodology. The purpose of the study was to provide an approach to studying scenario planning that is based on research, theory, and practice. Its goal was to work towards a theoretical understanding and validation of scenario planning practices through sound, research as such the study provided suggestions for verifying each aspect of the proposed theory.

Again, scenarios are stories that describe future environment. Future environment, however, differs from time to time and from situation to situation so scenario developers and users should have a way of uniquely identifying scenarios and treat them as such. In this direction, Notten et al. (2003) propose an updated typology for analyzing and comparing scenarios. Another typology, based on user need has been developed by Bo¨rjeson et al. (2006) to let users of scenarios know what will happen, what can happen, and/or how a predefined target can be achieved.

To ensure that scenario developers are always on the “right path” Schwartz (1996) proposes eight steps for the scenario planning process. These steps are: (1) identify the issue, (2) identify key factors, (3) research driving forces, (4) rank key factors and driving
forces, (5) develop scenario logics, (6) develop scenario details, (7) consider implications and (8) identify indicators (see chapter two for the discussion of these steps).

Considering the above discussion, I argue that a lot has been done towards the theoretical development of scenario planning and I am convinced that if those theories are applied well, the divergent views about what scenarios are in the scenario discipline could be merged. But the problem is how these theories are applied in the real life situation. Like the scenarios there are many theoretical perspectives in the scenario planning literature. For instance, there are two theories regarding the aim of scenario planning. On the one hand, the aim of scenario planning is to help decision-makers prepare for the future. On the other hand, scenario planning is a means through which different futures can be anticipated. This situation can be confusing. The practitioners may find it difficult to distinguish one theory from another and how to implement different theories that explain a given situation.

Unfortunately, not many studies have been conducted to find how scenario planning theories are used by the scenario practitioners. Study in this direction was necessary because the academicians themselves were not sure whether scenario planning theories were measuring what they were supposed to measure (Chermack, 2006). Such a study could help us understand the application of scenario thinking in the real-life situation to prove or question the validity of scenario planning theories in practice.

This project was undertaken to look at the relation between scenario thinking (scenario planning theory) and scenario practice (or scenario planning practice). The specific issues addressed include: finding and comparing the practitioners’ definition of scenario planning and then compare with that of academicians, finding and comparing the goal of scenario planning among practitioners and between them and academicians’: finding the determiner of success or failure of scenarios: finding the practitioners’ goal of using scenarios: and the problems face in moving from theory to practice and vise versa.

The main question the project tried to answer was: “how does practitioners convert scenario planning theories into practice?” I hypothesized that scenario practitioners find it difficult to convert scenario theory to practice and reflecting back to the theories from practice.
I used a case study approach to answer the above question and to prove the hypothesis. By employing a questionnaire method, I conducted an interview with personnel of Copenhagen Institute of Future Studies and Ferring Pharmaceutical.
From the analysis of the data collected I found that the relation between scenario planning and scenario practice depends upon the type of scenario produced. The study also revealed that both practitioners and academicians have the same understanding of scenario planning and to both academicians and practitioners the objective of scenario planning is to have some knowledge about the future in order to plan “better”. But the debate remains whether to plan for the future or to anticipate. Findings also showed that the objectives of practitioners in the scenario profession is to help companies make scenarios and also to make money for their organizations. The study also revealed that the success or failure of scenarios is measured by how much they inspire the users. More importantly, the study revealed that practitioners have no problem converting theory into practice and moving from practice back to theory but that does not fully justify that scenario planning theories are measuring what they are supposed to measure because most of the practitioners have little knowledge about the theories in the literature. The participants in the study, however, suggested that in order to improve the value of scenario planning more companies should be encouraged to use scenarios in their planning activities.
CHAPTER TWO

2.0 Literature Review

The world is currently experiencing a “society” that can be described as a changing society. Changes in our society are fast and sometimes unprecedented. These characteristics of the society defy the ability of forecast as a method of studying the future, making scenario approach which takes into account environmental uncertainties and dynamisms an important future study method. Scenarios are nothing but stories that are told about different futures of a particular time and those stories are developed through the process of scenario planning. This section is a review of Scenarios and scenario planning literature. It is divided into four subtitles: scenarios, scenario planning (in theory), scenario planning (in practice) and the relationship between the two.

2.1 Scenarios

Scenario as a term is being used differently in different disciplines and perceived differently by different authors hence has no one definition. However, in scenario planning discipline scenarios are generally defined as future study method. They are in the form of stories that provide information about the futures within a given period of time. These stories are constructed by pairing or combining all possible uncertainties in an environment with the predetermined elements (uncertainties and predetermined elements are discussed under the respective subsections).

As stated earlier, scenarios are “narrative stories that follow particular paths into the future based on research, trends, and the key concerns of the managers who will use them” (Korte and Chermack, 2007). In other words, “they are stories about the way the world might turn tomorrow, stories that can help us recognize and adapt to changing aspects of our present environment” (Schewarz, 1996). Schewarz (1996) considers scenarios to be both tools and methods for future studies when states that “scenarios are a tool for helping us to take a long view of a world of great uncertainty” and that “they form a method for articulating the different pathways that exist for us tomorrow and finding our appropriate movements down each of those possible paths”.

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Scenarios as stories are constructed based on particular aims or targets. They are normally used as a means of obtaining information about a state of being in the future. The states of being can be a competitive advantage in a market in the case business organizations or a better education for example. Organizations or individuals therefore use scenarios for the purpose of making a better decision today for the future (Schewarz, 1996). We use scenarios to prepare for an uncertain future, alter mental models, test decisions, and improve performance in a dynamic environment (Chermack et al., 2001 in Chermack, 2005). Scenarios can therefore be used as a tool for planning. We can use scenarios to plan business, choose an education, look for a job, to judge an investment, or even to contemplate a marriage (Schewarz, 1996).

Though scenarios deal with possible events in the future they are not about predicting the future, rather they are about perceiving futures in the present (Schewarz, 1996); they are means of providing information for decision.

**Scenarios and other future study methods**

Futurists have developed various methods such as forecasting, scenarios for studying the future. The most common goal among future study methods is giving information about a kind of future that would exist within a specified period of time in relation to a particular goal. However, how the goal is achieved differs from one future study method to another. For instance forecasting bases its studies on the past and or existing behavioral records of the considering environment. Forecasting operates on the assumption that future behavior of an environment to some extent is “a carbon-copy” of the past behavior and therefore behavior prediction is possible. But this is not always the case; environment could be dynamic and complex making room for possible existence of uncertainties. Scenarios like forecasting studies future by using related historical data, however, scenarios method considers environmental uncertainties as well. It considers uncertainties which make environmental behavior more dynamic in order to avoid reactive behavior on the part of decision-makers. Uncertainty consideration in future studies is therefore the main characteristic that differentiates scenarios from other future methods.

*Uncertainty* is “the quality or state of being uncertain” (Marriam-Webster, 2009). Uncertainties in scenario planning are deduced from the complexity of business
environment. Business environment is very complex and a lack of understanding of this complexity is a source of the uncertainty (Heijden, 2005). However, “lack of understanding is also the part of uncertainty we can do something about” (Heijden, 2005). Heijden (2005) explains that by analyzing the situation and its history we can gradually learn to make sense of what is happening, and become better at anticipating aspects of the future. The analysis of the complexity in the environment help decision-makers to understand certain aspects of it and those aspects that are not understood are what are termed as the uncertainties (Heijden, 2005).

Heijden (2995) identifies three forms of uncertainties: risk, structural and unknowable. In risk uncertainty there is enough historical precedent, in the form of similar events, to enable decision-makers estimate probabilities for various possible outcomes, the risk therefore can be calculated on the basis of probabilities, which are derived from historical performance which is assumed to continue into the future (Heijden, 2005). In the structural uncertainties, there exists a unique event to deny managers a perception of likelihood (Heijden, 2005). The possibility of the event may present itself by means of a cause/effect chain of reasoning, but we have no evidence for judging how likely it could be (Heijden, 2005). According to Heijden (2005) scenario-based planning accepts structural uncertainty with the multiple interpretations and therefore multiple futures it brings. It helps managers to get on top of the situation by developing a better judgment of what the current situation could mean, and it does this by working through how each of the possible interpretations would create change in the future business environment (Heijden, 2005).

Unknowable uncertainty is experienced, when managers cannot even imagine the event (Heijden, 2005). From history manager know that there have been many such events, and they assume that this will continue in the future. However, they have no clue what those events could be (Heijden, 2005).

Scenarios, like any other future method, provides information that aids decision-making about the future, but it bases its arguments on different or alternative futures by paying attention to the uncertainties in the environment about which the decisions are made.
**Different scenarios**

Scenarios are constructed based on aims or targets and these aims or targets differ from one scenario user (institution or individuals) to another and from one context or situation to another. Again, the main purpose of scenario planning is to provide information for decision-making and there is no single decision that cuts across time and space. Therefore different scenarios exist to meet different goals and to service different purposes, however, how scenarios are classified differs from one author to another.

Scenarios used as a tool for planning in business, other organizations and government fall into two categories: those that stimulate users and those that integrate policies (Coates, 2000). Scenarios that stimulate users tell about future states or conditions in which an institution is embedded (Coates, 2000). Those scenarios are then used to stimulate users to develop and clarify practical choices, policies, and alternative actions that may be taken to deal with the consequences of the scenarios. The second form, the policy integrating scenarios tell a different story (Coates, 2000). They assume that a policy or policies have been established and what need to be done is to integrate those policies and their consequences into a story about some future state (Coates, 2000). These types of scenarios, rather than stimulating the discussion of policy choices, display the consequences of a particular choice or set of choices. Coates (2000) argues that the first category of scenarios are largely to stimulate thinking while the second are to a tool for explaining or exploring the consequence of some policy decision-either or actually made.

From another view point, Bo¨ rjeson et al. (2006) categorize scenario studies, for that scenarios into three main categories based on the principal questions scenario users might want to answer. These questions are: what will happen? What can happen? And how can specific targets be reached? According to Bo¨ rjeson et al. (2006) we can answer the question of what will happen by predictive scenarios. Predictive scenarios consist of two different types; distinguished by the conditions they place on what will happen (Bo¨ rjeson et al., 2006). For instance **forecasts** respond to the question: What will happen, on
the condition that the likely development unfolds? What-if scenarios respond to the question: What will happen, on the condition of some specified events?
The explorative scenarios are defined by the fact that they respond to the question what can happen? There are two types of explorative scenarios: external and strategic (Bo¨ rjeson et al., 2006). External scenarios respond to the user’s question: What can happen to the development of external factors? Strategic scenarios on the other hand respond to the question: What can happen if we act in a certain way? The aim with explorative scenarios is to explore situations or developments that are regarded as possible to happen, usually from a variety of perspectives.
The final question that separates one scenario from another according to (Bo¨ rjeson et al., 2006) categorization is how a specific target can be reached. This question is responded to by normative scenarios (Bo¨ rjeson et al., 2006). The normative scenarios consist of two different types, distinguished by how the system structure is treated. Preserving scenarios respond to the question: how can the target be reached, by adjustments to current situation while transforming scenarios respond to the question: how can targets be reached, when the prevailing structure blocks necessary changes. Again, Van Notten et al. (2003) classify scenarios based on project goal, process design and scenario content. The project goal classification is based on a scenario analysis’ objective as well as the subsequent demands on the design of the scenario development process (Van Notten et al. 2003). Process design addresses aspects such as the degree of quantitative and qualitative data used, or the choice for stakeholder workshops, expert interviews, or desk research. This classification is based on the process by which a particular scenario is constructed. The scenario content looks at the composition of the developed scenarios. The theme describes the nature of variables and dynamics in a scenario, and how they interconnect (Van Notten et al. 2003). With regard to scenario content Van Notten et al. (2003) distinguishes between complex and simple scenarios. A multitude of interpretations of the term complex exists (Van Notten et al. 2003). Applied to the context of scenario analysis, a complex scenario is one that is composed of an intricate web of causally related, interwoven, and elaborately arranged variables and dynamics (Van Notten et al. 2003). Those complex scenarios manifest alternative patterns of development consisting of a series of action-reaction mechanisms. They often
draw on a broad range of actors, factors, and sectors, and use multiple time or spatial scales (Van Notten et al. 2003). In contrast, simple scenarios are more limited in scope and in other characteristics as compared to the complex scenarios (Van Notten et al. 2003).

Scenarios without are stories that are used for studying future, however, scenarios method differs from other future studying methods and scenario stories are not the same all the time in every context though they share some common features. But no matter which of scenario one is dealing with, all scenarios are constructed in a process theoretically known as scenario planning.

2.2 Scenario planning

In this section I discuss the concept of scenario planning. The discussion is based on definition of scenario planning, scenario planning in theory, scenario planning in practice, and the relation between scenario theory and practice under their respective subheadings.

Scenario planning is a methodology for constructing scenarios. It is the theoretical basis that underlies the principal assumptions of scenarios and their development.

As a methodology scenario planning is a process that consists of various activities ranging from identifying an issue that requires decision making to the point of the actual decision-making.

Scenario planning is about making choices today with an understanding of how they might turn out in the future (Schewarz, 1996). It is “that part of strategic planning which relates to the tools and technologies for managing the uncertainties of the future” (Ringland, 1998). In a more elaborated form scenario planning is “a process of positing several informed, plausible and imagined alternative future environments in which decisions about the future may be played out, for the purpose of changing current thinking, improving decision making, enhancing human and organizational learning and improving performance” (Chermack and Lynham, 2002 in Chermak, 2006).

Scenario planning as a discipline has a theoretical basis that guide its scholars in research works and those theories are applied by practitioners in solving real life problems. I discuss scenario planning theory in the next subsection.

2.1.1 Scenario Planning Theory/Thinking
A theory is generally referred to as an analytic structure designed to explain a set of observations (Wikipedia, 2009). A theory does two things: it identifies a set of distinct observations as a class of phenomena and it makes assertions about the underlying reality that brings about or affects the class (Wikipedia, 2009).

The term theory is often used colloquially to refer to any explanatory thought, even fanciful or speculative ones, but in scholarly use it is reserved for ideas which meet baseline requirements about the kinds of observations made, the methods of classification used, and the consistency of the theory in its application among members of that class (Wikipedia, 2009). These requirements may vary across different fields of knowledge, but in general theories are expected to be functional and parsimonious: thus a theory should be the simplest possible tool that can be used to effectively address the given class of phenomena (Wikipedia, 2009). Various disciplines exist and almost every discipline has a set of theories that explain behavior in the field. Scenario theory or thinking is discussed in the paragraphs below.

Many theories are identified in scenario planning discipline but in this study Herman Kahn’s scenario thinking is considered for discussion. Herman Kahn is a prominent personality in scenario planning discipline and I am more familiar with his thinking and thus found it easier to apply his thinking as a theoretical framework for the project.

**Herman Kahn scenario thinking**

Herman Kahn was one of the preeminent futurists of the twentieth century. In the early 1970s he predicted the rise of Japan as a major world power (Wikipedia, 2009). He was a founder of the think tank The Hudson Institute and originally came to prominence as a military strategist and systems theorist while employed at RAND Corporation, USA. Kahn was known for analyzing the likely consequences of nuclear war and recommending ways to improve survivability. His theories contributed to the development of the nuclear strategy of the United States. Herman Kahn’s scenario
thinking later moved from military practice to business environment. His scenario thinking which forms the theoretical framework for this project is discussed here.

Theoretically Herman Kahn’s scenario thinking can be summarized as: imagining, proposing or desiring a state of being of an object (world, a society or an organization) in a future within a given time period by studying and analyzing the past or present values of variable attributes of the object under consideration and how those attributes may vary under certain conditions in a projected time period. This analysis gives the scenario planner an understanding of an imagined future in order to make appropriate decisions.

State of being, time period and object attributes are the variables in Herman Kahn’s scenario theory, that interact with one another to determine the future behavior of an object in a dynamic environment. The need for an object to exhibit certain behavior is the starting point. This behavior should be observable within a definite period of time in future. And to have a rough idea of such behavior the current behavior must be known through the analysis of the current values of the attributes of the object. By knowing the current values of the attributes, the scenario planner is given a fair knowledge about the possible behaviors of the object in the future, hence different futures.

Kahn’s thinking is further illustrated using the Year 2000 scenario (Herman, 1976). It was a scenario for growth and survival continuity for the world and the USA. The year 2000 scenario “can be summarized with the general statement that 200 years ago almost everywhere human beings were comparatively few, poor and at the mercy of the forces of nature, and 200 years from now, we expect, almost everywhere they will be numerous, rich and in control of the forces of nature” (Herman, 1976).

This above statement captures every element that explains the scenario thinking of Herman. The object of focus is the world. The aim of the scenario is to determine the state of the world in the next 200 years based on the state of the world in the last 200 years and the attributes of the world whose values determined its current state and would determine the future state were population, economic power and human control of nature.
Putting this in perspective, the time period was 400 years. The desired or imagined states of the world in this particular study were broadly known as “the earth-centered” and “space-bound”.

The earth-centered was an assumption that for the next 200 years the vast majority of human population will continue to inhabit the earth and that extraterrestrial activity will be limited to exploration and modest levels of exploitation (Herman, 1976). The second perspective, space-bound, assumed that a much more vigorous effort in extraterrestrial activities early in the 21st century, including the eventual establishment of large autonomous colonies in space, involved in the processing of raw materials, the production of energy and the manufacturing of durable goods—both for the indigenous consumption and as exports back to earth or to other solar-system colonies. Year 2000 scenario was based, however, on the earth-centered perspective. The assumption was that the achievement of the second goal would depend on the success of the first goal.

As noted already the attribute variables in the scenario were population growth, economic development and human control of nature. Taking population growth, for example the basic assumption underlying 400-year earth-centered scenario is that the rates of the world population and economic growth were close to their historic highs and would soon begin to slow until finally, roughly 100-200 years from that time, they would level off in a more or less natural and comfortable way (Herman, 1976). But what would cause that? One of the events that would make this come to pass was demographic transition (Herman, 1976). Herman used the demographic transition theory to depict changes about population growth that occurred in the past and were likely to occur in the future.

Herman Kahn’s thinking has been widely used in scenario practice to solve real life problems; scenario planning in practice is discussed next.

2.3 Scenario planning in practice
Scenario practice is about how scenario theories are used to construct scenarios. Scenario-minded persons are able to decide well for the future by practicing scenario thinking.
There scenario planning no doubt is a methodology for developing scenarios but the activities involved differ from one scenario planner to another. In other words there is no single way of undertaking scenario planning activities. However, though scenario planning is considered to be an art (Schewartz, 1996), there are some activities that are common to most scenario planners. These “common” activities include identification of target or key issues, driving forces, predetermined elements, uncertainties and construction of scenarios. Other perceived common activities are communicating the scenarios to decision-makers, changing their mental models and observing the impact of each scenario on their decisions. These activities considered general are discussed separately.

**Goals of Scenarios**

Scenario planning is about making “sound” decision about the future. Mostly decisions made by individuals or groups are about gaining favorable states or conditions and or avoiding the unfavorable. Therefore scenario planning process starts with an issue that requires some decision-making. So the role of the scenario planner at this point is to identify issues that require decision-making. This issue is normally referred to as the goal or target of scenarios.

Goals of scenarios are issues that scenarios seek to address. Scenario goal triggers the scenario planning process. In other words, they are the reasons that require scenarios as source of information for making decisions.

Notten, et al. (2003) identifies two types of scenario goals: exploration and decision support. Goal of exploration might includes awareness raising, the stimulation of creative thinking, and gaining insight into the way societal processes influence one another (Notten et al., 2003). In an exploratory scenario exercise, the process is often as important as the product (Notten et al., 2003). Notten et al. (2003) explain further that in certain cases the product (the scenario or set of scenarios) is even discarded at the end of the process. Decision support scenarios on the other hand are used to examine paths to futures that vary according to their desirability (Notten et al., 2003). The scenarios might even propose concrete strategic options. Decision-support scenarios mostly contain value-laden combinations of scenarios that are described as preferable, optimistic, high
The goal of scenarios is generated by asking questions like- “what do I want to do within the next say five years”? In the case of organizations, decision makers ask questions like- “where do we want our organization to be in a particular market within the next 10 years”? Questions like “what I want to do”- are partly answered by what I think I can do” these questions are obtained from the analysis of one’s strengths and weakness.

In organizational context gaining a competitive advantage for example could trigger the scenario planning process. Swartz (1996) suggests that in scenario planning, it is a good idea to begin “from inside out” rather than “from outside in”. Thus, begin with a specific decision or issue, and then build out toward the environment. According to Schewarz (1996) questions such as- “what will decision-makers in my company be thinking hard about in the future” and “what are the decisions that have to be made that will have a long-term influence on the fortunes of the company”- could lead scenario planners in the right direction.

But identifying goals of scenarios is only a starting point of scenario planning process. It only spells out what individuals or organizations wish to achieve but how to achieve is a crucial part of the process. This is what requires decision making and in making that decision decision-makers need information about the environment of which the decision is about.

**Driving forces**

Human as individuals or a group might have innate ability of making intentions regarding certain behavior or actions but how to behave or act in a particular situation requires some kind of skills to decide. In decision making, however, the right information is needed to determine an alternative course of action. Scenarios are a source of information for decision making and driving forces are also source of information for making scenarios therefore driving forces are “information” for decision making and that makes them vital scenario planning process.

**Driving forces** are factors, conditions or events that could influence decisions in an environment. They change or alter intentions, they determine actions and therefore they
have potential of deciding the final behavior or consequence of an action. They are normally external to the deciding environment and limitedly control by the decision-maker. Driving forces are very important in scenario planning process because they provide the necessary information to the decision processes.

Schewarz (1996) defines driving forces as the elements that move the plot of a scenario that determines the story’s outcome. Heijden (2005) describes driving forces as “place holders” for an environmental force, driving a possible outcome of a critical uncertainty. They have a relatively high level of explanatory power in relation to the situation being looked at (Heijden 2005).

Driving forces can be understood differently by different people, they may be obvious to one person and hidden to another (Schwarz, 1996) that is why Schwarz (1996) likes making scenarios in a team may be to draw knowledge and experiences from different heads.

Driving forces are sometimes many in a scenario planning process, in this case scenario planners look at those that are critical to decisions at decision to be made (Schewarz, 1996).

Driving forces differ from one scenario planning process to another; however, society, technology, politics and environment are mostly common to most scenario planning process (Schewarz, 1996).

Driving forces can be divided into two types: those that are familiar to the decision-maker (predetermine elements) and those that are not familiar (uncertainties). However, it is possible for both predetermined elements and uncertainties to exist as opposite sides of particular driving forces.

**Predetermined elements**

We make decision always but no decision is made without information no matter how trivial the information is. Perception is very vital in the attainment of the information in everyday decision-making. But if decisions are about the future, which is relatively difficult to perceive, how then do we obtain the needed information to make decisions? Despite the fact that knowledge about the future is very difficult to come by, scenario planning, which is a process of building information for decision-making perceives future
environment through the known aspects of the environment. These known aspects are
called **predetermine elements** in scenario planning. The predetermined elements make it
possible to plan for the future. Heijden (2005) observes that “strategizing would have
made no sense if nothing was predictable” so the fact that people make efforts to
strategize means that they can recognize that even although there are large uncertainties
out there some elements are predictable; thus, predetermined.

**Predetermined elements** are the visible parts of the environment, the known types or
aspects of driving forces; they serve as an interface between the decision-maker and the
perceived future. They are the driving forces and are related to the past records and
experiences. Wack, according to Burt (2006), argues that it is possible to identify
predetermined elements in that they are events that have already happened and that are
inevitable, though their timing and consequences may not be fully known. Wack
according to Burt (2006) suggests that within the business environment, predetermined
elements could be determined as (i) events that are in the pipeline and will emerge in time
pushing towards for a particular outcome, or (ii) the consequence of inertial forces within
the system whose behavior is slow to change over the long-run.

Predetermined elements do not depend on any particular chain of events (Schwartz,
1996). They seem certain, no matter which scenario come to pass (Schwartz, 1996).
Mathematically, predetermined elements could be described as constant, their values do
not change. If the value does, the change, the change is not drastic.

Predetermined elements are very important in strategic planning because planning could
not have been possible if nothing was known as Heijden (2005) observes. Demography,
growth rate of production and technology innovation are examples of the predetermined

**Uncertainties**

Decisions are made in environments and or about objects in environments. Though,
artificial environments exist, most environments that humans deal with are natural; the
human has little or no control over them and finds it difficult to predict with accuracy
their future behavior. The uncontrollable or unknown aspects of the environment are what scenario planners call uncertainties. Uncertainties are the opposite of the predetermined elements; they are unknown to and cannot be totally controlled by the decision-maker (see scenarios and other future study section for discussion about uncertainties).

Scenario-based planning accepts uncertainty with the multiple interpretations and therefore the multiple futures it brings (Heijden, 2005). Heijden (2005) asserts that it can help managers to get on top of the situation by developing a better judgment of what the current situation could mean. It does this by working through how each of the possible interpretations would create change in the future business environment. It obviously cannot take away the uncertainty in the situation, but it can reduce it and help managers to come to a reasonable judgment on the degree of robustness of a specific decision across the range of uncertainty. In this way managers can come to a conclusion on whether to move ahead, and in this way remove the paralysis that comes with incoherence (Heijden, 2005).

The difference between driving forces, predetermined elements and uncertainties is very thin. Both predetermined elements and uncertainties are types of driving forces. In some cases they could even be opposing aspects of a driving force. The relation among driving forces, predetermined elements and uncertainties is that both predetermined elements and uncertainties are driving forces; they influence decisions in a business environment. However, the predetermined elements are known to the decision-maker while the uncertainties are not. So if we consider driving forces as attributes of decision environment and those attributes have values then those values that are perceived to be “constant” are predetermined elements and those values that are perceived to be variable are the uncertainties. Scenarios are constructed using these two factors: predetermined elements and critical uncertainties.

**Scenario construction**

Having identified and separated predetermined elements from the uncertainties the next important activity in scenario planning process is to construct stories (scenarios) about imagined futures, stories that could be told to the decision-maker, using the two factors.
(predetermined elements and critical uncertainties). Heijden (1996) notes that scenarios are constructed by combining key uncertainties in business environments and predetermined elements. In this way a consideration is given to multiple futures that reflect various different underlying structures of cause and effect, depending on how the key uncertainties will play out (Heijden, 2005).

Schoemaker (1995) asserts also that once identify tends and uncertainties, we have the main ingredients for construction scenarios. A simple approach is to identify extreme worlds by putting all “positive” elements in one and all “negative” in another (Schoemaker, 995). Alternatively according to Schoemaker (1995) the various strings of possible outcomes (which jointly define a scenario) can be clustered around high versus low continuity, degree of preparedness, turmoil, and so on. Another method for finding some initial themes is to select the top two uncertainties and cross them; this makes sense mostly when some uncertainties are dearly more important than others.

Scenarios though are basically constructed by finding appropriate mapping between predetermined elements and uncertainties, how they are mapped depends largely upon skills and experiences of the individual scenario planner.

**Communicating scenarios to the decision maker**

Communication is very vital in the scenario planning process to both scenario planners and to scenario users. Mostly scenario planning process is a team-work so to scenario planners, effective communication is a means through which ideas flow from one head to another. Also, communication to some extent is the determiner of the value of developed scenarios. This is because though scenarios could be constructed by individual for the individual use, in most cases scenarios are developers or planners and scenario users belong to different groups. In this case constructed scenarios must be communicated to the target users. The main objective of scenario planners is to influence the decision-makers’ thinking using scenarios and that objective could not be achieved if the appropriate scenarios are not communicated to the prospective users.

Scenarios as stories can be in any literal format such as a speech, news article, a letter, a memo, a trip report, or transcript (Coates, 2000) and are therefore communicated like any other message to the target audience using any medium that is considered appropriate.
Different scenario planners in different organizations have various ways of communicating scenarios to decision-makers, however strategic conversation seem to be a common and recommended medium of communication between scenario planners and decision-makers. Strategic conversation is as an effective means for transmitting organizational learning and negotiating meaning about the reality of the organization (Heijden, 2005).

Strategic conversations are multi-directional multidimensional communication mechanisms used for shaping and integrating the strategic intent of top management with both the firm’s capabilities and the competitive realities that the organization encounters (Morgan et al, 2006). Strategic conversations create the organizational dialog through which individuals can reveal, analyze, share, and reconstruct their mental models, thus opening their minds to new possibilities (Heijden, 1996). Heijden (2005) emphasizes that it is only through a process of conversation that elements of personal observation and thought can be structured and embedded into the accepted and shared organizational theories-in-use. Similarly, new perceptions of opportunities and threats based on the reflection of experiences of actions playing out in the environment can only become institutional property through conversation (Heijden, 2005).

For a strategic conversation to be effective, it must incorporate a wide range of initially unstructured thoughts and views, and out of this create shared interpretations of the world in which the majority of the individual insights can find a logical place (Heijden, 2005). Heijden (2005) emphasizes that it is only through such embedding that joint action can result, leading to new joint experiences and reinforcement of shared theories-in-use.

Miles, et al (2006) explain that “for strategic conversations to be effective in strategy making, communications must explicitly involve both talking and reflective listening by all participants. Effective strategic conversations must incorporate a wide range of initially unstructured thoughts and views, and out of this create shared interpretations of the world in which the majority of the individual insights can find a logical place (Miles et al, 2006).

But what are the requirements of creating an effective institutional conversation? Heijden (2005) asserts that any conversation requires first of all a language in which the object of attention can be expressed. Some of the languages of strategies are coded in public
domain languages, and can be learned from strategic management textbooks (Heijden, 2005). In addition most organizations over time build up their own languages, based on their own responses to specific breakdown situations they experienced and on their own unique success formula (Heijden, 2005). The existence and proliferation of labels and jargon are manifestations of this process of language building, which is essential for the organizational learning to take place Heijden (2005). However, language concepts can only be representations of yesterday’s problems; generated in the past as categorizations of particular historical patterns of events, and used in coping with specific breakdown situations (Heijden, 2005). But it is inevitable that any new situation will at first be described in terms of past categorizations and this will almost by definition stop short of completely describing new reality (Heijden, 2005). Yet, the search for a new and original response to a new situation is facilitated by the conversational process and yesterday’s concepts could lead to tomorrow’s unique inventions (Heijden, 2005).

Strategic conversational processes have a purpose to increase the alignment of ideas in order to activate the organizational learning cycle (Heijden, 2005). According to Heijden (2005) the language of organizations is rational and people talk in order to convince each other. For example, “I argue in my case to convince you, and you do the same to me. Eventually we come to a negotiated solution in which I am convinced by some points you made and you see some arguments my way” (Heijden, 2005). This is a process is considered to be a measurement and comparison of the utility of competing ideas by reference to the shared worldview, from which the organization derives its purpose which can be achieved by starting from basic shared principles (Heijden, 2005). Heijden (2005) concludes that this shared worldview provides a platform for the strategic conversation in which a line of logical argumentation will be built leading to a preferred outcome.

**Changing the decision maker’s thinking**

Changing the decision-makers’ current perception about their environment is considered to be the ultimate aim of scenario planners. At any point in time decision makers have some kind of perception about the environment in which they exist or their businesses run
but such current thinking or perception may not the best. The perceptions may-be based on the past behavior of the environment or about an aspect of the environment, which in either case could run decision-makers into “trouble”. So scenario planners are always struggling to change the thinking of decision makers by presenting to them alternative stories about their environment. Different scenarios present different dimension of the environment thereby creating new knowledge for the decision makers. But how can scenario planners know if scenarios communicated to the decision-makers have created new knowledge or formed part of the existing knowledge of the decision-makers? One way of knowing is to finding out if learning has taken place among decision-makers as the results of the scenarios presented and the only indicator is the manifestations of changes in the mental models of the decision-makers.

Mental models are cognitive representation of a reality. They are the understanding of – “how the world behaves and how those living in it” are required to behave in order to “exist” or interact with it. Mental models are not the same all the time. (Korte and Chermack, 2007) define a mental model to be a simplified structure that helps individuals acquire, process and respond to information more efficiently. Mental models include the biases, beliefs, experiences and values of individuals and are constantly interacting with patterns of perception, thought, and action (Korte and Chermack, 2007). Korte and Chermack, (2007) explain that as a result of action and learning, mental models may evolve, leading to a different way of understanding and acting in the world, therefore mental models affect experience and are affected by experience.

Using scenarios to alter mental models for the purpose of strategic learning is one way in which scenarios and scenario planning provide new insights and different ways of seeing the world, such that knowledge about implicit processes and functions can be shared and challenged (Korte and Chermack, 2007). Another key feature in scenarios and scenario planning regarding the transfer of tacit, implicit knowledge is in their aim to uncover the structure within which actions take place (Korte and Chermack, 2007).

Changing mental models of decision-makers is very important to scenario planners because Wack himself states that:
“Good scenarios are not enough. To be effective, they must involve management, top and middle, in understanding and anticipating the unfolding business environment much more intimately than would be the case in the traditional planning process. Scenarios can be successful in structuring uncertainty only when (1) they are based on a sound analysis of reality, and (2) they change the decision maker’s assumptions about how the world works and compel him to change his image of reality. A willingness to face uncertainty and understand the forces driving it requires an almost revolutionary transformation in a large organization. And this transformation process is as important as the development of the scenarios themselves” (Chermack and Merwe, 2003).

To scenario planners, scenario planning process should aim at changing the mental model of the decision makers but can the change be permanent or sustainable? Mental model describes is about cognitive process which actions are not the same always so changing decision-makers’ mental model can only be achieved in short period. This is because decision-makers can yes to certain proposals today and no to the same proposal tomorrow due to presence or absence of certain conditions.

Making decision with Scenarios

Information for decision-making is obtained after appropriate scenarios are developed. Having communicated the scenarios to the decision-makers and after receiving the assurance that the mental models of the decision-makers have been changed, the next concern for scenario planners is to see how the actual decisions are made using the scenarios.

This activity corresponds to the activities undertaken in fourth stage of the Global Business Network (GBN) and step seven of Schewart (1996) in scenario planning process. In the fourth stage of GBN the scenario planners look for implications that are present in all scenario worlds, or vary across worlds by asking questions such as- “What if this scenario is the future? What actions would I take today to prepare? Are there actions I could take to create a desirable future, or to move away from a negative one?” Step seven examines the implications of the developed scenarios. Schewart’s (1996) step seven examines the implications of the developed scenarios. After the initial issue or decision is “wind tunneled” through the scenarios, it is important to examine the
robustness of each scenario through questions such as: “Does the decision look good across only one or two scenarios? What vulnerabilities have been revealed? Does a specific scenario require a high-risk, bet-the-farm strategy?”

Scenario professionals claim that scenarios provide information for decision making but they are not precise what kind of decisions are made. For instance, there are two theoretical views regarding what decision-makers use scenarios for. One theory states that scenarios are used to anticipate the future. In another theory scenarios are used to prepare for the future—so which is which preparation or anticipation for the future? Can we prepare for the future that we are not anticipating or do we anticipate future without having anything to do with it? How are the two views related? We can anticipate the future without preparing for it but we may not prepare for the future that we are not anticipating.

2.4 Specific approaches of scenario planning process
Because the scenario planning process is something of an art it has several approaches. Thus, despite the above-perceived activities in the process, some authors have proposed defined activities for scenario planning process. Many of those specific approaches exist in the literature but only Global Business Network’s five stages (GBN, 2004 in Conway, 2004) and Schwarz’s (1996) eight steps of scenario planning process are discussed here.

Global Business Network five-stage scenario planning process

Stage 1 according to Conway (2004) is the starting point of scenario planning activities under the five-stage approach. It aims at indentifying the focal issues of the scenario planning activities. According to Conway (2004) stage 1 begins with a series of structured interviews and discussions with key staff to find out more about challenges facing the organization and the assumptions held by those staff about those challenges. It is often useful to include external ‘thought leaders’ at this stage to gain an outside
perspective on challenges (Conway, 2004). At the end of this stage, there should be some clarity around the focus issue or question that will anchor the rest of the scenario planning process (Conway, 2004).

**Stage 2** is about exploring drivers of change in the external environment that will affect the focal issue (Conway, 2004). Drivers of change relate to the education environment, or the external environment of any organization, and the broader social environment (Conway, 2004).

The purpose of this stage is to broaden thinking beyond the urgency and immediacy of the here and now, and to seek to identify those external forces that may have an unexpected impact on the organization in the future (Conway, 2004). According to Conway (2004) such forces can be “predetermined elements” in that their development and impact is relatively well understood over a given timeframe, such as predictable cuts in public spending and demographic shifts. Other driving forces are more unpredictable. These “critical uncertainties” are likely to have a significant impact on the future of the organization, but little will be known about their impact in the given timeframe.

Conway (2004) states that **Stage 3** is about synthesis and integration where the information, both qualitative and quantitative, gathered so far are used to create scenarios. That driving forces are prioritized in terms of (i) the degree of importance to the focal issue, and (ii) the degree of uncertainty surrounding the forces. The two or three key forces are the critical uncertainties that will inform the development of scenarios. This is a key point: scenarios are developed based on drivers whose future impact is uncertain, rather than drivers whose impact is known or reasonably certain, which are often already being dealt with in the here and now. The value of scenarios comes from exploring the unknown to determine its impact on the known (Conway, 2004).

**Stage 4** according to Conway (2004), deals with action that is how decision-makers act on given scenarios. Because “The test of a good set of scenarios is not whether in the end it turns out to portray the future accurately, but whether it enables an organization to learn, adapt, and take effective action” (GBN, 2004 in Conway, 2004). Stage four therefore involves considering questions such as: “What if this scenario is the future?
What actions would I take today to prepare? Are there actions I could take to create a desirable future, or to move away from a negative one?” Answers to these questions are termed “scenario implications” (Conway, 2004) and are used to look for implications that are either present in all scenario worlds, or vary across worlds (Conway, 2004). The question to then ask is whether or not those differences highlight any strategic choices that will need to be investigated further. As the scenario worlds are explored over time, the resulting patterns and insights form the basis of discussion about the organization’s strategic agenda – those priorities that will focus long-term action. The pre-determined elements identified during the scenario development stage can also be used to focus strategy.

The outcomes of Stage 4 are the identification of implications that hold true in all scenario worlds, and the identification of predetermined elements that cannot be easily dismissed in strategy development. This stage is sometimes called ‘wind-tunnelling’ (Conway, 2004) where possible strategies are developed and then tested in each scenario world.

**Stage 5**, the last phase, deals with continual monitoring of external drivers and trends to facilitate adjustments to agreed strategy. A monitoring system needs to include indicators that can be tracked to judge whether a particular scenario world is beginning to emerge, which means some of the implications begin to be more important than others, and some of the uncertainties begin to be pre-determined. Such indicators are a signal of impending significant change, and a clear sign that organizational strategy should be reviewed. There are other scenario planning processes, and scenarios can be used in conjunction with other planning and futures tools and methods. All scenario work, however, integrates information about the external environment with the knowledge and expertise of staff. As such, it is a highly participative process and demands strong conceptual work of the staff involved in order to integrate what is often a disparate range of information, attitudes, and knowledge.
Schwarz's eight steps of scenario planning

Schwarz (1996) proposes an 8-step of scenario planning process. Theses steps include: (1) identify the issue, (2) identify key factors, (3) research driving forces, (4) rank key factors and driving forces, (5) develop scenario logics, (6) develop scenario details, (7) consider implications and (8) identify indicators. Each steps is described in the preceding paragraphs as in (Korte and Chermack, 2006)

Identify the issue: this steps deals with identifying the issue that requires making a decision. The importance of identifying the key issue or decision in practical business situations seems obvious and clear but a lack of articulating the key issue or decision has resulted in problems or failure in the scenario process (Korte and Chermack, 2006).

Identify key factors: Key factors are the result of interviews with a cross-section of people within the organization. Interviews are designed to elicit the strategic organizational agenda of executives and managers. Often, line workers and others in the organization are interviewed to get additional perspective. Remarkable people (experts in various disciplines completely unrelated to the issue under examination) are also often used to foster new thinking.

Research driving forces: Driving forces are “the elements that move the plot of a scenario, that determine the story’s outcome, the motive, the things that influence the outcomes of events” (Schewarz, 1996 in Korte and Chermack, 2006). These driving forces are identified through research external to the organization.

Rank key factors and driving forces: In this step, scenario planners work with members of the organization to rank the key factors and driving forces in terms of their importance and potential impact on the organization. The primary issues are then ranked again according to (1) uncertainty and (2) potential impact (Korte and Chermack, 2006).

Develop scenario logics: The results of the ranking exercise are placed on two axes along which the eventual scenarios will differ. The development and selection of the general scenario logics according to the matrix resulting from the ranking exercise provides the basic plot or defining situation for each scenario. The logic of a given scenario will be characterized by its location in the matrix. “It is more like playing with a set of issues
until you have reshaped and regrouped them in such a way that a logic emerges and a story can be told” (Schewarz, 1996 in Korte and Chermack, 2006)

**Develop scenario details:** Step six involves fleshing out the scenarios and then returning to steps two and three. Each key factor and driving force is given attention and manipulated within the matrix developed in the scenario logics of step four. Plausibility should be constantly checked from this point, for example, “if two scenarios differ over protectionist or nonprotectionist policies, it makes intuitive sense to put a high inflation rate with the ‘protectionist scenario and a low inflation rate with the non-protectionist scenario’” (Schwarz, 1996 in Korte and Chermack, 2006). Implausible scenarios accomplish little in the minds of organization decisionmakers because they are simply not believable or relevant to the issue under examination. Each scenario, once developed in detail, can be thought of as a theory about the future. Moving forward in the scenario planning process required the investigation of current decision-making and action in light of each of the scenarios developed. Thus, at this point, the scenario construction process is complete.

**Consider implications:** Step seven examines the implications of the developed scenarios. The initial issue or decision is “wind tunneled” through the scenarios. It is important to examine the robustness of each scenario through questions such as: “Does the decision look good across only one or two scenarios? What vulnerabilities have been revealed? Does a specific scenario require a high-risk, bet-the-farm strategy?”

**Identify indicators:** The final step is to select “leading indicators” that will signify that actual events may be unfolding according to a developed scenario. Once the scenarios have been developed, it is worth spending some time selecting identifiers that will assist planners in monitoring the course of unfolding events and how they might impact the organization (Schewarz, 1996 in Korte and Chermack, 2006).

### 2.4 Relation between Scenario theory and practice

Human life to some extent could be described as decision-making process and most decisions as stated earlier are about the future; making future studies an old concept in human history. The concept of scenarios as a future-study method is therefore not something new. Ever since the earliest recorded time, people have been interested in the
future and have used scenarios as a tool for indirectly exploring the future of society and its institutions (Bradfield, et al., 2005). In this context, scenarios were usually taken in the form of treatises on utopias and dystopias (Bradfield, et al., 2005). But the basis of the modern day scenario planning is traceable to the three main schools of thought: the La prospective school, the probabilistic modified trends school and the intuitive logics school, all of which belong to two geographical centers: the United States and France. The relation between scenario panning and scenario practice is discussed here based on the principles of these schools. However, how those centers lead to the establishment of the schools is not discussed here and also the focus of the discussion is on the intuitive logics school.

My choice of the intuitive logic school is based on the fact that the school could be described as “bridge” of Herman Kahn’s scenario thinking and its practice. The school was established as the results of the first scenario approach used in Shell Company. Pirre Wack who was one of the major contributors to the initiative of the scenario approach was familiar with Herman Kahn’s scenario ideas and therefore decided to experiment with them. Though the first approach was not all that successful, it was fundamental to the adaptation of scenario approach in the Shell Company, whose continuous use led to the establishment of the intuitive logic school.

This project is about relation between scenario thinking and practice. In other words, how scenario theory becomes practice and vice versa. So if the intuitive logic school was established as the results of a scenario approach in Shell and scenario approach in Shell was initially based on Herman Kahn’s scenario thinking then intuitive logic school is a point of connection between Herman Kahn’s theory and its practice. Moreso, I have chosen Herman’s scenario thinking as my theoretical basis and most of the literature I reviewed under the section of scenario practice comprises of the ideas of authors that I will describe as “fans” of Herman Kahn.
2.4.1 Schools of thought of the scenario planning

As mentioned above the three main schools of thought in modern scenario planning discipline are the intuitive logics school, the probabilistic modified trends school and the La Prospective. These schools are briefly described in the following paragraphs.

2.4.1.1 The probabilistic modified trends school originated from the United States. It incorporates two distinct methodologies: Trend-Impact Analysis and Cross-Impact Analysis. The Trend-impact analysis (TIA) was developed in the early 1970s in the field of futures research, and is most often associated with the Futures Group based in Connecticut (Bradfo et al. 2005). According to Gordon (1994), TIA evolved out of the fact that traditional forecasting methods relied on the extrapolation of historic data without considering the effects of unprecedented future events. The concept of TIA is therefore designed to modify simple extrapolations and in essence, involves four steps.

The first step involves the collection of the historical data relating to the issue that is being examined. In the second step, an algorithm is used to select specific curve-fitting historical data and to extrapolate this to generate ‘surprise-free’ future trends. The third step involves developing a list of unprecedented future events which could cause deviations from the extrapolated trend. In the fourth step, expert judgments are used to identify the probability of the occurrence of these unprecedented events as a function of time and their expected impact, to produce adjusted extrapolations. Although, this method is used often the references to TIA in the context of scenarios are relatively few in the literature (Gordon, 2005).

The Cross-impact analysis (CIA) model was developed by Gordon and Helmer in 1966 at the RAND Corporation as a forecasting game for Kaiser-Aluminium, and subsequently programmed by Gordon and Hayward. A range of causal and correlation cross-impact variants have since been developed by researchers, along with a number of proprietary methodologies (Bradford et al., 2005). The CIA methodology attempts to evaluate changes in the probability of occurrence of events which might cause deviations in the naive extrapolations of historical data (Bradford et al., 2005). The processes underlying both TIA and CIA methodologies are similar but CIA incorporates an additional layer of
complexity, in that rather than accepting the a priori probabilities attached to future events by experts, it attempts to determine the conditional or proportional probabilities of pairs of future events given that various events have or have not occurred, through cross-impact calculations (Bradford et al., 2005). The premise of CIA is that it is essential to take cognizance of the interdependencies of events in order to move from a system of ‘unprocessed initial probabilities’ to a set of ‘corrected probabilities’ (Godet, 1987 in Bradford et al., 2005).

2.4.1.2 The La prospective school to a large extent is a blending of the intuitive logics which is discussed next with the probabilistic modified trend methodologies (Bradford et al., 2005). It incorporates certain features of the Intuitive logics methodology; however, it is more elaborate, complex and a more mechanistic rather than an openly intuitive approach to scenarios development. It relies heavily on computer-based mathematical models which have their roots in TIA and CIA (Bradford et al., 2005).

2.4.1.3 The intuitive logics school

The ‘Year 2000’ project undertaken by Shell Company was the establishing point of the intuitive logics school. Initiated in 1967, the ‘Year 2000’ study was a project to study the business environment that would exist in 2000 (Bradfield et al., 2005). This study revealed that there would be a discontinuity in the oil industry, the historical trajectory of year-on-year expansion of the industry could not continue to 1985, let alone 2000 (Bradfield et al., 2005). As a consequence of this revelation, a number of Shell companies were tasked in 1969, to look ahead to the year 1985 in an initiative known as the ‘Horizon Planning’ exercise. Pierre Wack, a planner at Shell Francaise- one of the participating companies in the exercise- was familiar with the scenario approach developed by Kahn, and decided to experiment with the technique using France as the testing ground (Bradfield et al., 2005).

The initial attempt at scenarios was successful as Wack (1985 in Bradfield, 2005) labeled them as “first generation scenarios”, which were useful in gaining a better understanding of situations, but provided no insights beyond what was already known. However, Wack (1985 in Bradfield, 2005) acknowledges that the scenarios did result in the discovering of a useful search tool and a promised technique. Besides, the initial scenarios were not a
total failure because the Horizon Planning Initiative had confirmed the findings of the Year 2000 study which prompted the decision in Shell to experiment with scenario planning as a potentially better framework for thinking about the future rather than continuing to rely on conventional forecasts which were likely to be wrong in the face of a discontinuity (Kleiner, 1996 and Wack, 1985 in Bradfo, 2005). These processes led to the establishment of the intuitive logics school. This is because the initial scenarios developed in 1971 on an experimental basis and presented to senior management in 1972, proved extraordinarily successful in that they correctly identified an impending scarcity of oil and an ensuing pointed increase in oil prices; shortly thereafter scenario planning was extended throughout the company (Bradford et al., 2005). Shell has become the most celebrated corporate exponent of scenarios, its definition of scenarios and process methods have become the de facto ‘gold standard of corporate scenario generation’ (Millett, 2003). This is why the intuitive logics methodology is sometimes referred to as the ‘Shell approach’ to scenarios (Bradfo, 2005).

Numerous variations of the intuitive logics model have since been published, each identifying a number of discrete steps, varying from five (Foster, 1993 in Bradfo, 2005) to 15 or more (Vanston, et al., 1977 in Bradfo et al., 2005), depending on which features of scenarios are of interest (Bradfo et al., 2005). Some practitioners have elaborated and branded proprietary scenario developmental models, examples of which are Future Mapping, an approach used by Northeast Consulting Resources Inc. based in Massachusetts (Mason, 1994 in Bradfo et al., 2005)

The intuitive logics school has been criticized for contributing to the ‘methodological chaos’ in scenario planning. Bradfo et al. (2005) claim that “when it comes to the intuitive logics model, a large part of the ‘methodological chaos’ …arises from the observation that there are almost as many ways of developing scenarios as there are practitioners in the field”. Despite the criticism, the intuitive logics school is still prominent in scenario planning discipline, partly because of its association with Shell. Shell still remains reference point in discussion about scenarios or scenario planning in the “strategic world”.
Intuitive Logics School as bridge between scenario theory and scenario practice

Humans like many organisms, are always concerned with external events and also with the behaviors of other organisms in their environment. This is due partly to the interdependence that exists among organisms in particular environmental settings. Interdependence among organisms could be perceived to be a driving force behind most activities in the world. Independence may exist among the living organisms but only subjectively. Interdependence leads most living organisms in a given environment to become interested in one another’s behavior to understand, for example why A is exhibiting a particular behavior and how B can control or be associated with that.

In the scientific world, theories form premises from which conclusions about some behaviors of living organisms can be drawn. And based on answers to the why behavior questions, practitioners in a particular discipline are able to predict or determine how a particular “object” would behave in a particular setting given certain conditions. Based on this information, behaviors that are perceived undesirable could be manipulated. The relation between theory and practice subjectively can be explained by answering what, why and how questions about an organism’s behavior in a particular environment. Using a theory or an observation we can identify what kind of behavior exists, why it exists and how we can either control that or associate ourselves with it.

I am discussing here the relation between theory and practice of scenario planning using the intuitive logics school, precisely how it answers the question of how in scenario planning process.

The starting point is to answer the, what question in scenario planning. Answers to this question can be found in Herman’s scenario thinking. As stated earlier, Herman Kahn’s Scenario thinking can be theoretically summarized as: imagining, proposing or desiring a state of an object (world, a society or an organization) in a future within a given time period by studying and analyzing the past or present values of variable attributes of the object under consideration and how those attributes may varied under certain conditions in a projected time period. In this case, state of being is a kind of behavior that future environment is expected to exhibit. This behavior could be identified by scenario planners using scenario planning techniques or business operators using intuition or other forms of observations. Using Herman Kahn’s theory futurist can imagine which
behaviors to expect from an environment or individuals in an environment within a specified time period in the future.

The *why* question is answered using theories in practice. Continuous observation of similar pattern of a phenomenon could lead to a development of a theory that could be used to explain similar behavior in the same setting or different settings. However, other people have an opposing view that theory must come before observation. I belong to neither the inductive nor deductive views of what came before: theory or observation. But for the purpose of analysis in this study I am going to follow the deductive view in order how theory could be an answer to why something is happening.

Linking the argument to scenario thinking and practice I argue that if we can identify what behavior to expect in an environment using scenario thinking (Herman’s thinking to be precise) then we can also explain why we are expecting such a behavior using the same theories but this time in practice. Using Herman Kahn’s scenario thinking, Wack and colleagues were able to imagine expected events in the oil industry. With further application of the Herman’s ideas they were able to explain why the expected futures were likely.

Finally, the actions on which could align ourselves with the expected behavior would be based on the relation between theoretical and practical perceptions of a particular event. Here again, Wack and colleagues made decisions as to how to control or exist in the future oil industry. The initial results proved effective and that encouraged them to extend the scenario approach to other branches of the Shell

The continuous application of the theory led to the establishment of the intuitive logics school. The school has become the basis of practices for shell as well as other organizations such Global Business Network. Based on the principles of this school further theories are developed to enhance scenario planning. For instance, Schwarz (1996) developed eight steps of scenario planning process. Also, Global Business Network (2004) develops five steps of scenario planning process. Schwarz and other authors Global Business Network are among those who are in away linked to the shell school of scenario planning.
Shell school is therefore serving as an output or practice of Herman Kahn’s thinking and as an input to a development of subsequent theories. It is a common ground for conversion of theory (Herman Kahn’s thinking for example) to practice and practice back to theory as its principles are used to develop further theories. This argument is supported by a statement that “Intuitive logics school is the basis of the approach taken by SRI and the Global business Network, which under Peter Schwartz has built on both SRI and Shell experience” (Schwartz, 1998).
CHAPTER 3

Methodology
The question of what relationship exist between scenario planning theory (scenario thinking) and scenario planning practice led me to a proposition that scenario practicing organizations with skills in converting scenario thinking to practice and practice back to theory do better than those organizations without such skills. So in order to understand the relation between theory and practice of scenario planning and to prove the above preposition, I employed a case study approach. This argument is based on the claim that case study approach seeks to achieve both more complex and fuller explanation of phenomena (Vaus, 2001). Wikipedia (2009) also asserts that results from a case study approach may offer researchers a sharpened understanding of why instances happened as they did, and what might become important to look at more extensively in future research. Again, my aim was to look at the relation between theory and practice in real-life situation and case study is a research strategy that investigates a phenomenon within its real-life context (Wikipedia, 2009).

Case of the study
Copenhagen Institute for Future Studies was a selected case for the study. The choice was based on the fact that it is one of the oldest future studying institutions in Denmark and therefore has plenty of experienced experts in scenario practice. Additionally, the institution has an appreciable number of recorded successes and has been referred to often in the literature. So based on these attribute I consider it as a case that best support the preposition that successful scenario practicing organizations are those who are skillful in converting theory to practice and vice versa. However, during the analysis I realized that the data looked a bit scanty. I also realized that the participants had similar answers, implying that the institution might have had influence on their responses. To rectify this, I decided to interview another person from a different institution (Futuria) but unfortunately efforts to contact an experienced person an interview were unsuccessful.
Method
An interview method was employed with an open-ended questionnaire to gather the require data for the study. Many reasons accounted for choosing the method and the tool. On the one hand, I did not have knowledge as to what the possible responses could be and therefore could not have made suggested responses for a close-ended questionnaire. On the other hand, I aimed to get as many as possible responses from the participants instead of limiting their answers. Finally, the nature of the study was more qualitative than quantitative and thus, an open-ended questionnaire would make analysis relatively easier.

Scenario practitioners were the population of the study. I divided them into two categories: theoretically-minded and practically-minded. The theoretically-minded group consists of those practitioners who deal much with scenario thinking in their practice and they are identified by what they do, mostly from their published works. The practically-minded practitioners focus more daily construction and development of scenarios.

Two employees of CIFS and an employee of Ferring Pharmaceutical formed the sample of the population for the study. They were perceived to be theoretically-minded and practically-minded except the one from Ferring who had general knowledge about scenarios. The two participants from CIFS were selected based on the publication or work profiles from the CIFS’ web site. However, the information obtained from the web site turned out not to be exactly as described. When, I met the employees for the interview, the first participant told me that their work is about both theoretical and practical so they are both theoretically and practically-oriented. But the third participant was selected base on a recommendation of a schoolmate who is working in the same company.

The two participants were interviewed face-to-face. The first person I interviewed was the theoretically-minded person who I named participant 1 and the next interview was with the participant 2 or the practical-oriented. Both interviews were held on the same day at CIFS premises but in different offices. Questions on the questionnaire were thrown to them and they provided answers accordingly. But on few occasions I asked for
clarifications of certain answers where I did not understand what they meant. However, the third participants responded to selected questions from the questionnaire through an email conversation.

**Materials** used for the collection of the data included pen, paper and an email facility. I initially wanted to use a recording device, but unfortunately for reasons unknown to me the device could not work. I opted to reschedule the interview on another day but they said they could speak slowly if I was ready to write. I agreed to do the listening and writing so it lasted considerably longer.

The **data collected** were analyzed using scenario planning theories. I analyzed the data by comparing and contrasting the obtained answers with various views or claims in the literature and then drawing appropriate conclusions.

**Units of analysis**
The study comprised of two cases: the Copenhagen Institute for Futures Studies and Ferring Pharmaceutical.

**The Copenhagen Institute for Futures Studies**
The Copenhagen Institute for Futures Studies is a non-profit organization, founded in 1970 by Professor Thorkil Kristensen, former Minister of Finance and Secretary-General of the OECD. It was set up in co-operation with a number of visionary organizations wanting to qualify their basis for making decisions through futures studies. Since then, the CIFS has been at the front edge of developments of new working methods and analysis tools.

CIFS is an independent, non-profit research institution earning its income exclusively from sponsored research and dissemination of knowledge. Its general guidelines are defined by the Executive Committee.

CIFS has clients in a number of OECD countries, primarily in the Danish, Swedish, Norwegian and British markets. Outside of OECD-Europe CIFS is engaged in speech activities and in book publication.
The main objective of the Copenhagen Institute for Futures Studies (CIFS) is to research the future for clients in the private and public sectors. This is to strengthen the basis for decision-making in public and private organizations by creating awareness of the future and highlighting its importance to the present. By contributing with knowledge and inspiration, CIFS supports decision-making through identification and analysis of trends that influence the future nationally and internationally.

CIFS methods range from statistically based analysis and the identification of global trends, to more subjective emotional factors of importance to the future. The work of CIFS is interdisciplinary, therefore its staff represents various fields of academic and professional backgrounds such as economics, political science, ethnography, psychology, engineering, PR and sociology. It operates on interdisciplinary co-operation between employees.

Currently, CIFS has over twenty employees who are divided into four categories: board and management, scientific, administrative and affiliates. Each category of employees performs specific but related functions that contribute to the successful running of the organization.

**Ferring Pharmaceutical**

Ferring Pharmaceuticals is a research-driven biopharmaceutical company devoted to identifying, developing and marketing innovative products in the fields of infertility, obstetrics, urology, gastroenterology, endocrinology and osteoarthritis.

The company’s research activities and products are connected by a common thread focused on the provision of tailored treatments that work on the body’s own terms to enable doctors to combat numerous diseases and medical conditions.

The company has gained international recognition over the last 20 years for the creation of inventive medications that improve the quality of life of children and adults all around the world.

Ferring has its own production facilities in several European countries, in South America, Israel and China. With the acquisition of Bio-Technology General in 2005, it has capabilities in recombinant biotechnology as well as more traditional pharmaceutical manufacturing.
Ferring’s marketing, medical services and sales teams, led by corporate headquarters in Saint-Prex, Switzerland, operate from more than 45 countries and employ over 3200 people throughout the world, while treatments are available in more than 70 countries. This expansion has allowed Ferring to maintain a double digit annual growth rate over the last two decades.

Ferring’s R&D projects complement Ferring’s product portfolio and will add a new generation of products to some of the company’s most successful specialty brands. R&D facilities are located in Denmark, Israel and California, USA.

Ferring is committed to a future where it will continue to provide new and innovative medicines by utilising existing and acquired skills and the development of pioneering technologies and, where necessary, through partnerships with academic institutes and other companies.
CHAPTER FOUR

4.0 Data Analysis

I present and analyze in this section data collected for the study. The data are categorized under three headings: scenario planning/theory, scenario practice and the relation between scenario planning and scenario practice. Though, the questionnaire was of two parts: scenario theory and scenario practice. I found the third heading necessary in order to make the presentation more logical and simpler. Besides, the question of relation exists in both part of the questionnaire. Various data in relation to the questions are analyzed under the appropriate headings. The analysis is based on comparing and or contrasting answers to the questions with the knowledge in the literature.

4.1 Scenario planning/thinking

Data presented here are answers to questions related to scenario planning. However, specific data address issues such as the practitioners’ definition of scenario planning, their perception about the goal of scenario planning in connection with practices and the problems that they face in converting scenario theory to practice. These issues are presented individually in the preceding paragraphs.

Please could you describe the relation between scenario theory and scenario practice?

The aim of this question was to understand the practitioner’s definition of scenario planning and the relation between scenario planning and scenario practice. However, only data about scenario planning is presented here. Information about the relation is presented in the relation section. To the practitioners, scenario planning is how scenarios are made as pointed out that “scenario theory is how to make scenarios”. Another participant who responded to the question through email may be did not read the question properly and might have taken scenario planning to means scenarios. This was reflected in the response that “I can’t remember the precise academic definition – but scenarios
relate to imagining a variety of possible futures. Not to predict them, but to raise the awareness of signs in your environment, pointing towards future changes. By increasing the awareness and working with a variety of scenarios, you prepare yourself for the future and will be more able to proactively adapt”. This response also suggests that most practitioners are not aware of or might have forgotten of theories they learnt. All the same, the definition, though very short, is similar to the various definitions found in the literature. Again, it captures the overall activity of scenario planning and the end product of scenario planning process. Although scenario planning process involves different but interrelated activities, the end product of the process is scenarios. So this definition is not different from that of the academicians’ if we consider scenario construction as the overall objective that each scenario planning activity or process is sought to achieve. However, the definition has fallen short to that of the academicians’ in that it is condensed and straightforward. Scenario planning is how to make scenarios, but what are the activities involved in the “how” and what is the purpose of making scenarios? Questions like this could be a source ambiguity to beginners in the field and those coming from different disciplines. Besides, the definition differs from that of academicians in that the participant defined scenarios without making references to any known school of thought, personality or authority in scenario planning discipline.

In the literature, for instance scenario planning has been defined as “that part of strategic planning which relates to the tools and technologies for managing the uncertainties of the future” (Ringland, 1998). Another definition states that scenario planning is “a process of positing several informed, plausible and imagined alternative future environments in which decisions about the future may be played out, for the purpose of changing current thinking, improving decision making, enhancing human and organizational learning and improving performance” (Chermack and Lynham, 2002 in Chermak, 2006).

Both definitions are more than just how to make scenarios as claimed by the participants. Nonetheless, both the academicians’ and the practitioners’ definitions can be considered the same or similar at least, in terms of meaning and by implication, though the academician’s definition is more elaborated and explanatory. The elaboration of the
academicians’ definition may imply that theoretical perception of an event may be different from practical perception of the same event.

**How will you describe theoretical goals in connection with the scenario practice?**

This question was asked in order to gain an understanding of the practitioners’ aims or objectives of using scenario thinking in their profession or activities. I found out that the main purpose of using scenario thinking by scenario practitioners is to have knowledge about future that may have something to do with organizations they are considering. However, the participant divided this broader objective into sub-objectives of “to have ideas about future, to handle unpredictable environment and to help companies in their strategic planning process”. The participant explained further by relating these objectives that “future is unpredictable but since you have to make decisions [about it] in the present you have to have ideas of what kind of future you are into, therefore we use scenarios. With more than one scenario emphasizes that the future is unpredictable”. This view matches the previous knowledge that the basic assumption on which scenario planning operates is the unpredictability of the future environment. And the aim of scenario planners is to help decision-makers to make better decisions about future behavior of their environment by changing their current thinking or mental model about the environment using scenarios. The practitioners’ argument about the goal of scenario planning in relation to practice is supported by the claim that “scenario planning is about making choices today with an understanding of how they might turn out” (Schewarz, 1996). So the goal of scenario planning to both academicians and practitioners is to have knowledge about the future in order to plan on how to “live” in it when it comes.

**What problems are you aware of in this process of changing theory (scenario theory) to practice?**

By asking this question I wanted to know if practitioners face problems in applying scenario planning in their activities. But fortunately, they do not face much problems in that regard, as the participant states “we seldom have problems”. However, the use of the word “seldom” suggests that they sometimes have problems but the participant did not
mention any problem. Having no problem in the practical use of scenario thinking implies that scenario planning as a theory may be measuring what it is supposed to measure.

4.2 Scenario practice

Data presented here relate to scenario practice from practitioners’ point of view. Individual issues presented include: the practitioners understanding of scenario practice, their professional goals and their description of successful scenarios. This group of the data was elicited from the participant 2

Please describe scenario planning- the idea behind it?

This question was just a twisted question from the previous part to know how practically-oriented practitioners define scenario planning and also to compare their definition to that of theoretically-minded practitioners. And surprisingly the definition was not different from that of that of the participant 1. According to the participant “we use scenario planning to make scenarios” or “That is it”. The third participant also had similar response-“Not very different from the above [scenario planning theory]. When we went through the process, I found it to be a very practical, hands-on exercise, where all participants were easily engaged. The process was seen as very relevant for all, as the futures discussed have a close relationship with today’s reality – even if some of the scenarios purposely were “far out” or worst / best case situations”. All the three definitions were similar. The similarity suggests that the participants’ organizations had not influence on their response, though the third participants is not much involved in daily activities of scenarios. Nonetheless, based on the similarity of the definitions I conclude that practitioners’ understanding of scenario planning no matter whether they are theory or practice minded is the same which similar to knowledge in the literature by implication.
**How will you describe your practical goals (or please what are your practical goals of scenario planning)?**

The aim here was to know the goals of scenario practitioners in their profession and generally organizational survival is the main goal of practitioners in using scenario planning. Practitioners are concerned with the survival of their own organizations as well as the survival of the scenario beneficiary organizations. This broader goal was subdivided by the participant into helping beneficiary organizations to make scenarios and making money for their organizations. The participants stated that “our practical goal is to help companies make scenarios and to make money….we have to survive as an organization and the only product we sell is scenarios”. Linking this statement to organizational survival, scenario developing organizations make scenarios to make money for continue survival and those organizations they make them for also stand the chance of surviving in a turbulent environment if the produced scenarios are perceived to be right and decisions are made based on them.

**In achieving your goals what will you describe as success or failure from your scenarios?**

This question was meant to know what kind of scenario is considered good or effective in the real life situation. But answers to this question seem to be more subjective, as the value or success of scenarios depends largely on user acceptance. Practitioners’ term for user acceptance is “inspiration”. That is “scenarios are considered successful if they bring inspiration to companies”. I was not clear on what the participant meant by inspiration so I asked for clarification and it was explained, that “by inspiration I meant if companies think that they [scenarios] are likely. Thus there is a likelihood that this kind of future could come to pass”. This view corresponds to various claims in the textbooks that put emphasis on the ability of scenarios to change the mental model of decision-makers. People are unlikely to use scenarios if they do not believe in the content of those scenarios. So successful scenarios are those whose content have been believed by the users; that is if the users think that there is greater possibility experiencing the kind of future the scenarios represent.
4.3 Relation between scenario planning and practice

This section contains data about the relation between scenario planning and scenario practice. The relation between scenario planning and scenario practice was the main issue that the study sought to address. Questions in relation to the relation between the two concepts were asked directly and indirectly in part I and part II respectively in the questionnaire. In part I asked an explicit question- “please could you describe the relation between scenario theory and scenario practice?”- But in part II the question was- “have you had problems reflecting on your practices in relation to theory?” In either case my aim was to understand how practitioners relate scenario planning to practice and practice to theory. Answers to the two questions are individually presented below.

**Please could you describe the relation between scenario theory and scenario practice?**
The aim of asking this question was twofold: to know how theoretically-minded scenario practitioners’ define scenario planning and to understand the relation between scenarios planning and scenario practice. I found that the kind of scenario produced is a determiner of the relation between scenario planning and practice. The participant stated that “the relation between scenario theory and scenario practice depends upon the kind of scenario produced”. This implies the kind of scenario constructed shows the kind of scenario planning used in producing the scenario. The end justifies the means is the common saying but in this case the means justifies the end.

**Have you had problems reflecting on your practices in relation to theory?**
Here my aim was to find out where practitioners reflect on their practices in relation to theory and whether or not they face problems in doing so. The overall objective however, was to infer the relation between scenario practice and theory. And the answer given showed that in moving from practice to theory the relation between scenario planning and practice is based on either “matched” or “mismatched” between practitioners’ previous knowledge and experience. As the participant said, “reflection is a difficult activity in every situation but I don’t think we have problem reflecting on our practices. We use experiences in our work but you have to have knowledge of what you are doing so in the
end your reflection will be base upon the match or mismatch between the previous knowledge and what you are doing”.

This view corresponds to the findings that practitioners who are theoretically-inclined have no problem in changing theories to practice, implies scenario practitioners have no problem moving between theory and practice highlighting a similarity between scenario theory and scenario practice

4.4 Discussion and Conclusion

I embarked on this project to find the relation between scenario planning and scenario practice. By employing a case study method I studied Copenhagen Institute for Future studies and have found that the kind of scenarios produced is the determiner of a relation between scenario planning and scenario practice. This finding corresponds to the claims that different kinds of scenarios exist (Bo¨ rjeson et al., 2006; Van Notten et al. 2003). Linking this to the finding I can argue that if different kinds of scenarios exist then those scenarios are made differently at least and if scenario-use is what practitioners term as scenario practice then the finding is something to consider.

Another finding reveals that practitioners (both practical and theoretical minded) have same definition for scenario planning; however their definition differs from that of academicians in terms of content. The academicians’ is more elaborated than that of the practitioners’, suggesting that academician’s perception of an event may be slightly different from that of practitioners of the same event, emphasizing the fact that theory may be different from practice.

Again, findings related to the goal of scenario planning are the same among practitioners and between academicians. To the practitioners, the goal of scenario planning is to have an idea about future in order to plan, which corresponds to the claim in the literature that the purpose of scenario planning should be to produce alternative futures which can serve as information for decision making. However, this finding contradicts the claim in the literature that scenarios have been used to refer to other terms such as forecast or prediction or planning (Bradfo et al., 2005) because both participants in the study never used any of those words as a substitute for the word scenario. But it could be that the conflicting view is between academicians and practitioners and not among practitioners.
Furthermore, the study’s findings discover that goals of scenario practitioners in pursuing scenario as a future study method is organizational survival; survival of their own organizations as well as the scenario-user. Scenario practitioners have goals of helping companies to make scenarios and to make money.

I also found that the success or failure of any produced scenario depends on whether or not it has inspired the users to change their perceptions about the environment and whether or not decisions are made based on the content of the scenarios presented. This matches an argument that the aim of scenario planners is to change the mental models of decision-makers. Using scenarios to alter mental models for the purpose of strategic learning is one way in which scenarios and scenario planning provide new insights and different ways of seeing the world such that knowledge about implicit processes and functions can be shared and challenged (Korte and Chermack, 2007). Also, Schoemaker (1995) claims that relevance is the first criterion to determine if one’s final scenarios are any good and for scenarios to have impact, they should connect directly with the mental maps and concerns of the users.

Finally, the findings point out that practitioners have no problem moving from scenario planning to practice and vice versa. This suggests that scenario planning as a theory is measuring what is supposed to measure contrary to the doubt that “it is unclear if scenario planning is really effective in delivering path through uncertain times (Chermack, 2006). The finding, however, corresponds to Chermack’s (2006) argument that scenario construction may constitute a form of theory building. Chermack (2006) argues further base on different works that scenario construction might most appropriately be thought of as a process of developing and changing theories-in-use.

Both practitioners and academicians therefore have the basic understanding of scenario planning as a tool for making scenarios and the goal of scenario planning as to gain knowledge about the future. Scenario practice, on the other hand, to practitioners is the use of scenarios by companies. The relation between scenario planning and scenario practice is subjective and different from the moving direction of the relation. The relation between theory and practice depends upon the kind of scenarios produced in changing
theory to practice. The same relation also depends on “match” or “mismatch” between a practitioner’s experience and previous knowledge. In either case the relation is more subjective.

**Limitations of the study**

Due to time constraints, the study was limited by its scope. Studying two cases is not enough for such a study. I wish I had time to interview more than three participants. Another limitation is lack of data from an existing scenario planning system. I hope future studies would consider those issues.
References


