

Ex ante strategy evaluation: the case for business wargaming

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Introduction

Organizations have been, and always will be, subject to rapid change, high dynamics, and increasing discontinuity. In the late 1960s, Drucker (1969) advanced the argument that the world had entered the “Age of discontinuity”, meaning that change was occurring more rapidly than it had in the past. Ackoff (1981) claimed that organizations find themselves in a “mess” that they perceive as representing the future implied by organizations’, and the environment’s, behavior.

Managers need to prepare for change and look for new constellations for better ways to reallocate their resources and to position their companies in the market. According to Eden and Ackermann (1998, p. 3):

Strategic management involves creating and moulding the future, along with making sense of the past, constructing rather than simply predicting, and responding to some predetermined future reality. It is also importantly about developing the capability for long-term flexibility and strategic opportunism rather than making and sticking to long-term plans.

The key challenge for today’s managers is to formulate a strategy and execute a strategic management system under complex circumstances. What matters most in such a situation is to develop sufficient *ex ante* strategy evaluation processes in order to avoid corporate failure. But how are managers to achieve this essential task? In general, simulations in various formats, e.g. computer based simulations or scenarios, have been identified as methods that allow managers to model uncertainties and to test strategies.

Although computer based simulations and scenarios have their shortcomings, these approaches to testing strategies will be discussed and criticized in this article. This discussion will lead to the consideration of a method which seems to have advantages over computer-based simulations and scenarios, not only concerning the *ex ante* testing and evaluation of strategies, but also in terms of giving managers the opportunity to actually experience their proposed strategy. This points to business wargaming, which can be perceived as a dynamic strategic simulation.

After a brief introduction, the concept of *ex ante* strategy evaluation will be discussed, followed by an analysis of scenario planning and computer-based simulations. The article then turns to a review of the methodology of business wargaming, its history and fields of applications, leading to a discussion on how business wargaming can contribute to the *ex ante* evaluation of strategies.

Ex ante strategy evaluation

While an enormous amount of literature exists on strategy and strategy formulation, the aspect of testing strategies prior to their implementation, referred to here as the *ex ante* evaluation of strategy, appears to be underrepresented. However, Mintzberg *et al.* (1998)



credit “the design school” with providing a framework for choosing a strategy among identified alternative strategies by doing a series of tests, and then reflecting on such criteria as consistency, consonance, advantage, and feasibility.

In order to discuss the relevance of testing a strategy prior to implementation, it is helpful to consider, in general, the basic elements of the planning process:

- setting objectives;
- analyzing the environment and the company (possibly including the consideration of scenarios);
- developing a set of strategic options; this leads to
- developing strategic plans.

The major challenge that arises in strategy formulation is to assess the consequences of a formulated strategy (Morecroft, 1984).

Broadly speaking, Morecroft (1984, p. 215) argues that this challenge can be met “by acting out the consequences of strategy proposals in their full organizational setting,” suggesting the use of system dynamics simulation modelling. Kunc and Morecroft (2006) argue that models, which can take the form of simple diagrams or simulations, provide a means by which strategies or strategic initiatives can be tested for their future impact prior to their implementation in an organization. According to Kunc and Morecroft (2006, p. 5):

Use of the models by the management team leads to an imagined outcome and virtual performance for comparison with strategic direction and goals.

Perrottet (1998) favors another approach that can also be perceived as a form of simulation. It suggests testing a strategy in scenarios. He argues that even if corporations are satisfied with their strategy, they are particularly vulnerable to competitive actions having the potential to redefine the market.

It is useful to consider the model of a strategic decision-making process proposed by Dyson and O'Brien (1998). They emphasize a forward limb in their model that represents the process of anticipating future performance of the organization, and evaluating proposed strategies at the early stages of their development. They further argue that this limb represents a process of reflection before action. Dyson and O'Brien (1998) add a limb to a simple control system, formulating a conceptual model of the strategic development process that underscores their perception that new strategies should be evaluated prior to implementation. They assert that those which have been tested are more likely to prove viable in the long run.

The overall purpose of an *ex ante* evaluation of a particular strategy is to assess, by simulating reality, the consequences in respect to the organizational environment (especially its competitors), and in respect to the future impact of the strategy and the future of that strategy. Considering the existing literature on the *ex ante* evaluation of strategies, simulations appear to be an important means of testing strategies prior to their implementation. While business wargaming cannot only be perceived as a dynamic strategic simulation, being inherently distinctive from computer-based simulations, it will be argued later that the characteristics of the limb introduced by Dyson and O'Brien (1998) can also be addressed by applying business wargaming to the process of strategy formulation.

Scenario- and computer-based simulations

Before introducing business wargaming as a means of testing strategies, the above-mentioned concepts of computer-based simulations and scenarios shall be discussed in more detail.

Scenarios

The scenario technique dates back to the 1950s when Herman Kahn of the Rand Corporation developed the first scenarios (Pohl, 1996). Kahn and his colleague, Anthony



J. Wiener, published *The Year 2000: A Frame-work for Speculations on the Next Thirty-Three Years* (Kahn and Wiener, 1967). This signalled the inauguration of the scenario technique. Kahn and Wiener (1967, p. 6) describe scenarios as “hypothetical sequences of events constructed for the purpose of focusing attention on casual processes and decision-points”.

In the 1970s, Royal Dutch/Shell refined the scenario technique into what is now known as scenario planning by linking the scenario technique with strategic planning (Fahey and Randall, 1998a). In contrast to Khan’s scenario writing, scenario planning is more a qualitative method, which relies on a process conducted by the management of an organization rather than by scenario experts (Wilson, 1998). The aim of scenarios is to identify trends and key uncertainties and combine them into pictures of the future, not covering all eventualities but discovering the boundaries of future outcomes (Schoemaker, 1992). Most importantly, scenarios should cover generically different futures rather than variations of single ones (Schoemaker, 1995). In other words, scenarios enable managers to think about the unthinkable.

In addition to the important task of providing alternative pictures of the future, scenarios – and especially scenario planning – can perform several other functions in organizations. Scenario planning restores complexity to the strategic planning process. This is in contrast to methods like forecasting which attempt to simplify the planning process (Eden and Ackermann, 1998). Another interesting and important effect is that scenario planning could serve to challenge the mental models of participating managers: “Perhaps the most critical purpose of scenario planning is to challenge, test, and, if necessary, change decisions-makers’ assumptions about their present and future business environment” (Wilson, 1998, p. 81).

Scenario planning and its criticisms

Orieseck and Friedrich (2003) assert that the scenarios used in scenario planning processes are often projections crafted onto past experiences. They criticize scenario planning, and standard planning processes, for not relating much to the future and, therefore, as being easily thwarted by unforeseen events. Since scenario planning is an analytical process, it is vulnerable to the charge that scenarios struggle with incorporating future dynamics of markets. MacKay and McKiernan’s (2004) criticism addresses the lack of awareness of weak signals of change in an organizational environment. They claim that scenarios often fail to spot in advance the weak signals in an organizational environment. The argument has also been made by others (Liebl, 2004; MacKay and McKiernan, 2004; Postma and Liebl, 2005; Neugarten, 2006) that the knowledge base of a scenario exercise is often unclear, implying that mental models have not been sufficiently challenged.

Kurtz (2003) argues that criticism of both planning and scenario planning concepts evolve from the failure to enlist the participation of enough management staff in a learning exercise to confront, understand, and deal with the dynamics of particular business situations. Moreover, scenario exercises tend to be very time-consuming and complicated. In a recent Delphi study on the future of futures studies in German management (Schwarz, 2008), participants stated that scenario planning was one of the methods most frequently applied, but that the method is difficult, time consuming, and a process that is a chore to implement. Others (Hodgkinson and Wright, 2002) have offered the criticism that there is very little supporting evidence of the efficiency of scenario planning, despite success stories, such as Royal Dutch Shell (Wack, 1985a, b), which also have been subject to criticism (Mintzberg, 1994).

While it appears that scenario planning is a means for strategy development (e.g. Schoemaker and van der Heijden, 1992; Schoemaker, 1995; Fahey and Randall, 1998b), the application of scenarios to strategy testing appears to be rather limited. The dynamics between the organization and its competitors are difficult to enact in a scenario exercise; however, including the views of competitors is an observed strength of business wargaming. Even Perrottet (1998), who suggests testing strategies in scenarios, refers to wargaming where the competitive environment of an organization is concerned. Wargaming incorporates the competitive environment of an organization when applied to



the *ex ante* evaluation of strategies. The broader environment is also included, assuming that a business wargame is thoroughly prepared by including an analysis of the environment, such as through PESTEL analysis (Johnson *et al.*, 2006).

Computer-based simulations

While business wargaming will be introduced in the next section, it is relevant to differentiate between business wargaming and computer-based simulation. The essential distinction reflects how detailed the underlying model used in such a simulation is and how such a model determines the strategic options of those involved in the simulation (Helmer, 1983).

In reference to business wargames, Chussil (2007) argues that such a simulation is always underscored by a model, ranging from “mental models,” such as human judgement, to “quantitative models”. The degree to which the model determines the simulation is relevant. The danger models pose in guiding a simulation is that they represent the perspective of analysts who constructed the model (Hanley, 1992). However, in the *ex ante* evaluation of strategy, when the focus of a simulation is to simulate reality, the major shortcoming of computer-based simulations seems to be their predetermined character.

This aspect is also reflected in a recent debate in the US Navy (Strategy Page, 2008). While the US Navy relies heavily on computer-based simulation for training purposes, critics within the Navy suggest that simulations, which are not as scripted as computer-based simulations, allow the usefulness of experience to deal with the unexpected. This form of simulation is also referred to as “free wargaming” (Hanley, 1992). It puts the emphasis on the interaction among those individuals involved in the simulation without being overly restricted by a particular computer-based model. In this area, Fuller and Loogma (2008) point out the advantages of role-playing simulations over computer-based simulations. They argue that computer based simulations appear not to be able to produce social knowledge *per se*, whereas in a role playing simulation new meanings appear to be generated from the known through social interaction.

In a military context, Rubel (2006, p. 113) not only defines what a wargame is, but he also distinguishes wargames from computer-based simulations:

A war game is an artificial representation – that is, simulation – of war that is used to learn more about a particular situation. A common misconception is that computer simulations are war games. Computer programs are not in themselves war games, although they are frequently referred to as such; war games require human players, who may employ computer programs to assist them.

This quote emphasizes the essential point that, while models and computers should assist in a business wargame when a strategy is tested, they should not drive the simulation. Bracken (2001, p. 18) further emphasizes the relevance of the interaction, not restricted by a model, among the participants of a business wargame:

The problem with many strategy techniques is that they are too cold and bloodless. They fail to capture human emotions, and because of their icy rational character, people don't really pay attention to them. They are soon forgotten, and they make no lasting impact on the organization. Gaming is a profound learning experience, one that is not soon forgotten.

While Gilad (2008) emphasizes that computer algorithms are unnecessary for wargaming, the argument can be made that the participants gain the most from such a simulation when they are confronted with new, previously non-experienced situations that challenge their strategy and, in particular, their mental models of the competition or industry. For instance, Cares and Miskel (2007) argue that the most compelling results are derived from a simulation when a team has been shocked by a competitor's actions, as in a strategic crisis, and then thinks more deeply about the dynamics of the competition. It is essential that a business wargame be dynamic, driven by its participants and not based on computer simulations with a set number of parameters, interlinked with pre-set sensitivities (Oriesek and Schwarz, 2008).



Whereas it has been argued (e.g. Cares and Miskel, 2007) that business wargaming has several advantages over scenario planning for the purpose of *ex ante* strategy evaluation, and van der Heijden *et al.* (2002) point out that scenario planning developed out of military wargaming, some of the unique features of wargaming have been neglected. Hence, the concept of business wargaming will be discussed in detail below.

What is business wargaming?

The existing literature is one main obstacle when dealing with military or business wargaming. While only a few comprehensive accounts on the military application on wargaming exist (e.g. Brewer and Shubik, 1979; Perla, 1990; Dunnigan, 2000), even less exists on the application in a business context (e.g. Gilad, 2008; Orišek and Schwarz, 2008). Moreover, it appears to be difficult to find data on the success of wargames. To deal with these shortcomings in the literature, this article will explain the characteristics of business wargaming, focusing on the processes and what is involved. Accounts of military and business wargaming will also be discussed.

Kurtz (2003) describes a business wargame as a role-playing simulation of a dynamic business situation. Each team in the wargame is assigned to play a certain stakeholder, such as a competitor, in some sort of business situation. The typical business wargame lasts several rounds, each one representing a defined time period. A business wargame is usually preceded by extensive research on the industry in which the wargame is supposed to take place.

“Wargame” is the literal translation of the German *Kriegsspiel*. Since many in the military are uncomfortable with the term game due to the gravity of war, wargames are often called “map manoeuvres,” “field manoeuvres,” “exercises,” or, increasingly, “modelling and simulation.” As in the business environment, some discomfort exists with both the terms “war” and “game.” Hence, war-games have also been referred to as “strategic simulations.” Wargames can have several purposes, such as strategy testing, crisis planning and management, change management, planning, and training and education (Orišek and Schwarz, 2008). Wargames have been applied in both the public and private sectors.

History of business wargaming

Military wargaming

Business wargaming can be traced at least as far back as ancient Greece. It grew out of military wargaming, which was used to prepare generals and officers for unforeseen circumstances on the battlefield. Games about warfare have probably existed as long as warfare itself (Perla, 1990). Perla (1990) credits the Chinese general and military philosopher Sun Tzu for developing the first wargame about 5,000 years ago. This game was called “Wei-Hai,” meaning “encirclement.” “Go” appeared around 2200 BCE, “Chaturanga,” around 500 CE, and, later, chess could be perceived as the successors of this early wargame. Even though chess is quite abstract compared to a wargame, chess and its forerunners contain several elements of warfare and can therefore be regarded as a wargame in a broader sense.

While wargaming evolved from these early games, the Prussian era was of considerable prominence in the history of military wargaming. From a military point of view, the 19th century was characterized by the expansion of armies – which were more difficult to move around – and industrialization, which made the fighting of war more complex. Artillery could reach targets further than ever and was capable of greater repetition and precision. By the end of the nineteenth century the automatic rifle was introduced, increasing fire-power to an unprecedented extent. In addition, the railroad made it possible to move troops faster. At this time, the term “wargame” came into existence, and wargaming became popular with the Prussian military.



Wargames were also used in the USA, Great Britain, Italy, France, Russia, and Japan, especially after the Prussian victory in the Franco-Prussian war of 1870-71. Around this time, the wargaming tradition began in the USA, which is of particular importance since the USA continued to use wargaming after the Second World War, and is regarded as the pacesetter in the development of military wargaming during the twentieth century. While the history of wargaming appears to be rather well documented (e.g. Brewer and Shubik, 1979; Perla, 1990; Hanley, 1992; Caffrey, 2000; Dunnigan, 2000), it is more difficult to find recent accounts on the proliferation of wargaming. For instance, Oswalt (1993) and Haffa and Patton (1999) state that wargaming is still being applied, especially in the various US military branches and also in NATO. Vanderveer and Heasley (2005) argue that wargaming has been around in the military as long as armed forces have been evaluating plausible defensive and offensive options. In addition, it is reported that the US military has applied wargaming during the recent Iraqi war. Details on these wargames remain classified (Rugman, 2007).

Business wargaming

As far back as 1957, the American Management Association (AMA) developed the first widely known business game, "The AMA Top Management Decision Simulation" (Kalman and Rhenman, 1975). The AMA game required teams of players, representing company officers to make business decisions. The game consisted of five teams of three or five persons each. The company produced a single product, which was sold on an open and competitive market. Usually five to ten years of company operations were simulated per game. In order to reduce the participants' computational burden, the AMA game allowed each company only a few decision alternatives. A mathematical model, aided by computers, was used to evaluate and calculate how the teams performed. In subsequent years, not only did many corporations and universities in the USA adopt the game, but new games were also developed. The focus of these games was to teach business students how to run a company.

Furthermore, in 1958, an article on the application of wargaming to the business environment appeared in the *Harvard Business Review* (Andlinger, 1958). The terms used in this article were "business gaming" and "management simulation". These games were primarily used for training and education, and built on the military use of wargaming. These business games can be classified as general or functional games. General games are representations of an entire company. Top management makes the kind of decisions that need to be made. In contrast, functional games concentrate on a company's functions, such as production, finance, or marketing.

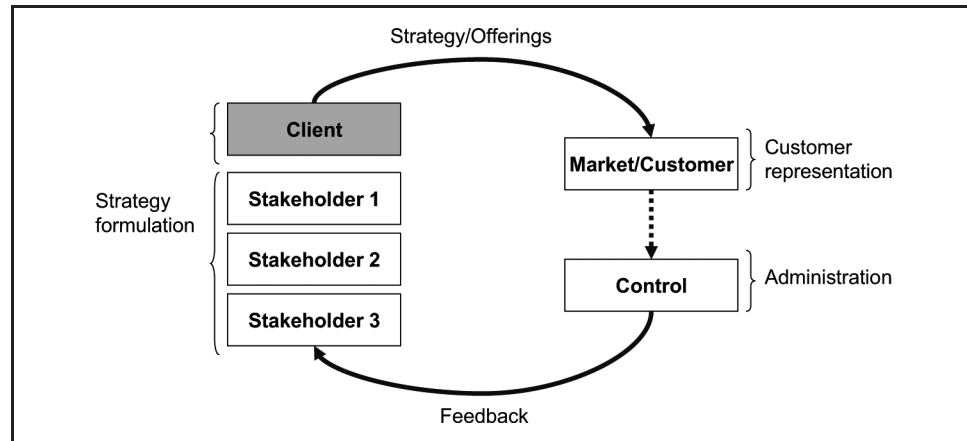
Even though business wargaming had been applied to company planning in the 1950s (Bellman *et al.*, 1957), it was not until the mid 1980s that wargaming was strategically adapted for business purposes (Ginter and Rucks, 1984; Treat *et al.*, 1996). In the field of competitive business intelligence, wargames have drawn special attention for their focus on competitors. More recently, business wargaming has emerged both as a tool for competitive intelligence and as a tool for strategy formulation (Kurtz, 2003).

How do business wargames work?

A business wargame typically (Oriesek and Schwarz, 2008) evolves over three moves, representing a certain length of time (e.g. three to ten years). The first move starts in the present, and is based on available data. A "move" is a decision cycle, which begins with the stakeholders or competing companies and the client team taking the initial actions, including competitive offerings, alliances, investments, or lobbying efforts. In general, as depicted in Figure 1, four types of teams exist in a business wargame: a client team, competitive or stakeholder team, market team, and control team.

Competing teams will have to think about strategy, product, pricing, capacity, technology and the like, while considering the business environment. The members of the client team have to execute and adjust their own strategy. An essential part of each move is the reaction



Figure 1

of the customers, usually played by a market team, consisting of a group of market experts. The market team will provide the reactions of customers, providing figures such as size of the market, market segments, market share, and revenue, and how these figures have changed in the course of the moves. All this data will be passed on to the control team, usually run by the wargaming experts, who use a financial model to calculate profits and losses. In addition, the control team is in charge of supervising the wargame and introducing discontinuities (e.g. technological developments or policy issues) to add real life dynamics, something that Fuld (2006) emphasizes. The control team can also assume the role of other stakeholders, such as regulators who are not represented in the business wargame as competitors.

At the end of each move the control team calculates the results of the competing teams and the client team, and uses these results as the starting point for making the next move. While the market team reacts and the control team calculates the figures, the competitive teams and the client teams plan their next move. They then learn the results of the previous move. As pointed out earlier concerning computer-based simulations, models are supportive in nature, adding reality to the business wargame but not intended to drive the simulation.

Prior to carrying out a business wargame it is essential that the objectives are laid out, and that a database of all information that is potentially useful to the players is created. The model translates the game's data and the players' decisions into game events, quantifying the moves and results of the wargame (Perla, 1990). After a business wargame has been played to completion, an analysis is carried out by the wargaming experts and managers of the client company, which is important for discussing lessons learned during the exercise. This analysis allows the managers to describe their experiences, to reflect on what they have learned, and to discuss subsequent steps, which will then result in additional lessons learned.

Supporting evidence for business wargaming

Given the above description of wargaming, this section shall describe supporting evidence from the application of wargaming in the military and business fields.

From a historic and military perspective, Hanley (1992, p. 224) stresses that the military application of wargames "satisfied the criteria for vigilant decision making." Furthermore, "Accounts of gaming routinely demonstrate the participants broadening the range of alternatives considered and facing the need to review objectives" (Hanley, 1992, p. 224). For instance, he further points out, until the fall of the Soviet Union, the Naval War College conducted Global War Games which led to a complete shift in thinking about the use of naval forces and combining the operations of US naval forces with land-based forces to restrict any potential Soviet aggression (Hanley, 1992).

Furthermore, in the context of transportation planning, Minis and Tsamboulas (2008) report that wargaming was successfully applied to test contingency plans for the transport operations of the Athens 2004 Olympic Games. In the context of the business application of wargaming, Scherpereel (2003, p. 70) states that there is evidence from case studies that the effects of business wargames “result in participants doing things differently, thinking longer term, seeing the big picture and better understanding the complexities of the competitive landscape”. His experimental study, quantifying the impact of a business wargame, supports this claim. Another interesting piece of evidence is provided by Green (2002). He provides empirical evidence on the advantages of role-playing – which can also be perceived as business wargaming in contrast with game theory – and discusses unassisted judgement in forecasting decisions in conflict situations. Underlining the potential of business wargaming and evaluating their strategies, this research concludes that “Role-play forecasts were more accurate than predictions by game theorists, which were, in turn, more accurate than unaided judgement” (Green, 2002, p. 334).

Chussil (2007), drawing on his experience of conducting some 100 business wargames, argues that a business wargame represents a means for testing strategic options. A case study on a leading European airline (Lüchinger, 2001; Oriesek and Schwarz, 2008) elucidates this claim.

In the late 1990s, European airlines were confronted with dramatic rises in competition. One of the emerging strategies in this environment was to forge alliances, such as Star Alliance or One World, in order to keep customers and to achieve economics of scale. The strategic questions confronting European airlines included whether they should join one of the existing alliances, remain independent, or form a new alliance (Oriesek and Schwarz, 2008). The main objective of this business wargame was to test the current strategy. One of the key findings of this wargame was that remaining outside of one of the major alliances would increasingly be difficult for this airline.

However, the CEO of the airline was already convinced, before the business wargame took place, of a different strategic option. While neglecting the outcomes of the business wargame he chose to stick with his original strategic plan that revolved around the formation of a fourth alliance. A few years later the airline went bankrupt and eventually became a part of a larger alliance. While this brief case study suggests that the outcomes of business wargames can be of value, the issue of how the outcomes of a business wargame are dealt with have also been discussed by Hanley (1992) in a more historic perspective of the military application of wargaming. He points to an aspect that can be deemed responsible for the results of wargames not being translated into action, as described above in the European airline case: “Egocentric constraints were responsible for most cases of active suppression of valid game results” (Hanley, 1992, p. 225).

In the following section the concept of *ex ante* evaluation of strategies in a business wargame shall be explored, describing in more detail the characteristics of business wargaming.

Applying business wargaming for *ex ante* strategy evaluation

Military wargaming was used by military planners in response to increasingly dangerous environments and to meet an obvious need to reduce the risks of strategic miscalculations (Ginter and Rucks, 1984). However, because of the similarities between business and war, it was promising to adapt something like wargaming – which the military had used for centuries – to business. Increasing complexity, dynamics, and the need to minimize risk are reasons why strategic management and scenario planning drew so much attention. Besides strategy professionals, competitive intelligence is a field which enjoyed renewed popularity with the publication of Michael Porter's (1980) *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, which took advantage of business wargaming, largely because of its focus on competitors.



The advantages of business wargaming

In addition to being future-oriented, a business wargame has several advantages for testing strategy. First and foremost, a business wargame actively involves its participants. In the course of a business wargame, the dynamics of a market or of competitors will not only be analyzed but also anticipated by simulating the future over the course of several days. By simulating an industry, market, or competition over time, managers are able to “experience” the dynamics and the competition in their market or industry and to see the consequences of their strategy. As the wargaming exercise proceeds, participants will be forced to think about the future. Essentially, early signals of change that might be relevant for the particular organization are identified.

The argument can be made that business war-gaming is a powerful tool to challenge the mental models of participants. In short, the benefit of business wargaming is that managers of an organization have the opportunity to think like their competitors, and thereby anticipating what those competitors are likely to do. Perhaps the most convincing argument in favour of business wargaming is that such a simulation is not only part of a strategic planning process, but that a business wargame is itself a simplified version of strategic planning, one that permits the participants to experiment not only with strategies but also with forms of strategic planning, but on a smaller scale.

While business wargaming can be perceived as a means of fostering organizational learning (Senge, 1990; de Geus, 1997), it supports analogical encoding, to which Loewenstein *et al.* (1999, p. 586) refer as “the process of comparing two examples on deriving an abstraction on the basis of their commonalities”. In particular if the comparison between situations or moves within the business wargame or with mental models is encouraged, it is even more likely that the knowledge derived from a business wargame will be transferred when a similarly structured situation occurs outside the simulation.

Kurtz (2003) summarizes the benefits of a business war-game. A war-game involves intensive competition among teams, each of which represents a stakeholder and the wargaming process forces a rigorous examination of the situation from several perspectives. It is essential for the participants to be actively involved, and that wargames provide multiple opportunities to learn, such as in research, the design of the wargame, and during and after the wargame (Perla, 1990). In addition, the benefits of a business wargame are its ability to convey a deeper understanding of the competitive situation and an understanding how a participant’s or a team’s strategy will play out, and especially how the industry will develop. Dunnigan (2000) describes a wargame as an attempt to get a jump on the future. Fuld (2006, p. 109) adds: “War games are not crystal balls but they do throw off lots of insight – and sometimes even foresight.”

Testing strategy in a business wargame

Concerning the military application of wargaming, while Schwalbe (1993) states that these kinds of simulations are a very cost-effective way to test strategies, this certainly also seems to apply to the business context. A business wargame allows experimentation with strategies, without having to deal with the risk or potential cost of failure in the real world. Since the design of a business wargame can include any competitor or stakeholder, multiple perspectives can be used to test a strategy. What adds to the relevance of business wargaming is that the learning experience for the management team is not purely analytical, it is participative, bringing greater insight to the strategy and the business environment.

Figure 2 summarizes not only the characteristics of business wargaming, it also points out how business wargaming differs from scenarios and computer based simulations in the context of strategy testing. While benefitting from being dynamic, involving active anticipation, being future oriented, identifying early signals of change, a business wargame focuses on competitors. Even though Perrottet (1998) points out that the competitive perspective is included in testing strategies in scenarios, it appears that by actually allowing managers to play the role of the competitor in a business wargame already gives them a deeper understanding of the competitive situation.

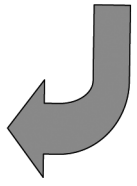


Figure 2

Purpose of ex-ante strategy evaluation	Scenarios	Computer-based simulations	Business wargaming
Simulate reality	<i>too analytical</i>	<i>too static</i>	<i>dynamic simulation</i>
Assess future consequences	<i>not incorporating future dynamics enough</i>	<i>too limited to the design of the simulation</i>	<i>predominantly future oriented</i>
Competitive dimension	<i>not a strong focus on</i>	<i>included, but also not dynamic enough</i>	<i>strong focus on competition</i>

Business wargaming adds new dimensions to ex-ante strategy evaluation:

- actively involving the participants
- anticipating future developments in the simulation
- multiple perspectives are included
- multiple ways of learning
- team building effects



Gilad (2004) asserts that business wargaming is the most effective managerial tool for assessing competitors' responses to a changing industry. In his view, a wargame can help managers predict their competitors' most likely moves. Watman (2003, p. 54) points out, in a military context – applicable also to a business context – that wargaming is an effective method for practicing decisions and evaluating their consequences. What refers to strategy testing in this article: "... is to allow players to develop a deep familiarity with military problems and the choices they contain so that when players encounter the 'real thing' they have a collection of experiences on which to draw." Overall, testing a strategy in a business wargame allows managers to benefit from the following:

- discovering weaknesses in the original strategy;
- better understanding competitors and their possible actions;
- thinking creatively about the future; and
- gaining confidence in their own strategy.

The limitations of business wargaming

While this article has described the advantages of business wargaming, there are limitations. Business wargaming is a resources intensive simulation (Orišek and Schwarz, 2008). Not only does the design and preparation of a business wargame involve a lot of resources, the execution demands, due to the participative nature, a large group of decision makers and their willingness to spend up to several days with such an activity. However, the selection of the participants is itself crucial. Gilad (2008), for instance, emphasizes that the presence of senior management in a team bears the danger of making it difficult for some team members to disagree with the leader, hindering open discussions.

But not only is the careful selection of the participants relevant, the organizations (in which the business wargame is taking place) and its managers, need to be willing to engage in such a simulation (Gilad, 2008). This implies that the participants need to feel comfortable in discussing openly various strategic options, which might even include controversial discussions, pointing to the need for an organizational culture that supports such a simulation and which is also willing to deal with results that have the potential to cause controversies about the strategy itself, even long after the wargame has taken place.

Overall, how such an exercise is designed, prepared, and execute is essential, as more recent discussions on scenario planning (Hodgkinson and Wright, 2002, 2006; Whittington,



2006a, b) have emphasized. Business wargaming is not a “quick-and-easy-to-use” approach towards the *ex ante* testing of strategies. It includes a lot of resources and the pitfalls are numerous, ranging from the selection of non-representative competitors and the restriction of the wargame by using a computer model, to teams that are not willing or able to challenge their mental models concerning competitors or industries. The most crucial aspect to a business wargame is its major assumption that insights are generated during a wargame that are new to the participants; however, this can only be achieved when a business wargame has been designed, prepared, and executed carefully. This aspect describes not only the potential of such a simulation, but also its limitation.

Conclusion

This article has focused on simulations for *ex ante* strategy evaluation. While the relevance of scenario planning in strategy formulation has been widely accepted (e.g. Mintzberg *et al.*, 1998; Eden and Ackermann, 1998), criticisms of scenario planning revealed some room for improvement. Furthermore, this article introduced business wargaming as a lesser-known methodology in the business context for testing strategy, while responding to some of the criticisms of scenarios and computer-based simulations. This article also argues that business wargaming can be perceived as being capable of adding to the model of a strategic decision making process (Dyson and O’Brien, 1998). In particular, the characteristics of the described new limb in this model seem to relate strongly to those of business wargaming.

An advantage of using business wargaming for *ex ante* strategy evaluation is that a business wargame deals with what Montibeller and Franco (2007, p. 252) refer to as “the most troublesome issue for organizations when engaging in strategy evaluation.” It deals with the uncertainty regarding the future by simulating and exploring the future. Moreover, other advantages are that the perspectives of several stakeholders (competitors, in particular) can be included, that the outcome of a business wargame is open, and that it is a very participative approach, allowing managers to learn several lessons in the course of a single game. Of course, an additional benefit of business wargaming is that it allows the testing of strategies or business models in a secure environment.

While the general limitations of business wargaming have been described, the major limitations of the article’s chosen approach towards discussing the relevance of business wargaming – the *ex ante* strategy evaluations – needs to be mentioned. Limitations include the lack of data concerning the relevance of business wargaming to strategy testing. Pointing to further research, empirical evidence needs to be gathered concerning how testing a strategy in a business wargame differs from other approaches.

Overall, the theoretical evidence presented herein suggests that a well-designed and conducted business wargame is a valuable test of strategy, casting a strong light on competitors and other stakeholders, generating foresight by looking at the future, and eventually allowing managers not only to see the results of their strategy but also to execute their own strategy and anticipate, if not outmanoeuvre, the strategy of their competition.

References

- Ackoff, R.L. (1981), *Creating the Corporate Future*, John Wiley & Sons, Philadelphia, PA.
- Andlinger, G.R. (1958), “Looking around: what can business games do?”, *Harvard Business Review*, Vol. 36 No. 4, pp. 147-52.
- Bellman, R., Clark, C.E., Malcolm, D.G., Craft, C.J. and Ricciardi, F.M. (1957), “On the construction of a multi-stage multi-person business game”, *Operations Research*, Vol. 5 No. 4, pp. 469-503.
- Bracken, P. (2001), “Business war gaming”, *Scenario and Strategy Planning*, Vol. 3 No. 2, pp. 15-18.
- Brewer, G.D. and Shubik, M. (1979), *The War Game: A Critique of Military Problem Solving*, Harvard University Press, Cambridge, MA.



- Caffrey, M. Jr (2000), "Toward a history-based doctrine for wargaming", *Aerospace Power Journal*, Fall, pp. 33-56.
- Cares, J. and Miskel, J. (2007), "Take your third move first", *Harvard Business Review*, Vol. 85 No. 3, pp. 20-1.
- Chussil, M. (2007), "Learning faster than the competition: war games give the advantage", *Journal of Business Strategy*, Vol. 28 No. 1, pp. 37-44.
- de Geus, A. (1997), *The Living Company: Habits for Survival in a Turbulent Business Environment*, Harvard Business School Press, Boston, MA.
- Drucker, P.F. (1969), *The Age of Discontinuity: Guidelines to our Changing Society*, Heinemann, London.
- Dunnigan, J.F. (2000), *Wargames Handbook*, Writers Club Press, New York, NY.
- Dyson, R.G. and O'Brien, F.A. (1998), "Strategic development", in Dyson, R.G. and O'Brien, F.A. (Eds), *Strategic Development: Methods and Models*, John Wiley and Sons, Chichester, pp. 3-16.
- Eden, C. and Ackermann, F. (1998), *Making Strategy*, Sage, London.
- Fahey, L. and Randall, R.M. (1998a), "What is scenario learning?", in Fahey, L. and Randall, R.M. (Eds), *Learning from the Future: Competitive Foresight Scenarios*, John Wiley and Sons, San Francisco, CA, pp. 3-21.
- Fahey, L. and Randall, R.M. (1998b), "Integrating Strategy and Scenarios", in Fahey, L. and Randall, R.M. (Eds), *Learning from the Future: Competitive Foresight Scenarios*, John Wiley and Sons, San Francisco, CA, pp. 22-38.
- Fuld, L. (2006), *The Secret Language of Competitive Intelligence*, Crown Business, New York, NY.
- Fuller, T. and Loogma, K. (2008), "Constructing futures: a social constructionist perspective on foresight methodology", *Futures*, doi:10.1016/j.futures.2008.07.039.
- Gilad, B. (2004), *Early Warning: Using Competitive Intelligence to Anticipate Market Shifts, Control Risk, and Create Powerful Strategies*, AMACOM, New York, NY.
- Gilad, B. (2008), *Business War Games: How Large, Small, and New Companies Can Vastly Improve Their Strategies and Outmanoeuvre the Competition*, Career Press, Franklin Lakes, NJ.
- Ginter, P.M. and Rucks, A.C. (1984), "Can business learn from wargames?", *Long Range Planning*, Vol. 17 No. 3, pp. 123-8.
- Green, K.C. (2002), "Forecasting decisions in conflict situations: a comparison of game theory, role-playing, and unaided judgement", *International Journal of Forecasting*, Vol. 18 No. 3, pp. 321-44.
- Haffa, R.P. and Patton, J.H. (1999), "The need for joint wargaming: combining theory and practice", *Parameters, US Army War College Quarterly*, Vol. 29 No. 3, pp. 106-18.
- Hanley, J.T. Jr (1992), "On wargaming: a critique of strategic operational gaming", doctoral dissertation, Yale University, New Haven, CT.
- Helmer, O. (1983), *Looking Forward: A Guide to Futures Research*, Sage, Beverly Hills, CA.
- Hodgkinson, G.P. and Wright, G. (2002), "Confronting strategic inertia in a top management team: learning from failure", *Organization Studies*, Vol. 23 No. 6, pp. 949-77.
- Hodgkinson, G.P. and Wright, G. (2006), "Neither completing the practice turn, nor enriching the process tradition: secondary misinterpretation of a case analysis reconsidered", *Organization Studies*, Vol. 27 No. 12, pp. 1895-901.
- Johnson, G., Scholes, K. and Whittington, R. (2006), *Exploring Corporate Strategy*, FT/Prentice Hall, Harlow.
- Kahn, H. and Wiener, A.J. (1967), *The Year 2000: A Framework for Speculations on the Next Thirty-Three Years*, Macmillan, New York, NY.
- Kalman, J.C. and Rhenman, E. (1975), "The role of management games in education and re-search", in Greenblat, C.S. and Duke, R.D. (Eds), *Gaming-Simulation: Rationale, Design, and Application*, Sage, New York, NY, pp. 233-69.
- Kunc, M. and Morecroft, J. (2006), "Business dynamics for strategic development", paper presented at the 24th System Dynamics Society Conference, Nijmegen, The Netherlands.



- Kurtz, J. (2003), "Business wargaming: simulations guide crucial strategy decisions", *Strategy and Leadership*, Vol. 31 No. 6, pp. 12-21.
- Liebl, F. (2004), "Organizational foresight as strategic knowledge management: a frame of reference", paper presented at the 2nd International Conference on Organizational Foresight at the University of Strathclyde, Graduate School of Business, Glasgow.
- Loewenstein, J., Thompson, L. and Gentner, D. (1999), "Analogical encoding facilitates knowledge transfer in negotiation", *Psychonomic Bulletin and Review*, Vol. 6 No. 4, pp. 586-97.
- Lüchinger, R. (2001), *Der Fall der Swissair*, Bilanz Verlag, Zürich, Switzerland.
- MacKay, R.B. and McKiernan, P. (2004), "Exploring strategy context with foresight", *European Management Journal*, Vol. 1 No. 1, pp. 69-77.
- Minis, I. and Tsamboulas, D.A. (2008), "Contingency planning and war gaming for the transport operations of the Athens 2004 Olympic Games", *Transport Reviews*, Vol. 28 No. 2, pp. 259-80.
- Mintzberg, H. (1994), *The Rise and Fall of Strategic Planning*, The Free Press, New York, NY.
- Mintzberg, H., Ahlstrand, B. and Lampel, J. (1998), *Strategy Safari: A Guided Tour through the Wilds of Strategic Management*, The Free Press, New York, NY.
- Montibeller, G. and Franco, A. (2007), "Decision and risk analysis for the evaluation of strategic options", in O'Brien, F.A. and Dyson, R.G. (Eds), *Supporting Strategy: Frameworks, Methods and Models*, John Wiley and Sons, Chichester, pp. 251-84.
- Morecroft, J.D. (1984), "Strategy support models", *Strategic Management Journal*, Vol. 5 No. 3, pp. 215-29.
- Neugarten, M. (2006), "Foresight – are we looking in the right direction?", *Futures*, Vol. 38 No. 8, pp. 894-907.
- Oriesek, D.F. and Friedrich, R. (2003), "Blick in die Zukunft", *Harvard Business Manager*, May, pp. 65-71.
- Oriesek, D.F. and Schwarz, J.O. (2008), *Business Wargaming: Securing Corporate Value*, Gower Publishing, Aldershot.
- Oswalt, I. (1993), "Current applications, trends, and organizations in US military simulation and gaming", *Simulation and Gaming*, Vol. 24 No. 2, pp. 153-89.
- Perla, P.P. (1990), *The Art of Wargaming*, Naval Institute Press, Annapolis, MD.
- Perrottet, C.M. (1998), "Testing your strategies in scenarios", in Fahey, L. and Randall, .M. (Eds), *Learning from the Future*, John Wiley and Sons, San Francisco, CA, pp. 122-39.
- Pohl, F. (1996), "Thinking about the future", *The Futurist*, Vol. 30 No. 5, pp. 8-13.
- Porter, M.E. (1980), *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, Free Press, New York, NY.
- Postma, T.J.B.M. and Liebl, F. (2005), "How to improve scenario analysis as a strategic management tool", *Technological Forecasting and Social Change*, Vol. 72 No. 2, pp. 161-73.
- Rubel, R.C. (2006), "The epistemology of war gaming", *Naval War College Review*, Vol. 59 No. 2, pp. 108-28.
- Rugman, J. (2007), Wargaming Iraq's future, Channel 4, available at: www.channel4.com/news/articles/politics/international_politics/wargaming + iraq + future/800162
- Scherpereel, C.M. (2003), "The impact of business war games: quantifying training effectiveness", *Development in Business Simulation and Experiential Learning*, Vol. 30, pp. 69-82.
- Schoemaker, P.J.H. (1992), "How to link strategic visions to core capabilities", *Sloan Management Review*, Vol. 34 No. 1, pp. 67-81.
- Schoemaker, P.J.H. (1995), "Scenario planning: a tool for strategic thinking", *Sloan Management Review*, Vol. 36 No. 2, pp. 25-40.
- Schoemaker, P.J.H. and van der Heijden, C.A.J.M. (1992), "Integrating scenarios into strategic planning at Royal Dutch/Shell", *Planning Review*, Vol. 20 No. 3, pp. 41-7.



Schwalbe, S.R. (1993), "War gaming: in need of context", *Simulation and Gaming*, Vol. 24 No. 3, pp. 314-20.

Schwarz, J.O. (2008), "Assessing the future of futures studies in management", *Futures*, Vol. 40 No. 3, pp. 237-46.

Senge, P.M. (1990), *The Fifth Discipline: The Art & Practice of the Learning Organization*, Century Business, London.

Strategy Page (2008), "US Navy runs from reality", available at: www.strategypage.com/htmw/htlead/articles/20080605.aspx

Treat, J.E., Thibault, G.E. and Asin, A. (1996), "Dynamic competitive simulation: wargaming as a strategic tool", *Strategy, Management, Competition*, Second Quarter, pp. 46-54.

van der Heijden, K., Bradfield, R., Burt, G., Crains, G. and Wright, G. (2002), *The Sixth Sense*, John Wiley and Sons, Chichester.

Vanderveer, R. and Heasley, J. II (2005), "War gaming: exercises in defending brand territory", *MM&M*, May, pp. 68-72.

Wack, P. (1985a), "Scenarios: uncharted waters ahead", *Harvard Business Review*, Vol. 63 No. 5, pp. 73-89.

Wack, P. (1985b), "Scenarios: shooting the rapids", *Harvard Business Review*, Vol. 63 No. 6, pp. 139-50.

Watman, K. (2003), "War gaming and its role in examining the future", *Brown Journal of World Affairs*, Vol. 10 No. 1, pp. 51-61.

Whittington, R. (2006a), "Completing the practice turn in strategy research", *Organization Studies*, Vol. 27 No. 5, pp. 613-34.

Whittington, R. (2006b), "Learning more from failure: practice and process", *Organizational Studies*, Vol. 27 No. 12, pp. 1903-6.

Wilson, I. (1998), "Mental maps of the future: an intuitive logics approach to scenarios", in Fahey, L. and Randall, R.M. (Eds), *Learning from the Future: Competitive Foresight Scenarios*, John Wiley and Sons, San Francisco, CA, pp. 81-108.

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