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## **Wargaming and the Relevance to Today's IT Strategic Vision**



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**Wargaming and the Relevance to Today's IT Strategic Vision**

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## **Dedication**

There are a number of people without whom this thesis might not have been written, to whom I am greatly indebted. Casey my wife, my two children Jordan and Alexandria, who have sacrificed much in order for me to reach this point. Also all the family, friends and colleagues that helped me reach this point.

## **Acknowledgements**

I would like to acknowledge the men and women of the LeMay Wargaming Institute, Maxwell AFB, AL for giving me the insight and understanding of wargaming. I have been fortunate to witness firsthand the relevance of wargaming as an indispensable tool to shape solid leaders for the future of the United States military, and give military leaders of today a strategic vision and guidance.

## **Abstract**

### **Wargaming and the Relevance to Today's IT Strategic Vision**

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Today's global economy presents a complex interrelated map of the world one where geopolitical lines seem not to exist, and the interdependencies are extreme and complicated, this environment mandates today's IT leaders must have far reaching vision of their corporate future. The entrance of game changing technologies have brought forth a new standard in the strategic decision making process. Traditional strategy development tools yield limited results. By understanding the history and evolution of wargaming, today's IT leaders can leverage wargaming's command for strategic vision and compete in this ever evolving battle space. This paper proposes that wargaming should be added to the IT toolbox to make robust decisions. It shows that wargaming can be both a superior tool to in strategic decision making, as well as assist in the discovery of previously unanticipated opportunities. In this way, wargaming has the potential to provide IT leaders with clarity in the complex environments within which they find themselves today. This paper demonstrates that the best types of wargames are competitive, rigid games which feature a level of uncertainty in information.

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# INTRODUCTION

## Chapter 1: Introduction

Today's global economy presents a complex interrelated map of the world, one where geopolitical lines seem not to exist, and the interdependencies are extreme and complicated, this environment mandates today's IT (Information Technology) leaders must have far reaching strategic vision. The ingress of game changing technologies has brought forth a new standard in the strategic decision making process. Traditional strategy development tools yield limited results. By understanding the history and evolution of wargaming, today's IT leaders can leverage wargaming's command for strategic vision and compete in this ever evolving battle space. This paper proposes that wargaming should be added to the IT leader's toolbox to make robust strategic decisions. It shows that wargaming can be both a superior tool in the formulation of strategic decisions, as well as assist in the discovery of previously unanticipated opportunities. In this way, wargaming has the potential to provide IT leaders with clarity in the complex environments which they find themselves today. This paper demonstrates that wargames are the best tool for the job.

Wargaming for business, and in this case wargaming for IT strategy, is a reworking of the art of military wargaming in a commercial setting. Unlike military war games which go back hundreds of years to the days of Prussian armies, business war games are a relatively recent development, but they are growing rapidly. The time has come for IT leaders to adopt this technique in order to stay ahead of their challengers.

# WARGAMING

## Chapter 2: Wargaming Origins

The word “wargaming” is a direct translation of the German word *Kriegsspiel*. The English dictionary does not recognize wargame as one word, but this is the correct spelling as used by the military and individuals that specialize in the art of “wargaming” and will be the one used throughout this paper. “Some use the terms modeling, simulation, and wargaming as if they were one term, but they are distinct elements of wargaming. Models are simply proportional representations of reality. A painting is not a model, but a blueprint is. Models vary in abstraction; a physical model of an aircraft, a blueprint of that aircraft, and a mathematical equation representing that aircraft’s characteristics are all models. Simulations are proportional representations of reality over time. For example, a small wing that is proportional to a full-sized wing is a model. Put that wing in a wind tunnel and measure the effect of various wind speeds and you have a simulation. As for wargames, while the earliest wargames were multisided abstract representations of combat, modern wargames require multiple sides that compete within a simulation of an armed conflict.” (Caffrey, 2000)

The origins of wargaming far precede its nomenclature, games and play have been with us and the animal kingdom as far back as history allows us to examine, as a method to practice a skill or gain an experience in a non-threatening environment. One sees this clearly in children and young animals as they try to expand their comprehension of the world around them, playing out from imagination and instinct the scenarios they witness in their short time on this planet. This play aides in education for survival as they grasp concepts, all the while remaining secure in their environs. Wargames share this basic premise of modeling and playing to expand knowledge, yet have more requirements, which will be reveled through this expedition of wargaming history. All games in general can be broken down into three

distinct categories, games of chance, games that require physical skill and effort, and games that involve strategy. It is apparent that wargames fall into the strategic category, “According to Clausewitz’s classical definition, strategy is the art of using battles, which themselves are the province of tactics, in order to achieve the objectives of a campaign. Nowadays it is often used to describe a carefully planned series of steps needed to achieve an objective.”(Creveld, 2013) Some may argue that combative sports and team sports have evolved from the playing out of battle skills developed and showcased in the gladiators and knights of history, and they would be correct, yet even though they showcase physical skill and effort there is strategy underlying that effort. That said, these types of games are not the same, and wander from our scope and objective here. “Whereas sportsmen have been known to volunteer for the military, it would take an odd recruiter to judge prospective cannon fodder simply by looking at their prowess at football or, for that matter, cage fighting. The larger the scale on which warfare was waged, the more organized it became, the more powerful and more sophisticated the weapons in use, and the longer the logistic “tail” as opposed to the fighting “teeth,” the weaker the links became between it and every kind of sport, combat sports and strategic sports included.” (Creveld, 2013) From this point forward, the focus will be on those games that have direct lineage from Sun Tzu to our current manifestation of wargaming.

China has the longest history of engaging in wargaming and exercises as part of military planning. The Chinese biography of Sun-Tzu (545-470 BC) recounts the tale of Sun-Tzu employing the emperor’s consorts as troops to demonstrate military activities and maneuvers. In the Warring States period (475-221 BC), the philosopher Mozi is said to have dissuaded the state of Chu from attacking the state of Song by playing wargames against Song’s warlord Lu Ban, demonstrating that any attack Lu might mount would face already prepared countermeasures. It is accepted practice today to take the lead of Captain Abe

Greenberg of the U.S. Navy, and give credit to Sun Tzu as the originator of wargaming. “Greenberg credits Sun Tzu with creating the game known as Wei Hai (meaning “encirclement”) about five thousand years ago. Little is known about the game or its actual origins, but it appears likely that it was similar to and probably the original version of, the later Japanese game of Go. Like Go, Wei Hai used a specially designed abstract playing surface upon which each of the contestants maneuvered their armies of colored stones. In keeping with Sun Tzu’s philosophy of resorting to the chances of battle only as a last resort, victory went not to the player who could bludgeon his opponent head on, but to the first player who could outflank his enemy.”(Perla, 1990) Even in these early stages of wargaming a key component is evident, an opponent that has the ability to think and has an objective that is counter to yours must be present to be classified as a wargame.

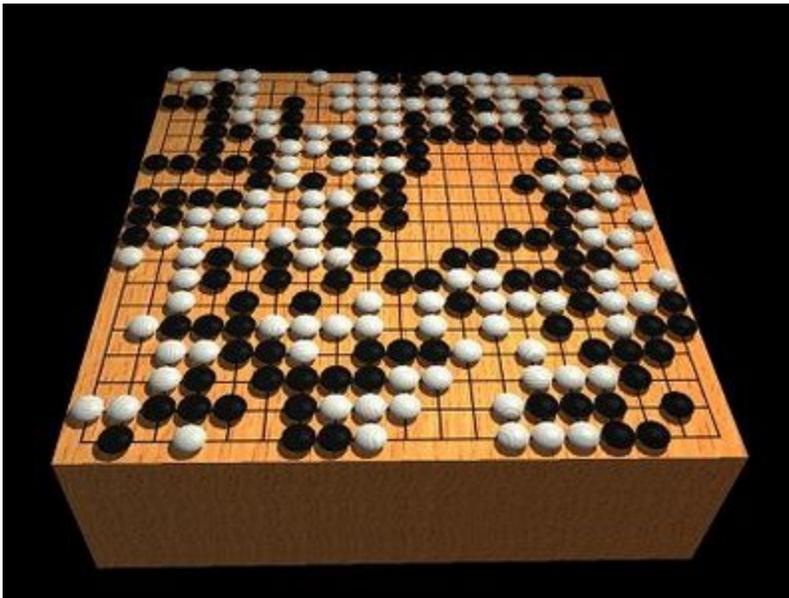


Figure 1: Go Game.



Figure 2: Chaturanga Game.

Chaturanga is a game that started in India a few thousand years after Go and Wei Hai, that became popular among upper classes. It differentiated itself from the other games in that the pieces were more than colored stones, they had become ornate representations of the soldiers, cavalry, elephants, and chariots used at the time. There were set rules in which the pieces could move around the board, dictated by the roll of dice. “A king and his vizier, both of whom represent individuals rather than troops and whose presence on the battlefield is self-explanatory, are added. The text<sup>1</sup> goes on to discuss the best ways these arms should be employed: noting for example, that a horseman is worth three infantrymen and that the elephants should be stationed in the wings. The parallels with war extend to the way victory is obtained and are both obvious and well understood.”(Creveld, 2013) One must capture or kill the king or abolish his army to win. If this sounds very similar to chess, minus the dice and elephants, that’s exactly correct, “Most writers on the subject seem to agree that modern chess evolved from Chaturanga. If recent experience is any indication, the number of players

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<sup>1</sup> Niti-Sara: a collection of Subhashitas from Sanskrit literature

was reduced from four to two because it proved too difficult to find four people willing to invest the time and effort to play the original version. Similarly, the randomness and luck introduced by the dice was probably done away with by a sore loser who blamed his defeats on bad luck rather than inferior skill.” (Perla, 1990) Games such as Chaturanga and chess, are extremely nonrepresentational depictions of war, more like a single battle, yet they impart forward thinking; in other words, anticipating the consequences of one's possible moves and the opponent's possible responses, an indispensable talent in the deadly game of war. Benjamin Franklin is quoted as saying, “Chess teaches foresight, by having to plan ahead; vigilance, by having to keep watch over the whole chess board; caution, by having to restrain ourselves from making hasty moves; and finally, we learn from chess the greatest maxim in life - that even when everything seems to be going badly for us we should not lose heart, but always hoping for a change for the better, steadfastly continue searching for the solutions to our problems.”

Moving from the abstract representation of war provided by chess, “the first “chess reformator” whose name has survived was one Christopher Weickmann of Ulm, Germany, who flourished around 1650. As he himself explained, the objective was to present “the most necessary political and military axiomata, rules and ways of playing...without great effort and the reading of many books.””(Creveld, 2013) He created the “Kings Game” or Koenigspiel, which was based on chess, but was played on a larger board with thirty pieces for each player. The pieces represented the various military and political figures of the time, and had unique abilities of movement within the game. It was here that the games start to evolve and with each iteration appear to solidify and move closer to the modern wargame as practiced by today’s military, if only in rudimentary form at this point. The work of Weickmann was continued along with two other men, Dr. C.L. Helwig and Karl Heinrich

Georg Venturini. These men combined added three landmark pieces to wargaming that are still utilized today. The pieces now represented a unit of soldiers, the board added colored squares to represent different types of topography, and the introduction of a referee to control game play. “One might expect, all three started by increasing the number of squares on the board. Next, all three gave each side a much larger number of pieces to “command” and modified those pieces’ moves in order to provide a better approximation to reality. Different types of cavalry, infantry and artillery were all introduced, as were some other types of contemporary troops. Helwig also added various kinds of terrain – blue stood for water, red for mountains, light and dark green for marshes and forests, and black and white for open fields. Going one step further, Venturini got rid of the squares altogether, replacing them by a grid of no fewer than 3,600 squares which was used to overlay a map of the border area between Germany and France, “the cockpit of Europe” where many campaigns took place. Both Helwig and Venturini allowed units of each arm to advance at different speed over different kinds of terrain. Venturini even factored in logistic elements, including supply convoys, field bakeries – all important in contemporary warfare, since it was the need to bake bread every five days that dictated armies’ moves – magazines, roads, and bridges.”(Creveld, 2013) The complexity of the game obviously increased along with the modeling and simulation aspects of the game, yet there was glaring shortcoming the game inherited from chess, the use of squares. “Physically, the playing pieces were essentially chess pawns, but they represented several different types of military units.” (Perla, 1990) Venturini intended his game to be used for military training purposes, and sold it as such. The limitation of movement by utilizing squares on the board, held back this “war chess”, as it has become to be known, as a game to be used for military training. These games did spawn more like it and enjoyed favorable status at the time in Germany, France, Austria, and Italy. Continuing the

gradual evolution of wargames, and eventually marrying them to the intended audience Venturini envisioned.

Orišek and Schwarz (2012) “In 1879 when Germany was at the height of its application of wargaming, W.R. Livermore introduced a German-style of wargaming to the United States with his publication *The American Kriegsspiel*. Livermore’s system was a derivative of the “Rigid Kriegsspiel” and was clearly indebted to the German school. In the opinion of some American soldiers it was not appropriate to the unique conditions of the United States. One of the most outspoken critics was Lieutenant Charles A.L. Totten, who in 1880 published his own book on wargaming techniques, *Strategos: A Series of American Games of War Based upon Military Principles*. Caffrey (2000) adds “Despite this historical foundation, when Major Livermore sought official acceptance of wargaming, he was blocked by Gen William T. Sherman, the US Army's chief of staff at that time. He disapproved Major Livermore's proposals, stating that wargames depict men as if they were blocks of wood rather than human beings who are seized by fear and sustained by leadership.<sup>14</sup> His basic objection was that Major Livermore's wargame, like all up to that time, only depicted attrition as units fighting to the last man. Sherman knew better. While one living legend blocked wargaming in the Army, another was advancing it in the Navy. There is little evidence that wargaming was used in the US at the time apart from for training and education purposes.” Perla (1990) concludes that neither the British nor the Americans ever quite accepted the full range of wargaming potential value prior to the end of World War II. The only notable exception in the US is the Naval War College in Rhode Island.

Following the Naval War College, other military branches in the US began to use wargaming. The US Air Force and the Army started applying wargaming practices after World War II and the Marine Corps established a series of wargames dealing with landing a force ashore in 1958. Wargaming after World War II has been largely influenced by operations research and systems analysis, abandoning the study of historic battles, which had formed the basis of earlier wargames. During the 1980s the Army and the Air Force established training centers for conducting wargames.



Figure 3: LeMay Wargaming Center, Maxwell AFB, AL.

Orišek and Schwarz (2012) Since the 1960s, the US military has made an increased effort to bring together the various branches of the Armed Forces in joint wargames. In 1961 a formal wargaming operation was established at the Joint Chiefs of Staff level. Following the fiasco at the Bay of Pigs, President John F. Kennedy complained that his military advisers did not understand the political implications of their US recommendations. This encouraged the use of political-military wargames at the Pentagon and at professional

military education schools (Caffrey Jr 2000). Currently the US military still uses wargaming as a means of validating its military strategies and force structure in an often uncertain future (Haffa and Patton 1999). For example, the National Strategic Gaming Center, located within the Institute for National Strategic Studies at the National Defense University in Washington D.C., designs and conducts wargames for diverse audiences (McCown 2005). In 1999, NATO held a well-attended conference on modeling, simulation, and wargaming, demonstrating that wargaming had become truly international and is used in many joint and even combined settings (Caffrey Jr 2000).

## **STRATEGIC DECISION TOOLS**

### **Chapter 3: Wargaming Outperforms Other Tools**

There are many tools in the wild to help guide business strategy, such as Porter's five forces competitive model, Kaplan and Norton's balance scorecard concept, and the PEST Analysis. This paper contends that these tools may work as a gauge for the businesses current positioning, and may help in scenario development, but do not match wargaming as a strategic decision making tool.

Michael Porter, 2008 states, "the job of the strategist is to understand and cope with competition. Often, however, managers define competition too narrowly, as if it occurred only among today's direct competitors. Yet competition for profits goes beyond established industry rivals to include four other competitive forces as well: customers, suppliers, potential entrants, and substitute products. The extended rivalry that results from all five forces defines an industry's structure and shapes the nature of competitive interaction within

an industry.” “Porter’s Five Forces model (See Figure 1) is often used as a tool for analyzing industries and competitive structures within them. The model’s central tenet is that an industry’s profit potential is determined to a large extent by either one or a combination of five competitive forces within the industry. These forces are: the threat of new entrants, the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products or services, and the intensity of competition among current rivals within the industry.” (Evans and Neu, 2008) The purpose of the model is brainstorming, a thinking exercise to demonstrate the subjective attractiveness of a given industry landscape. It is not designed to decide optimal industries with certainty. Another limitation, which Porter’s model shares with most competitive frameworks, is that of chronological thinking. Porter’s model is inherently static, representing only aspects of the present day.

### The Five Forces That Shape Industry Competition

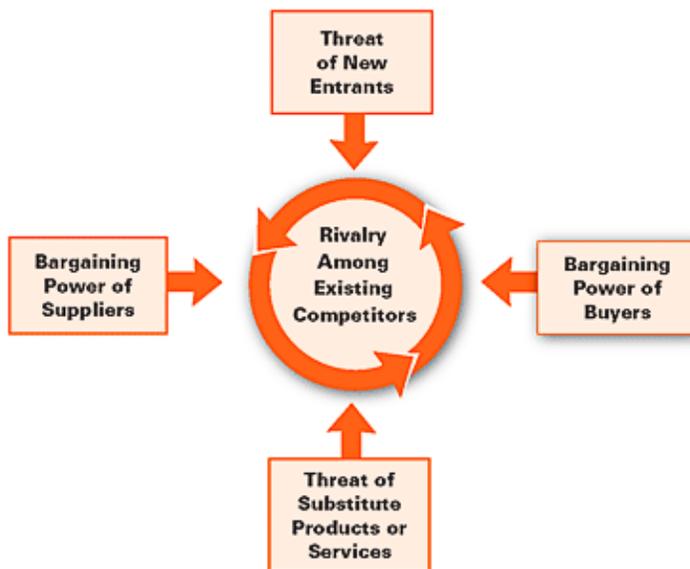


Figure 4: Porter’s Five Forces Model.

## The Balanced Scorecard

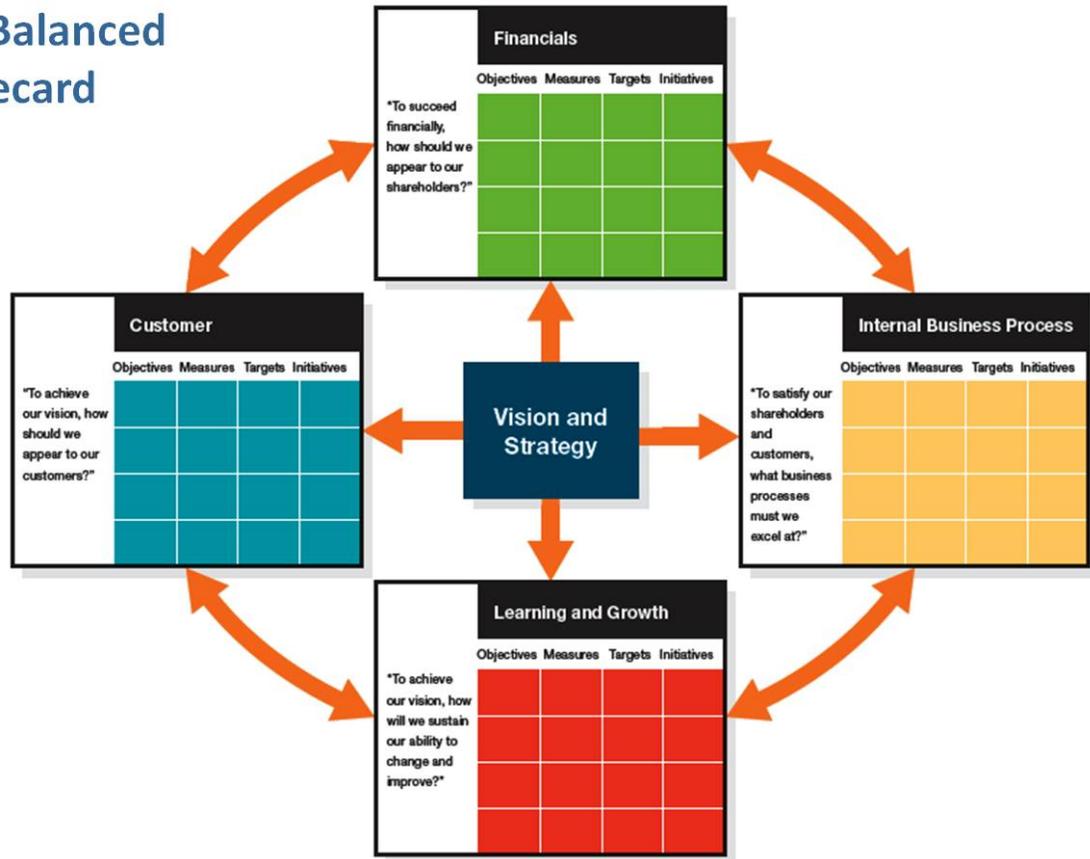


Figure 5: Kaplan and Norton's balance scorecard.

The next tool is Kaplan and Norton's balance scorecard concept, "introduced the concept of a "Balanced Scorecard" for motivating and measuring business unit performance. The Scorecard, with four perspectives – financial, customer, internal business processes, and learning and growth – provided a balanced picture of current operating performance as well as drivers of future performance." (Kaplan and Norton, 2008) According to Kaplan and Norton, "The very exercise of creating a balanced scorecard forces companies to integrate their strategic planning and budgeting processes and therefore helps to ensure that their budgets support their strategies. Scorecard users select measures of progress from all four scorecard perspectives and set targets for each of them. Then they determine which actions will drive them toward their targets, identify the measures they will apply to those drivers

from the four perspectives, and establish the short-term milestones that will mark their progress along the strategic paths they have selected. Building a scorecard thus enables a company to link its financial budgets with its strategic goals.” This paper contends that tying the budget to the strategy is sound policy, but the tool allows for too many gaps in the strategy, the same with any brainstorming tool as it is influenced by perceptions that have not been tested against competition. The usefulness of the balanced scorecard approach is dependent on the value of the information that is driving the process--garbage in, garbage out. While the tool can work, it will only work if both the right elements have been selected for review and if the information used to evaluate progress is complete, accurate and relevant to the area being addressed. For instance, in evaluating the effectiveness of training efforts, the number of people being trained is not as relevant as the training they received. The Balanced Scorecard is a good internal scanning and assessment tool but it has real shortcomings when looking at the outside world and cannot replace a well-constructed business wargame, though it should still be an essential part of any manager’s toolkit.

Finally, the PEST analysis, PEST is an acronym for Political, Economic, Social and Technological factors, which are used to assess the market for a business or organizational unit. Using the tool is a three stage process. First, brainstorm the relevant factors that apply, then identify the information that applies to these factors, finally draw conclusions from this information. (See Figure 3) Again this is merely another brainstorming tool that does not challenge any of the decision maker’s assumptions of the world around them. . The external factors considered during PEST analysis are dynamic and they change at a very fast pace. At times, these changes may occur in less than a day’s time, thus making it tricky to predict why and how these factors may affect the future. Environmental changes that may have an adverse effect may not be noticeable during their initial stages. All that

indicates that a certain amount of uncertainty still remains even after carrying out a detailed PEST analysis, which defeats the prime purpose of this analysis – cutting down the uncertainty to build strategic vision.

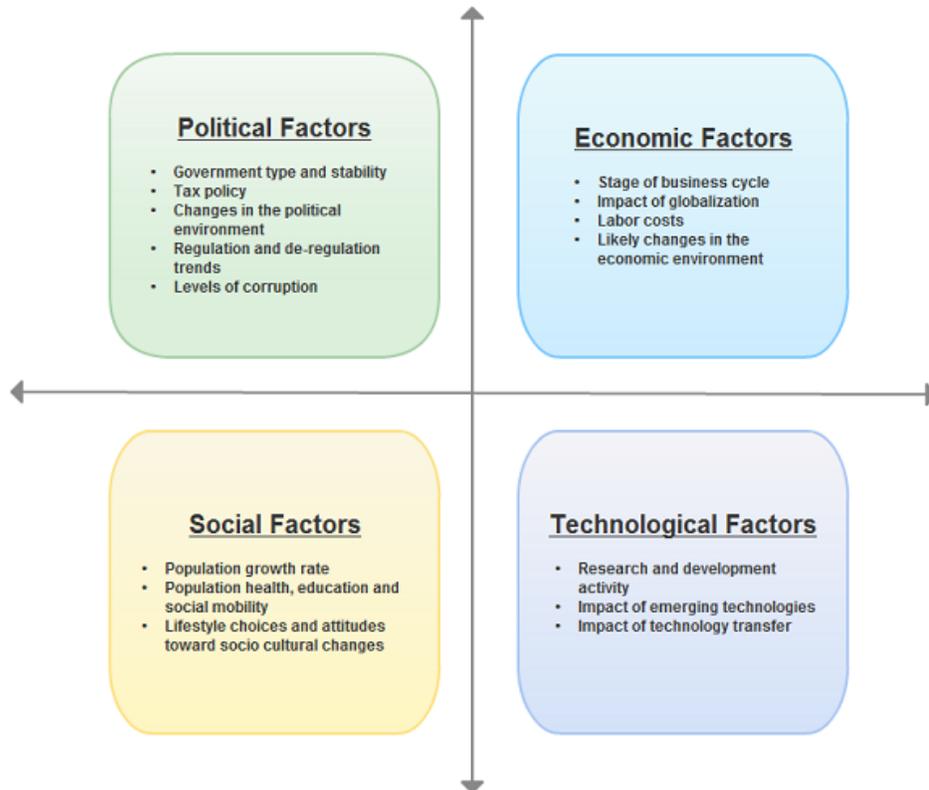


Figure 3: PEST analysis example.

“Let us start with what a business wargame is not. Business wargames are not your typical business school games. The kind of exercise in which you are asked to optimize the resources of a company by deciding how much you want to invest in advertising vs. production capacity or whether you should produce widgets type A instead of type B and at which price you will sell them. Such business school games, while admittedly useful in educational settings, are usually based on computer simulations with a set number of parameters, interlinked with pre-set sensitivities.” (Orišek and Schwarz, 2012) Kurtz (2003)

describes a business wargame as a role-playing simulation of a dynamic business situation. Each team in the wargame is cast in the role of 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. Business wargaming addresses the issues where these other tools fail, and reveals itself as a superior instrument for strategic decision making. Unlike the other tools, wargaming is not static, having a red team countering and responding to your decisions delivers a dynamic tool that challenges the decision maker. Perla and McGrady, 2011 maintain, “by putting people into one situation, then into another, and discussing with them their behavior and, most important, their mistakes. The real world gives us no chance to do this. But games do. The need to explore, repeat, and reflect on decisions made in the context of games is critical to what we .must do to learn better how to cope with a world rapidly moving beyond our range of real experiences. Improving the ability of our games to help us do this, in turn, demands that we improve our understanding of why wargaming works.” In the real world we have competitors that will respond accordingly to our decisions, or force us to react to theirs, it only makes logical sense that needs to be represented in the tool used for strategic decision making. “The chance of success for any and every competitive strategy depends to a large degree on the reactions of third parties such as competitors, but, because most of us do not have direct knowledge of these intended reactions, role-playing allows us to predict these reactions without such knowledge.” (Gilad, 2009) Perla and McGrady, 2011, believe that the true power of wargames is the ability to turn the experience into a narrative that tells a story.

“Like literature and film, high-engagement games give players a taste of the emotional and empathetic challenges they may face during situations like those presented in the game. Unlike literature and film, games give players active responsibility for their decisions, similar to what they would experience in the real world, and force them to bear many of the same consequences of those decisions, both positive and negative.” It is this capability of a wargame to weave a narrative to flesh out the consequences of our actions that makes it the right tool for the job of guiding strategic decision making.

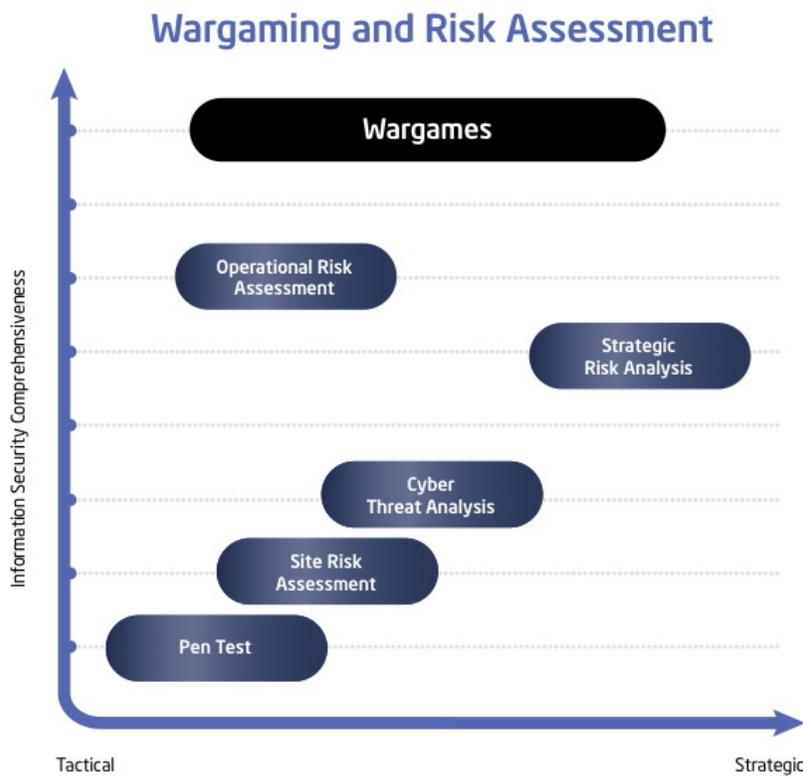


Figure 3: Business Wargame for Information Security.

Wargaming can be particularly valuable to anticipate major market events like new legislation or M&A activity, new competitive entrants or major shifts in competitor strategies, or catastrophic or black swan events. Taleb, 2011, *The black swan theory* says those events—even if exceedingly rare—have an outsize impact on history due in part to the inability of individuals, systems and organizations to imagine them. They may be economic (the mortgage bubble), environmental (the BP oil spill), political (the “Arab Spring”) or deliberate disasters (9/11). “To deal effectively with the Black Swans lurking in our future—including those unsanitary ones that too often drive the most serious effects of events but that we prefer not to think about—our leaders need to develop synthetic experience, best available to them through such games. Those games need to move away from our traditional approach to dealing with the uncertainties of the future by trying to predict events based on assessment of relative probabilities. Instead, we need to focus on exploring events on the basis of their relative consequences, less to prepare for specific consequences than to prepare our human decision-making apparatus for the physical, intellectual, and emotional environments—full of complexity and uncertainty as they will be—in which our leaders will have to decide, whatever specific events they confront.” One of the greatest benefits of wargaming is the ability to scale the approach to fit any uncertain competitive situation. Wargaming’s ability to unveil the unseen is why wargaming is so prevalent in the military. Burns and Miller, 2014 contend, “Change is hard to achieve in any organization, and much more difficult in the federal government and Department of Defense (DoD). Yet even in the military, with rigid obedience to orders and hierarchy, subject to strict central control and bureaucracy, some leaders manage to change quickly and successfully. Taleb, 2011 noted

that “only military people deal with randomness with genuine, introspective intellectual honesty – unlike academics and corporate executives using other people’s money.” This is primarily true at the tactical level, where the reality is “adapt or die.” The history of adaptation at the operational and strategic level is much more sobering. Nonetheless, we believe the few people who have successfully changed DoD practices are particularly good at adaptation, overcoming constraints in an organization almost inherently hostile to adaptability. They offer great lessons for business managers.” This trait is taught at all of our military schools to develop adaptable military leaders, and these schools hold capstone courses that just so happen to be wargames. Because competitive challenges and future market uncertainty exist, wargaming can be applied effectively across diverse scenarios, it has a proven track record for adaptability in the DoD.

## **INFORMATION TECHNOLOGY WARGAMING**

### **Chapter 4: Wargaming Fits the IT Narrative**

Businesses are progressively more dependent on technology to help manage and integrate the workings of their business, whether automation of core business actions, control the supply chain, customer relationship management, or enhancement of the customer experience. This dictates that the IT leader, whether CIO (Chief Information Officer) or CTO (Chief Technology Officer) be a very savvy executive who not only protects but also creates value for the organization. Weinzimer, 2014, “strategic CIOs and their IT teams are changing the business landscape. They accomplish this by collaborating with C-suite executives and business teams to leverage information and technology for competitive advantage by developing new products, services, and processes to achieve significant business outcomes.”

The fact that the business has to live with so many uncertainties places pressure on the organization to build and develop a strategy that is agile , flexible and can change with the business direction quickly, demanding a new approach to developing a strategy.

Conventional decision strategy is linear and follows simple steps that are based on historical data, experience and a set of assumptions that are then projected into the future to draw up a futuristic strategy. This accounts for only known scenarios that are then supported by a strategy that operates solely to known scenarios. Given rapid changes, the rate and direction of those changes in the environs they operate, businesses must adapt and be prepared for the uncertainties and the implications of those uncertainties on the organization. Innovative strategy has to encompass conventional strategy in such a way that it is prepared to counter any moves by competitors, any changes in the regulatory environment, any surprises that show up in terms of new ground breaking technologies or products. Every decision has some impact on the business, internally and externally. These sorts of scenarios with a few decisions and multiple outcomes and a certain level of uncertainty tend to expose the limitations of conventional IT strategy that does not factor in moves and counter moves.

Wargames can help enable foresight into future scenarios holistically and help build a proactive strategy. Orišek and Schwarz (2012) “While developing foresight is widely perceived as a crucial activity for any organization, in particular in an increasingly dynamic and complex business environment, the question of how to develop foresight remains difficult to answer.” This is where wargaming’s participative nature helps in gaining foresight. Orišek and Schwarz (2012) “Business wargaming can be perceived as a tool to develop foresight, recognize predictable surprises, and spot weak signals of change, especially when a business wargame is designed to project several years into the future, so that the participants are forced to think ahead, to review their assumptions about tomorrow

critically, and to question their mental models. We believe that the great advantage of business wargaming is, that it is not only analytical but also most importantly participative.” The advent of new types of competitors, with new cost structures from the emerging markets has put pressure on the traditional cost structure of businesses making it challenging to compete in a global economy. The ever-growing list of new regulations and compliance needs, with many more in the pipeline has complicated the business landscape further by imposing controls. In order to embrace the new business reality, businesses need a new strategy development process which will make decision making realistic at minimal risk.

Wargaming creates a perfect window of opportunity for the IT organization to look past some of these limitations, align with the business and prepare well to address these uncertainties. Wargaming could be used as a strategy tool by IT in multiple scenarios. This will enable sagaciousness into a number of external and internal factors on how the industry, market and/or internal organizational units would act/react to the strategy. Depending on the maturity of the IT organization whether it is initiating a formal strategy for the first time, conducting a periodic strategy exercise or evaluating strategy based on a specific situation, appropriate type of wargame could be chosen and conducted. High (2014) “Part of the problem is that many companies are better at corporate strategy than they are at divisional or business unit strategy. The reasons for this are many, but often divisional heads focus more on execution than on planning. Not translating corporate strategy into divisional strategy means that the company’s strategy is half-baked at best. In this situation, it is natural that other divisions’ guidance to IT will come in as various touchpoints rather than through clear plans against which IT can map its activities, let alone contribute suggestions to make the plans more comprehensive and valuable.” IT leaders need to recognize the organizational environment and build scenarios that take this into account. A scenario in which wargaming could be efficiently used would be an organization venturing into new line of business or

enhancing the existing business with new functions and features needing IT to support the new capabilities. These could be situations like building a new distribution channel or “build versus buy” decision needs to be evaluated based on factors like time to market, competitor capabilities and industry maturity of products available. Involving representatives from business, operations and IT organizations to simulate scenarios will help uncover lot of unknowns and make decisions which are competitive for the market and right for the organization.

Conducting a wargame will help uncover issues related to process, people, technical architecture etc., because the change introduces various interfacing business and operations teams. This might even warrant core business processes to be re-engineered, based on inputs from various stakeholders, IT organizations will be able to build a strategy that accommodates various market and organizational scenarios. Orišek and Schwarz (2012) “Introducing a business wargame prior to a change program has the great benefit of enabling you to test how the change process may evolve and, in particular, which obstacles to change may emerge. Forewarning of this kind enables you to anticipate and counter obstacles before they occur.”

Government regulation dictates changes the way business is conducted and in turn warrants modifications to IT systems. Be it regulatory mandates like Sarbanes Oxley or the Affordable Care Act, they require response from IT towards business challenges. IT leaders need to understand impact to their systems and factor these as part of their high level strategy. Bringing the impacted business executives to a wargame exercise will help to analyze the situation in a much more comprehensive manner and identify options for required response.

Mergers & Acquisitions or resulting Divestitures introduce uncertainties within IT organizations. In most practical situations, IT organizations will be reacting to financial

objectives that drive the changes within and outside the IT's realm. The resulting integration will involve decisions on aligning processes, sunset systems, aligning leadership and consolidating teams. This could also include outsourcing scenarios which will bring additional layers of change to organizations. Conducting a wargame would help uncover concerns and uncertainties from various business units, operations organizations and internal IT organizations. The resulting IT strategy will be able to support efficient business processes and ensure minimal interruption to business as many of the external and internal behaviors could be considered. Wargames take into account market responses, analyst responses and personalities of people which are usually not considered.

Organizations across the industries are reconsidering their IT strategy to enable a more cost optimized environment for their demand by resorting to a cloud based model. High (2014) "To be truly strategic, CIOs need to think about how value is created. Many are good at cost cutting, but this is almost by definition a backward looking exercise— optimizing something that is already in place. This is not strategic. CIOs need to think about what future possibilities there are to leverage technology for new value and top-line growth. This is what differentiates the strategic CIO." In an ideal situation organizations expect to move to a pay-as-you-go model whereby they have the ability to scale up or down the IT resources based on business demand rather than traditional upfront investment. However, this raises lot of concerns in terms of security, privacy, accountability, and reliability which could also lead to business model changes. Engaging various stake-holders in a wargame exercise could surface the external & internal challenges and make required decisions evaluating risks of implementations. Opportunity risks of not enabling such a supply model also could be evaluated just in case competitors resort to it and gains advantage.

Business Continuity Planning is a critical component to IT strategy as more and more of the business processes are being enabled by IT applications. IT organizations should be

prepared to handle the crisis situations that could challenge the status quo be it a natural disaster, a virus outbreak that paralyses the internal IT operation or a product re-call due to a business situation. In many situations, IT organizations work in isolation to put together a reactive recovery strategy which might not accurately depict the critical business areas to be addressed in a crisis situation. Engaging various business and operations stake-holders in a wargame will help simulate the challenge and lead to better preparedness.

As part of the growth strategy, organizations plan to venture into new business models or alter their existing models. This could be situations like building new retail channel for distribution, enabling online channel for sales, enabling an exchange platform to conduct business between entities etc. warrants enormous changes within the IT organization. A simulation based exercise involving impacted parties within the organization by IT would help identify right strategy to address the requirements based on market conditions and competitor moves.

Several situations arise when IT executives ponder as to how much time, energy, resources, efforts and money is necessary in order to find solutions to business demands. Special situations or projects that have never been undertaken before have no precedence or experience to go by. Too little of anything can cause business risk while too much of anything can add complexity and create excess. In order to get an estimate around the same, it is common for IT organizations to conduct small scale wargames to arrive at the right range and figure out “how much”. A wargame is most appropriate when the level of uncertainty is moderate. If uncertainty is too great for example like the impact of nanotechnology on the design of next generation servers and IT architecture of the future, it makes things very difficult for planners and strategists to plot outcomes. Wargames are best used in conditions when two or three results seem viable along each strategic option, in these scenarios analysis tends to be very complicated and yield limited results. Therefore

wargames bring forth all the range of options that are available to executives for strategic decision making.

The narrower the options and uncertainty, the more successful the wargame would be since we know what the game is and then have to play to win it. On the other hand if the degree of uncertainty is too high and the options are numerous or even infinite then we have to first engage in scenario planning to define the game world in the first place, these situations are not suited to deploy wargames to win. Scenario development would follow this situation, so the world in which the game is played is as realistic as possible and fertile to develop the lessons the game hopes to achieve. “Scenario Planning is a decision –making tool that can be used to explore and understand a variety of issues in a variety of organizations and issues.” (Chermack, 2011) By itself Scenario planning gives you a plausible picture, combined with a wargame it begins to unravel the mysteries in that picture.

Orišek and Schwartz (2012) Business wargames typically contains at least four elements: the company team, the competitor teams, the market team and the control team. The company team represents the company and will be answering the strategic questions. The competitor teams will normally be staffed by senior management, and will be the role players in the game playing to the script. The market team is represented by market experts and can be internal or external. Obviously this setup will need to be modified for use in an IT environment, but gives a picture of how the participants are established. Depending on the nature and situation multiple numbers of these teams can also be introduced as required. An important aspect of successfully conducting a wargame is to classify a “Control team”. This team could be from within the organization or consultants who have experience conducting wargames and could be viewed as neutral coordinators. Control team could be comprised of one or more individuals based on complexity of the wargame. Their main focus is keeping the game on track, introducing uncertainties, changing the game dynamics and representing

any entities that have not got adequate representation like the senior executives or customers or government officials. The company team in an IT based game consists of representations from IT operations units; IT outsourced entities or technology vendors and other supporting teams like security and compliance etc.

Based on the scenario, the competitor teams could comprise of business units, operating units, business analysts and could include customer and competitor roles where applicable. They could also include regulators, policy makers, suppliers and other stakeholders. If the game is geared to a specific situation then this team could be split into multiple teams with adequate representation.

Control team coordinates with the teams separately to plan various moves and counter-moves keeping teams and discussions in isolation to avoid decisions being influenced prior to actual wargame. The execution is an iterative process and could be planned across 1 to 5 Sessions based on complexity and levels. It is important that de-brief is conducted and factored into the game for subsequent sessions so that outcomes accurately represents the incremental learning from the rounds and sessions. Each round comprises of at least one strategic move, normally wargames are designed for at least 3 strategic moves across any given timeframe.

Picking the right scenario and designing the wargame with the right people, right level and ingredients has several general advantages like involvement of top management as well as next line of managers in the exercise who “live” the strategy and the consequences of the decisions. Wargaming also makes learning from mistakes easier, it tests reactions to different situations and can bring forth the capabilities and strengths of the organization that are usually hidden behind assumptions. One other advantage is that radical moves are possible, that can challenge the very economic or the current operating logic of core business. Closer alignment to the business model and simulating competitor moves could bring out

innovative approaches using technology with assets that were previously under tapped or underutilized. Similarly underperforming assets can be quickly identified and a course correction can be undertaken.

Although Wargaming has been around for many years, it has gained relatively recent acceptance in the business arena and is highly under leveraged within CIO organizations. Given the increasing dependence of businesses on IT, the growing importance of information in decision making and the evolution of CIO from a technology heavy operational executive into a strategic business partner, life is about to change a lot.

IT strategy cannot be built in a vacuum and cannot be linear, it needs to align with the organizations overall strategy. IT leader decisions have a very high degree of impact on the business, whether selecting the right ERP system, going into the cloud, a major outsourcing decision or building a new business platform. All these decisions have several different outcomes and impacts, thereby Wargaming becomes a very useful tool for these leaders to add to their arsenal in the years to come.

## CONCLUSION

### Chapter 5: Using the Crystal Ball

Today's IT leaders must have far reaching strategic vision. The ingress of game changing technologies has brought forth a new standard in the strategic decision making process. Traditional strategy development tools yield limited results. By understanding the history and evolution of wargaming, today's IT leaders can leverage wargaming's command for strategic vision and compete in this ever evolving battle space. With all the demands placed on current IT leaders to align and strengthen the corporate strategy, wargaming should be added to the IT leader's toolbox to make robust strategic decisions. It shows that wargaming can be both a superior tool in the formulation of strategic decisions, as well as assist in the discovery of previously unanticipated opportunities like "Black Swans". In this way, wargaming has the potential to provide IT leaders with clarity in the complex environments which they find themselves today.

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