This thesis is submitted for the degree of Doctor of Philosophy in Management Studies of the University of Canberra, by Shane Fudge (u3031826)

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Leading and Learning through Crisis

A nonlinear dynamical systems approach to decision-making in sport event organizations

Mr. Shane Fudge

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Abstract:

The growth of the sports event industry has risen dramatically over the last 40 years. These types of events have increased in size and scope in all areas of project management; budget, infrastructure design and cost, human resources, time for planning, number of participants, and impact on their host communities. As these events have grown in cost and resources required to plan them, the need to no longer have an ad hoc style of management has increased as well. Sports event management of large-scale project sizes now requires professional management teams put in place to oversee the project anywhere from ten to five years before the date of the actual competition. At this level these teams now include a high number of specially trained sports managers, individuals who have some sort of direct experience in the management and delivery of the unique aspects of a sport product such as a large event atmosphere.

As these events have increased along these described lines, a natural phenomenon has occurred, namely their complexity has increased. Specifically, the complexity of the management systems designed for each one of these projects has increased with time. Each sports event of a large-scale needs to be unique, and differentiate itself from its counter-parts. This increases the amount of unique systems complexity to be found in each project's management design. The problem posited by this thesis, and supported throughout related literature, is that as a systems complexity increases, the possibility of it experiencing a crisis increases as well.

When managers or leaders find themselves facing a crisis, they are facing a worst-case-scenario. Traditional management literature (both disaster and risk management) has shown how most organizations prepare some sort of contingency planning efforts for worst-case-scenarios. However, upon further detailed review of literature, there are multiple incidents every year where a major organization experiences a crisis which fundamental alters their structure and culture negatively.

This is also true of Sports Event Management efforts. A historical review of major events since the 1970s uncovers a high rate of incidents occurring that can be classified as crises. However, despite increasing the amount of time and money spent on crisis management and mitigation each year, Sport Event Organizing Committees (SEOC) seem either unable or unprepared to prevent several types of crises from occurring. The indication is that the increase in the complexity of the management systems has outdistanced the management and leadership

techniques of the SEOC's responsible for their respective events when the situation progresses too far.

Therefore, this thesis posits that current crisis management techniques designed for sports event management are ineffective and/or ill-suited to deal with worst-case-scenarios. The SEOC finds itself at times either unable to process the complexity of their task environment, or unaware of how the complexity of the events unfolding around them can progress from a relatively minor risk, to a real crisis. This thesis addresses the issue of how to develop an improved Crisis Management theory of how SEOC leadership groups perceive crises borne from worst-case-scenarios.

This is an important problem to address, because sports event management no longer concerns itself with athletic pursuits of excellence alone. Major-sized events have grown from budgets encompassing thousands, to potential billions of dollars. Their regularity has become intrinsic to the local economy's annual performance. A poorly attended or organized event makes a negative impact felt by the non-sporting community as well. The largest sports events have an international media attention on them, and negative views of how that nation is not only performing but hosting, can affect the billion-dollar tourism industry of any host nation.

Also, poorly planned and constructed sports infrastructure can lead to more money being wasted, rather than a legacy fund designed to enhance sporting prowess for the future. In short, these projects have major socio-economic and socio-cultural impacts on their larger communities. Improper leadership and management of these events is no longer tolerated by their various stakeholders.

This thesis took the approach of an Action Science oriented Participatory Action Research (PAR) project, in that the researcher was an involved member of the participant community. This was done to gain the most in-depth, qualitative data possible. SEOC's are tightly-knit teams and their leadership is made up of many interrelated departments. Getting inside their workings and structure at the ground level was required to fully understand the attitudes and behaviours of each individual leader when faced with a crisis management situation.

The Collaborative Inquiry methodology approach was taken, because it allows for research *with* rather than *on* people. A SEOC was found which fit all of the research requirements; they were

in charge of a major-sized sports event, possessed a clearly identified leadership group, and were willing to collaboratively engage the researcher in trying to answer the questions related to how do you improve crisis management techniques. Also, the complexity of their organization's tasks and responsibilities had grown expansively over the last decade.

The results from this approach were the discovery that a theory of crisis management that encourages the usefulness of worst-case-scenario planning can benefit sports event managers. Collaborative efforts to implement a worst-case-scenario planning method not only exposes and elevates individuals perception of the complexity of their tasks, it increases their awareness of the systems reliance they have in the organization, and increased their awareness of how important teamwork was in worst-case-scenarios. There was an increased amount of self-efficacy after the methodology was implemented due to the increased ability of the team to share knowledge and understanding of how to identify potential crises.

This is important to understand because it uncovered that some individuals in a team do not understand what a crisis is. They also did not know how to recognize a potential crisis situation, and they believed in the pre-existing systems to properly deal with a worst-case-scenario despite not fully knowing what one was or what their role would be during such an occurrence. Also of importance was the discovery of a cognitive dissonance element in certain elements of the SEOC.

There was a gap between the ability of certain leader's attitude towards a crisis, and their ability to actually act appropriately towards its occurrence. As the methodology progressed this gap's significance increased as the teamwork exercises demanded more and more cohesion in the efforts of defining and clarifying what was or wasn't a crisis and how to mitigate it. This result is significant to know for application, because if a human resources leadership training module can be designed in the future along this paradigm, it could uncover which members of a leadership group are going to be the least useful in a real crisis situation. The evidence suggest that the greater the dissonance in their ability to perceive a potential crisis, the less likely they will be effective crisis managers when the time comes.

The following chapters will explain in detail how this thesis went about uncovering the evidence outlined above. The relevant literature and theoretical concepts will be outlined in the immediate

chapters. The justification and application of the methodology will follow and then an in-depth analysis and discussion of the qualitative data will be found in the preceding chapters. Finally, a conclusion of the major results and how the research objectives were met, as well as the limitations and direction for future research will be provided.

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Abbreviations for Important Terms:

CM & RM – Crisis Management & Risk Management

SEOC – Sport Event Organising Committee

Leadership Core – key members of leadership team that are responsible for large component parts of the event

ORG-CRIS – an organizational crises or crisis situation/event

EQ – the state known as Equilibrium

DEQ – the state known as Disequilibrium

FWG – Facilitated Work Group

NLDS Theory – Nonlinear Dynamical Systems Theory

CAS – Complex Adaptive System

WCS – Worst-Case-Scenarios

EoC – "Edge of Chaos" phenomenon encountered when equilibrium nears disruption

EI - Emotional Intelligence

LP/HI – low probability/high impact scenarios

HP/LI – high probability/low impact scenarios

OC – Organizational Culture

CRASYS – Crisis anticipation system

SEF – Sports event familiar type participant group member

SEU – sports event unfamiliar type participant group member

NMDC Model – Nonlinear Multi-Directional Cascading Model

1 Introduction

1.1 Introduction to Sport Event Management:

Throughout the history of sport in the modern era, the popularity of large-scale multi-sport events has grown ever more important to our national cultures, both as a form of representation of our athletic prowess and our managerial capabilities. In many ways, large-scale sports events have grown into an all-encompassing management phenomena that represent much more than the athletic contests decided in them (Burbank, Andranovich, & Heying, 2001; Jennings, 2012). There are many other forms of sporting events that are smaller in size, and these hold importance for their regional host areas.

In this thesis however, the focus is on the major and mega sized sporting events that encompass a significant amount of time and money to produce, and garner international attention. In many categories such as size, media exposure, host city infrastructure developments, image destination, budgeting, human resources (HR), and profit generation, these sports events have become one of the most lucrative entities in today's societies (Horne, 2006; Horne & Manzenreiter, 2004; London East Research Institute, 2007). Because of these types of growth, they have also become increasingly more complex, and this thesis views large-scale multi-sport events as entities that now have numerous interacting systems, which when viewed individually prevent an understanding of the whole (Gilpin & Murphy, 2008; Houchin & MacLean, 2005; Marion & Uhl-Bien, 2001).

Events that used to cost thousands of dollars now cost millions, and millions of dollars have turned into billions of dollars (Engineering News-Record, 2006). Examples of such cases include the Super Bowl, the FIFA World Cup, the Summer and Winter Olympic Games and the Tour du France (Horne & Manzenreiter, 2004; Jana, Balfour, & Schwindt, 2008). The professionals needed to plan and execute these large-scale events are no longer just responsible for a successful sporting event. They are also responsible for revitalizing a host city's urban area, promoting a city/region internationally, and creating a legacy fund and infrastructure to last decades for both continued sport success and financial gain (Ahlert, 2006; Burbank et al., 2001; Deccio & Baloglu, 2002; Gratton & Preuss, 2008; Jennings, 2012).

Sport managers for the type of events studied in this thesis have had to increase the professionalization of their managerial competencies and training. No longer is it enough to be a former competitor with the ability to represent the athlete's point of view (Bill, 2009; Masterman, 2009). Now a real professional sports event manager and leader is required with the appropriate sport *and* business leadership background to assist other type of business managers lead a team of potentially thousands over the course of several years to deliver upon an organising committee's promises to their stakeholders when international success and national reputation is at stake (Carron & Hausenblas, 1998).

Sports Events Organising Committees (SEOC) are now a mix of regular professional managers and specific sports event managers to be the front line planners, leaders and organisers of some of the largest multi-sport event projects that exist in the world today, and they are responsible for budgets totalling billions of dollars with long-reaching and long-lasting legacy impacts across all levels of society (Hiller, 2006; Horne, 2007; Institute of Management & Administration, 2007).

However, such a phenomenon is not free from problems. Over the last several decades, the complexity of these events has increased (Jennings, 2012; Roche, 2000; Zakus & Skinner, 2008). This thesis supports the notion that sports events now represent complex systems, which are stated by Cilliers (1998) to be:

> Any system in which the interactions among constituents of the systems and the interaction between the system and its environment are of such a nature that the system as a whole cannot be fully understood simply by analyzing its components – and these relationships are not fixed but shift and change, often as a result of self-organization. (p. ix)

When an organization takes on the features of a complex system the need for proper management of its various constituent parts becomes essential. The world around it is also growing more complex in terms of how many systems we now depend on to conduct business in general (Mittleton-Kelly, 2003). The risks associated with the planning and execution of an event the size of the Olympic Games, for example, carry with them the possibility to become heightened across a number of variables stemming from interactions within its systems. Once these system's variables reach a certain stage of evolution through their interactions with other

environments their implications may cause a risk to escalate into a crisis (Kunreuther & Useem, 2010; Moldoveanu & Bauer, 2004). There are many examples of sports events that have suffered from crises, such as budget overruns, tax increases, personal injury of all kinds, and even death (Toohey & Taylor, 2008).

Organizations of all types at some point require the need to plan for change in order to survive (Beach, 2006; Boin, 2009; Burnes, 2004; Kouzes & Posner, 2002; Schoemaker, 1990; Schoemaker & van der Heijden, 1992). This research is attempting to minimize the amount of time spent reacting to severely negative events forcing *reaction*. A primary objective is to turn reactive change-based policy into anticipation-based change initiatives. The methodology is seeking to utilize crises to uncover clues on how to successfully navigate them better. By working with cognitive skills, it is believed to be possible to create new knowledge of how to plan for crises, and make them less severe in consequence to the organization.

The field of Crisis Management (CM) becomes important to consider when undertaking a large endeavour like a large-scale sporting event. CM is an offshoot theory of Risk Management (RM) (Gilpin & Murphy, 2008) that has evolved due to the severe nature of a crisis vs. a risk (this difference will be elaborated on in further sections). CM has grown rapidly over the last 20 years as the number and type of crisis events the world has encountered have also increased exponentially (Boin, 2009). The field has been described in many different ways but usually involves any strategic planning process designed to prevent any crisis or negative turning point in an organizations path (Gilpin & Murphy, 2008; Lalonde, 2007).

CM, as it has traditionally been formulated by organizations, has had to be restructured in many industries because their complexity has outgrown their management systems. This has resulted in crises like the World Trade Center 9/11 terrorist attacks, the Bhopal chemical spill, and the Challenger Shuttle explosion (Boin, 2009; Boin & McConnell, 2007; Comfort, 2007; Coombs & Holladay, 2010; Gainey, 2009; Mason & Mitroff, 1981; Mitroff, 1987; 2004; 2005). Due to this need for adapting to complexity, complexity theory has been utilized to develop new tools for these various industries (Kiel, 1994). This thesis proposes a new theoretical formation of a CM theory specific to the sports management industry's own type of complexity, one based on adapting to nonlinear dynamics.

It becomes clear that attempts to utilize a theoretical underpinning based on an epistemology that embraces, rather than distances itself, from complexity is needed. After a review of related literature, many current theories no longer represent the types of organizations in existence today, rather they have grown in complexity to match the world; they now represent Complex Adaptive Systems (CAS) (Bill, 2009; Kiel, 1994; Mitroff, 2004). These organizations and how they make leadership decisions are what will determine the success of these events in the future (Alpaslan, Green, & Mitroff, 2009; Carron & Hausenblas, 1998). This thesis is concerned with providing evidence into how the SEOC can affect change by utilizing a view that complexity is a useful source for growth and learning. From this concept the opportunities rather than the threats of such notions are considered for the whole organization.

1.1.1 Background/Rationale for Study:

The rationale behind taking a critical look at the management policies of a SEOC and their leadership behaviours/skills is apparent when a study of the existing literature and research of CM is conducted. Recent figures and incidents illustrate increased organizational complexity in these unique groups. The Olympic Games for example, are considered a *mega sport event* which is a large-scale cultural, commercial, and sporting event, which has national cultural character, mass popular appeal and international significance (Burbank et al., 2001; Roche, 2000). This definition makes it pertinent to study this type of sports event, since its impacts can be felt across several socio-cultural levels. However, only a few efforts to do so exist, despite this definition being applied to the Olympics since 1984 (Masterman, 2009).

The belief that sports events do not represent major economic impacts to the hosts is no longer an accepted argument; evidence of economic assessments measuring the influx of tourism dollars following a "mega-event" illustrates significant dividends (Ahlert, 2006; Horne, 2006). Also, the infrastructure legacy from the venues built for it has long-term economic benefits for urban transformation plans (Burbank et al., 2001). The potential revenues produced are too lucrative for a host city to disregard, ever since the Los Angeles 1984 Olympic Summer Games turned a profit of approximately 250 million dollars (US), the first for an Olympic organising committee (Bill, 2009). In the 1970s the Olympics had minimal exposure on prime time television, until the success of Los Angeles.

This was due to the shrewd business sense of their SEOC who sold corporate sponsorship for the first time around the Olympic venue sites (Burbank et al., 2001). The potential for economic benefits was further proven after Barcelona's impressive success in 1992 (London East Research Institute, 2007). Barcelona transformed its urban landscape and vaulted itself into the top of the "most desired" European tourist city destinations from their efforts to build useful post-Olympic Games infrastructure (Hiller, 2006; London East Research Institute, 2007).

In 2004, Athens total estimated television audience for the Games was 3.9 billion people, with 35,000 hours of dedicated coverage around the world, a 27 per cent increase from Sydney's Summer Olympic Games just four years earlier in 2000 (Horne, 2006; 2007). That does not diminish the 2000 Sydney Olympic Games in any way. The city of Sydney and the Australian sporting system are still, 11 years later, capitalizing on the famous "best Games ever" (commented by then IOC president Juan Antonio Samaranch), which validated their tourism branding efforts to increase tourism revenue across the whole country (Burbank et al., 2001; Gratton & Preuss, 2008).

In 1976, Montreal's selling price of the TV rights was less than US$30 million; Los Angeles sold their rights for US$240 million, and Sydney in 2000 became the first ever Olympics to break US$1 billion for its rights, and it is anticipated that the London 2012 Summer Olympic Games, will sell its rights for US$3.5 billion (Horne, 2007; Roche, 2000). This purely economic assessment measure is often the easiest to see how much change has happened to a sports event like the Olympics. More importantly, it shows how the example of the Olympic Games has grown in many forms of complexity as an organization thanks to the cultures and technologies surrounding it (Burbank et al., 2001). The increasing cost of the event can be seen as a means of measuring how its *organizational complexity* has also grown (Jennings, 2012). The amount of human resources required to manage and properly spend such money would create a need for an increase in the size of those systems to make sure it is handled correctly in any organization (Covell, Walker, Hess, & Siciliano, 2007).

This leads to the notion that the SEOCs themselves have become what are known as *complex organizations* (Byrne, 1998). These are groups frequently found to have multiple levels of inter-dependent governance. They can be nonlinear, dynamic, and have unpredictable outcomes to their actions followed by massive amounts of change over short time periods due to numerous

agents interacting with each other (Drennan & McConnell, 2007; Gilpin & Murphy, 2008). Oftentimes the result of such organizations attempting to deal with their complexity forcing change upon them is both internal and external restructuring (Burnes, 2005). Organizational complexity is something SEOC members need to deal with to get anything done in today's globally complex society.

Sports events are now complex organizations due to their characteristics of rapid growth, temporary nature, diverse staff members and skill sets, high levels of uncertainty, and highly symbolic environments (Bill, 2009; Fox, Donohue, & Wu, 2007; Roche, 2000; Xing & Chalip, 2009). Furthermore, relevant literature states that attempts to examine the connections between the disciplines of management and organizational behaviour, complex organizations, CAS, and CM, should be made to better understand complexity (Comfort, Sungu, Johnson, & Dunn, 2001; Mitroff & Anagos, 2000; Pauchant & Mitroff, 2002). However, no attempts to combine them all into an approach utilizing multi-disciplinary methods have been specifically attempted within an SEOC. This thesis will uncover the current gaps in the research fields and draw new linkages between the aforementioned areas of study in relation to sports event management.

Due to the increased complexity of the organizing committee, large-scale sports events, like all complex organizations, will become more and more susceptible to *organizational crises*, which are defined by Pearson and Clair (1998, p. 66) as being "a low-probability, high-impact situation that is perceived by critical stakeholders to threaten the viability of the organization…and is subjectively experienced by these individuals as personally and socially threatening". The ability of an organization to be complex, yet avoid the increased likelihood of experiencing a severe crisis is considered impossible by most complexity and CM theorists today (Burnes, 2004; 2005; Comfort, 1993; 1994; 1999; 2007; Farazmand, 1989; 2001; 2003; 2007; Marion & Uhl-Bien, 2001; Mitroff, 1987; 2004; 2005; Pearson & Clair, 1998; Rosenthal, Charles, & 't Hart, 1989; Schoemaker, 1990; Uhl-Bien & Marion, 2008; Whitworth & May, 2006).

That theoretical notion is what this thesis uses as a jumping-off point to support the need of SEOCs to become open to the idea that in updating their methods of dealing with organizational crises they might alter their leadership and decision-making skills to better survive such unwanted events. By doing so they may increase their chances of not failing to adequately deal with whatever crisis may happen.

1.1.2 Statement of Problem:

A Complex Adaptive System (CAS) is an organization that is constructed of many different systems that are interconnected and interdependent of each other in a variety of ways due to numerous interactions of agents which cause change to occur in unpredictable patterns, and they reflect the situations many organizational structures find themselves in today (Miller & Page, 2007). These CAS interactions can initiate the self-organization of the system into a new entity if certain parameters are encountered, and this is known as emergence, a seemingly simultaneous birthing of a new system as the old one disappears (Demers, 2007). The whole of these systems is only understandable if one looks at the independent systems that comprise it.

These systems are constantly in a state of flux from both their internal and external environments and this causes them to undergo states of adaptation to survive (Prigogine & Stengers, 1984). Sometimes this adaptation is planned and sometimes it is forced upon them by various forces. When it is forced by a disruptive phenomenon, it can be considered to be experiencing a crisis. Either of these factors causes adaptation to alter the ways in which each system operates, and how they interrelate to the other systems they are connected too (Burnes, 2005). This in turn causes a domino effect in the other systems, which have to possibly alter their way of operating to compensate, causing a new phase of growth to become the new normal state of operation (Davies, 2004; Demers, 2007). This can also represent an organization experiencing a crisis and changing to survive it.

This type of complexity and interaction is what this thesis believes to represent the greatest emerging threat to SEOC's. To address this problem, it is necessary to make attempts to shift the thinking and planning of the leadership core involved in the sports event in some areas. To do this is quite difficult, as the bounded rationality of human beings prevents them from accepting certain degrees of change no matter how much they identify it as necessary (Masterpasqua & Perna, 1997).

The problem exists then, that to alter the leadership behaviour enough to affect positive change, it will require a different management policy framework that likely doesn't exist, and will be difficult to implement due to its nature. This thesis supports the application of an experiment

which is designed to promote a more positive way to experience such chaotic changes and interactions amongst the familiar systems of the SEOC group. Whether or not this will alter leadership behaviour appropriately will be revealed in the results chapters where the data is analysed.

Adapted from: Mitroff, I. (2004). *Planning for the Unthinkable.*

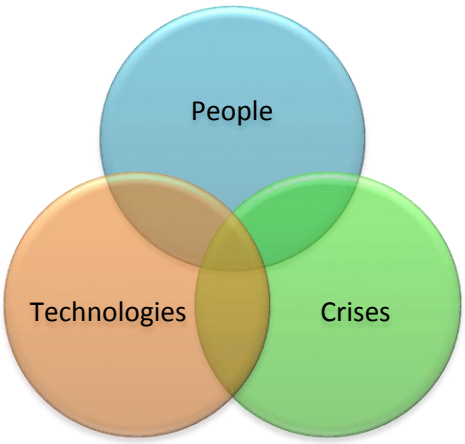


Figure 1 Interaction's within a Complex Adaptive System

From the adaptation of Mitroff's (2004) diagram (see Figure 1, p. 8) it is the view of this thesis that the overlapping section of all three areas within the organization require the most study, despite the narrowness of its perspective. Mitroff (2004) however goes a step further and stipulates that *management* of an organization, especially during a crisis, is not enough but rather *leadership* is the essential skill and behaviour that will ensure survival in a situation considered a crisis. This is due to leadership behaviour requiring an individual to inspire trust in a follower group (Bass, 1985; 1999; Burns, 1978). As Mitroff (2004) has noted, crises are not daily activities but rather the one-time unexpected point where the entire organization can come undone. This can possibly render people into a panicked state, and a leadership core must exhibit the image of a plan that will successfully navigate such an occurrence.

In Figure 1 'Interactions within a Complex Adaptive System', the middle area where there is the greatest overlap of subjects will be the areas that experience the greatest crisis (Mitroff, 2004). By comparison the same model can formulate a simplified version that shows how the other

fields of literature explored in this review will illustrate the connections between their complementary theories to create a method of enhancing crisis leadership potential and capacity building in the SEOC. At this point in time, there does not appear to be any management theory or set of principles that this thesis deems adequate in applying to such a CM environment. The problem exists that the area of overlap seen in Figure 1 is still ignored by managers because it represents an area of frightening uncertainty and high threat levels (Mitroff, 2004).

This is despite the theoretical evidence pointing to the potential valuable learning opportunities that studying such areas of interaction represent. The problem exists despite the best intentions of crisis or sport managers to develop theories on how best to build such a system, or implement it across the wide array of sports organizations that exist. This thesis, through its epistemological perspective and methodology, will propose a way to do so for a medium-sized sports organization.

1.1.3 Purpose of Study:

This research supports the point of view that SEOCs must incorporate an approach to decision-making about crises that involve CAS concepts in order to deal with complexity. No singular academic field has the answer for the most appropriate theoretical model for CM, so a group of them working jointly together is deemed necessary from a review of the current literature, making a multi-disciplinary approach the most appropriate. This study utilizes the latest theoretical developments in Complexity theory, Mitroff's (2004) view of Crisis Leadership (and its ties to Transformational Leadership), as well as Nonlinear Dynamical Systems Theory to change the way we anticipate and mitigate crises. These have been chosen to contribute the separate elements of the overall theory because of their abilities to encourage change in innovative ways found beneficial for teams working together.

In all of these fields, it is possible to see shared elements between the theoretical concepts that create the opportunity to develop a new CM framework specific for a large-scale sports event. In some, the elements are very complementary but have yet to be linked in the specific area of sport event preparation and Nonlinear Dynamical Systems styled leadership behaviour. The study proposes to ensure a more efficient operation of major and mega-sports events by doing so. The

ramifications of hosting these sports events and their inherent complexity in today's ever-evolving society means the latest methods of managing people, and therefore crises, should be considered by the SEOC members during the pre-planning phase in order to create strong and resilient leaders in the face of such challenges.

Mitroff's (2004) concept of Crisis Leadership explains that crises happen due to the increased complex relationships that are occurring between technology, people, and organizations. This supports Perrow's (1984) statements about the 'tight coupling' of people with technological systems which lead to his concept of *normal accidents*, which are accidents caused by either the human or technological system failing its counterpart. Technologies are operated by people, people form organizations, and the more complex the technology the more people are required to operate it and work in an organization which allows for greater chances of people introducing errors, thus leading to crises (Mitroff, 1987; 2004; 2005).

The purpose is to analyse what the impacts are on SEOC leaders after implementing this thesis' leadership framework and affecting their knowledge base of complexity theory. Complexity theory is referred to as the new science of management (Mitroff, 1987) and it is predicted it can alter leadership behaviours through double-loop learning (Argyris & Schon, 1992). The purpose is also to utilize the methodology of collaborative inquiry to create an environment which seeks to enhance organizational resilience towards organizational crises through creating greater leadership capacities in the SEOC.

1.2 Aim of Research:

The aim of the research was to gather qualitative data on how leadership behaviours can be altered in the research participants by engaging them in a collaborative process of re-structuring their CM policies. The skills and behaviours this thesis analysed represented the various elements of group dynamics that have relevance to leadership behaviours and related crisis prevention effectiveness.

There were two primary concepts this study used as starting points for assessing the leadership capabilities of its participants; cognition and organizational culture. From this starting point two secondary concepts became clearly identified as having the most significance in understanding

how the pro-complexity framework would affect individuals working with nonlinear dynamics. They were emotional intelligence and self-efficacy. The interactions of these four concepts within the methodology became fundamental in understanding how a team working on their crisis management techniques would understand both their own roles and the roles of their teammates. The efforts to work with the concept of a worst-case-scenario by each SEOC member showed impacts on how they increased their need for the secondary concepts to make any impact on the primary concepts. Below is a conceptual framework:

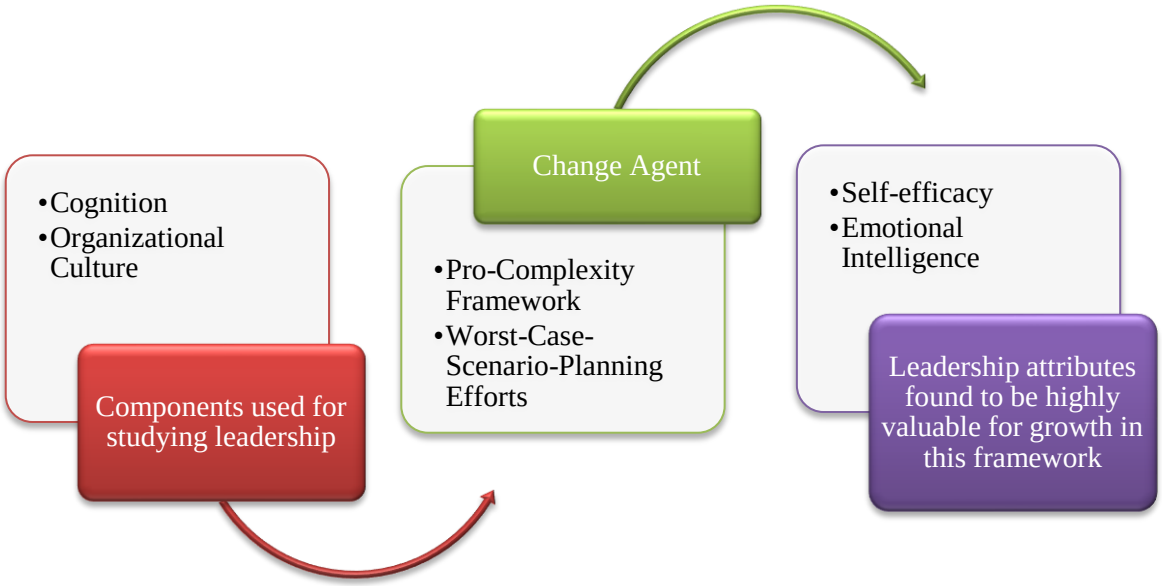


Figure 2 Conceptual Framework

The further aim of the research is to provide a conceptual mapping framework tool for both the researcher and the community of participants to use for understanding the complexity of their organization. This aim is to be achieved by focussing the efforts of the leadership core on the area of CM and crisis leadership in developing a crisis anticipation system. Such a system aims to forecast in a proactive manner for as many contingency scenarios as possible (Mitroff, 2004).

This is meant to enhance the above mentioned skill sets by furthering the normal decision-making methods of the research participants.

By pushing them to new limits in their scope of planning, the aim of this thesis is to encourage an environment of learning that is repeated across all the levels of their organization, via double-loop learning cycles if possible. The effects are aimed at improving their ability to comprehend and process data pertaining to potential crisis events more effectively, otherwise known as cognitive skills. If an individual's cognitive skills are enhanced, it is possible for them to better comprehend myriad signals in their workplace and their significance (Mitchell, 1972; Mitroff, 2004). In a crisis situation or a CAS this is a valuable skill to have, as the numerous signals via the interactions of all the different agents require a high level of cognition to be properly assessed (Uhl-Bien & Marion, 2008).

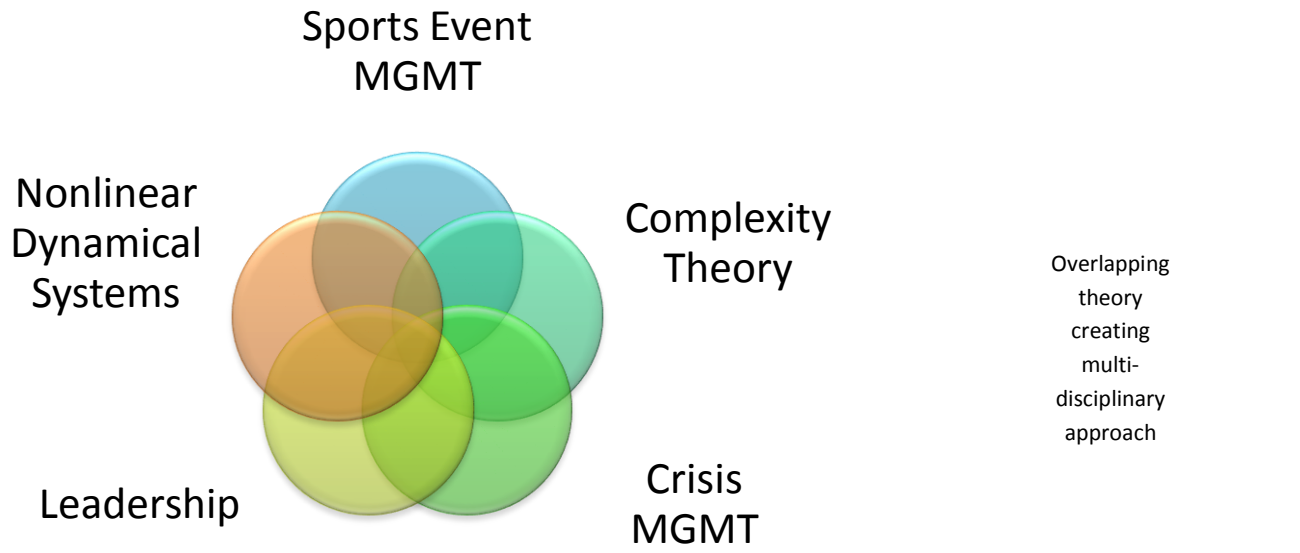


Figure 3 Interactions of Theory via Example as a Complex Adaptive System

Figure 3 'Interactions of Theory via Example as a Complex Adaptive System' (p. 12), illustrates a similar interaction of a conceptual framework to the previous Figure 1. There are elements of each discipline found important by this thesis which overlap as well. It is the purpose of this

thesis to extrapolate the similar overlapping elements from each separate discipline. In doing so, linkages can be made between the most common shared areas of anticipatory/transformative crisis management theory. The center is where the most relevant linkage information will be found, just as in Figure 1. This study proposes that the paradigms of each circle will assist each other in developing an updated model of learning in the future by emphasizing their similarities, not their differences. It is the further objective of this thesis' theoretical and methodological framework to emphasize these overlapping areas to the leaders in the SEOC as the most important to pay attention to for the purpose of identifying how complexity affects their work (Mitroff, 2004).

1.3 Research Objectives:

The objectives of this research are as follows:

-To affect the cognition levels and decision-making skills of the SEOC leaders by exposing them to a new set of criteria for developing a CM planning approach.

-To alter perceptions of complexity and organizational systems in a SEOC participant population.

-To use worst-case-scenario planning to develop crisis anticipation theory.

-Establish how effective or ineffective the delivery of the new theoretical planning framework was to the participant group and its potential impacts on leadership behaviour.

1.4 Research Questions:

The following research questions arise from the aims and objectives of the study. The major research question is:

"What will be the impact on a SEOC's leadership behaviours and decision-making skills, from the implementation of a multi-disciplinary complexity and nonlinear dynamical systems theory based framework designed, and aimed at enhancing crisis management techniques?"

Associated research questions arising from this primary question are:

1. Are crisis anticipation systems actually beneficial or practical for Sport Events?
2. Would SEOCs experience a more efficient event management experience if their leadership styles were changed according to Complexity Theory and Nonlinear Dynamics paradigms?

3. Will it be possible to measure or identify any successful learning opportunities within the SEOC community?
4. What are the possible implications of using WCS to reformat crisis management plans for an SEOC?
5. What are the possible implications for SEOC members engaged in a Collaborative Inquiry research project that focusses their efforts on affecting their cognition abilities/levels?

1.4.1 Justification/Gaps Present in Other Research:

The sports event industry has grown into a global industry, and its impacts can redefine a host city's international image and economics, and revolutionize a nation's sporting image as well (Roche, 2000; Gratton & Preuss, 2008; Horne, 2007). Mismanagement of these events in the past has led to billions of dollars lost and a loss of transferable knowledge for sport management theorists (Abrams, 2004; Ahlert, 2006; United States Government Accountability Office, 2005). By attempting to introduce the members of an SEOC to revolutionary leadership theories, it could be possible to enhance collective learning, performance, and behaviour. Also, a decrease in budget overruns and negative socio-cultural impacts could occur if a crisis is avoided. The opportunity to increase theoretical knowledge for the involved academic areas, as they relate in a systems theory perspective, justifies this project.

No current studies are being done which seek to implement a collaborative learning initiative, or enhance their community of learning within the discipline of sports event management. No efforts have been made academically to evaluate leadership theories and styles used for events in this manner. No academic studies have so far been published which postulate the organising committees could potentially be using an inferior set of management principles. Also, very little use has been made of Complexity Theory and Nonlinear Dynamical Systems Theory in the sporting world in this way.

Studies on Transformational Leadership have only been applied to some national sport organizations and not as proposed in this study's format. The possible method of implementing Transformational Leadership on a CAS has yet to be applied in conjunction with CM in this context. CM and Complexity Theory studies are usually focussed on disaster reduction literature fields and not sports event management. No studies exist that seek to enhance the knowledge

base of the sports event management area in this capacity currently. The possibility of enhancing theoretical knowledge in all of these areas creates justification for this research.

1.5 Summary:

This thesis has formulated a series of questions and objectives designed to meet the needs of sports managers and sports management academics alike who wish to study the impacts of CM techniques and policy on the operation and planning of large-scale sports event management teams. This thesis has attempted to discover if it is possible to implement a new framework of event management into the organizational culture of an SEOC so that improvements or changes may be made to the ways in which such an issue of a crisis situation occurring can be impacted. To do this an approach utilizing several different yet related fields of study has been created in order to formulate how best to respond to the complexity of such an overall research goal.

The reasons behind undertaking such a research project is that upon historical review of large-scale sporting events, it has been noted that several situations were unintentionally allowed, for various reasons, to escalate out of the normal boundaries of risk into a crisis. These situations led to a long-lasting negative impact for that host city and the overall brand of that event (Burbank et al., 2001). Also, upon review, it is noted that the economic impact of such events has risen dramatically, and the importance of not only winning event bids but successfully utilizing the event to further various socio-political/cultural projects has increased (Zakus & Skinner, 2008). Lastly, the complexity of the environment, both internal and external, of the event management arena, has not been met by an increase in the efforts to utilize complexity theory or systems theory approaches in this manner, despite academic studies stating such an attempt is not only potentially beneficial but necessary in today's crisis prone society (Pearson & Clair, 1998).

1.6 Conclusion

In conclusion this first chapter has provided an explanation of the objectives, aim's and purpose of the research that will follow. The approach and reasoning behind the development of this research has been provided, as well as the direction it will take in its epistemological and

methodological approach. In the following chapter the existing literature pertaining to the research objectives and theoretical underpinnings will be reviewed. The review of literature in this first part will establish how the research views the current state of the academic discipline of sport management and the growth of large-scale events to give a contextual basis for its point-of-view. Also examined will be the current state of research into the areas of risk and crisis management, leadership and the transformative theories related to them. Also reviewed in this chapter are the areas of organizational crises vs. emergencies and their differences, as well as how management traditionally views them. The importance of personality and attitudes and how these concepts affect crisis management approaches will also be reviewed in relation to assessing threats and uncertainty.

2 Literature Review Part I

2.1 Introduction:

In this chapter the relevant literature pertaining to the development of the theoretical perspective of this thesis will be presented. The literature reviewed in this chapter will outline how the epistemological approach leads to the construction of the types of knowledge deemed important so that the data gathered will make sense in regards to the major issues and objectives. The elements of this chapter will introduce major components of the study such as sports event management and its development and history, as well as an outline of the development of Olympic Games research and how its relevance guides the research objectives.

Also in this chapter are the major management discipline areas that are most relevant to the topic of the research, such as strategic management, risk and CM, and organizational culture. Other sections will introduce the notions of W*orst-Case-Scenarios* (WCS), which are very important to the study's objectives. The areas of leadership and organizational change, as well as teamwork and group dynamics will also be introduced. Through the review of this literature, it be can be construed how the study will combine elements of each area to build a framework for how a group can individually and collectively gather and improve on their knowledge base regarding the topic of CM and leadership.

Presented on the following page is Table 1 which illustrates a summary of the major area of theory that has been utilized by this study to create its multi-disciplinary approach to the research problem.

Author(s)	Conceptual Focus	Relation to R.Q.'s	Contribution
Various: (Bill, 2009; Horne, 2007; Jennings, 2011, 2012; Masterman, 2009)	Sport Event MGMT	Assisted in measuring the state of the industry and uncovering research gaps.	An understanding of the environment the study was concerned about, also the unique product and individuals who are responsible for it and current research trends.
Various: (Boin, 2009; Comfort, 2007; Farazmand; 2007)	Risk MGMT	Established the policy and paradigms of management that have been used to create the current state of the industry.	An understanding of how risk, threats, and disasters of various kinds can impact an ORG.
Various: (Comfort, 2005; Drennan and McConnell, 2007; Mitroff, 2005)	Crisis MGMT	Provided the ability to initiate the concept of re-evaluating how to prevent or mitigate a crisis.	A further understanding of the most serious types of threats. Also how a crisis works, how they affect us, how difficult they are to perceive and control.
Various: (Schoemaker, 1990; Vera & Crossan, 2004)	Strategic MGMT	Provided an understanding of how strategy can be used innovatively to allow ORGs to learn.	The importance of goal-setting, providing the means for teamwork to be successful.
(Mitroff, 2004; 2005)	Crisis Leadership	Provided the basis for the concept of a leadership style based on anticipation rather than reaction.	Contributed the concept of innovative forms of adaptation to crises for leaders. Also the need for anticipation rather than reaction.
Various: (Bass, 1985; House, 1971; Vroom & Jetton, 1973)	Transformational Leadership	Provided the basis for establishing the potential desired leadership skills, attributes, behaviours, and styles.	Provided the importance of establishing vision, trust, resilience, positive group dynamics, self-directed leaders, and how to implement change.
Various: (Burnes, 2004; Comfort; 1999; Davies, 2004; Mittleton-Kelly, 2003)	Complexity Theory	Provided the linkages needed to answer the questions concerning how complex tasks or situations affect individuals and group performance.	Provided the conceptual focus on the idea of systems being interrelated, and a better understanding of crisis management.
Various: (Cilliers, 1998; Comfort, 1994; Demers, 2007; Miller & Scott, 2007)	Nonlinear Dynamical Systems Theory	Provided further linkages to those found in complexity theory.	The concepts of how systems may encounter many forms of disruption that take affect over time, and the need to be ready to anticipate strange occurrences.
Various: (Bandura, 1982; Goleman, 1998; Irving, 1982; Yukl, 2010)	Org. Culture/Teams	Provided understanding of how the group dynamics and structure of the ORG. would play a factor in the methodology.	The concepts of teamwork, attitudes, group dynamics, the importance of the leader/follower dyad, capacities, and resilience.
Various: (Comfort, 2007; Festinger, 1956; Mitchell, 1972)	Cognition	Provided the means to understand how to answer the questions related to why crises occur, the difficulty in perceiving them, and the difficulties in creating long-lasting change to mitigate them.	The importance of perception, of both work and chaotic situations. The importance of dissonance in attitude and behaviour, and what affects that will have on performance.

Table 1 Summary of Theories and relation to conceptual framework

2.1.1 Sport Event Management:

Sports events represent a growing segment of the management world, and one of the fastest growing forms of business related tourism in the global economy (Bill, 2009; Burbank et al., 2001; Horne, 2007). They provide not only jobs but major economic impacts to a host city and region (Engineering News-Record, 2006; Jennings, 2012). This can be seen in the example of the Olympic Games which has produced billions of dollars in profit since 1984 for its various host regions (Bill, 2009; Burbank et al., 2001). The London Olympics in 2012 are expected to generate similar numbers in profit due to the complete transformation of the southern corner of London into the new Olympic Park.

This urban transformation project alone is conservatively estimated to cost several hundred million British pounds, and the final bill will undoubtedly be higher (Bill, 2009; Horne, 2006; Jana, Balfour, & Schwindt, 2008). This newest ability to transform a destination's perceived image for tourism in a global sense is seen as one the most influential in winning the intense bid process (Covell et al., 2007; Jennings, 2012). The UK government actually put the winning of the 2012 bid for London into its official policy of '*Britain, forward not back*' to act as the catalyst for the aforementioned urban project (Ahlert, 2006; Burbank et al., 2001; Horne, 2006).

For the largest sporting events, a global television audience's attention for a prolonged period of time can translate to hundreds of millions of dollars in secondary, indirect tourism (Ahlert, 2006; Burbank et al., 2001). This has led to broadcast companies spending billions of dollars on the right to broadcast the actual sporting event and the even more lucrative reselling rights to other subsidiaries and international broadcasters (Burbank et al., 2001; Horne, 2006). In 1984, the broadcast rights for the Los Angeles Olympics were sold to the American Broadcasting Corporation for 225 million dollars (Horne, 2006). Since then the National Broadcasting Corporation has won the American broadcast rights for the Olympics by bidding for two consecutive events at a time, their current winning bid for the Vancouver 2010 and London 2012 Olympics is estimated to exceed 2 billion dollars (Horne, 2006).

As high as this amount of money may seem, according to economists best estimates it accounts for just one third of the total revenue brought in by this sports event (Horne, 2006). The FIFA World Cup had its broadcast rights sold in the US for approximately 66 million dollars in the 1990's; by 2006 they were sold for approximately 1.9 billion dollars (Horne, 2006). It should be

also be noted that these are just the figures from the American television market. The phenomenal buying and selling amounts are repeated by related media companies in Europe, Asia, and many other regions of the world, bringing the total global economic impact of the media rights for these events even higher.

This influence over cash distribution and economic growth has increased the number of sectors interested in the planning and management of sport events (Ahlert, 2006; Bill, 2009; Burbank et al., 2001; Horne, 2006; 2007). Political and economic players have become increasingly more engaged in the process, which means a greater impact on the communities themselves that are witness to the urban transformation schemes (Bull & Lovell, 2007; Burbank et al., 2001). Governments of all levels, from local to federal, get involved with sports events in order to raise the necessary funds to operate them (Bill, 2009; Jennings, 2012). These efforts take the form of national lotteries (e.g. the UK's efforts to fund the 2012 Olympics) or through private and public organization sponsorship dollars (i.e. corporate sponsorship of facilities and events in the United States) (Bill, 2009).

These practices raise political concerns over who is really profiting from sporting events, as different groups can utilize the event for their own branding purposes and reach a much wider consumer audience (Horne, 2006). The privatization of such events that are supposed to champion amateurism but instead seem to be pursuing professional sport objectives has been criticized as undermining the whole idea of the events original conception, and has been debated and studied since the 1980s (Horne, 2006; Jennings, 2012).

At the heart of these events are the organising committees. The members of these committees are no longer volunteers, but paid sports management professionals, with diverse backgrounds ranging across athletic pursuits and management experience (Bill, 2009; Carron & Hausenblas, 1998). These individuals act as the leadership core of what can grow into a workforce of thousands (Horne, 2006; Xing & Chalip, 2009). Their ability to produce a successful, on-time, and under-budget event extends from their leadership and management skills. The organising committee is the focal point of this thesis. Bill (2009) identified a list of key skills and competencies which encompass all of the seven major areas a sports event manager should be able to perform well at, based on her research into the factors perceived critical for organizational success in the sports event industry:

1. Plan carefully and critically with attention to detail.
2. Communicate with key stakeholders.
3. Effectively delegate.
4. Motivate staff at the appropriate time in various ways.
5. Disseminate information while providing opportunity for feedback.
6. Meet strict deadlines in multiple areas across committee.
7. Keep accurate records.

*adapted from Bill, K. (2009). *Sport Management.*

As events become more important to not just their participants but their local and national regions, success becomes measured on a bigger scale (Engineering News-Record, 2006; Jennings, 2012). A sports manager must have the proper balance of these skills and know how and when to use them (Weinberg & McDermott, 2002). This is becoming more of a concern for event organisers because events suffer from organizational crises just like the more traditional examples of banking, politics and policy-making (Abrams, 2004; Burbank et al., 2001). The arena of sports events are now subject to the phenomena of complexity according to the evidence found by the study and presented here on how their operations have grown over time. Without a contemporary viewpoint of this phenomenon a leader in any field cannot succeed for long (Mitroff, 2004; Stacey, Griffin, & Shaw, 2000).

2.1.1.1 Sports Event Typology:

Most sports event management research has been centered on the areas of financial and urban transformation impacts, rather than an internal analysis of organizational behaviour. There is a gap in this direction for this discipline that should be explored. Notable work done on various sports event issues include that done by Horne (2006, 2007), Taylor (2004), Toohey (2000-2010), Manzenreiter (2004) and Roche (2001). Other areas of study concerning the event have been related to tourism research, and the impacts both positive and negative, on the surrounding populations. An example of these studies is the work of Taylor and Toohey (2007) with the Sydney Olympics and the impacts of terrorism affecting people's decisions to attend.

The designation of sports events is an important element of the sports event management literature. For the purpose of this study, it helps narrow the focus of the research by directing our attention to the larger of the typologies of events. Masterman (2004) has stated that there are

several types of sports events; special (planned) ordinary (unplanned), minor, major, mega, and hallmark. The last three are the focus of this thesis as the impact on their host communities is quite large and the potential to enhance CM theory with their examples is viewed as valuable. Major events attract large audiences and are expensive to put on with budgets usually in the millions of dollars, mega events are transient and have international profiles and massive impacts on hosts, and hallmark events are infrequent with international profiles and permanent locations (Masterman, 2004). These types of events are illustrated in the examples of the Olympics and FIFA World Cup; however 'hallmark' events (such as Le Tour du France) are gaining more exposure due to their massive marketing appeal (Horne, 2006; Masterman, 2004). Regardless of the which three types (major, mega, hallmark) an event falls into, once they pass from minor to major, the need to understand how they are planned becomes essential.

While less prolific in numbers, there are studies emerging now on how the responsibility of the organising committees for the event are being studied as complex organizations and what that means to the event overall (Fox, Donohue, & Wu, 2007; Houchin & MacLean, 2005; Jennings, 2011; Zakus & Skinner, 2008;). These studies are concerned with modelling how the International Olympic Committee (IOC) and its Organising Committees for the Olympic Games (OCOG) counterparts have transformed over the years. The small, informal, non-profit based organizations have become large-scale global organizations, which generate millions of dollars of revenue every year, further complicating the planning process (Zakus & Skinner, 2008). These studies are very relevant to this thesis, not because they provide an example of a similar study but because they show that other academics are considering the application of complexity theory concepts to sport event management. This research proposes that this is a necessary area to understand for SEOCs to continue to operate effectively in a global economy which is growing in complexity every day and complicating the event management process.

Unlike much of the work done on the three large-scale event types, this study is not concerned wholly with the economic impacts of the phenomenon. That aspect of sports event management is an important element of the entire experience of managing such a large-scale enterprise and is considered a vitally important component to the epistemology of the research studies' view on where and how knowledge is managed and transferred around the leadership core of the SEOC. For example Horne's research (2006; 2007) centers on the growth of sport (including events)

into massive socio-political tools that certain business entities exploit for profit and what that means for consumers. This research is perfect for establishing the socio-economic and socio-cultural importance of large-scale sports events, but it does not attempt to answer any questions about how complexity may be used as a tool to enhance organizational behaviour of SEOCs.

The work of Toohey (2007; 2008), and her various associates, have created significant literature on what a mega-sports event means to the culture that experiences it. Toohey's (2007; 2008) work on what the impact of terrorism and related subjects have done to sports event management have provided excellent platforms to prove that the external world and its increasing complexity are having an impact that could be dire for sports events if not managed correctly. This research proves that large-scale sports events are suspect to such elements of complexity that their organizational behaviours and leadership competencies need to be looked at for possible enhancements. However, it does not attempt to provide any guidelines as to *how* we would create a more advanced sports management/CM theory for today's complex working environment; it only establishes the need for one. This thesis is attempting to provide the next step along the research path that other theorists have stated through their own work. The sports event management industry needs to keep up with the complexity of the world around it so that its management practices remain productive and competent. The research up to this point has provided the proof for the need of a more strategic approach to the industry. The unique aspects of such an approach will be discussed in the next section.

2.2 Risk Management:

The literature review will discuss Risk Management (RM) from a point of view meant to illustrate how it transformed into CM and Leadership over time. The difference between the two is considered a necessity to outline. A risk can be defined as the combination of the probability of an event and its consequences (Drennan & McConnell, 2007; Standards Australia, AS/NSZ 4360, 2004). Risks carry both positive and negative elements to them. No innovation for profit or advancement occurs without risk, and some risks carry serious threats with them (Heath & O'Hair, 2009). This is because risk is associated with uncertainty. Uncertainty has already been outlined as the amount of variability of consequence around a risk, or the range of outcomes possible from a risk occurring (Drennan & McConnell, 2007). Risk can be classified into many

different types as well, like strategic and operational, or intangible and physical, as well as internal and external (Drennan & McConnell, 2007). The research into possible risk scenarios and types is immense and covers virtually all known industries at this point, and has led to the development of the extensive field known as RM (Schoemaker, 1990).

RM originally centered on the principles of identifying, controlling, and evaluating threats to an organization (Drennan & McConnell, 2007). This was a very reactive treatment of potential threats in the environment. RM has more recently been designed to do the same but also address and monitor risks and threats in a more forward-looking fashion, at least in theory. In a major step forward, it was the Australia and New Zealand Standards Association in 1995 that provided a concept of RM that insisted organizations begin to emphasize their organizational cultures and accept and implement RM into their daily decision making processes in order to make it more holistic and evident from the ground up in the planning processes (Standards Australia, AS/NSZ 4360, 2004). The AS/NZS 4360 Standard was revised in 1999 and again in 2004 and has become the basis for almost every developed country to copy as their approach to RM (Standards Australia, AS/NSZ 4360, 2004). It was the basis for the RM standard developed by the Federation of European Risk Management Associations (FERMA) which stipulated the RM process as the systematic application of management policies, procedures and practice to the tasks of communicating, establishing context, identifying, analysing, evaluating, treating, monitoring and reviewing risk (Standards Australia, AS/NSZ 4360, 2004).

Despite this recent all-encompassing definition and intention of RM, it has been practiced regardless of the official definitions in many forms for the last several decades. Research has shown in many industries, usually upon review of a crisis, that the RM policies in place were inadequate at dealing with whichever scenario presented itself to the organization (Kunreuther & Useem, 2010). This has been posited by some theorists as being due to the notion that RM implies a *reactive* position of leaders within an organization to a crisis, despite its recent efforts at redefining itself (Comfort, 2007; Farazmand, 2007; Hicks & Pappas, 2006; Kunreuther & Useem, 2010; Mitroff, 2004).

CM and Crisis Leadership (CL), as defined by Mitroff (2004) have received a boost in attention after the events of the 9/11 World Trade Center bombing. Worldwide views on crisis situations are that they have at their root a *proactive* stance for leaders to begin exploring in more detail if

organizations want to be truly resistant in the future (Boin et al., 2005; Mitroff, 2004). CL as Mitroff (2004; 2005) outlines it attempts to proactively seek out any and all signifiers of a possible crisis, plan for the inconceivable, implement not only a policy of dealing with it, but a team of people dedicated to minimizing its affects. In essence, CL is about mitigation through anticipation of the WCS (Mitroff, 2004).

RM has been used beneficially in the past, but it has been found that current research supports a new approach. While some managers today would not necessarily separate the two concepts, but rather argue that CM and RM are one and the same, there are many theorists who are advocating the creation of new offshoot theories of CM that incorporate a steeper learning curve than those of the past.

Examples of these include the use of complexity theory to understand crisis events (Houchin & MacLean, 2005; Hurtado, 2006), wherein the application of a management style which increases awareness of complex interactions is used to better evaluate performance. The applications of chaos theory to understand organizational behaviour have been used to examine how systems can experience a small perturbation which originally has no noticeable effect but when left over a long period of time results in chaotic patterns of behaviour (Sellnow et al., 2002; Rizzuto & Maloney, 2008).

The use of NLDS theory approaches has been applied to the efforts of organizations who wish to build resilience in both their employees and their systems, so that they may better survive a disaster or crisis through understanding the nonlinear dynamics of a situation with no definable timeline of resolution (Comfort et al., 2001; Comfort, Namkyung, & Gunes, 2009; Comfort, Boin, & Demchak, 2010). The concept of 'surprise management' and 'hyper uncertainty theory' has been put forth by Comfort (2007), Farazmand (2007), and Pearson and Clair (1998) in their research on how certain administrative agencies and systems failed to develop the proper leadership capabilities necessary to recognize how and when to adapt to situations that required it. They have all placed an impetus on future leaders in organizations to embrace the need to be more aware and ready to deal with uncertainty.

Research in the areas of security and counter terrorism from within the United States after 9/11 have found the traditional methods by managers to prepare their organizations for dealing with

major crises have involved a reactive model. This means that after the fact, a leader will attempt to manage the problem by using staff which are trained to handle such tasks as a secondary team, in an emergency only (Comfort, 2007). A flaw of these plans, as outlined by many organizational theorists, is that the planning policies of intergovernmental agencies responsible for response during crises tend to be formal and hierarchical. This results in their inability to effectively deal with the dynamic, fluid, and constantly changing complexities of a crisis (Comfort, 2007; Comfort & Haase, 2006).

Reacting to a crisis and "managing" it, has proven costly in both lives and money (Rosenthal et al., 1989). The 9/11 World Trade Centre bombing, the Hurricane Katrina disaster in New Orleans, the 2004 Tsunami in Asia, are just some recent crises that were handled with a RM model. After these crises it became apparent to various academic communities that studying WCS and their mismanagement needed to change. Taking into account the possible need for a paradigm shift in decision-making to better prepare an organization for such threat levels has become a reality (Rosenthal et al., 1989; Rosenthal et al., 2001).

2.2.1 Crisis Management/Leadership:

Crises arise when an emergency grows out of control to affect multiple levels and areas of an organization simultaneously and in unexpected ways (Comfort, 1993; 1994; 2007). CM grew out of the need to handle more and more complex situations, giving rise to more and more complex problems and disasters (Coombs & Holladay, 2010). However, simple models of containment do not work against full blown crises, because the pathways are governed by indeterminate patterns of nonlinear dynamic complexity, colloquially known as chaos (Sellnow, Seeger, & Ulmer, 2002).

At this point it is important to make a distinction for clarification purposes for two important terms. There is a need to explain the difference between an emergency and a crisis, since this thesis is concerned with crises rather than emergencies. An emergency can be defined as an unforeseen but predictable narrow-scope incident that regularly occurs, like house-fires (Boin & McConnell, 2007). Crises are different in that they can be defined as a breakdown of familiar symbolic frameworks that legitimise the pre-existing socio-political order of an organization

(Boin & McConnell, 2007; Rosenthal, Boin & Comfort, 2001). Crises are often borne out of short chains of events; unpredicted and unexpected, while developing with dynamic patterns over months, days or even minutes (Farazmand, 2007). This can be taken a step further with the idea of *organizational crises*, which are organizationally based disasters which cause extensive damage and social disruption, involve multiple stakeholders, and unfold thorough complex technological and social processes (Shrivistava, Mitroff, Miller, & Miglani, 1988).

Boin (2009) views crises as situations that "have different causes, play out differently, draw different reactions, and affect societies in different ways" (p. 367). In Boin et al. (2005) they regard CM as a duty of public administration departments when "policy makers experience a serious threat to the basic structures or the fundamental values and norms of a system, which under time, pressure, and highly uncertain circumstances necessitates making vital decisions" (p. 3).

From these definitions it is apparent that a crisis can take on many forms, such as economical, public administration, or emergency operations specific in nature (Boin et al., 2005). Hurricane Katrina was a large destructive hurricane that destroyed New Orleans Ninth Ward neighbourhood in 2004, and was considered the worst crisis to ever hit that area. The 9/11 terrorist attacks that toppled the World Trade Center Towers in 2001 were a crisis. A fundamental breakdown of communication, coordination, and leadership between multiple agencies, groups, and emergency responders caused a situation that was thought "inconceivable" to not only happen, but escalate rapidly, until it was out of control and affected millions in both these examples (Boin et al., 2005).

This evidence in the current literature illustrates the gap between theory and practice because it is a widely held belief that a crisis in modern times is considered to not be spatially confined by any common boundaries. Rather it engages multiple stakeholders rapidly and has a profound and long-lasting impact (Boin & 't Hart, 2003; Mitroff, 2004). In this respect, it seems illogical according to researched evidence that a rigid and slow-moving bureaucracy like most federal governments could be in charge of handling conditions that require a dynamic and adaptable organization, and do an adequate job (Boin & 't Hart, 2003; Kiel, 1994).

When considering the idea of crisis situations it is important to understand that they are subjectively experienced, and everyone's personal opinion will be differently, albeit subtly, formed of what they are (Drennan & McConnell, 2007). Unlike emergencies, which are often routine and lead to simple management plans, crises are unique and are none are ever the same as the one that preceded it (Drennan & McConnell, 2007; Mitroff, 1987). It is this very concept that makes them so frightening and psychologically difficult to deal with (Rosenthal, Charles, & 't Hart, 1989). It also leads this thesis to ask the question; if each crisis is unique, why are management plans that stress routine, formulas, and standard procedures used? Why are there no frameworks in place to encourage the people responsible for leading an organization through a crisis to use tools that make them think, act, and behave as uniquely as the crisis itself?

Further complicating CM is the issue of typologies. Not only will institutions experience crises differently from different perspectives of impact, but there are several different kinds to deal with. Boin and 't Hart (2001; 2003) have identified several; first the *fast-burning crisis* which arrives swiftly, and concludes in the same manner (i.e. hijackings). Second is the *cathartic crisis* which has a slow build up, then a decisive point of action/inaction followed by consequences, then a swift conclusion (i.e. manhunts for criminals). Third is the *slow-burning* or *creeping crisis* which has long-term threats developing very slowly, never actually reaching a resolution while remaining threatening (i.e. global warming, Israeli/Palestinian conflict).

Fourth is the *long shadow crisis* which is quick to start, and quickly reaches a short-term conclusion, but left in its wake are issues of wide-spread significance and even subsequent crises (i.e. Hurricane Katrina, and in the sport management context the Munich 1972 Olympic Hostage crisis). Even with these four distinct types, crises continue to defy logic and can occur as one or many of these types simultaneously (i.e. Bhopal, the BP oil spill) (Drennan & McConnell, 2007). Also, some crises do not even meet or fit into the typologies above (Boin & 't Hart, 2003; Drennan & McConnell, 2007). This thesis is concerned with any and all crisis situations that impact organizations.

2.2.1.1 Organizational Crisis vs. Emergency:

The study takes a definite stance in establishing a difference between emergencies and organizational crisis situations. It is essential in the view of the study that managers begin to make this differentiation as well, because otherwise there will be a persistence of the attitude that

emergencies and crises are of the same nature and require the same skills to solve (Boin, Lagadec, Michel-Kerjan, & Overdijk, 2003). For the purposes of the study, a standardized version of the definition of both terms will be adapted from Pearson and Clair's (1998) work in which the differences between the two terms are laid out in a way in which one can begin to understand how complexity both affects and interacts each in different ways. This understanding will enhance contingency planning as well. Emergencies have many different definitions and the term carries different connotations in varying parts of the world. Pearson and Clair (1998) viewed emergencies as 'one off' situational events that are likely to happen and have anywhere from mild to serious effects for the individuals involved.

The reason for somewhat downplaying the seriousness of an emergency is because of the management principles put in place to deal with them. Emergencies are often classified as such despite not meeting the criteria set out for them. For example an emergency is also defined as a situation which poses an immediate risk to health, life, property, or environment. Most emergencies require urgent intervention to prevent a worsening of the situation, although in some situations, mitigation may not be possible and agencies may only be able to offer palliative care (Satz, 1998).

It is, however, worth noting that any and all situations that have varying degrees of seriousness to their consequences are deemed an emergency, even when they do not offer a direct harmful impact to human life or serious property damage (Drabczyk & Schaumleffel, 2006). Even emergency agencies frequently respond to non-life-threatening situations because no one else is advised or certified to deal with them. Fire alarms are deemed emergency situations commonly, as well as other minor events (Drennan & McConnell, 2007).

This thesis is concerned with events of such serious impact and significance that they are known as an organizational crisis (ORG-CRIS). Pearson and Clair (1998) provided the most complete definition:

> A low-probability, high impact situation, that is perceived by critical stakeholders to threaten the viability of the organization that is subjectively experienced by these individuals as personally and socially threatening. Ambiguity of cause, effect, and means of resolution of the organizational crisis will lead to disillusionment or loss of psychic

> and shared meaning, as well as to the shattering of the commonly held beliefs and values and individuals basics assumptions. During the crisis decision making is pressed by perceived time constraints and coloured by cognitive limitations. (p. 66)

This thesis uses this definition to identify which types of crises the participants would engage in for purpose of exploring worst-case-scenario (WCS). In short, the definition provided the yardstick by which the examples of crises they created were considered to be either a WCS or not. If the scenario example they created conformed to the Pearson and Clair's (1998) definition then it was considered an extremely serious scenario and highly significant. The multiple levels of complexity apparent in a CAS will by their nature require a fairly complex definition to cover their various areas of influence. It is therefore suitable that this thesis uses a definition of ORG-CRIS that reflect this inherent complexity. It is also suitable for a definition like this to further distance crisis events from emergencies, since the management principles and leadership behaviours for dealing with both are theoretically drifting apart (Farazmand, 2003; 2007; Malott & Martinez, 2006; Mitroff, 2005; Shrivastava et al., 2007).

2.2.1.2 Crisis Anticipation Systems vs. Emergency Response Systems:

Within this thesis the concept of creating crisis anticipation systems (CRASYS) and their potential benefit over emergency response systems (ERS) is presented. The theoretical viewpoint of RM and CM is being re-evaluated and experimented via this concept as well in an effort to further a gap in the current literature. A diverse amount of literature supports the idea of switching from ERS to CRASYS for a higher success rate of dealing with complex ORG-CRIS (Apgar, 2006; Boin, 2009; Bracken, Bremmer, & Gordon, 2008; Comfort, 2007; Comfort, Sungu, Johnson, & Dunn, 2001; Coombs & Holladay, 2010; Drabczyk & Schaumleffel, 2006; Farazmand, 2007; Miller & Page, 2007; Mitroff, 2004). However, research efforts at how to effectively implement what is considered a CRASYS is found to be lacking throughout the literature. It is postulated by the epistemological approach of this thesis that such a framework is possible. If individuals perceive their own respective ideas of what a crisis is (which according to constructionist beliefs is the case), they should be able to collectively pool these perceptions into a synthesized idea for them to being the anticipation system creation process. If communication and learning is pushed forwards in a new paradigm for their group specifically,

the knowledge creation should theoretically occur without them having to experience an ORG-CRIS in order to reflect and then learn about it.

An ERS is any system that responds to emergencies in an effort to reduce, mitigate, and manage the situation before it grows out of hand (Bracken et al., 2008). A complicating factor of separating ERS from their revolutionary CRASYS cousins is the lack of agreement about RM systems throughout the literature. Much of the problem lies with the fact discovered by several studies, which is that a crisis only becomes recognized when subjectively felt by an organization or its individuals as seriously threatening (Apgar, 2006). However, the risk level needed to trigger crisis level contingency management is objectively set by organizations, despite the subjective nature of the threat level (Bracken et al., 2008; Drennan & McConnell, 2007). A RM plan is supposed to enlist all levels of decision-making and be installed across all levels of an organization (Standards Australia, AS/NSZ 4360, 2004). For a RM plan to properly work it has to both plan for and attempt prevention of possible risks and threats so that they do not escalate into a crisis (Apgar, 2006; Bracken et al., 2008; Drennan & McConnell, 2007). The issue is that despite those elements being the theoretical foundations of the application of a RM plan, oftentimes such plans are designed to only warn, instead of properly manage via anticipation (Alpaslan et al., 2009).

A warning system is essentially a form of an ERS, in that it does a limited amount of functions and does not contribute to prevention methods (Drennan & McConnell, 2007). A warning is an advance notification of an event, in the context of RM an event that would be seriously detrimental to the organization (Bracken et al., 2008). A warning system is an interacting set of parts that act to produce the warning and can be made up of people and technology working together (Bracken et al., 2008). A warning system can be informal, like the opinions of CEO's who observe the marketplace and pick out signals for changes, or they can be formal, such as the missile detection systems for national defense in the USA (Bracken et al., 2008). The important thing to note with warning systems is that they only produce the warning. They do nothing else, nor do they contribute to the overall system of risk or CM at the organization.

The real issue with warning systems is they are commonly mistaken to be sufficient enough by organizations when it comes time to deal with risks. As a crisis looms closer, the time between when a warning can be issued and when preventive steps can be taken shrinks, until almost no

time separates the two. At this stage, all organizational competencies are found lacking to deal with the threat if the emphasis of methods has been on creating an extensive warning system only instead of a mitigation system (Bracken et al., 2008). The mentality that a warning system will give enough forewarning of something so that your organization can then come up with a plan of management, is exactly the false safety net such systems cast (Bracken et al., 2008; Mitroff, 2004).

The mentality of an organization is reflected in their behaviour, e.g. a warning system provides the false security needed for members to believe they will be alerted in time to deal with an emergency and therefore not suffer any dire consequences. In the 2004 New Orleans Hurricane Katrina example it is evident how a warning system actually did provide enough time for something to be done to mitigate the problem, but no action was taken because the warning was ignored, another serious issue with these systems (Farazmand, 2007). Even in the examples where the warning system worked, because it was not an integral part of the RM system and did not trigger a series of subsequent steps to deal with the emerging risk, they did not help prevent anything (Bracken et al., 2008; Farazmand, 2007). It is for this reason this thesis groups warning systems and ERS into the same type of system, and views them as being inadequate at preventing today's modern serious threats.

A CRASYS is different from an ERS in both its design and purpose. A CRASYS is considered any system that attempts to proactively seek out WCS of LP/HC situations in an effort to uncover as many ways as possible of preventing or reducing such threats (Mitroff, 2004). By extension, it seeks to enhance organizational resilience by furthering leadership behaviours, rather than reinforcing management protocols (Mitroff, 2004). This system is built around the principle ideas of Mitroff (2004), Pearson and Clair (1998), Comfort (2007), and Farazmand (2007) who have accepted that increasing complexity in all the systems we use and rely upon will increase the likelihood and necessity of proactive leadership behaviours. Figure 4 below is a visual representation of the comparisons between the two types of systems. The advantages of the CRASYS and how it assists in the development of leadership skills are presented through the below comparison in Figure 4 (p. 33):

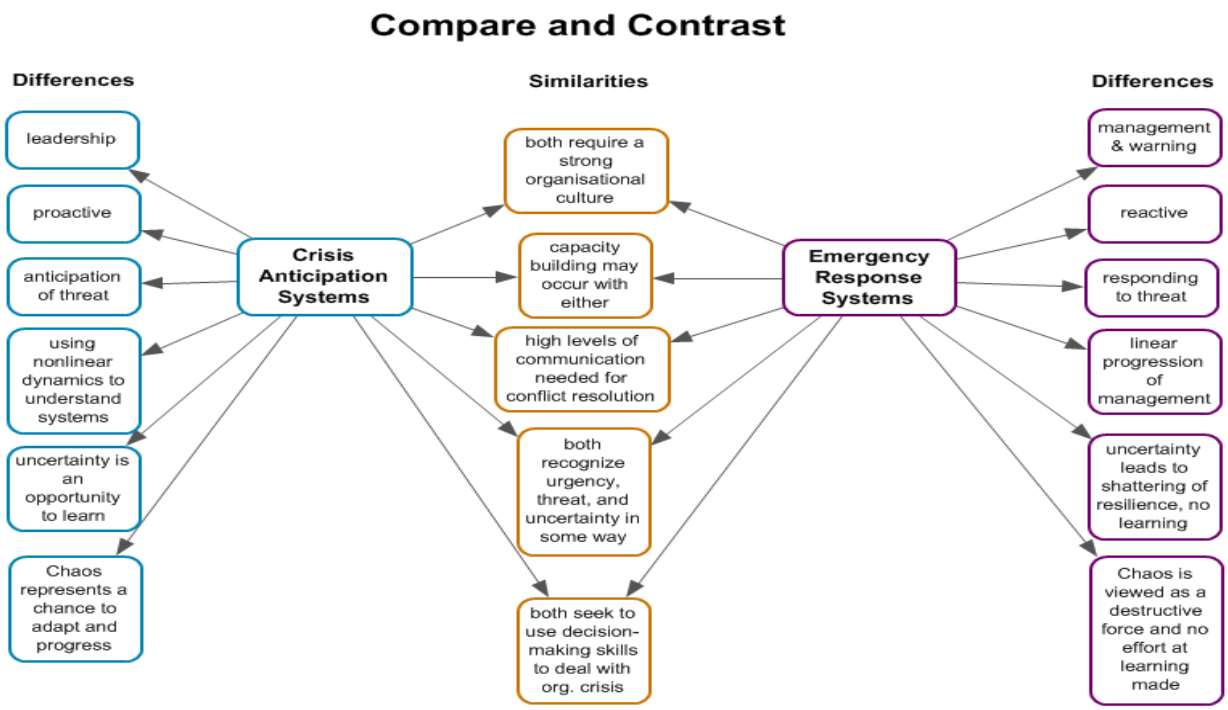


Figure 4 Compare and Contrast Diagram of Proactive vs. Reactive Decision Making System Models

Figure 4 illustrates the observed differences in the two approaches to RM and CM systems, as observed by the research from examining multiple sources of literature. One system using the RM reactionary mentality and the other the proactive CRASYS Leadership mentality is visible in Figure 4. The opportunity for learning in an anticipatory environment exceeds those in a reactionary one once the differences of each approach are realized from Figure 4. There appears to be few chances for real cognitive development in the reactive approach compared to the proactive one, due to the viewpoints of linear progression treating complexity as a force to fear.

The main difference between these two systems that the study believes necessary to emphasize is the potential benefits of being proactive. In short, CRASYS seek to be proactive, while ERS are currently forced by design into a reactive role, as evidenced by the warning system examples. Once an emergency occurs, such systems are employed. They are by nature incapable of prevention after a certain point as well as before a certain point, seen here from the areas indicating reaction and consequence (Bracken et al., 2008). A CRASYS is meant to possibly never be utilized, since its efforts are directed at creating policy and procedures that should be producing leaders, not managers, who grasp the complex and intimate details of their

environments so they can alter courses of actions before they turn into crises or disasters (Mitroff, 2004; Pearson & Clair, 1998; Rizzuto & Maloney, 2008; Shrivastava et al., 2007).

2.2.1.3 Uncertainty, Threat, Urgency:

This section will explain the importance of the three elements necessary to constitute a true ORG-CRIS. Without all of these elements present, it is debateable whether a situation is a full-blown crisis or simply a serious emergency or just a minor threat. Drennan and McConnell (2007) believe the term crisis is subjective, and hard to define due to its ability to be viewed by various individuals simultaneously, but they agree that for a risk to evolve into a crisis three elements must be present; high levels of *threat*, *uncertainty*, and *urgency*. Therefore, understanding each of the three and how one develops the other two is an important aspect of CM. It is interesting to note that it is quite difficult to have one and not the other two, as they feed off each other much like organisms engaged in a reciprocal relationship (Drennan & McConnell, 2007).

Uncertainty is the emotion felt by individuals when there is high level of unknown facts about a situation (Coombs & Holladay, 2010). Uncertainty from a managerial standpoint is the variableness of the likelihood of an event and its various impacts, evident when there is no certainty of knowledge (Drennan & McConnell, 2007). Both of these points of view are important to recognize because one view helps explain the level of consequence possible from a situation occurring and the other view explains why it is so damaging to a group's dynamics. When a person is uncertain, their level of comfort is quite low with their surroundings. This in turn can lead to a sense of foreboding about the possible consequences of action plans, or possible ramifications of not acting in a certain way. Without a clear idea of what to do, a vital and basic sense of safety is violated in the individual (Coombs & Holladay, 2010). Uncertainty leads people to feel the need to make sense of the situation described in most organization's CM plans. The lack of knowledge about a subject creates a high level of psychological discomfort in individuals, and this discomfort can manifest in behaviours not normally portrayed (Coombs & Holladay, 2010). Through this manifestation, the need to 'make sense' of an uncertain situation becomes a high priority during CM (Drennan & McConnell, 2007; Mitroff & Anagos, 2000).

This psychological element can manifest itself in the second element of threat. Threat is the term given to the fear felt by an individual for their actual physical or mental safety (Masterpasqua & Perna, 1997). A series of events that increase the uncertainty of a situation will lead to a person feeling threatened, wherein their personal safety is no longer certain and this cognitive response can be viewed as the response to a threat (Drennan & McConnell, 2007). When this happens, the person is experiencing a high level of distrust in the support structures around them (Mitroff, 2004). Once this safety net is breached in an organization, the appearance of the shattering of a person's basic assumptions about their roles and importance can occur, leading to a crisis of legitimacy (Pearson & Clair, 1998).

Threats are just as varied in their forms and subjectively assigned by people to subjects as the idea of a crisis itself and the types of threats felt by individual's organizations can be different or the same, adding to their confusion. Threats can be a danger towards personal safety, loss of human life or damage to infrastructures, or even symbolic, like the threat of losing faith in the government or other agencies or associations meant to safeguard societies' emotional and spiritual well-being (Bracken et al., 2008; Drennan & McConnell, 2007; Gilpin & Murphy, 2008; Mitroff, 2004; 2005).

Both of these elements are spurred onwards by the increase in the situation's urgency. When the time constraints of dealing with a situation are perceived as being limited, with dire consequences at the end without proper resolution, an increase in urgency can be felt (Masterpasqua & Perna, 1997). Urgency is what applies importance to solving a crisis, because as the unfolding of a crisis develops, its impacts and the consequences of each are being felt by a broader and broader audience (Coombs & Holladay, 2010). In disaster management literature, it is seen in many examples of how managers are incapable of dealing with a crisis properly due to the stress caused by the urgency of the situation impeding their reactions and decision-making (Masterpasqua & Perna, 1997; Shrivastava et al., 2007). Urgency is perceived by individuals as being the factor that makes a situation intensely negative in relation to their sense-making competencies (Drennan & McConnell, 2007). The inability to reduce urgency, or the importance it creates towards solving a situation viewed as threatening is often the cause for the increase of both uncertainty and threat levels (Sellnow et al., 2002). The higher the urgency, the more threatened you become, and the more threatened you are the more uncertain you feel towards any

plan of action without appropriate knowledge to make sense of it. It is also important to note that the impact of an urgent situation is its ability to increase the awareness of the lack of knowledge an organization may have for solving it, increasing stress and disrupting plans meant to deal with such system problems due to intense uncertainty (Drennan & McConnell, 2007; Heath & O'Hair, 2009).

2.2.2 Worst-Case Scenarios:

This thesis supports the notion that chaos used in a constructive way is potentially beneficial (Comfort et al., 2001; Comfort et al., 2010; Schoemaker & van der Heijden, 1992). Learning happens most effectively when Equilibrium (EQ) is threatened, forcing a state of adaptation (Davies, 2004; Doll Jr., 2001; Pearson & Clair, 1998). This study's methods attempted to find ways to get SEOC members thinking and anticipating crisis situations in creative ways not considered before in an effort to affect leadership skills. Sports managers could use this new framework which uses concepts like NLDS theory, to provide their teams with the chance to solve issues like resilience shattering due to crisis situations.

When considering CM as a topic, it is important to grasp the concept of the WCS. A WCS can be considered as any scenario that has the most extreme amounts of uncertainty, urgency, and threat associated with them. It can also be viewed as the scenario that involves everything that can go wrong actually occurring (Mitroff, 2004). WCS are hard to define, although most CM literature has some allusion to the importance of scenario planning in general (Schoemaker, 1990). Scenario planning is a strategic planning tool whereby organizations attempt to make flexible long term plans based on possible future outcomes based on many complex factors of influence (Drennan & McConnell, 2007).

Despite the lack of a large number of specific WCS literature examples in CM there are multiple examples of the related issues of scenarios and the planning methods associated with them. It is now considered very beneficial after the success of Royal Dutch Shell and their efforts at better forecasting in the oil production business that planning for unfavourable market scenarios is beneficial (Schoemaker, 1990; Schoemaker & van der Heijden, 1992). WCS can be assessed as having several of the worst types of consequences associated with crisis as well. Some of these

consequences are: human loss of life, critical infrastructure costs, policy failures, economic losses both job and revenue related; political symbol costs (i.e. legitimacy damage) and personal costs like damaged reputations (Drennan & McConnell, 2007; Rosenthal et al., 2001). Any single one of these consequences in a large enough doses would be enough to constitute a serious crisis of any type and push a scenario into WCS range.

The other important part of WCS is the psychological component inherent in dealing with them. No matter how competent the system put in place to head up CM plans, it was devised by a set of human minds, and within that fact lies its fallacy because the more frequently humans interact with technological systems, especially complex ones, the greater the likelihood they will cause system failure - both from dependence on the system and their maintenance of it (Apgar, 2006; Coombs & Holladay, 2010; Masterpasqua & Perna, 1997; Perrow, 1984; Rizzuto & Maloney, 2008). WCS represent the most extreme end of the risk matrix scale in terms of the likelihood of occurring, as seen below in Table 2, (p. 37) listing the likelihood of risks (adapted from Standards Australia/New Zealand Risk Management Standard AS/NZS 4360 policy).

Likelihood of Risks		
Level	**Descriptor(Sample only)**	**Description**
5	Almost Certain	Is expected to occur in most circumstances
4	Likely	Will probably occur in most circumstances
3	Possible	Might occur sometime2
2	Unlikely	Could occur sometime
1	Rare	Occur only in exceptional circumstances

Table 2 Likelihood of Risks Scale 1-5 (Standards Australia, AS/NSZ 4360, 2004)

A WCS would be given a '1' rating, meaning it is rare, and occurring only in the most exceptional of circumstances. With such a quantitative measurement being applied to it, the WCS becomes subject to the least urgent part of our planning processes. Despite arguments for crisis preparedness policies being put as a high priority in any organization, more often it is not given any priority due to inertia (Boin & McConnell, 2007; Drennan & McConnell, 2007). As the likelihood of a crisis dwindles towards '1' from '5', the bureaucratic response to them is one of inertia, or no movement at all towards policy development, contingency or otherwise.

This is due to several issues; first being low probability wherein an organization does not see the urgency to plan for something classified that way by quantifiable means, despite the qualitative measures proving otherwise (Drennan & McConnell, 2007). Second, the funding necessary to properly deal with contingency planning for anything even narrowly resembling a WCS is usually quite high, and the rationalizing of spending so much money on practicing for something that may never happen is rarely justified in a way satisfying enough to an organizations leadership for it to happen (Boin, 2009; Bracken et al., 2008; Whitworth & May, 2006).

Third, organizations are often found to be 'backward' rather than 'forward' facing when it comes to crisis, in the sense that agencies responsible for dealing with various crises focus on past events and try to use those as models for future events (Drabczyk & Schaumleffel, 2006; Farazmand, 2007). The aftermath of these events is so painful and enduring in some examples that people focus on never again dealing with such a traumatic event, however that leads to a blindness in conceiving of new future events that are different but still affect society at the same level (Drennan & McConnell, 2007). This leads to an organization being *crisis prone,* rather than *crisis prepared* (Pearson & Clair, 1998) It has been noted that rather than learn to anticipate new potential threats, organizations attempt to prevent the same thing from happening again, despite the likelihood of a repeat being very low, and subsequently they do not learn of other more important gaps in their systems and suffer new and unique crises (Comfort et al., 2009).

Fourth, is the psychological frame of mind of most organizations in regard to such scenarios. Before the '1' rating is even approached by most scenarios, poor organizational behaviour and attitudes towards crisis and its affects have been noted by many theorists, and this thesis in its own participants, which will be explored further in the proper chapters. This behaviour has been shown to be represented by statements synonymous with 'it can't happen here', 'that won't happen to us', 'that's just not possible' (Drennan & McConnell, 2007; Mitroff, 2004; Rosenthal et al., 1989; Rosenthal et al., 2001). These attitudes and their associated statements/behaviours illustrate the unwillingness of individuals to make efforts to deal with scenarios they deem too difficult to conceive.

The notion of 'that won't happen to us' and the disbelief despite evidence of WCS being quite possible given the right mix of systems failure, has been attributed to the 'groupthink' mentality. Groupthink is when groups respond to normative pressure rather than follow their individual

instincts or factual evidence to make decisions (Carron & Hausenblas, 1998; Irving, 1982). Janis (1982) originally defined groupthink as a "mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when members' strivings for unanimity override their motivation to realistically appraise alternative courses of action" (p. 8). This is illustrated by numerous examples of when a group of individuals made terrible decisions that resulted in crisis situations unfolding dramatically in various ways, despite the fact that they had, individually, the evidence necessary to make the right decision, for example the Bhopal chemical explosion, and the Challenger Space Shuttle disaster (Rosenthal et al., 2001). The need to maintain the group's collective invulnerability to any situation was seen as the most important thing to do, not actually to defeat the looming crisis (Irving, 1982). In the face of evidence that their organization was going to fail, the realization that such failure had been tolerated is too much for some individuals to believe, and hence groupthink occurs (Irving, 1982). Also, the belief that absolutely nothing could actually harm a group blinds its members to making any decision that could actually prevent the harm. This is often seen as a total disregard and/or misconception as to the severity of the external environments' potential impact on the group (Irving, 1982).

Most recently, the 9/11 World Trade Center terror attacks have been analysed as the worst collapse of complex systems designed to be impenetrable in the history of the U.S.A. (Mitroff, 2004). Upon review by the US Government it was found that the systems of CM in place for hijackings had no such contingency plan even written down, let alone practiced or hypothesized (Drennan & McConnell, 2007; Mitroff, 2004). It was found that their contingency plans were not adequate and "unsuited in every aspect for what was about to happen" (Drennan & McConnell, 2007, p. 18). All of these examples of groupthink have a common link; despite being separated by decades and layers of complex systems of management, they were all considered WCS and far too unlikely to happen to spend any serious time considering or creating contingency plans.

2.2.2.1 Low/high, high/low probability and impact matrices:

Within the parameters of this study, a high level of importance is placed upon the understanding and significance of the difference between events classified as low probability/high impact (LP/HI) and their counterparts of high probability/low impact (HP/LI). A major point of

reference for this study is the proposition held among more traditional management practices, both event-oriented and otherwise, that a focus on HP/LI occurrences are deemed a more suitable starting point for managers to begin their planning processes (Boin, 2009; Boin & 't Hart, 2003). The commonly held viewpoint is that when it comes to management, the best value for money and time comes from planning for the commonly occurring emergencies, since they are reasonably seen as occurring the most often (Mitroff, 2004). While this is true, and money is well spent on preventing events that are almost guaranteed to have an impact, no matter how minor, it is the viewpoint of this thesis that not enough emphasis is placed on contingency planning that considers the occurrence of LP/HI events. The possible benefits of utilizing such a paradigm could be useful in the reduction of losses across a range of organizational capacities. Also, a group of individuals who feel they are prepared for any event occurring, no matter how catastrophic, has positive implications for that group's resilience.

For those that believe and maintain an attitude that such LP/HI events are a waste of funds and energy better spent on treatable occurrences, notice should be directed at the example of the armed forces. The military services are an organization staffed for two main purposes, defending their nation, and preventing global conflicts from escalating (Bracken et al., 2008). Both of these occurrences are fairly LP/HI considering the amount of time spent by political powers to prevent conflicts (Vietnam, Afghanistan, Iraq, etc.). Their time is spent preparing for armed conflict, developing contingency plans for WCS, and on an individual level possibly dying on the field of battle (Bracken et al., 2008). This level of commitment to an act of serious consequence seems at odds with the previous attitude, yet people in most countries believe in the importance of having a funded, and prepared, military force (Bracken et al., 2008). Some military members will spend a 30 year career preparing for a conflict they never encounter, yet they are not treated as wasting time or money (Bracken et al., 2008). Instead, they are heroes who did a diligent duty. Why is it then, that in almost every other industry and trade, when management tries to expend serious effort on attempting to plan for LP/HI events they are disparaged for wasting people's time and money?

HP/LI events represent the solvable aspects of RM policies, whereby simple policies that are 'run of the mill' are suitable for problem resolution (Mitchell, 1972; Mitroff, 1987). Little time or extra energy are spent on these instances and their issues. However, the deeper issue at hand

with these occurrences are their representation of a deeper psychological issue present within a leadership core. *Rationalizing* occurs at this stage of assessing high probability events in order to satisfy the cognitive dissonance a committee may feel over considering discomforting issues, such as a WCS (Brehm & Cohen, 1962; Festinger, Riecken, & Schachter, 1956). Cognitive Dissonance occurs when a person has an attitude and behaviour on the same subject that is in opposition to each other, and can cause severe mental and physiological discomfort (Festinger et al., 1956). All human beings are motivated to reduce dissonance throughout their lives (Festinger et al., 1956). Cognitive Dissonance and its implications are discussed in further detail in the following sections.

People will feel positive about their self-efficacy and leadership styles if they focus on easily manageable emergency situations that do not require much proactive contingency planning. They are so low in consequence they are unnecessary to focus on in such a way (Bandura, 1982). Completing them increases this sense of usefulness in the committee members. Furthermore, when an intrepid member of the committee does bring up the issue of not spending time on a much larger probable catastrophe, the other members can easily disregard these concerns by two points-of-view: 1) 'We do not need to spend time on such an unlikelihood, look at how much there is to do with these regular emergencies', and 2) 'Why would we not be able to handle such an unlikely event? We have clearly dealt with these other issues just fine, it will be the same with this, if it ever occurs, which it won't' (Irving, 1982).

The issue with this is the presumption that regular everyday politics and policies will be enough to deal with a massive crisis since they solve minor problems (Boin & 't Hart, 2003; Boin et al., 2005). It has been recorded in literature by almost every disaster management specialist that OC's will not wait for everyday politics to catch up to it, and everyday policy must be dropped and a special management plan must be used to deal with such issues, otherwise consequences will be far-reaching and severe (Apgar, 2006; Bracken et al., 2008; Comfort et al.,2009; Kiel, 1994; Sellnow et al., 2002).

Therefore it is proposed by this thesis that the usefulness of attempts to train an SEOC in the direction of intentionally considering LP/HI events is beneficial. The inherent difficulties are explained further in the results chapters. From this approach, a viewpoint is established that once a group becomes fully aware of the multi-directional nature of crisis, they will better

understand how important it is to consider these alternative detailed contingency planning methods. The assumption is that a greater level of critical knowledge and effort at being proactively involved in LP/HI event planning could bring about a greater overall understanding of RM and its modern partner Crisis Leadership. The following Qualitative Risk Analysis Matrix and related tables below assist in understanding how categorizing risks, probability, consequences, and action can become a dangerous game. The following information has been adapted from the Australian and New Zealand Standard on Risk Management Policy and Forms 4360:2004.

Consequences of Risks		
Level	**Descriptor**	**Description**
5	Catastrophic	Death, huge financial loss, would stop achievement of functional goals / objectives
4	Major	Extensive injuries, major financial loss, would threaten functional goals / objectives
3	Moderate	Medical treatment, high financial loss, necessitating significant adjustment to overall function
2	Minor	First aid, medium financial loss, would threaten an element of the function
1	Insignificant	No injuries, low financial loss

Table 3 Consequences of Risks Scale 1-5 (Standards Australia, AS/NSZ 4360, 2004)

The 'consequences of risk' typologies in Table 3, above, illustrate the levels or types of impact that a risk would have on a group or organization. The 1-5 scale represents an easy to understand escalation of significance illustrated for any person involved in trying to understand the risk scenario better. A '1' rating can be attributed to such examples as a small fire or power outage, so insignificant in consequence that they would not in any likelihood be classified any higher. Their impact on organizational resilience would be nil unless completely mishandled. A '2' rating would impact on one system of a complex system, but not engage much of the overall leadership capacities to solve (Whitworth & May, 2006).

A ‘3’ rating example would be a fairly intense accident, usually seen in association with infrastructure breakdowns and requires more of the leadership capacity in a collective sense as the media would be attracted to it and negative press is an unwanted detractor (Satz, 1998). A ‘4’ rating example would involve enough threat, urgency and uncertainty elements to push a ‘3’ type of risk into the crisis category, especially if it envelops a lot of the complex systems management tools (Mittleton-Kelly, 2003). A ‘5’ is considered catastrophic because it means the event would not meet its objectives at all, and the resultant losses of finance and possibly even human life would leave a negative impression for a long period of time and affect those involved with it personally. In these examples, organizational resilience is shattered more often than not (Mason & Mitroff, 1981; Mitroff, 1987).

Risk Level Ratings		
Level	**Descriptor**	**Description**
E	Extreme	detailed action/plan required
H	High	needs senior management attention
M	Moderate	specify management responsibility
L	Low	manage by routine procedures

Table 4 Risk Level Ratings Scale (Australia Standards, AS/NSZ 4360, 2004)

In Table 4, above, the risk level ratings for scenarios are represented by letter designations, and the subsequent management procedure for each is also presented briefly. Of note in this table is the response to E, H, and M level situations. High level situations require senior management attention but Extreme level situations are not designated to anyone but rather have only an ambiguous ‘detailed action plan required’. Just what is an action plan? Why is it presented as a different option to the routine procedures of the L rated scenarios?

There are an alarming number of organizations in various industries that have created strategic planning processes to deal with Extreme rated risks in one of two ways. Either they treat them as manageable by routine procedures like their 'low' cousins, or they apply a connotation by way of rating description that make them seem so unlikely that nothing other than the idea of a 'detailed action plan' is created to deal with them (Mason & Mitroff, 1981; Mitroff, 1987; 2004; 2000).

Both of these options are considered inadequate by Mitroff (2004; 2005) due to the fact that in today's world risks can escalate up and down this rating scale faster than a person can comprehend them. Therefore, efforts should be made to treat the higher rated risks as possible to plan for and create some more routines for, in order to instil an organizational systems wide approach to dealing with them, further encouraging a level of belief in prevention due to familiarity (Comfort, 2005; Comfort et al., 2001; 2010).

Qualitative Risk Analysis Matrix –Level of Risk					
Consequences 1	5	4	3	2	
Likelihood 5	**E (25)**	**(20)E**	**E (15)**	**H (10)**	**H (5)**
4	**E (20)**	**E (16)**	**H (12)**	**H (8)**	**M (4)**
3	**E (15)**	**E (12)**	**H (9)**	**M (6)**	**L (3)**
2	**E (10)**	**H (8)**	**M (6)**	**L (4)**	**L (2)**
1	**H (5)**	**H (4)**	**M (3)**	**L (2)**	**L (1)**

Table 5 Risk Analysis Matrix Scale

In Table 5, above, the more catastrophic a risk scenario is rated in its consequence, the less likely its occurrence rating. This is certainly true of natural disasters such as earthquakes, volcanic eruptions, hurricanes, etc. However, even these disasters, despite not being a daily occurrence for most of the world, occur with frequently increasing damage costs to the areas afflicted by

them regularly (Rosenthal et al., 2001). They are also affecting certain countries in a truly catastrophic manner recently as their population density in some areas leads to huge death tolls and infrastructure breakdowns (Boin & McConnell, 2007; Newkirk, 2001).

This need to categorize and differentiate risks has created the attitude that the truly unlikely ones will never occur, and this rationalizes the choice to not plan for them (Pearson & Clair, 1998; Uhl-Bien & Marion, 2008). Mitroff (2004; 2005) argues against this complacent attitude in today's organizations because of the increased complexity of the world. With so many increases in the number of technological systems in positions of responsibility for containing and mitigating crises, the likelihood of catastrophes has increased (Mitroff, 2004; 2005). The creation of such matrices in Table 5 have created in risk/crisis managers a false sense of security that any situation that evolved around them will be able to be typified by them, and consequently dealt with easily (Boin, 2009; Comfort, 2005; Farazmand, 2003; Kiel, 1994; Shrivastava et al., 2007). In actuality it has become necessary for leaders to engage in special forms of contingency planning efforts to predict and assess potential crises. This form of contingency planning is known as scenario-planning.

2.2.3 Scenario Planning:

Scenario planning is a management tool that organizations use to make flexible long term plans (Schoemaker, 1990). This process involves formulating plans that are based upon what-if scenarios about the future so that a more detailed risk analysis can occur for further strategy implementation (Bill, 2009). The idea behind this process is to get managers thinking about the dynamic nature of their complex environment (Schoemaker & van der Heijden, 1992). This thesis however, takes the view that even more extreme scenarios should be utilized to push the boundaries of large-scale sports event management due to their complexity. Scenario planning traditionally was the realm of military strategists who would think up different training exercises based on scenarios and then play them out for training purposes (Schoemaker, 1990). In recent years this practice has been adopted by businesses so that they can engage in forecasting for possible fluctuations in their marketplace. The most notable example of considerable success is that of Royal Dutch/Shell oil company's efforts at implementing scenario-planning to deal with issues such as the OPEC crisis and related global fuel price fluctuations (Schoemaker & van der

Heijden, 1992). Scenario planning utilizes feedback loops for learning about contingencies, often based on nonlinear patterns in a system in theory (Schoemaker, 1990).

However this thesis has postulated that despite the intentions of the tactics, the limitations of the creativity and willingness of individuals limit their efforts to push themselves in new directions, because the implausibility of scenarios at times makes them not try. The theoretical perspective of this thesis is that nonlinear patterns are the most useful for determining possible reactions of a system, however convincing individuals to truly push their cognition limits is a complicating factor. It is also the epistemological stance that feedback loops create learning opportunities that allow for serious and useful change to occur at the appropriate levels of an organization because its individual members will learn through accepting this complexity surrounding the issues (Burnes, 2004; 2005; Comfort et al., 2001; 2009; 2010; Dai & Duserick, 2008).

Once engaged in such activities it has been proven in the Royal/Dutch Shell examples that scenario planning is a useful way to look at novel approaches and situations that may occur. The level of creativity needed to engage in such collaborative activities in a productive way is another useful component in formulating real learning in the leadership core that an organization depends on for forecasting and risk analysis, as well as crisis prevention (Schoemaker & van der Heijden, 1992). The methodology of the study believes that learning from such creative methods is necessary to properly assess the complexity of a large-scale sporting event and the possible novel situations its path to completion may take.

The scenario planning process can be varied and uniquely tailored to the organization engaging in it. An exercise of this type will include the following steps: decide drivers for change/assumptions, bring drivers together into a framework, produce initial mini-scenarios, reduce to core scenarios, draft scenarios, and identify issues arising from scenarios (Schoemaker, 1990; Schoemaker & van der Heijden, 1992). The literature shows that even in these initial steps some learning may occur about management policies, but it is usually more beneficial for the feedback loops to occur where individuals reflect on the last stage and its findings, then come back and review this information after application for further amendment (Heron, 1996; Heron & Reason, 2001). In the amendments of the findings and possible revisiting of some of the first stages of planning, new information vital for change may be discovered and assist the

organization to learn a valuable lesson about said scenario or develop a tool for use in the situation (Mayer, Moss, & Dale, 2008; Malott & Martinez, 2006).

2.3 Leadership:

The field of leadership studies is very important for this thesis, and how it pertains to the research topic is evidenced later in the results chapters. This review is concerned with the idea of Transformational Leadership and how it relates to Organizational Culture (OC) and fits into the idea of collective learning in organizations. The SEOC has been shown to be a CAS in previous sections; however its complexity is both formed by and controlled by its human members. There are a large number of diverse people operating under the mandate of every SEOC, and their related experiences, beliefs, and attitudes are what make the event succeed or fail. How these people are led, and how they relate to their leader according to the dyadic relationship (Bass, 1985), forms a crucial part of this study. It has been shown throughout the CM/leadership literature that without strong, inspirational leadership during a crisis, an organization will not survive the aftermath (Boin et al., 2005; Mitroff, 2004; Rosenthal et al., 1989).

It is a theory of the study that in the absence of proper or effective leadership, an organization cannot formulate the appropriate crisis anticipation plans to prevent organizational crises, nor begin to train its employees in what to do and when to do it during such situations. An overview of how transformational leadership can assist in organizational culture creation, and organizational learning within complex systems and environments, and how they are interrelated will illustrate another point of validity for this thesis.

As outlined by Bass (1985), leadership is the ability to influence people to do something you want, ideally without the need for coercive force. Leadership can follow two main paradigms, transactional or transformational. Transactional leadership is the form of leadership behaviour wherein a leader uses a reward system to motivate their followers, in this instance leader and follower relationships are based on a transaction of services rendered (Avolio, Bass, & Jung, 1999; Bass, 1985). Transactional leadership is present in all organizations that pay their employees a salary to do work in some amount (Bass, 1985). If someone is receiving a monetary

reward for their efforts, then at some point that transaction between them and the company forms their motivation to a point. Leadership is based on the ability to motivate people, and without any motivational skills or methods a leader will not have any followers (Bass, 1985; Beach, 2006; Daft & Pirola-Merlo, 2009; Marion & Uhl-Bien, 2001). Transactional leadership is favoured heavily in large companies that have rigid hierarchies because it is the simplest way to keep a large workforce motivated when other more personal methods are defeated by its size (Weese, 1996).

Transactional leadership behaviours and styles do not lend themselves to building culture in an organization which is considered very strong (Bass, 1985). If a leadership style is based on transactions, they are engaging their followers on a very personal level, and the concerns of the individual in terms of what the company expects from them and what they expect from the company becomes based on money alone. This type of expectancy relationship is known as a psychological contract (Daft & Pirola-Merlo, 2009). It is what forms the basis of any follower/leader relationship in a workplace. Transactional paradigms of leadership formulate workers who are concerned about quantitative measures of their efforts. Their efforts are tied into individual success measures and their beliefs about the organizations goals become formed out of the beliefs that they are simply a piece of the machine. They are producing a certain output for a certain amount of financial reward devoid of any fusing with the organizational goals (Kouzes & Posner, 2002).

This is the main difference between this paradigm of leadership and its counterpart, transformational leadership. Transformational leadership's importance is deemed very significant to this thesis and so it has its own section within the chapter for adequate description and review from the literature on its concepts. Leadership in general continues to be an important managerial tool as the field of CM continues to grow. This can be captured by one of the caveats of the management discipline of study, commonly known as the phrase 'managers do things right, and leaders do the right thing' (Bass, 1985; Kouzes & Posner, 2002).

Kouzes and Posner (2002) state that all leaders are born, but any successful leader also learns over time from either their organization or their followers how to become more effective with each passing scenario. In regards to the question "what do leaders do?" much research points to the notion of vision creation. Vision is the long-term direction or goal a leader wishes an

organization to head towards (Bass, 1985; Kouzes & Posner, 2002). The vision is essential for a leader to have because without it their followers have a hard time imagining they are seriously considering the future of the company and the security of those working for it. Kouzes and Posner (2002) show the links between vision and job satisfaction, that if an individual feels the leadership of a company does not have a strong vision for the future direction of the company then they don't want to work for them. A leader must also be able to share that vision with their followers in a way that makes it seem achievable and believable, the vision must seem to the followers that it will improve their situation and ensure a better tomorrow (Kouzes & Posner, 2002). Leaders can do this through the use of symbols, shared meanings, verbal communication, collective vision writing, and active listening (Kouzes & Posner, 2002).

In relation to dealing with crisis situations, a vision is essential to establish the authority of a leader and the belief in their ability to solve problems. If a group of followers do not have this trust in the vision of the leadership core, successful navigation of the problem will be hard to achieve. A crisis will by its nature impact the vision of the leader(s) by changing the environment in which the organization is operating in (Marion & Uhl-Bien, 2001). As mentioned in previous sections threat, urgency, and uncertainty combine in high levels to create a crisis out of a risk. Once this threshold is crossed and a crisis status is accepted by the leadership of an organization, there is an effect on the vision. This can be related to the literature that attempts to clarify what strategies are in relation to visions and how they interact. Strategies are not supposed to be plans; strategic thinking and planning are two different tasks (Kouzes & Posner, 2002). Thinking strategically and planning strategically are considered the same thing by many, and this is a mistake, as a plan requires calculation of risk and consequence, whereas thinking strategically requires creative, innovative efforts at producing contingencies (Kouzes & Posner, 2002). Once again, the divergent elements of a proactive versus a reactive decision-making paradigm are present in these topics.

When dealing with crisis situations this is especially important to realize, as the regular vision of a company is made during times of no crisis being present. In a crisis, the reality is that your normal day vision of company business is now disrupted, and will continue to be disrupted until 'crisis averted' status is reached (Mitroff, 1987). Such a situation greatly impacts in a negative way the normal functioning of an organization so the emphasis shifts towards saving as much of

the company as possible from resilience shattering or loss of competencies. The loss of organizational culture due to crisis mismanagement may impact leaders significantly (Simola, 2005). If a leadership core can instil before any such situation a strong vision based on shared values, then the culture will be one that has many crisis fighting tools already in its arsenal, as it has been proven that such organizations triumphed in similar situations due to their shared beliefs (Mitroff, 1987; 2004; 2005). As the vision is an integral part of the organizational culture if properly developed and shared by leadership, its ability to assist during a crisis by offering a reminder of the steady state the impact group wishes to return to for normative purposes should not be ignored (Comfort, 2007; Farazmand, 2007).

The ability to link the vision to the strategic thinking of the organization is something leaders attempt at times. The linking of the vision through strategies that are collectively formed can lead to infusion of this concept with the emotional connection of the follower groups (Kouzes & Posner, 2002). The feelings of ownership that a follower group can attach to a vision that came from their own efforts, can lead to a fierce and determined push to save it from annihilation in the face of a crisis.

As the Hurricane Katrina aftershock tore New Orleans apart, all the large government organizations fell under its impact as well. Rizzuto and Maloney (2008) tracked the success of a small group of people who worked for the SPCA of that region, who in the face of no support from any other systems and several severe blows to their own, managed to pull off the largest animal rescue operation in their history. The Louisiana SPCA organization lost both physical infrastructure and human resources as staff were lost and volunteers disappeared to deal with their property damage (Rizzuto & Maloney, 2008). However, despite the crisis all around them and the fact that no help was going to come from any other group as all external systems coordination fell apart, the LSPCA banded together everyone they had left and succeeded in rescuing thousands of animals which were later returned to their owners (Rizzuto & Maloney, 2008).

The LSPCA leadership said it was possible for them to be a success story in the midst of such failure because they stuck to the belief in their organization's vision and objectives: the safety and welfare of animals in need of rescue and help (Rizzuto & Maloney, 2008). Despite all the lost capacities listed above, the organization never lost its focus on what its overall mission was,

thanks to its leadership efforts in keeping them united by purpose and shared belief in the rightness of their work and the need for them to succeed. The organization changed almost every procedure they had for operating to adapt to the situation and because of this, their overall vision was maintained thanks to the leadership's ability to create a 'ad hoc' vision of survival so that they could survive the crisis, carry out their mission, and then return to a normative state (Rizzuto & Maloney, 2008). In conjunction with Prigogine and Stengers (1984) work, the organization that came out of that EoC experience was stronger than the one that came into it. This makes the proposition of what would be accomplished if we intentionally created this experience even more intriguing.

2.3.1 Transformational Leadership:

In terms of crisis situations, much has been written about how leaders must learn to speak and listen to many types of "languages", not just the linguistic types but the personality and situational languages of the environments in their organizations (Mitroff, 1987; 2004). Without this talent, a leader cannot possibly conduct a proper assessment and comprehension session of any developing crisis situation (Mitroff, 2004). Although Mitroff (2004) doesn't use the term "transformational leader", his viewpoint on what type of leader is needed in a complex organization looking to change is very close to that typology of leadership.

Salk and Schneider (2009) state that transformational leaders are "effective communicators, share information on a consistent basis, and articulate a strong vision to subordinates...encouraging higher levels of organizational commitment to learning" (p. 70). They identified how important transformational leaders are in getting public land management agencies to adapt to change and become learning organizations. The belief that leadership influences both the degree and type of learning that occurs across the levels of an organization is present in many industries (Bass & Avolio, 1994; Salk & Schneider, 2009). Employees find a transformational leader to be someone who could instil a greater sense of interconnectedness between themselves and the organizations culture. This leads to higher levels of commitment, motivation, and collective performance (Bass et al., 2003). It has been shown that in small team samples transformational leadership styles were the only kind able to predict improved performance in the follower population (Bass et al., 2003).

Transformational leaders possess the following characteristics: transparency, accountability, validity and issue orientation (Salk & Schneider, 2009). All of these characteristics allow employees to feel like their leaders believe in their abilities and trust them to do their jobs well. This is also while remaining open to feedback, maintaining the motivation of the team and taking responsibility for their actions without passing the blame to subordinates (Salk & Schneider, 2009). These leader types also seem to have the greatest personal emphasis on open forums of discussion on topics prevalent to the team's wellbeing and functioning (Bass, 1999).

In terms of organizational culture, the interactions between people who make up the structure are the essential building blocks of that culture and its belief systems (Salk & Schneider, 2009). Significantly higher levels of a strong sense of culture and a more open-minded attitude to learning as a group were found in organizations led by transformational leaders (Bass, 1999). Complex organizations require leaders with these attitudes because of their ability to motivate staff to transcend their self-interests for the collective purpose (Bass et al., 2003).

Weese (1996) found evidence that an organization with a strong positive sense of culture had heightened strategic direction and higher levels of profit and employee motivation. Also, a decentralized organization required the strongest sense of culture to be profitable, which is what the crisis leadership literature also believes to be a necessary form of organizational structure for dealing with crisis (Boin et al., 2005; Mitroff, 2004). Weese (1996) studied how these constructs existed and impacted athletic departments in major U.S. universities, believed to be complex, and in need of constant adaptation and transformational leadership due to high staff turnover.

This study provided empirical evidence which showed how transformational leaders administered programs and initiatives in a decentralized organization that built a strong sense of culture among their staff (Weese, 1996). The study also proved empirically that a strong sense of culture correlated positively with a higher degree of organizational effectiveness (Weese, 1996). By extension, it can be seen how important a transformational leader is to a decentralized organization and how its employees do their job and feel motivated to achieve beyond their potential (Hartog, Muijen, & Koopman, 1997). When an organization is dealing with an ORG-CRIS situation unfolding, a transformational leader's ability to read the situation and apply appropriate measures to ensure the well-being of their staff is viewed as highly desirable.

2.3.2 Self-Directed Leadership:

In the field of Transformational leadership there is a contemporary approach known as self-directed leadership which has grown out of the concept of the autonomous work group experiments in the motor vehicle industry (Daft & Pirola-Merlo, 2009) . This approach to leadership behaviour is still new but a generally accepted definition is self-directed teams are work groups who are assigned tasks and given discretion and autonomy over how the work is to be completed. They are self-regulating and work without direct supervision (Daft & Pirola-Merlo, 2009; Wolff, Pescosolido, & Druskat, 2002). The concept of a leadership style in which the overall project manager utilizes self-directed teamwork initiatives became very prominent in this thesis as the experiments progressed. It became apparent to the senior management of the SEOC that self-directed teams were desired to get a major-sized sports event from inception to execution in the short period of time allotted.

Self-directed teams and the leadership style needed to foster them are now highly sought after components in many industries, and are often known as *self-managed teams* (Dyer, 1994). This is because the benefits include, but are not limited to; increased motivation, employee morale, job satisfaction, productivity, and multi-skilled workforces, while decreasing absenteeism and the need for micro-managing (Brooks, 2009; Dyer, 1994). There are several problems apparent with self-directed teams however, among them resistance to such structural changes from traditionally entrenched workers, increases in peer pressure, and issues of the vertical boundary within management levels (Dyer, 1994).

This means that despite a company's board of directors giving autonomy to a group of floor engineers, they do not want to deal with such a group questioning their authority when it comes down to making serious decisions about changing a process. Self-directed teams fit well into a flat-structured hierarchy but rarely establish themselves in companies that wish to utilize them but have a rigid hierarchy that separates management levels (Brooks, 2009). Another barrier to self-directed teams is that they only reap their potential benefits if all the members are placed in the proper team at the onset of work. A poorly hired set of team members whose skills don't actually match the requirements of the work rarely contribute to the self-directed team concept (Brooks, 2009; Dyer, 1994).

The leadership component of self-directed teams is essential. There will be a leader or a core group of leaders who are attempting to develop this kind of working environment. In SEOC's it appears that the need for self-directed teams is high. The projects progress at a rapid pace, with multiple deadlines usually all interrelated to previous ones to be completed, otherwise entire production timelines are ruined (Burbank et al., 2001). Due to the expansion of the number of stakeholders in the sports event environment, and the type of product a sports event is expected to deliver, the complexity of such projects means a staggering amount of information must be processed in a compressed timeframe compared to most large scale projects (Burbank et al., 2001). The idea that a single individual can control and coordinate that much money and the resources to go with it is no longer considered feasible in some sports event management literature (Burbank et al., 2001; Horne, 2007).

If a leadership group can encourage the growth of self-directed teams then the ability to host a large-scale sports event becomes simpler. It is necessary for the leadership behaviour of the SEOC to embody the idea that self-directed teams are welcome and encouraged. When a leader ensures that the functions necessary to complete work are in place, in essence they are ensuring that the systems are in place that workers need to get work done (Locke, 2009; Dyer, 1994). A leadership core that instils the right systems will have set the foundations for workers to feel motivated to attempt to control their own work processes, thanks to the subsequent increase in self-efficacy (Bandura, 1977; 1982).

While attempting to develop a self-directed team, a sports event manager needs to be able to recognize a few factors involved in the process.

1. They must understand the concept of self-efficacy, as mentioned previously.
2. They should understand that the functions like system creation are essential building blocks in the team- building process (Comfort et al., 2001).
3. They need to utilize a broad range of leadership tactics of influence, such as collaboration, consultation, and exchange; without these influence tactics it is difficult to increase trust in a workforce (Locke, 2009; Petrides & Furnham, 2000).
4. A leadership core should always be aware of the cognitive skills of the group, they will become the most essential tool when it comes to decision-making processes in regards to crisis situations (Sternberg & Vroom , 2002).

An interesting contribution of complexity theory is the ability of systems to organize themselves just like the actual teams. The self-directed team concept is mirrored in the elements of CAS. Such systems undergo stress from some internal or external driving forces and must undergo change. The management of self-directed teams is meant to follow the self-organising concept as well. As seen in complexity theory, a system undergoing self-organising usually happens when it is experiencing a crisis. In relation to the idea of creating a self-directing team, it can be proposed that exposing a team to a training regimen that deliberately exposes it to 'adapt or fail' situations will lead to the need to self-organise into a self-directing team. Through this evolution a person's self-efficacy and the team's collective efficacy can theoretically become much higher.

2.3.3 Strategic Approach to the Necessity for Change:

This thesis argues that sports event management is focused on using strategic management principles, namely a utilization of a "bigger picture" view of their organization and its place in the world. However, this is without truly understanding how complexity complicates this effort. This is due to the following points; first, sports events are contrived and conceived according to very stringent set timelines, (e.g. 3 years for most Majors, 7 years post bid-win for Mega's) and this makes their entire existence contingent on following a strategic plan for success (Multi-Party Agreement for the 2010 Winter Olympic and Paralympic Games, 2002). Secondly, sports events bidding processes are now tightly wrapped up in urban transformation schemes and socio-cultural re-branding schemes designed to affect economic status in the short and long term, meaning the objectives of the event are clear and must be met from both the internal and external environmental standpoints (Bill, 2009; VANOC 2010, 2008).

In regards to the strategy for change, many organizations struggle to achieve a successful change management plan. This can be because of their physical size (too many departments), stakeholder resistance, or other internal barriers such as their staff not wishing to undergo a disruption to the status quo (Brooks, 2009; Houchin & MacLean, 2005). All of these factors can cause change to be an unwelcome thing. However, resistance to change leads to the focal point of this research, ORG-CRIS situations developing unmitigated. This is because it has been proven that a resistance to change, if left unchecked despite such change being required for maintaining a competitive advantage, will result in a catastrophic failure of the organization over time (Brooks, 2009; Burnes, 2005; Demers, 2007; Farazmand, 2003; Mason & Mitroff, 1981).

In relation to the theoretical perspective of this study, chaos is always attempting to deviate the EQ of an organization, and despite EQ being a safe state, it is has been proven that it leads to stagnancy (Sellnow et al., 2002). An organism that stays near a state of flux or near-chaos has much more need for adaptation and therefore changes for its own betterment more often (Doll Jr. et al., 2005). An organization resisting change is doing the same thing, resisting the very thing that will lead to its survival into something greater through interacting with external forces, otherwise known as emergent strategy (Bill, 2009).

In retrospect it can be seen from many theoretical points of view that having an open view of change, and a plan to incorporate it into your organization at certain times, can be beneficial for all stakeholders. This lends a strategic need to look at the objectives a SEOC is trying to meet, and anticipating what could impact upon them, and then readying one's self and followers, to initiate change that is required to overcome such obstacles. The ability to promote the WCS training modules created in this study by certain leader types to their followers is seen as something that might enhance the ability to strategically plan for the most beneficial change factors.

The need for the change in strategy for sports event managers is twofold in the view of the study; first they should incorporate change itself differently into their management processes by way of their perspective of its benefits; second they must begin to realize that change from outside forces doesn't just lead to a crisis, it can lead to learning if harnessed correctly (Comfort et al., 2001; Mitroff, 2004). The need to adopt the new perspectives of strategically incorporating change extends from the review of the risk and CM literature. After analysing many cases Drennan and McConnell (2007) stated that despite attempts to proactively approach the issue of change and interrelated crises, most industry leaders were still found to be holding a mentality which supported the notion "nothing focuses the mind like a disaster" (pg. 33). This supports the findings of the author when reviewing literature that despite much evidence existing of industry and organization leaders supporting the claim that proactive approaches and training towards change and related crisis issues would be most beneficial to all types of RM policies, such initiatives are non-existent for many companies, even if they claim to cater to the contingency or situational approach to the topic (Drennan & McConnell, 2007).

Another concern for Drennan and McConnell (2007), as well as several other theorists who conducted meta-analyses of the risk and CM field, is the mentality of the people in charge of the projects. It was noted that despite many efforts to encourage change initiatives at early stages of project development by way of internal drivers (i.e. Motivational and cultural factors), nothing got the attention of the appropriate people like the actual experience of a crisis, which unfortunately meant it was too late to benefit from any strategy (Drennan & McConnell, 2007; Mitroff, 1987). This can be attributed to many factors, mostly behavioural factors of individuals. Despite an organization's best intentions and trainings, they are always made up of systems of individuals, who will experience a crisis differently depending on their cognition (Drennan & McConnell, 2007; Farazmand, 2007).

When it comes to a crisis situation, a leadership core may find itself struggling to contain it not because of a lack of skill in their work force, but rather the sheer number of different opinions of how the situation is impacting their organization (Drennan & McConnell, 2007). It becomes necessary to understand just how difficult it is to deal with many opinions of what a crisis is, how it is affecting the team, where the most effort should go for solving the issues at hand, and what the actual consequences are. Without a strong and clearly articulated strategy for implementing change at strategic points along a project's development to avoid more disastrous consequences born from reacting to external drivers, an organization will not be able to capitalize on any benefits gained from their efforts. A need for associating change with positive results, through careful proactive strategy building to meet objectives should be incorporated. It is evidenced throughout the literature that a need for this mentality to become application rather than just theory is now quite strong. This thesis will explain in further sections how an attempt was made to make this paradigm shift in one such organization based on their strategic desire for better change initiatives.

2.3.4 Self-Efficacy:

Brooks (2009) states self-efficacy is the belief in the individual of their own abilities to solve problems or deal with issues as they arise, as well as complete tasks of varying complexity. Without self-efficacy a person has little belief in their abilities or the abilities of the group they are a part of to successfully deal with any situation. This may adversely affect their performance

in any given situation (Carron & Hausenblas, 1998). Bandura (1977) first outlined why self-efficacy was important with his early behavioural work. According to Bandura (1977), a person's motivation relates directly to his self-efficacy levels. This was due to the fact that people seemed to have difficulty exceeding their pre-determined capacity to deal with a situation and its complexity, meaning if they did not believe they were capable of dealing with a situation they would not be motivated to try (Bandura, 1977).

The issue of crisis situations represents one of the most complex and catastrophic events a person can encounter. If they believe the situation is outside of their capabilities they will potentially not have the motivation to attempt to deal with it (Bandura, 1977), which can lead to even more severe consequences due to the ability of a crisis to impact multiple areas quickly (Apgar, 2006). Indeed, it is the very nature of ORG-CRIS that they impact not only the physical infrastructures of organizations but also the mental and emotional states of the people dealing with them (Mitroff, 2004).

Bandura (1977) states the ability of a person to overcome adversity will come down ultimately to a few psychological factors, one of them being self-efficacy. If this ability is not heightened, a person will not seek to push themselves beyond the limit of their skills, or even up to the limit depending on how much they believe in themselves. A crisis will not take consideration of this weakness and lessen its impacts instead it will exploit such gaps in an organizations management plan (Comfort, 2007). It becomes essential to understand how a leader needs to understand the self-efficacy levels of each member of his team and also how to enhance them if they want any chance of succeeding with a crisis. Such a situation will test each person's abilities beyond anything they have encountered before. However, it is possible to have a sense of group or collective efficacy, whereby people work together to pool their resources and skills, thereby becoming a greater sum than their individual parts (Bandura, 1982).

The belief of individuals that a problem that is insolvable by them alone but solvable from a group effort has led to the idea of collective efficacy being defined as a sense of collective competence shared among individuals when allocating and integrating their resources in a response to any specific situations that require a collective effort (Zaccaro, Blair, Peterson, & Zazanis, 1995). This concept of shared beliefs has been found throughout sports teams and is relatable to the sports event organization. The tie-ins between sports managers and athletic

teams are tight-knit due to the shared background of both groups and how they view performance. Collective efficacy is often demonstrated verbally by players and coaches stating how they believe in their team's ability to win games, instead of one individual saving them from a loss (Carron & Hausenblas, 1998).

A team-oriented approach is what has been found to lead to success in such endeavours, especially in the face of adversity. The leadership of the group is considered essential in creating a sense of both individual self-efficacy and collective efficacy (Zaccaro et al., 1995). The leadership role in terms of developing efficacy is straightforward in theory – develop the beliefs of your followers in their ability to overcome obstacles of any size or severity (Bandura, 1982). However, this is quite difficult in real life and the application of various leadership models and how they impact upon efficacy is a widely studied discipline today in sports management. This thesis has uncovered some interesting aspects to utilizing the concepts of complexity theory and chaos theory as it relates to the systems responsible for developing group cohesion in its dynamics, which will be explored in later sections. What is considered essential now by several areas through the literature is that self-efficacy is the belief that will determine real success when it comes to CM for any organization.

2.3.5 Emotional Intelligence:

Emotional intelligence (EI) is a concept found in management, leadership, and psychology disciplines. Its role in understanding the data became very important as time progressed. EI is difficult to define and some theorists believe that the concept is still too broadly studied from too many angles to be properly defined at all (Locke, 2009). However, this has not diminished the intense interest in the idea of EI and its potential usefulness as a teachable skill to leaders and managers in any industry. EI can be considered the ability to be highly aware of your own emotions, and those of the people around you, to be self-aware and empathic to anyone around you, and to be able to use this self-awareness to enhance the performance of your organization's members (Goleman, 1998; Perloff, 2010). The interest in such a concept is that despite disagreement on its definition, EI does exist in some form in effective leaders (Brooks, 2009). It has also been recognized that as complexity increases throughout the global economy, diversity in the workforce is increasing exponentially. This will, and already has, led to a need for high

levels of EI in leaders, so that they can evaluate how rapid change affects the different personalities working around them and what differing impacts it may be having on the organization's myriad systems (Goleman, 1998).

The work of Goleman (1998) and others have produced interesting concepts for the usage of EI. Goleman's (1998) work has led to the Mixed Model of EI. This model attempts to explain how EI is considered by some to be a trait, something a leader is inherently born with, and an ability which can be learned through instruction, or a mix of both (Brooks, 2009; Goleman, 1998; Petrides & Furnham, 2000).

2.3.5.1 The Mixed Model

The Mixed Model is the work of Goleman (1998) and assumes the view that EI is a wide array of competencies and skills, all of which drive leadership behaviour, and performance. The Mixed Model states that individuals are born with a certain amount of EI and then have the ability to learn, or enhance, these capabilities further (Goleman, 1998). The way this happens is that an individual has access to four different emotional competencies which will increase the inherent amount a person has according to their ability to learn (Goleman, 1998). The four emotional competencies are:

1- Self-awareness
2- Self-management
3- Social awareness
4- Relationship management.

Goleman (1998) posited that self-awareness is the ability to read ones emotions and know their impact. Self-management is the ability to control one's emotions to adapt to the changing circumstances around them. Social awareness is the ability to sense and understand the emotions of others and react to them in a social network context; and relationship management is the ability to inspire and develop others while managing conflicts (Goleman, 1998). Goleman's (1998) measurements for EI have brought a lot of negative criticism against his work. There is a belief that Goleman has grossly exaggerated both the importance of EI to managers, and the ability to learn the emotional competencies he has outlined. The validity of these claims is not the concern of this thesis to prove or disprove. However, the amount of importance placed upon an individual's cognition by CM theory makes the possible use of Goleman's (1998) Mixed Model an attractive option.

It is also important to note that it is not the purpose of this thesis to validate the propositions of what EI "definitely is" or what its "definitive task" is for leaders or managers. It is apparent that what EI can potentially provide an organization is a positive behavioural tool. It is the view of this thesis that EI is not the ultimate factor in creating leadership training models that will allow individuals to finally come to terms with ORG-CRIS or complex problems. However, it is important to recognize that the participants have identified leadership skills and attributes that relate to the concepts of EI. They listed these as the ones they all need or want to enhance to better cope with crisis situations in their own words. Therefore it is an important theoretical concept to consider as potentially impacting the study population. The results chapters will discuss how EI presented itself and impacted the research participants in various ways, and what its value is for this particular experiment. It also leads to the next important component of this research, namely the importance of personality and attitudes.

2.3.6 Personality and Attitudes

2.3.6.1 Personality:

When dealing with personality as an indicator of human behaviour in a given situation, it is useful to identify which personality type one is dealing with. In a group setting, personality types can either cause increased performance due to harmony or conflict due to clashes between types (Carron & Hausenblas, 1998). In a sport management context, leaders rely on the psycho-dynamical attributes developed in them from their competitive days in sport, wherein there has been proven correlations between team cohesion and improved performance over the strength of individual performance (Carron & Hausenblas, 1998).

For the purposes of this study personality types were acknowledged to have potential impacts on organisational behaviour, but were not deemed to be a specific focus of this study given its limitations of time and access. Also, the application of an in-depth personality test would have been most beneficial when administered by a professional facilitator, which was beyond the scope of this study to procure. Therefore, to acknowledge the potential significance of personality types on the data and results, a comparative analysis of which types appeared to be represented was used. The study utilized the personality types that Post (2004) identified as being easily identified in a crisis response situation. When crisis situations occur certain types

can be identified as having an effect on management proceedings, and the study preferred to only acknowledge their presence at this time.

Types and traits have long been argued over by psychological theorists, with both believing only one approach to classification was suitable. As the *types* approach is considered by most to encompass qualitative differences, this thesis uses this language to discuss personality. Post (2004) outlined the following personality types as those associated with being affected by crises; the compulsive, narcissistic, and paranoid personality types. Post (2004) stated that even in his own work, he did not wish to identify an individual as being completely possessed of any of these three personality types due to their severely dysfunctional nature.

Rather, he admitted that elements of these personality types were among some of the easiest to observe in an individual's behaviour when they were faced with a stressful situation (e.g. a crisis). This study supports the same notion, that while none of the participants were put through a test to identify them as any of these types, certain elements of all three which were outlined by Post (2004), were easily identifiable while they were being observed throughout the methods. These observations led to the suppositions in the following results and discussion sections about what their possible impacts were on organizational performance.

The compulsive type person will view crisis situations with a detailed and reasoning point of view; however their overemphasis on detail leads to dysfunctional decisions and a lack of 'big picture' thinking (Post, 2004). Narcissistic personalities view crises with self-confidence and quick decision making, but this leads to more lack of 'big picture' thinking and various fallouts (Post, 2004). The paranoid personality is the classic 'over the top' decision making style, overreacting to everything because of their intense distrust of others and belief in their imminent betrayal by people, this personality leads to rigid authoritarianism (Post, 2004). In the context of managing complex environments, it is deemed important to recognize and control these various personality types in order to be successful. This study used its qualitative data gathered from observing the behaviours of the participants to identify which members most closely resembled any of these types. Then their overall performance in the group work was compared to the other members so that a conclusion could be made about how their type affected their performance.

However, these are just three general personality types, and are not the only ones deemed important to understand for the context of CM or crisis leadership. Jungian framework psychologists and others went in a different direction and sought to uncover more personality traits theory's, whereby a greater number of personality attributes could be uncovered and studied. An attribute is a characteristic someone has and can apply to any set of characteristics that person displays through their thoughts and actions (Brooks, 2009). When it comes to leadership, attributes like intelligence, charisma, and power become highly sought after and valued by followers (Locke, 2009). Certain attributes may allow leaders to frame a scenario in a way that compels trust in their followers; this trust will lead to better performance (Brooks, 2009; Covell et al., 2007). The attributes can be seen as the traits that direct the behaviour of a person and make up their personality and affect their attitudes. The data gathered here was used to identify the most highly desired leadership traits by the SEOC members.

It was deemed important to observe the SEOC behaviours in the teamwork exercises without any pre-conceived notions of what they may or may not be capable of based on a previous personality test. The researcher did not wish to have any of their observations of any participant to be potentially clouded by a "negative" personality type test which revealed narcissism or other compulsive traits. The study instead wished to use its limited time with the participants to identify how the methods impacted their ability to perceive and deal with crises only, while measuring the impact of the worst-case-scenario training efforts designed to create crisis anticipation systems. Personality was viewed as part of what impacted an individual's performance however it was considered a piece of larger puzzle, along with concepts like cognition and self-efficacy.

2.3.6.2 Attitudes:

Attitudes refer to the negative or positive evaluation an individual can have of a person, activity, idea, event, place, or an action of themselves or others (Epel, Bandura, & Zimbardo, 1999; Zimbardo & Boyd, 1999) . Much of the early work on attitudes and how they affect us was done by Jung in the 1920s and was continued by many prominent psychologists afterwards. The importance of measuring attitudes of workers in organizations to determine job satisfaction has been important for some time and still is, as qualitative measures provide more means to deter

turnover rates, reduce absenteeism, and retain talented staff in a competitive marketplace (Locke, 2009). An attitude is formed mostly from experience and unlike personality, which is fixed, it can be changed if necessary (Brooks, 2009; Epel et al., 1999).

Attitudes are formed from the ABC principle, meaning there is an affective, behavioural, and cognitive response in an individual to something (Bandura, 1977; Brooks, 2009; Robbins et al., 2008). The affective response is what the person feels already about something, be it positive or negative emotions; the behavioural response is based on their past and current patterns of behaviour, if they behave poorly in a past similar circumstance the same can be expected again; and the cognitive response is based on the knowledge and beliefs they hold about the subject or object, i.e. if someone is ignorant of a subject they can hold a negative attitude towards it (Brooks, 2009; Festinger et al., 1956; Locke, 2009; Perloff, 2010).

Attitudes are formed through both the external experiences of a person and their already formed personality (Carron & Hausenblas, 1998; Zimbardo & Boyd, 1999). If a person has a positive experience with their colleagues in an SEOC, this can be due to the leadership behaviour favouring open communication between all members of the leadership group. These factors produce a positive attitude towards working with the other SEOC members to handle decision-making tasks. Their attitude towards the group is favourable, so when the project manager decides that ORG-CRIS are going to be planned for differently, this new experience is viewed with a positive attitude by the individual.

This is due in part to their high degree of positive affective response to working with the group. Their cognitive response being positive because they already know they like working with the group, and general positive attitude to the idea of trying something new with these people. An individual will at least attempt, in theory, to accommodate new attitudes towards developing a new CM perspective, such as the research's point-of-view that complexity needs to be embraced rather than feared. A person with the opposite attitudes and personality, would have a very different view of the preceding example and behave very differently (Locke, 2009; Robbins et al., 2008).

The idea of attitudes and behaviours not matching up creates the next component that was discovered to be important to the data gathered by this thesis. Basically, attitudes and behaviours

are supposed to be a match with each other, and an attitude is supposed to be a predictor of what a person will actually behave like in a given situation (Katzenbach & Smith, 1993). When there is a match between the two it is quite an easy prediction, for example if a person believes breaking the law is wrong, they will be law-abiding citizens for all major situations. If a person believes in an afterlife and places importance on it, they will attend some sort of religious congregation.

These behaviours match the attitudes towards the object or subject. When there is a mismatch between the two however, negative occurrences may affect the individual. When there is a conflict between the behavioural and cognitive aspects of attitude, this is called cognitive dissonance (Brooks, 2009; Brehm & Cohen, 1962; Festinger et al., 1956). The importance of understanding when cognitive dissonance is being experienced by an individual is very relevant to the issue of understanding crisis management, as these scenarios have the potential to create a massive amount of dissonance. The concept of cognitive dissonance and its relationship with this thesis is explained in the next chapter.

2.3.7 Summary:

From the reviewed literature in this chapter the main arguments about this research topic have been presented. The sport event management industry has grown exponentially in many areas, creating a need to reassess its value to the population of host cities and nations. Also, its growth in management terms has created a need to reassess how the organizations and the people that construct them are formed and led by a leadership core. The leadership of these organizations has become vital to ensure a successful project comes to fruition. The growth of the sport event organization has increased the complexity of both the environment and the organization itself.

Various elements of more contemporary management theories such as contingency planning, scenario planning and strategic management have all become necessary for sport event organisers to consider insuring they do not experience risks that escalate into crises. However, the history of the modern large-scale sports event industry has illustrated that crisis do affect these organizations often, and the possibility continues to grow more serious as their complexity increases in all management areas.

The ability of utilizing the most modern approaches to RM and CM theory have provided this thesis with the literature to propose a possibility to fill the gaps these studies still point too. Mainly the problem is thus; despite best efforts and intentions, crises still happen. Why is this and how do we prevent them? Chapter 3, the second part of the literature review, will explore the areas this thesis believes vital in extending current theory and practice to answers these continual problems. An effort to understand crisis form another point of view which embraces the complexity and chaos of such events will be presented, and utilized to develop a methodology and theoretical underpinning that will attempt to fill in these gaps in the areas of CM as they pertain to sports event organizations. The opportunity and means to use a crisis as a learning opportunity instead of viewing it as only a time of catastrophe for an organization will be presented in the following chapter. Also, the framework of how to begin to view complexity and its myriad of impacts on organizational behaviour will be explored so that a deeper understanding of how the research objectives will be met will be provided.

3 Literature Review Part II

3.1 Introduction:

The second part of the literature review will explore some of the more complex theories that are used in relation to the epistemological approach to knowledge growth in the study. Also they form a major component of the theoretical perspective that CAS approaches are highly valuable to understand the issue of ORG-CRIS. It is considered important to separate the two sections of the literature review so their distinctiveness could be outlined while also emphasising the benefits melding them into a multi-disciplinary theoretical approach would bring.

3.2 Complexity Theory:

Complexity theory is the umbrella term which is used to describe a number of theories, ideas, and research strategies that were originally derived from the natural sciences (Burnes, 2004; 2005; Uhl-Bien & Marion, 2008). There is often a linkage made between this concept and that of chaos theory, an approach to understanding complex systems that has become widely used after the work of Ilya Prigogine (1997). Both complexity and chaos theory describe the theoretical perspectives and methodologies used by the newest studies involved in the research of organizations and economics (Burnes, 2004; 2005). Complexity theory's roots were studied by social scientist Kurt Lewin, in his creation of Field Theory, Action Research, Group Dynamics, and the 3-Step Model for Change methodologies (Lewin, 1948). Lewin's (1948) work on organizational change and the Planned Approach for Change in organizations, depicted by *unfreezing*, *moving*, and *refreezing* is seen as the precursor of most complexity theories today.

According to Burnes (2004; 2005), and his analysis of the work of Lewin, complexity theory and its counterparts are concerned with the emergence of order in NLDS. These systems often operate near, or in, a state of constant change in which regular laws of causality do not seem to apply. An example is as society has globalized its business practices, and the global village has adopted stricter nationalistic trends of ownership (Boin, 2009), organizations have grown in size and scope exponentially. This has encouraged a trend of increasing complexity in both their infrastructure and decision-making capabilities (Malott & Martinez, 2006). It has become a belief in the literature that organizations today are also complex systems which have to respond to a chaotic marketplace, by continuously changing their environments through processes of

change via self-organising rules (Black, Hendricks, & Fabien, 2007; Burnes, 2005; Lewin, 1948; Malott & Martinez, 2006; Marion & Uhl-Bien, 2001).

The works of Mitroff (1987; 2004; 2005) have assisted in developing the framework of this thesis and the formulation of much of its objectives in relation to its views on complexity. Mitroff (2005) has been a proponent of using complexity theory based application frameworks in organizational capacity building initiatives. CM and its theories of practice emphasize this need to embrace complexity as it changes the world, because it is not going away and mankind is not going to return to a reductionist view on society and technology (Mitroff, 1987). Mitroff's (1987) early propositions on complexity and how it would change the world were outlined as follows: no domestic market is safe from intrusion from foreign markets, long-term domination of the global market is impossible for one player to maintain, and government participation is the new capitalism.

Also, systems are now so complex a defective part will inevitably lead to overall effects, and one should avert crisis by anticipating breaks and acting proactively against them. Mitroff (1987) stated that all members of an organization need to have an understanding of the whole system, and a lean organizational structure through downsizing will become inevitable. New organizational forms will need to be created as adaptation requires it and rigid bureaucracy will become unable to deal with such markets (Mitroff, 1987). It is interesting to note that at the time of writing most of these propositions were years from actually happening and now they have become the reality of organizations around the world in any industry (Mitroff, 2004).

The need to reorganise and prioritize how organizations deal with the topic of complexity has become clear through various studies. As mentioned before, the need to transform thinking and decision-making styles from the reactive to proactive forms of new social science are major foundation stones for this thesis. How we should interpret signals, for example, is represented by the changes occurring today to organizations that are so substantial they cannot be met with traditional tools. No significant problem can be solved independently of any other problem in the view of complexity, because complete protection of an organization is impossible. In-house fixing needs to become a perpetual practice, otherwise system defects will go unnoticed and catastrophic breaks will eventually occur (Mitroff, 1987; Mitroff & Anagos, 2000).

Further literature in the area pertaining to complexity theory and CM that has proven relevant to this thesis was done even earlier by Mason and Mitroff (1981). This work, which is now thirty years old, also took steps to attempt to raise awareness of the mounting problem of complexity in what was its current socio-political and cultural climate. Their efforts at that time uncovered the interconnected nature of most organizational problems and the high likelihood that they would continue in such fashion for as long as we as a species continued to build more systems to assist us in everyday life (Mason & Mitroff, 1981; Perrow, 1984). This early work also illustrated how complexity is evident in all living things and organizations in the form of evolution. However, complexity also paradoxically leads to decay, and soon death (Mason & Mitroff, 1981). The very organizational factor inherent in complex problems leads to both the possible solution and the prolonging factor of crises - adaptation (Mason & Mitroff, 1981).

Mason and Mitroff's (1981) work attempted to define the burgeoning parameters of CM and give it a link to complexity theory so that real life leaders would have a framework from which to begin to understand how each component of a system affected the rest with its deviations from the norm. The revelation drawn by this thesis is that despite Mason and Mitroff (1981) insisting that complexity would continue to grow into a more significant threat for unprepared organizations, little has been done in many industries to follow up on their suggestions and incorporate such mind-frames and decision-making processes which could solve some of the problems that have arisen (Boin, 2009). For further investigation of these unique types of systems, the next section will explore a variant of them.

3.2.1 Complex Adaptive Systems:

Another set of related theoretical concepts that feature heavily in the literature are dissipative structures theory and the theories of CAS. They are components of complexity theory as well, and are closely interlinked with chaos theory, almost blending together at some points. They are often explored in mathematical studies that use complex calculations to explain them. This thesis is interested in using CAS from an organizational behaviour standpoint, to understand the implications of such behaviour, not to unravel them with mathematics. The literature in this section will explain how others have begun to do this with interesting results. Dissipative structures are described as having the tendency to dissipate unless energy is fed to them from the

outside, and according to Prigogine and Stengers (1984) they are semi-stable configurations that operate according to nonlinear logic. Their ability to go through randomness (chaos) and self-organize into higher structures of complex evolution with unknown properties make them a good metaphor for organizational behaviourists who wish to understand how crises affect organizations and what affects they will have afterwards (Burnes, 2004; 2005; Comfort; 2007).

A large scale sports event can be viewed under this metaphorical framework as well (Jennings, 2012). It is dissipative for several reasons; first they are only set up for a specified and usually short period of time, upon completion of which they dissipate entirely (Jennings, 2011). The legacy's associated with sports events may include some knowledge transfer, but the actual human resources built into the event structure ceases after it is over. Second, the large scale sports event is dissipative because they go through several periods of randomness where they are unsure what their interactions with other systems will be. The energy produced to keep creating these interactions are dissipated into their internal and external environment much like the examples of Prigogine's (1997) experiments. The results of interacting with the public and dispersing energy in such a sense can be either positive (e.g. Sponsorship dollars gained) or negative (e.g. Public protest over unwanted urban transformations) (Masterman, 2009). The usefulness of applying the concepts of how dissipative structures act to a sports event, can yield useful applications of how to spend and disperse energy.

CAS theory describes systems made up of large numbers of parts such that each part behaves according to its own rules of interaction, each adjusting to the others (Burnes, 2004). CAS differs slightly from the other theories because it seeks to understand the rules of interaction between all individual agents of a system and its environment, and thereby explain the behaviour of the population as a whole (Burnes, 2004). This is also referred to in the early work of Mason and Mitroff (1981), mentioned above in trying to determine how best to organise organizations. They showed how it was impossible to know how a single individual would vote in an election but that it was possible through various research methods to predict how a whole population would vote in general ways over topics (Mason & Mitroff, 1981).

While an individual's voting style and decision-making may not constitute a CAS, an entire population is definitely complex to understand. All of these examples are very relevant research for the study, which states SEOCs are CAS themselves. By trying to formulate an understanding

of how each department interacts with others, will it be possible to draw a conclusion as to how the whole will react when confronted with some situation like an ORG-CRIS? Attempting to answer this question will allow us to formulate the most effective plans for crisis prevention.

While preparing for crisis situations organizations may be assisted by a more in-depth understanding of the nature of CAS (Comfort et al., 2001), however some other points about CAS must be clarified. Namely, organizations are considered to be systems, due to a system being any whole made up of interrelated parts, such as an organization's many departments (Miller & Page, 2007). Organizations are growing more complex and their technology is also more complex as time goes by. The actual structure and increases in size and scope of organizations increases complexity as well (Mason & Mitroff, 1981; Mitroff, 1987; 2004; Perrow, 1984). Because of the nature of the global marketplace and the similar growth and evolution of society, the need for adaptation has become necessary due to the rapid changes that occur in both (Burnes, 2004; 2005).

This has led to the need to create systems that are both complex, and are also capable of dealing with adaptation. The need to learn to adapt when necessary and also to adapt to catch up to a market change is essential (Mittleton-Kelly, 2003). CAS therefore, have both been naturally formed by the changing world around them, and also intentionally created by individuals seeking a way to make their organization cope better with the complex world. However, the acceptance that complexity will guide the formation of your organization's structure does not mean that individuals truly appreciate and understand what it means to deal with or attempt to manipulate such a system.

CAS theory describes complex nondeterministic systems that exists far-from-equilibrium, whose behaviour displays unique patterns resulting in emergence. These types of systems are adaptable, as they exist in states of flux, which leads to the organizations ability to adapt better to situations far-from-equilibrium (Demers, 2007). Unlike chaotic systems, a CAS is nondeterministic, which means their patterns cannot be bounded or ultimately knowable, making them even more susceptible to crisis (Demers, 2007).

CAS's involve large numbers of interacting adaptive agents following relatively simple rules whose collective behaviour evolves into a complex structure to deal with its surroundings

(Demers, 2007). This behaviour is linked directly with self-organising, which is explained in section 3.4.3. Due to the number of interconnected parts of the system, the feedback loops of the information being sent around the system eventually leads to a self-organised sense of existence (Demers, 2007). Due to the nature of many interactions between so many parts, these systems typically live at the EoC. Unlike the typical colloquial view of this phrase, the EoC is actually a place where adaptation simply occurs at a rapid rate due to a high exchange rate of energy by the CAS. This is done to keep it 'alive', in this sense CAS are very dynamic compared to homeostatic organizations (Demers, 2007). It has been shown in evolutionary biology that existing at the EoC is beneficial because it gives organisms a selective advantage, in other words, they adapt fast because their survival depends on it (Demers, 2007). Learning and change are so closely linked with adaptability that the useful features of a CAS make them something that is desirable to construct intentionally.

The problem with constructing a CAS intentionally is that it requires several elements. First, an organization would need a large number of interacting agents. Creating those interactions on purpose is difficult if your organizations size doesn't meet the specifications. Second, an organization would need to encourage behaviour that would be viewed as far-from-equilibrium, to get the necessary amount of stimulation occurring to the systems. The issue with this is that those agents are humans, and humans do not like change, or existing in a state of chaos. The need for a steady state of 'normal' conditions is what most people strive for, and to work in an organization that operates under the format of constant flux would be difficult for most people to take in. Third, the feedback of CAS evolve of their own accord, they are actually less 'safe' or 'knowable' than purely chaotic systems, because those have a level of determinism to them. CAS have little prediction value to their feedback loops, so it is possible that the outcome of purposefully initiating far-from-equilibrium behaviours could have negative impacts on the human-centric elements of an organization(Demers, 2007; Kiel, 1994).

3.2.2 Perceptions of Complex Adaptive Systems:

Certain individuals have the cognitive capacity to view CAS in such a way that they make sense to them. The perceptions of these individuals are of significant interest to this study. Analysis of the FWG data provides evidence that it remains possible that such methods employed by this study could lead to more efficient learning practices of organizational leadership groups in

regards to risk and CM. The topic of resilience building does not have to be grim if an individual is no longer fearful of looking at chaos directly and contemplating its outcomes openly in a collaborative effort with colleagues.

Figure 5 is a visual representation of how an individual with adequate cognition can view CAS as possibly leading to the time when learning is possible and opportunities for adaptation for survival become a priority. This point of impact, or greatest need for adaption of leadership, is shown in the middle of Figure 5 below. Observe how the self-organising rules depicted in the diagram illustrate where the concept of emergence occurs and creates any one of seven new organizations. Each of these has slightly different characteristics as depicted in their sphere's, i.e. each new CAS/organization in the diagram can have slightly different characteristics depending on how it entered the EoC and what *strange attractor state* it was drawn to due to its pre-existing organizational complexity (Black et al., 2007; Burnes, 2005; Davies, 2004; Demers, 2007; Farazmand, 2003; Prigogine, 1997; Prigogine & Stengers, 1984).

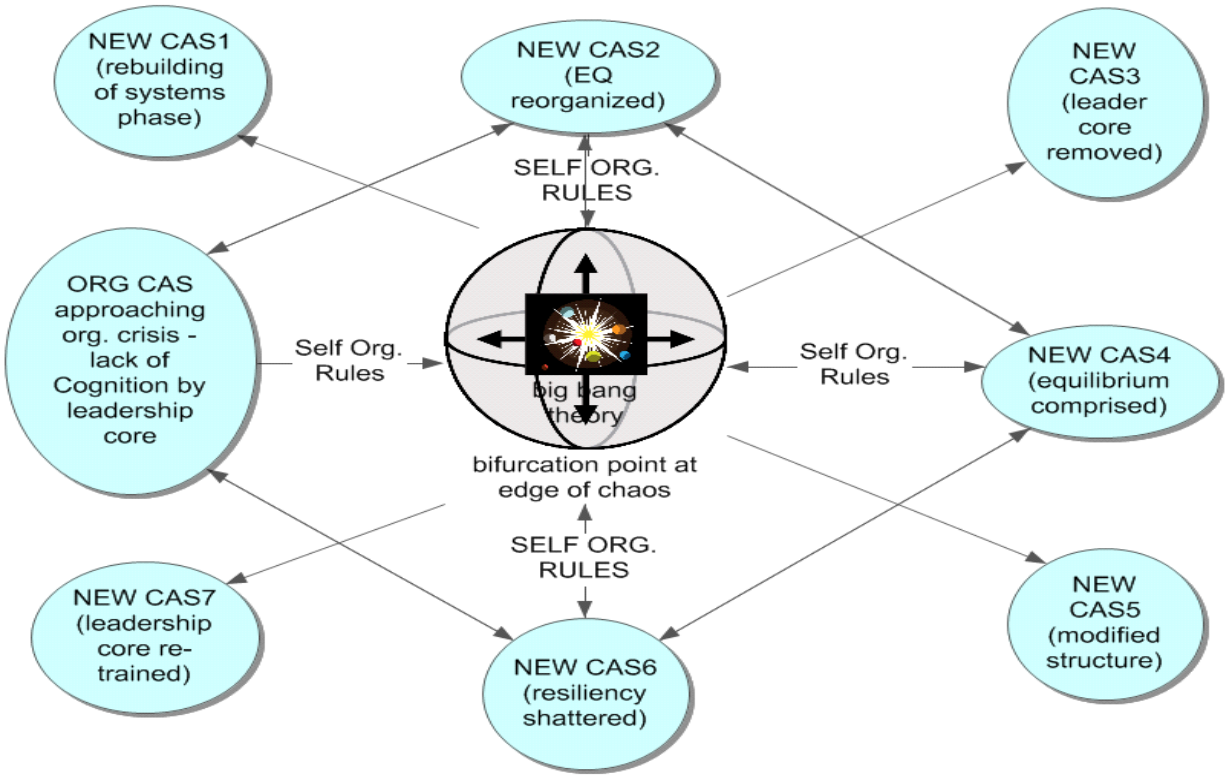


Figure 5 Zoomed in View of Potential Nonlinearity Progressions of Chaos Event: Significance and Directions of Impacts

3.2.3 Organizational Complexity:

Organizational complexity refers to the amount of interacting agents present in the makeup of an organizations systems, the number of complicated interactions between those systems, and the amount of interdependence present in these complex systems upon each other for proper functioning (Byrne, 1998). Figure 6 (p. 74) represents a traditional understanding by individuals about how risk situations progress in a traditional linear fashion (Mason & Mitroff, 1981).

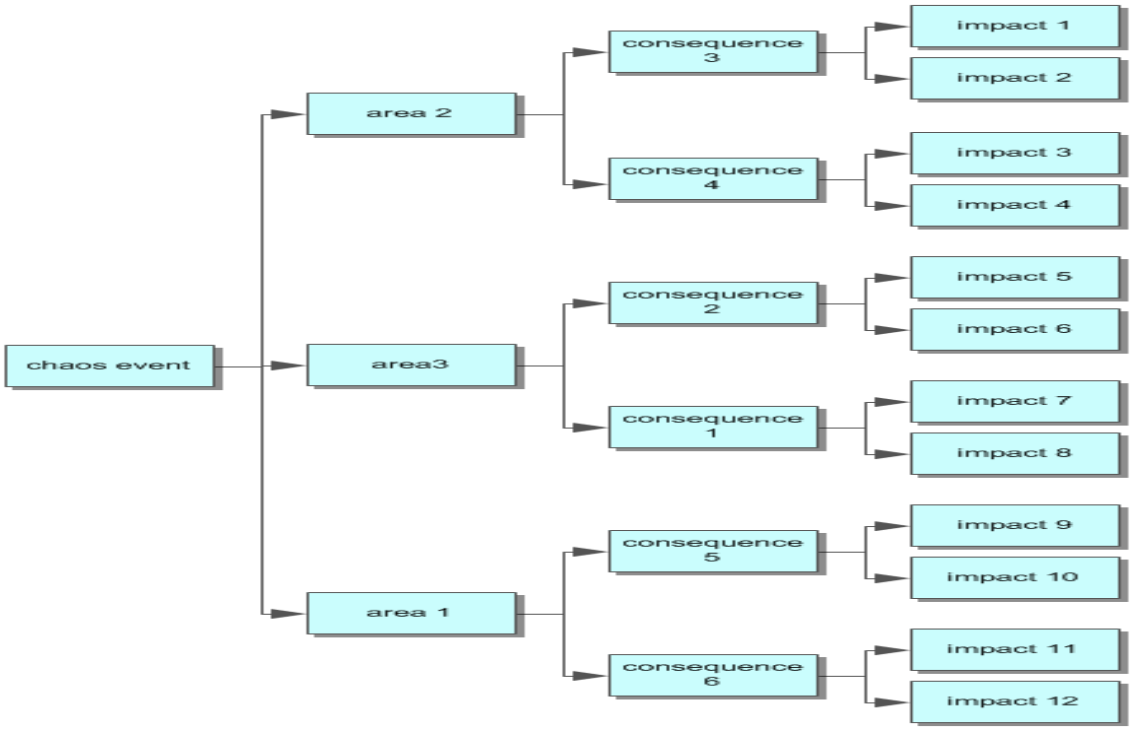


Figure 6 Linear Progression of Organizational Crisis: Low levels of Nonlinearity present

The original event progresses in a linear fashion with what are considered predictable consequences in areas that are clearly delineated. Figure 6 represents the initial perception point of how the participants perceived how RM would occur when necessary during any given situation. At the onset of a scenario, a system activates measures that are predetermined in areas that have been identified as areas of sensitivity and in need of protection (Whitworth & May, 2006). The order in which areas are affected and the way the event unfolds and where it goes is seen in a predictable and orderly fashion. Two implications of this perception of organizational complexity as it related to the findings became apparent upon data analysis.

First, believing that risks or threats always evolve in such a fashion is unrealistic in a complex environment such as the one in the SEOC studied. As evidenced by past accounts of industrial accidents and other crisis situations from various case studies, no situation is the same as the one preceding it (Rosenthal et al., 2001; Rosenthal et al., 1989). Crisis events will evolve along any path they wish to follow, as all chaotic systems do as they seek out the strange attractor state which pulls them in indeterminate patterns (Prigogine & Nicolis, 1977). The perception that linear progression models for RM will always be adequate prevention measures will eventually lead to a system's inability to deal with a scenario that does not follow such unfolding patterns (Demers, 2007; Kiel, 1994). To compound the problem, it has been shown they have been setup to only deal with communication in a unidirectional fashion, and the situation requires multi-directional communication capabilities (Mitroff, 1987; 2004; 2005).

Second, linear RM diminishes cognition levels while increasing systems reliance and dependency (Mitroff, 2004; Perrow, 1984), which was found throughout the SEOC. Diminishing cognition levels means individuals will be unable to process and comprehend the signals that a situation is taking a nonlinear pathway outside of the parameters of containment leading to catastrophic consequences (Comfort & Haase, 2006). The increase of systems dependency creates mindsets and attitudes that these models are actually 'foolproof' and capable of dealing with anything (Perrow, 1984). The idea that something that has not been considered in the model design may occur is not even considered at times (Kiel, 1994; Mitroff, 1987). This shutoff of the creative part of the planning process opens the door for any chaotic situation to devastate an organization that believes in its own invincibility. To further the efforts to prevent this, this study explored the potential useful elements of another related theory, Nonlinear Dynamical Systems Theory.

3.3 Nonlinear Dynamical Systems Theory:

This thesis is concerned with creating efforts to utilize Nonlinear Dynamical Systems (NLDS) theory components with large-scale SEOC's. The benefits of doing this are the application of the various theoretical concepts associated with the workings of NLDS from other research fields to this industry. There is no current research being undertaken attempting to apply the NLDS framework to a SEOC. NLDS have become a popular research topic only recently and their

usages are still being uncovered in a variety of disciplinary fields. Like the previous related theories, the behavioural and metaphoric concepts of this discipline are being used, not the measurements of its related mathematical studies.

Nonlinear Dynamics have usually been associated with chaos theory and its various forms and concepts as it pertains to mathematics and the efforts to utilize mathematical models to predict future patterns (Miller & Page, 2007). In the mathematical sense, a nonlinear system is any system which is not linear in the sense that the variables cannot be solved by way of linear sums of independent components, according to the superposition principle (Miller & Page, 2007). This thesis is not concerned with applying quantitative mathematical models to NLDS and instead is pushing forward the theoretical concept of nonlinearity. In a non-mathematical sense, NLDS are perceived as an alternate method of research in science and mathematics that incorporates a perspective of connectivity, not dichotomy (Doll Jr., 2001).

NLDS can be viewed as any system that undergoes change (dynamics) over time and does not follow a linear course of action. Think of linear actions as the best laid plans of any RM plans, such as an emergency breaks out initially in an area, and the following course of action is to proceed with step 1, followed by step 2 of containment, step 3, step 4 (see Figure 6, p. 74). It would be assumed that in a linear progression, each step achieves its purposes. However in a NLDS it would be assumed that each step may not actually reach its objectives, and other courses of action that do not follow any predetermined path may emerge seemingly at random (Demers, 2007).

Chaos theory is concerned with dynamical systems which evolve over time. However these systems are very sensitive to initial conditions, and these conditions create chaotic disturbances over time in a nonlinear fashion (Prigogine & Stengers, 1984). These growth patterns appear random because of their nonlinear patterns, but they are deterministic in nature meaning their final condition is predetermined (Prigogine, 1997). Nonlinear dynamics are what give rise to chaos, and chaos outside of its mathematical definition can be incredibly damaging to the physical world, as noted in the previous sections. Despite its mathematical origins, NLDS is concerned with understanding the qualitative nature of the behaviour of such systems. It is a focus of NLDS and its related theories to understand *why* and *what* types of effects such behaviours will create (Davies, 2004). The study of NLDS is very focussed on finding out if

steady states of systems can be achieved after such chaotic experiences happen, and if it is possible to determine timeframe or points of reference for doing so (Davies, 2004; Farazmand, 2003; Masterpasqua & Perna, 1997; Mittleton-Kelly, 2003). This focus on qualitative issues is related to the objectives of this thesis.

Its focus is on attempting to apply concepts like NLDS to SEOCs in an effort to observe if such frameworks allow for a greater understanding of how that system operates and functions. By introducing the notion of an ORG-CRIS intentionally the study is attempting to observe a dynamic system engage coping mechanisms to return to a steady state. The idea of utilizing the concepts of nonlinear dynamics and moulding it into a methodological framework is an important pillar of the conceptual framework of this thesis.

As pointed out in the previous sections, both chaos theory and CAS theory are concerned with different types of NLDS. Both theories attempt to explain the nonlinear dynamics of systems that experience change and related interactions of behaviour in different ways. This is an important notion to recognize and attempt to utilize because complexity increases, it does not decrease, it merely adapts and builds itself a new sense of self-order through emergence (Gilpin & Murphy, 2008). A streamlined efficient CAS is still complex and subject to chaotic equilibrium or other detrimental systems behaviour if not properly managed. This made it necessary to explore the elements of chaos theory applicable to this study.

3.4 Chaos Theory:

As stated in the CAS section, this thesis is not concerned with the traditional areas of exploring chaos, which is complex thermodynamics from the field of physics, and even more complex mathematical model creations of probability. Instead, it is concerned with the symbolic and behavioural aspects of the phenomena. Chaos is not just an equation explained by physics it is a state of behaviour visible in systems similar to the one being studied by this thesis. Therefore, its unique value is being explored here. In the last two decades several organizational behaviour studies have started to explore the concept of chaos in this way, and this thesis has attempted its own unique contribution to the field.

Chaos is seen as a state of *disequilibrium* (DEQ) which pushes a system to the edge of collapse (also known as far-from-equilibrium) (Prigogine, 1997; Prigogine & Stengers, 1984). This

happens because a system which is considered complex cannot maintain a constant static state of existence forever due to entropy, or the expenditure of energy in any process (Prigogine, 1997). Chaos theory studies deterministic (known) nonlinear systems whose behaviour appears random but is actually orderly and bounded (Demers, 2007). This is an overlooked component to chaos theory by many theorists of organizational behaviour because the common misconception is that chaos leads to destructive and totally random consequences that cannot be predicted. This is untrue. The systems in question merely have many factors that interact with each other nonlinearly, which means their impact to the system initially is almost unnoticeable, in the long-term the impact can cause total pandemonium (Demers, 2007). The behaviours that can be considered chaotic are due to the existence of at least two underlying forces that are not compatible (Koput, 1997, as cited by Demers, 2007). Chaotic behaviour occurs often because of only a few variables that impact a system (Demers, 2007).

CAS by contrast exhibit behaviours that occur because of large numbers of smaller variables that occur across many areas simultaneously. In chaos theory, two forces are observed: a positive and negative feedback loop. Positive feedback loops push a system to change or adapt, forcing instability, while the negative loops seek to restore that stability (Demers, 2007). Due to this push/pull relationship, the *Edge of Chaos* (EoC) can be achieved and this is a place where adaptation becomes the norm. Within chaos theory is the belief that individuals existing in a complex system like an organization cannot possibly be aware of how interactions will play out due to the nonlinear nature of the system. This unawareness issue leads to a difficulty in making statements about how managers can clearly predict any change over a long period of time. They instead may actually reduce the level of complexity in a CAS by reducing the amount of control shared by all the individuals in an organization (Demers, 2007; Kiel, 1994; Mittleton-Kelly, 2003).

From an organizational change and development point of view, chaos theory provides many interesting metaphorical uses for management theorists, and this thesis uses it to create assertions about the ability to learn about crisis in new ways. The mathematical side and related physics of Chaos theory are beyond the understanding of any regular SEOC member. However, as a metaphor for theory construction and behaviour modification it is very useful, as shown in various areas of research recently (Black et al., 2007; Gleick, 1987; Kiel, 1994). Chaos is a state

of caused by agents in an environment. For the purpose of this thesis, ORG-CRIS represent the metaphorical bifurcation point in the CAS of the SEOC where chaos takes over and disrupts EQ. The traditional view of RM is to react to this state of destructive force. The study ascertains that it should be possible to look at the chaotic state of an ORG-CRIS before it happens, as a chance to encourage planned change and take part in exercises to learn to anticipate more in the decision-making process.

Rather than adopting an attitude of fear, leaders should adopt a stance that chaos will not destroy them, because it has been proven by Prigogine (1997) and others that after going through the EoC you are stronger than before. If an organization can harness the learning actions of a group experiencing chaos pre-emptively, they should in theory be able to experience the learning experience and knowledge growth of how to deal with ORG-CRIS better without actually having to go through the EoC. If individuals seek out chaos, instead of fearing it, the belief of this thesis is that they will learn to better anticipate issues and signals that signify a crisis is imminent. The result should be a more successful CM leadership group.

3.4.1 Edge of Chaos Phenomenon:

The EoC is known as a state experienced by a system when it crosses a threshold of transformation, dependent upon the two states of Equilibrium (EQ) and Disequilibrium (DEQ) (Prigogine, 1997; Prigogine & Nicolis, 1977). Kauffman (1993; 1995) stated that living systems are very close to the EoC phase of transition at times because communities of agents co-evolve to an EoC phase between over-rigid and over-fluid behaviour if it is necessary to keep them from growing stagnant. When a system crosses over from stable to unstable, it has entered this phenomenon. During this stage they are driven to rapidly dissipate but also able to undergo rapid, dramatic, spontaneous and fundamental transformations of energy and matter (Demers, 2007). As mentioned previously, this is due to the positive and negative feedback loops among the interactions of the systems agents (Demers, 2007). A new EQ is now reset at this transformed point, and EQ resolves to continue at this new stage thanks to passing through the EoC phenomenon.

The EoC state has been observed in the properties and dynamics of various types of CAS, which are nonlinear and unpredictable. It has also been considered to be the precursor by some theorists to the state known as chaotic equilibrium, or the deterministic chaos state shown to be

related to systems via their behaviours observed over transitions from unstable to stable (Demers, 2007; Doll Jr. et al., 2005; Farazmand, 2003; Masterpasqua & Perna, 1997; Miller & Page, 2007). This state was commonly known as a destructive state of catastrophe for organisms based on misplaced connotations of the word chaos by the public. This is now considered inaccurate.

This advantageous nature of the EoC state comes from the fact that it exists because of the interactions of many complex factors acting upon a CAS, and from these interactions the steady state of the organization is altered into a state of flux (Kauffman, 1993). Flux can be viewed as change, and change when needed by either design or reaction to some external force is important for survival (Beach, 2006; Burnes, 2005). By extension, the EoC illustrates how beneficial such a state of change may be for a CAS like a large organization because it is a state where only the strongest parts of a system are spared destruction. Adaptation to circumstances is forced upon the system so that it can become stronger as a whole from its original form (Demers, 2007; Uhl-Bien & Marion, 2008). From the previous chapter's sections we can consider this an example of *capacity* and *resilience building* in individuals (Farazmand, 2003)

Patterns of EoC behaviour are only noticeably non-random when they are viewed over the long term due to their nonlinearity (Demers, 2007). The patterns are actually following simple causal rules of either simple or complex factors depending on the system. The reason EoC or just chaos is deemed unpredictable is that people do not take into consideration the infinite possibilities the system can take in terms of its interactions and behaviour. It is simple for us as individuals to view these systems and their interactions with us as following choices that are logical. When the system takes a path that is illogical, the belief is that it will still follow the same simple causal rules. Our inability to perceive the option as being possible depending on how unlikely it is to become reality makes the effects seem destructive, because we never anticipated them, but that does not actually make it chaotic. Its end result will follow the rest of the pattern and we still end up where we were headed, we just took a path we never saw coming (Sellnow et al., 2002).

Whether or not a system's behaviours become chaotic and produce perturbations that over time cause an organic re-arranging of the entire structure due to necessity for survival, the EoC state will be encountered at some point (Demers, 2007). When the state is entered by the system (the organization) the result will be a series of feedback loops (i.e. the relationships derived from interactions). They attempt to reciprocally push the system back into its steady state, but from

the EoC effects, this results in a new steady state that has evolved into a more advanced form of system (i.e. organizational change and learning) (Byrne, 1998; Davies, 2004; Doll Jr. et al., 2005; Farazmand, 2003; Gleick, 1987; Masterpasqua & Perna, 1997; Miller & Page, 2007; Mittleton-Kelly, 2003; Prigogine, 1997; Sellnow et al., 2002; Uhl-Bien & Marion, 2008). In the view of this thesis, you will not come out of an ORG-CRIS the same as you went into it, but you can limit the damage caused if your leadership has installed the proper levels of resilience and capacities are in place to protect valuable assets.

3.4.1.1 Bifurcations:

As explained in the previous sections, chaos and chaotic systems are different from CAS. Chaotic systems actually have very little randomness over a short period of time when it comes to the end result. Their path, however, can be very unpredictable (Gilpin & Murphy, 2008). CAS, however, can have many, almost indefinite end results because they self-organise when they encounter dynamic conditions. The more nonlinear the dynamics, the more numerous pathways it may take with unpredictable outcomes (Gilpin & Murphy, 2008). When an organization is following a path of behaviour or interaction with other elements, it will inevitably come to a point where its EQ runs out because no system can maintain perpetual momentum, according to the law of entropy, and DEQ begins to occur (Prigogine & Nicolis, 1977; Prigogine & Stengers, 1984).

As this state of uncertainty is undesirable for virtually all systems at some point, a decision must be made to correct this deviation and regain EQ. The decision becomes one of continuing or taking an alternate pathway by way of decision-making. The decision to follow another alternative by the system is called a bifurcation since the pathway has been *bifurcated*, or split into two alternatives, of which only one is being followed (Prigogine & Stengers, 1984). Bifurcations, unlike attractors, occur *suddenly* when the edge of what is known as an attractor basin (or a desired state different from the current state of the system) is encountered (Byrne, 1998; Davies, 2004; Demers, 2007; Gilpin & Murphy, 2008).

Bifurcations occur suddenly because a system has encountered a critical instability in its behaviour, known as a *bifurcation point* (Byrne, 1998; Prigogine, 1997). These points represent

the need for a change due to a reaction to an unforeseen or unpredicted occurrence. This is either an external force exhibiting pressure on the system or an internal component causing some kind of critical infrastructure breakdown (Gilpin & Murphy, 2008; Sellnow et al., 2002). Due to the fact that bifurcation points are based on this sudden need for change, they are very useful in applying conceptually to crisis situations, as these can occur rapidly due to the high level of uncertainty, threat and urgency of the risks they are a part of (Mittleton-Kelly, 2003; Sellnow et al., 2002).

Bifurcation points represent the need for emergence in organizations to occur, they allow for an organization to make a sudden beneficial choice, from which "a new coherent pattern suddenly emerges without any blueprint, one that cannot be explained by, or reduced to, or predicted from, the nature of the systems' component entities" (Stacey et al., 2000, p. 94). Emergence from self-organising does not occur unless required, and bifurcation points illustrate how useful it can be to make a sudden change. It is the assertion of this thesis that if leaders practice *hypothetical bifurcating* in unexpected ways from their current crisis decision-making plans, they can learn how to anticipate the real thing better.

However sudden changes are often reactive in nature or unplanned for. Regardless of the theorized benefit for management, it can be psychologically hard for an organization to undergo such sudden change (Boin & 't Hart, 2003; Coombs & Holladay, 2010; Demers, 2007). Sudden change is the reason why crisis events impact organizations so severely. Such a dynamic is associated with urgency; therefore a bifurcation point can be seen as the response to a high level of urgency. It is important to acknowledge that even if it is communicated to an organization's members that such change is coming. It can still be so swift and unexpected that the mental impact of the bifurcation can cause lasting damage to the organization's capacities and resilience if leadership is viewed as inadequate in its preparations (Apgar, 2006; Coombs & Holladay, 2010; Comfort, 2007; Heath & O'Hair, 2009; Leavy & McKiernan, 2009; Marion & Uhl-Bien, 2001).

3.4.1.1.1 Bifurcations and Learning Opportunities:

Rather than viewing bifurcations as the area where systems take a negative turn, we start looking at it as representing the viewpoint of the behaviour represented in Figure 7(p. 83). **Error! Reference source not found.** illustrates how this thesis framed the concept of a system passing

through the EoC to encounter learning opportunities based on contingencies. The chaos of the actual bifurcation point (the middle area) of the diagram illustrates how, instead of a destroyed system left in the wake of a disaster, we can view it as the potential starting point for an infinite number of possibilities for emergence. The various new spheres in Figure 7 show the possible directions and outcomes of the EoC phenomenon on the system's pathways. The nonlinear nature of chaos means we may not be able to see the future outcomes of the small perturbations of the initial bifurcation but for the purpose of a diagram the outcome is written in. If we were to view chaos as this type of behaviour and having this type of outcome, its learning potential could be harnessed in a more productive way.

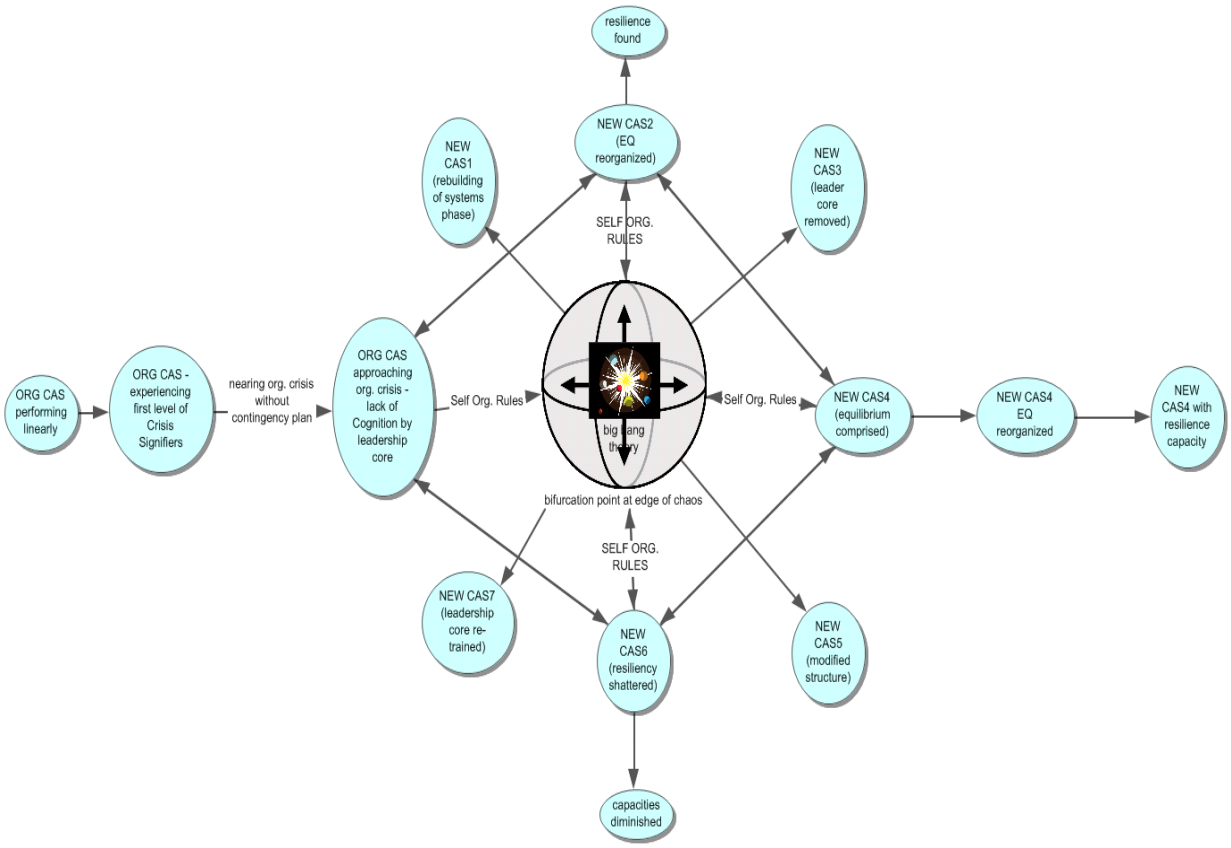


Figure 7 Edge of Chaos affecting contingency efforts

3.4.1.2 Strange Attractors:

States of attraction refer to systems heading into one direction rather than another, or turning into a new set of organised parts from the originals. An 'attractor' is "the recurrent patterns of

behaviour that exert a pull on the system...the system may be drawn into a certain attractor domain as it travels through 'phase space', the system showing the range of options available at any given moment" (Gilpin & Murphy, 2008, p. 37). Take for example the simple example of a ball placed on a surface like a table. The ball will role towards a certain point of attraction on that surface.

This is not random; instead the ball is following a pathway too small to see of indentations in the surface. It is following the path of least resistance towards an indentation that allows it to sit still. It is drawn to that spot of attraction slowly if the way is confused and the ground compromised. If the way is clear and steep, then gravity will pull the ball towards the spot faster. The greater the characteristics of the attractor area in drawing the element to it, the faster it will be drawn there (Kauffman, 1993; Prigogine & Stengers, 1984). The indentation, or spot, where the dynamic element of the behaviour is drawn to the most, and will eventually stop at (or regain EQ) is known as the *attractor basin*. The history of the pathway is important when considering a CAS because its unique past will influence how it transitions from one attractor to the next (Gilpin & Murphy, 2008).

Attractors come in one of two types; stable or unstable. Stable attractors are the everyday or regularly occurring patterns of behaviour, like daily communiqués, that proceed linearly and can be considered fundamental parts of the organizational culture because of their relationship to the 'norms' of the system dynamics (Gilpin & Murphy, 2008). Unstable attractors are the unpredictable and erratic behaviours that can cause the normal cycles of systems behaviour to go out of control. These are commonly seen as *crisis signifiers* - issues that cause serious threats to the organization's continued existence (Gilpin & Murphy, 2008). Sometimes an attractor is called *strange* when the interactions between it and the forces in question are unclear, swift, and chaotic. Despite not being visible, something is rapidly and violently pulling the attracted object towards that point, making it a strange attractor, since no clear reason is known.

Strange attractors occur because a complex system exists in some form, and it gradually engages in behaviours that cause changes, but the pattern is unrecognizable at first due to the sheer number of complex interacting agents (Demers, 2007; Gilpin & Murphy, 2008; Prigogine, 1997; Prigogine & Nicolis, 1977; Prigogine & Stengers, 1984). Slightly changing initial conditions in a stable system with little complexity, such as a tea kettle, will have little effect. The water will

still boil, albeit slower or faster than normal as the temperature is increased or decreased. However, by applying incremental initial changes to a dynamical system that has a high degree of complexity can create chaotic patterns (Byrne, 1998).

Strange attractors are used in both Chaos theory and CAS theory, making the confusion between the two even greater. Crisis situations do involve changes, perturbations, bifurcations and strange attractor states (Gilpin & Murphy, 2008). Each crisis may be able to be placed in a typology grid but they are ultimately unique (Drennan & McConnell, 2007). Chaos theory, despite connections to strange attractors, will always be about the study of simple nonlinear systems that, through small initial disturbances to a system, witness extremely disruptive behaviour over time (Gilpin & Murphy, 2008; Mittleton-Kelly, 2003).

CAS theory will always be concerned with studying simple interactions of numerous systems at once, and these interactions are unpredictable and create unpredictable results which lead to higher forms of coherent patterns – or the self-organising of a system into an evolved state (Gilpin & Murphy, 2008; Marion & Uhl-Bien, 2001). This ability of both theories to encourage the concept of Emergence in terms of system organization is an essential element to the theoretical perspective and the methodology of the study. Emergence and its importance will be explained in the next section of the literature review.

3.4.1.2.1 Strange Attractor States and Crisis:

When this diagram is turned into a three dimensional model as seen in Figure 8 (p. 86) the center event horizon is visible as an indentation extending downwards in a basin shape with each new CAS representing a new point on its perimeter or circumference. This basin shape is the strange attractor state represented by the actual occurrence or crisis event. It represents the possible new CAS that are possible after a bifurcation is presented to the organization, and the new form that emerges from the end of the funnel would describe the process of emergence, or the self-organising of the system into a new structure (Kauffman, 1993). This would be determined by the self-organising rules already in place in the CAS. From an organizational context, this would be determined by leadership and organizational culture establishing capacities beforehand (Demers, 2007; Mittleton-Kelly, 2003).

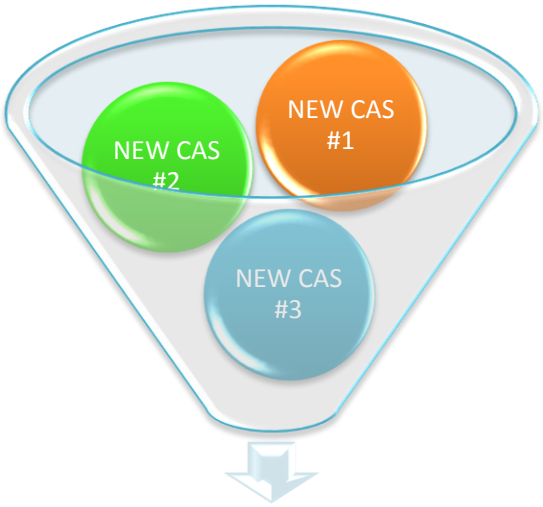


Figure 8 3-D Image of Basin Effect of Strange Attractor State after Bifurcation

3.4.2 Emergence and Self-Organising:

When dealing with the concepts of the EoC, the notion of emergence and the associated rules of self-organising become important to understand. The concept has been expanded by organizational behaviour theorists to help explain how such behaviour occurs naturally throughout society. The idea of self-organising rules encompasses research in many fields, including mathematics, physics, economics, linguistics, and even cybernetics (Kauffman, 1993). Prigogine and Nicolis (1977) stated the principles of self-organization in a way that popularized the idea and made it accessible for other disciplines.

Self-organising refers to the process by which a pattern appears in a system without any evidence of a plan to do so from any external source. All the internal interactions of the system cause it to be equally distributed and coherent (Prigogine & Nicolis, 1977). The act of these patterns forming according to their interactions reaches a point where they become 'global', meaning they resemble co-evolution and affect the system as a whole. The point where the interactions become a pattern which is recognizable is called emergence (Gilpin & Murphy, 2008; Kauffman, 1993). Emergence proved that unpredictable behaviours will lead to recognizable patterns and that it was essential to regard a complex system as the sum of its parts. The interactions of those parts may be chaotic, but they will lead to the self-organization of a new system (Gilpin &

Murphy, 2008). Prigogine and Stengers (1984) believed there were rules that were built into each system and also formed from its interactions simultaneously that allowed it to re-organize itself and complete this process of self-organising, hence the term emergence. Emergence is also important because it shows that interactions that are unpredictable will lead to a global pattern that is unpredictable (Gilpin & Murphy, 2008).

For example, an organization with multiple departments that interact may begin to observe behaviours in individual subsections of a single department. There will, however, come a point of 'emergence' when these interactions will consume the entire department. After this, such unpredictable patterns can spread to other departments at various speeds. Despite the disconnectedness of this occurrence, another point of emergence can occur where the operations of all departments become crippled, as emergence becomes global in that sense. It is easily demonstrated by a computer that experiences a fatal flaw in a single system of its hard-drive that eventually leads to the whole machine seizing and becoming inoperable, or it adapts to that change in its EQ and creates sub-programs to contain the damage (Kauffman, 1995).

Self-organization usually occurs with the existence of one or all of the following three elements: strong dynamical nonlinearity, a balance of exploitation and exploration, and multiple interactions of system elements (Prigogine, 1997). In simple terms, a system must have a series of events that do not follow a straight-path trajectory of action/reaction, or cause/consequence. Our OC events are examples of these types of interactions. Very little of a crises path through an organization is linear. They go where they want and damage multiple areas simultaneously that are not related to each other at times (Boin et al., 2003). Also a system must be engaged in interactions with its environments, both giving and taking information and processing it for various purposes. The large-scale sporting events are examples of this type of system behaviour as they have many external and internal systems that combine to create the overall master system of the event, controlled by the SEOC. As these interactions multiply, the SEOC begins to utilize their inherent organising rules to make sense of their world, and the interactions cause further modifications to direct behaviour.

These states of being under stress but also in a reproductive state created complex and chaotic structures. This relationship essentially showed that a complex system was at its most productive state not at EQ, but rather in a special type of constant DEQ, and the 'knife's edge'

characteristics of that state were possibly more beneficial for positive growth. The self-organising rules of a system can be considered the 'safety guidelines' that ensure the changes do not become catastrophic. Therefore, the ability of such states to allow systems to undergo catalytic growth to overcome crisis situations if applied in a controlled task environment is possible and potentially invaluable.

Emergence can be viewed as the organization's efforts to rebuild its organizational resilience by way of re-building capacities. If the organization's new sense of order is due to the bifurcation points then emergence leads to a good thing, a new stronger CAS (Gilpin & Murphy, 2008; Kauffman, 1993). Such efforts to re-establish capacities through emergence can be viewed as positive building blocks to restructuring such management tools as the organizational culture, leadership group structure, and design. These will potentially lead to new levels of trust and a rebuilding of collective efficacy.

3.4.2.1 The Psychology of Chaos:

As previously stated NLDS theory and other related disciplines are concerned with studying the qualitative measure of chaos, instead of the mathematical roots of chaos theory. This thesis is concerned with how the nonlinear patterns that are colloquially known as chaos are experienced by human beings in the form of ORG-CRIS, and what that experience does to them as individuals and collectively in their groups from a mental and emotional point of view.

This thesis uses ORG-CRIS as the example of the notion of chaos, and a crisis represents a time when an intense level of threat, urgency, and uncertainty is present. The threat of a crisis and the chaos it brings is a vital aspect of the CM process. Without understanding how a person will respond to such fear, it is impossible to know if management plans will be effective. An important part of CM is the ability to perceive information and comprehend its importance. As chaos represents a time when possible extreme amounts of uncertainty exist, it is important to know that this will hinder people's cognitive faculties in assessing the urgency of the situation.

The city of Bhopal, India experienced its massive industrial accident due to negligence in the maintenance of the chemical plant (Rosenthal et al., 1989). What prolonged the crisis was the lack of proper cognition as the leaders of Union Carbide tried to minimize the reports and media press, and failed to implement procedures that would have saved lives. Similarly, the World

Trade Center Bombings were caused by the CIA's inability to comprehend how such a complex plot could be pulled off inside the U.S.A. (Mitroff, 2004).

Hurricane Katrina's destruction of New Orleans was exacerbated by the psychological impact of chaos. The director of FEMA was only concerned with saving his own reputation and assigning blame (Farazmand, 2007). The lack of comprehension and complete breakdown of cognitive abilities in various agency leaders overwhelmed with their organizations demands led to a colossal systems failure of almost every organization involved (Farazmand, 2007). The underlying factor in these events was that the chaos of the situation stretched the situation into a much longer time frame. The leadership could not mentally cope with the signals coming their way. Their cognitive skills were ineffective and shut down due to overload. That is a commonality among all crises. If left completely unchecked chaos will turn a NLDS into an entity that will defeat any attempt to comprehend it (Sellnow et al., 2002). This psychological impact is important to recognize and forms another pillar of the methodology of this thesis.

3.4.2.2 Learning opportunities vs. destructive events:

Catastrophes are often viewed as destructive events that happen suddenly. Paradoxically they can also progress very slowly. The main indicator for a 'catastrophe' label attached to an event is the level of damage present in either human or physical infrastructure loss terms (Hennigner, 2005). One view of learning opportunities is as more peaceful occurrences where perceptions are changed in a good way for some type of gain or benefit (Dai & Duserick, 2008). Post-modernism stipulates that the way of looking at change is limited if ones perceptions of the two above concepts are not altered (Byrne, 1998). According to post-modernism a catastrophe is another way of looking at things in order to change them (Doll Jr., 2001).

An entity experiencing the EoC phenomenon may be experiencing a catastrophe in a destructive way. Upon reflection after the fact, the occurrence actually only served to act as the catalyst for that entity to self-organise into a new steady state for a positive outcome (Davies, 2004). A complex system will create a strange attractor environment in regards to how many catastrophes it will experience, because its increasing size will allow for a greater attraction to such states (Masterpasqua & Perna, 1997). But as possible catastrophes are encountered more frequently,

they should in fact become easier to predict and deal with; in turn the organization should start becoming more attuned to a traditional learning opportunity if its view of such threats is reversed into viewing them as opportunities (Simola, 2005).

A chaotic event may be unpleasant for individuals resistant to change, but for those previously looking for a way to change their behaviours, the same catastrophe is now a potential learning experience. The issue is that this view is often only taken after the event has passed (Gainey, 2009; Huysman, 2000). The only thing that has shifted is the point of view of the individual. Therefore, it is possible to assume that collective and individual points of view could be reframed to regard all catastrophes as opportunities to learn. A significant shift in their behaviours could occur for the betterment of their organization's capacities (Hicks & Pappas, 2006; Hiller, 2006; Houchin & MacLean, 2005; Marion & Uhl-Bien, 2001). A destructive force only needs to be viewed that way if the point of view or perception of the group or individual in question perceives it as only providing such a series of consequences with no positive alternatives.

3.4.2.3 Perceptions of Chaos:

A general definition of the phenomenon of chaos describes a state that is non-preventable, unpredictable, and can occur simultaneously across many levels of an organization or system in the form of an indeterminate pattern of fluctuations (Gleick, 1987; Kiel, 1994; Prigogine & Nicolis, 1977). Popular belief and writing paint chaos as a force of destructive power, and the aftermath of major disasters are often described as 'total chaos' (Gleick, 1987). It is difficult to stop chaos once it has impacted an organization because it has entered that state due to its systems inability to maintain its EQ, or from an organizational point of view, its status quo (Kiel, 1994; Masterpasqua & Perna, 1997). In nature, nothing can maintain its EQ forever, no matter its efforts or intentions, and resistance to change is the organizational equivalent to a system in nature refusing to adapt to conditions that are harming it (Demers, 2007; Doll Jr. et al., 2005; Prigogine, 1997). The ability to recognize when EQ is threatened proactively and adapt leadership to accommodate, is a potentially valuable tool a leadership core can use to pursue strategic objectives in ever-changing complex environments (Farazmand, 2003; Sellnow et al., 2002; Rizzuto & Maloney, 2008; Rosenthal et al., 2001).

Chaos as a state of behaviour was considered by theorists initially as a negative thing that cannot be analyzed properly. However, as previously indicated, this study follows a CAS theory viewpoint that chaos is actually a useful state of behaviour that an organization can use for its benefit (Kiel, 1994; Masterpasqua & Perna, 1997; Miller & Page, 2007). Chaotic systems and CAS's are not the same thing. The first describes systems that are dynamical and highly sensitive to perturbations in their initial forms, and those changes have indeterminate, critical effects on the system over time, making accurate prediction impossible (Demers, 2007). CAS's describe any dynamic organization made up of interacting agents that evolve due to their experiences with other systems of agents surrounding them (Mittleton-Kelly, 2003). They both describe systems that can be viewed as Nonlinear and Dynamical in nature.

3.4.2.4 Chaos and Related Learning Behaviours:

The study's conceptual framework in relation to this theoretical concept can be seen in Figure 9 (p.92), where a Venn diagram illustrates the collision of two systems (or external and internal event environments) and the resultant area of overlap between them. This can be viewed as a destructive force which pushes two boundaries together and irrevocably reduces their parameters and capacities from that point on. Prigogine (1997) stated that this area is where the most interactions with the most possible outcomes are occurring. By utilizing a complexity based conceptual framework, we can view the overlapping space in **Error! Reference source not found.** as representing the EoC phenomenon at work, where a bifurcation is forcing DEQ upon the system (Miller & Page, 2007).

The space of the overlapping systems requires the most attention, resources, communication, and information sharing of the two formerly separate systems to survive. From this view, we can surmise from the work of Prigogine (1997), with organizational contexts for CM from Mitroff (2004; 2005) and Comfort (1994; 2005; 2007), that this is where self-organization and emergence are occurring, due to the force of chaos. The outcome will be a more evolved or streamlined system/organization (Prigogine & Stengers, 1984). From this assumption can be drawn the conclusion that such an occurrence is a positive state, and the consensus is that the outcome is a positive while the experience itself was rather negative.

This understanding then leads to the supposition that we can use the area of most resistance and turbulence to the EoC to anticipate how to build very high levels of resilience in organizational

systems intentionally. It is postulated that such an area represented in the overlapping areas of **Error! Reference source not found.** should not be viewed as only a destructive force but rather the opportunity to explore the concept of emergence for a learning organization to be formed instead. By exploring the concept of intentionally causing such system interactions as represented in **Error! Reference source not found.**, it should be possible to create environments where adaptability due to complexity is the new paradigm and deemed a normal process. It is less a desensitizing to chaos and more of a sensitizing to complexity's possible beneficial implications to operations. If it is possible to create this small area of intense learning on purpose, it should be possible to learn more about enhancing learning organizations and resilience than previously thought possible. To do this, we will explore the relevant elements of the concept of Organizational Culture.

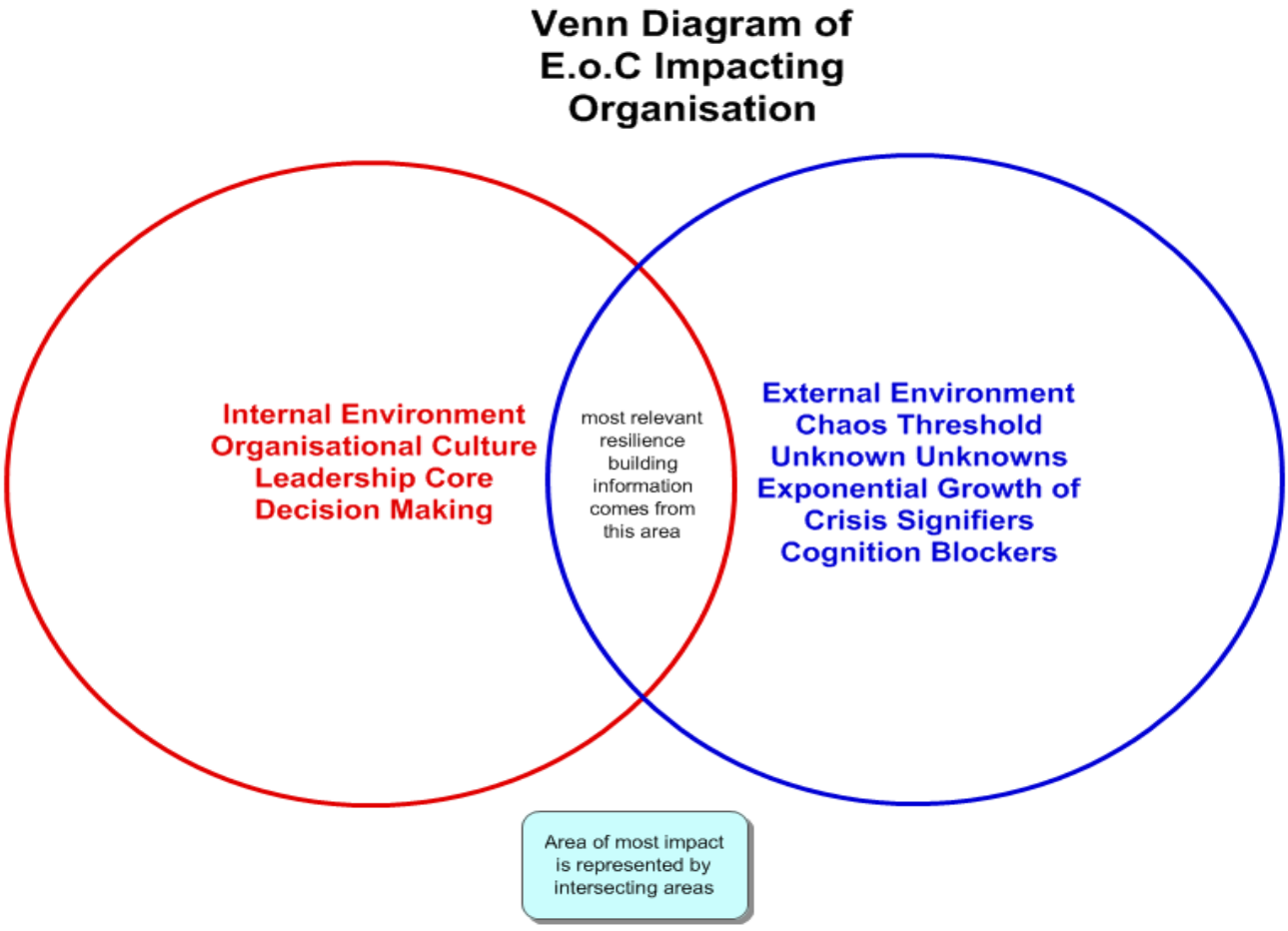


Figure 9 Venn diagram of Edge of Chaos Phenomenon: Areas of Opportunistic Learning

3.5 Organizational Culture:

Organizational culture is known as the standards, norms, beliefs, assumptions, and values that a group of individuals belonging to an organization create and follow together (Moldoveanu & Bauer, 2004; Ott, 1989; Robbins et al., 2008). It is known colloquially as "the way we do things around here" (Ott, 1989; Robbins et al., 2008). The importance of understanding organizational culture and its impact on this study is very pertinent for the later discussion of results. The existing culture of the study is quite unique in that it represents a small team of members, highly motivated, and diverse in their skill sets and experience. The implications of this will be discussed in the section on "Teams". Organizational culture is considered by most organizational behaviour theorists as one of the most important factors in measuring success or failure rates of organizations (Fox et al., 2007; Malott & Martinez, 2006; Robbins et al., 2008; Uhl-Bien & Marion, 2008).

Organizational culture can be construed as either strong or weak, with strong cultures creating successful organizations and weak cultures seen as detractors to success (Ott, 1989; Robert & Ventriss, 1992). Strong cultures have certain characteristics that are widely held and intensely believed in, including; high levels of transformational leadership, motivated employees, high levels of self-efficacy, and even possible self-directed teams (Boin & 't Hart, 2003; Bracken et al., 2008; Miller & Page, 2007; Doll Jr. et al., 2005). Weak cultures in organizations usually mean the exact opposite of the previous notion. Employees of organizations with a weak culture usually suffer from high turnover rates, a lack of motivation, low levels of socialisation, and high levels of formalisation outside of an accepted method by staff (Ott, 1989). They also experience low levels of perceived reward for effort due to a distant relationship with management (Robbins et al., 2008; Uhl-Bien & Marion, 2008; Xing & Chalip, 2009).

Past research has focussed on the relationship between Formalisation vs. Culture. Formalisation is the "tendency of an organization to create and impose written policies, rules, and procedures that govern the way work is carried out" (Brooks, 2009, p. 193). Formalisation creates rigid structures and strategies in organizations, increasing the distance between management levels and ordinary employees (Brooks, 2009). This was viewed in Hofstede's cultural dimensions work. This high level of formalisation was studied by several theorists who concluded that such practices create hierarchies that are tall in structure, and such policies are used to keep workers in

check (Brooks, 2009; Ott, 1989). This is in direct opposition to an organization that favoured very low levels of formalisation, which in turn decentralised decision-making and led to flatter structures being created (Daft & Pirola-Merlo, 2009). This led to a highly dynamic working structure that valued more 'cultural' rather than 'structural' standards to evaluate and control the workforce. In turn this was noted to develop a workforce more amenable to strategic change, the benefits of which are explained in the appropriate section (Brooks, 2009; Ott, 1989; Robbins et al., 2008).

If an organization's culture is amenable to change, whether it is considered reactive or planned, then this is a major step to defeating the resistance to change initiatives apparent in the behaviours of the organization's members. Various elements of an organization's culture can lead to barriers to change. This is considered due to the fact that organizational culture develops the 'norms' of the workplace (Weese, 1996). Once these 'norms' are established they take on symbolic significance to the culture and it can become difficult to initiate a need for the change (Ott, 1989). The cultural significance of such symbols to the workforce are viewed in a variety of ways, and can be considered as major building blocks to the standards of the organization, and such significance should be considered by leadership (Brooks, 2009). Building strong culture is the responsibility of leadership, according to several theorists. This is because of the need for leaders to engage in selection, empowerment, and self-efficacy initiatives create what is known as *resilience in organizations* (Beach, 2006; Boin & 't Hart, 2003; Daft & Pirola-Merlo, 2009; Marion & Uhl-Bien, 2001).

3.5.1 Resilience building and shattering – Impacts on Individual Leaders:

Organizational resilience is the capacity of an organization to respond, adapt, and recover quickly from catastrophic events (Apgar, 2006; Comfort et al., 2010; Coombs & Holladay, 2010). Resilience is seen as an important tool in the arsenal of organizations that are subject to critical failures of their infrastructure due to high levels of systemic interdependence (Miller & Page, 2007; Prigogine & Stengers, 1984). An organization that has many levels of systems that operate with high levels of interaction may experience a breakdown that initially affects only minor systems, but quickly spreads to all major systems (Mitroff, 2004).

When this happens, a breakdown becomes critical, in the sense that massive amounts of energy and resources can be lost, both tangible and intangible (Comfort, 1993; 1994). Resilience is also

a behavioural fixture of organizations, in that efforts should be made to build a resilient workforce, made up of individuals who believe in their leadership and themselves and can withstand the stresses of high pressure situations which threaten their wellbeing from several fronts. Building this type of resilience relies on building leadership capacities, and this will be discussed in the following section.

An organization that experiences such a breakdown has to be concerned with the psychological impacts on its employees because resilience is based on their capacity to withstand stress (Comfort, 1994). Such an experience can negatively impact an employee's sense of self-preservation and belief in the underlying systems of management they work with (Pearson & Clair, 1998). When this 'shattering' of their belief in the preparedness of the organizations management core occurs, they can be left with a sense of loss in their faith of the organization to protect them (Pearson & Clair, 1998). The result of this impact can be a fearful sense of irreparable damage to the organizations chances of recovery, and this has led to staff leaving the organization and whole companies collapsing under the weight of such critical breakdowns, unable to repair themselves (Boin et al., 2003; Comfort, 2007; Masterpasqua & Perna, 1997).

Resilience in organizations is sought after for both reasons, and the ability to keep working in the middle of an infrastructure failure is deemed as important as preventing it in the first place (Comfort, 1994). Organizational resilience is often linked to the method of Business Continuity Management, which is the process of applying evaluation and identification tools to uncover gaps and discrepancies in a business's structure and strategy (Standards Australia, AS/NSZ 4360, 2004). The purpose of doing so is to outline the gaps in a business's abilities and then develop methods so that said business can continue even if a problem occurs (Standards Australia, AS/NSZ 4360, 2004). This practice is also concerned with learning from a crisis after it happens so that the mistakes will not be repeated and in the future, further resilience can be developed.

The study links resilience formation to the concepts of Chaos and NLDS theory, which outline how a dynamic system will undergo fluctuations in its patterns (Comfort et al., 2001). These pattern changes affect how the system usually acts and can lead to major disruptions. These disruptions lead to further re-organising of the system until it becomes stronger than before or more resilient in management terms (Comfort, 2005).

The inclusive approach of Business Continuity Management has led several countries to re-think their RM portfolios and attempt to reassign responsibility for crisis prevention (Schoemaker, 1990). An important new development recently found in the AS/NSZ 4360 documents was a series of recommendations around building more resilient organizations that would deal specifically with emergency management and other disaster relief efforts. Within many recommendations lay the idea that "it is not an option to be unprepared" as well as the recommendation that continuity processes should engage across an entire organization and form complete management policies from assessment through to testing including feedback and review allowances (Drennan & McConnell, 2007; Standards Australia, AS/NSZ 4360, 2004).

There is also research on how the continuous use scenario planning (mentioned previously) and related training methods can be used to build organizational resilience. Previous studies illustrate the need for organizations to engage in resilience building activities such as analysis internal systems checks designed to root out weaknesses in the system itself for repair (Boin et al., 2003). In order to build this type of resilience in an organization, it has been hypothesized by academics that time and money be spent on training specialists that will do this type of assessment and review process as either objective outsiders of the company or from within a special department dedicated to such pursuits (Mitroff, 2004; Shrivastava et al., 2007).

Such experts could sidestep the psychological barriers of dealing with an organizational culture that does not want a light shone on their weaknesses and faults in this area. The inability of organizations in the past to objectively look at themselves as having internal system failures has been regarded by theorists as a major weakness in building a resilient, crisis prepared organization(Pearson & Clair, 1998). Instead, such an attitude filtering down from top management has been seen to lead to a crisis prone organization, basically one that suffers from crisis impacts because it is incapable of objectively assessing its weaknesses, and therefore builds no resilience and eventually succumbs to crisis due to an inability to act accordingly (Boin et al., 2003; Mitroff, 2004; 2005; Pearson & Clair, 1998; Pearson et al., 2007).

The decision-making abilities of these organizations are severely limited when it comes to crisis situations. The amount of resilience shattering they experience is often total, and completely wipes out their human and physical infrastructures (Mitroff, 2004). Decision-makers face severe threat levels when they are involved in these situations and sometimes this can lead to inactivity

(Harrison, 2006; Wolff et al., 2002). Inactivity will give a full-blown crisis the chance to affect an organization for as long as it can get away with it (Boin & 't Hart, 2003). Examples like dealing with a flood proactively by filling sandbags and creating water diversions in the dry season are simple methods of preparing a population to build some resilience in the face of disaster (Newkirk, 2001). They see their efforts as a 'refusal' to let a crisis run 'roughshod' over them in the future (Drennan & McConnell, 2007). This is often criticized as a 'too little, too late' response and not a proper proactive contingency plan (Satz, 1998).

The Federal Emergency Management Agency (FEMA) ignored the warnings of their own field agents who provided testimony five days before Hurricane Katrina hit New Orleans that the levies would not hold against a hurricane half the strength of what they were facing (Farazmand, 2007). No physical examples of resilience were put in place; the levies were not even reinforced. After the actual flooding occurred, the leadership of FEMA disintegrated as the then Director was visibly ineffective at coordinating any of the agencies gathered to assist the city, as the national media coverage provided ample footage of failed attempts at cleanups (Farazmand, 2007).

When it came time to make critical decisions, even the agency whose mandate was to be crisis prepared proved unable to do so. Its own resilience was shattered due to its inability to recognize the flaws in its leadership and the trickle-down effect of that was to allow all communication channels to collapse (Farazmand, 2007). The complexity of the occurrence was given as a reason why the leadership of FEMA failed so poorly later one, although complexity in both internal and external environments is possible to assess and prepare for (Comfort et al., 2009). The inability of this organization to do so prove how valuable resilience is at all levels, not just for your own organization but for all related organizations separate to each other that make up an entire interrelated CM system (Comfort et al., 2010; Mitroff, 2004; Newkirk, 2001; Perrow, 1984; Shrivastava et al., 2007).

3.5.2 Capacity building – developing individuals as leaders:

Capacity building refers to a conceptual approach to organizational development that focuses on understanding the obstacles that inhibit people from realizing strategic goals, while enhancing the abilities that allow them to achieve measurable and sustainable results in the future (Amburgey, Kelly, & Barnett, 1993). Organizations use capacity building techniques to further

their mission and goals through employee development. Capacity building occurs when an organization has a leadership group that provides an adequate strategy or strategies that allow the teams within that organization to develop several beneficial practices (Drabczyk & Schaumleffel, 2006).

These can include several different areas, for example a capacity of an organization to handle crisis situations without succumbing to massive infrastructure or related failure is deemed highly desirable (Comfort et al., 2010). Capacity building also occurs when an organization has employees who follow a competency-based growth strategy in their abilities. Organizations have spent time and energy on developing the competencies they wish their employees to have. Competencies in organizations means the employees are expected to already have the skills and knowledge to begin a job, but also be able to further advance those same areas as time progresses (Smith, Jennings, & Castro, 2005). A strong competency-based hiring policy in other industries leads to less emphasis on filling jobs or "gaps" and instead seeking people who wish to become an organization's member (Mitroff, 2004).

Despite a separation in the literature between individual and organizational capacity building, the study takes the stance that they are one and the same. An organization is a group of like-minded individuals working towards common goals (Beach, 2006), so any attempt to create enhanced capacities in individuals by extension enhances the organizations capacities (Bolman & Deal, 1984). In terms of systems theory approaches, an organization is a set of interrelated systems dependent on one another for success (Miller & Page, 2007), so capacity building by an organization at any level inherently enhances the strength and reliability of its systems in multiple ways (Mittleton-Kelly, 2003).

From these perspectives one can begin to understand the importance of capacity building as a strategic tool to enhance all areas of organizational performance. If a crisis threatens all levels of all systems, then capacity building is the method by which an organization solves the issue of critical breakdowns caused by such events (Boin & McConnell, 2007). Through a combination of capacity and competency development the study believes this is possible through its methodology. The idea of capacity building was further enhanced by the concept of the Learning Organization, which depicted the type of structure with the possible greatest potential for such critical developments.

3.5.2.1 Building the Learning Organization:

The concept of the learning organization is very important to this thesis's epistemology and theoretical perspective. The study's view is that such an organization is essential to push the paradigm of CM forward to utilize more complexity based leadership skills. One of the main objectives is to assess whether or not a learning organization is formed from participants partaking in the methods described in the study's research question. Attempts to observe whether or not collective learning occurs within the participant group were made throughout the study, and the possibility of utilizing such learning formats is considered a valuable addition to CM theory.

A learning organization is an organization that has developed the continuous capacity to adapt and change, whether it is planned or reactive, conscious or not (Vera & Crossan, 2004). This type of learning allows companies to engage in problem-solving activities they would otherwise find difficult to do (Senge, Scharmer, Jaworski, & Flowers, 2005). Within a learning organization there are attempts to deal with problems in a more proactive way than other projects utilize. The team as the unit of analysis is a key component; learning should be structured as a social process that involves participative-based procedures to ensure maximum integration (Easterby-Smith, Crossan, & Nicolini, 2000). There are five basic characteristics of a learning organization as described by Senge (1990) in his seminal work on learning organizations, which are;

1. A shared vision exists.
2. People discard old notions of thinking and standardized routines and interactions with systems.
3. Members think of all interactions as part of a greater complex system.
4. Communication is open across all areas and no fear of criticism or reprisal exists.
5. People put aside personal goals to defeat fragmentation to work together to achieve the shared vision.

Some theorists compare the concept of the learning organization to the systems theory approach, which has already been so closely linked to CM uses in other sections (Huysman, 2000; Koppenjan, 2001; Perrow, 1984; Uhl-Bien & Marion, 2008). These notions of learning state that it can occur collectively in an organization like it does in a living system (Senge, 1990). For example, bees as individuals have little capacity for significant action, but as a complete hive the individuals combine their talents in a flocking behaviour that allows them to become parts of a

larger whole, a whole system that has tremendous production capacity (Leavy & McKiernan, 2009). Birds that learn to fly as actual flocks take advantage of the reduced fatigue on individuals and increased distance travelled, and other living systems have similar behaviours, right down to cells within an organism that behave in collective ways to improve conditions (Leavy & McKiernan, 2009). From this approach one can take the viewpoint that learning in a collective sense is something an organization can copy, and have its individuals learning as a 'flock', using such behaviour to find an easier way to progress (Senge, 1990).

Leavy and McKiernan (2009) also state the example of the company General Electric (GE) under the leadership of Jack Welch, a revolutionary figure for that company, as someone who strove to use such collective learning techniques to foster increased and more rapid innovation through a variety of flocking techniques. Welch's plan was to use the various departments of GE to further innovation by speeding up processes by combining their skills and knowledge at never before seen levels of tight-knit integration (Leavy & McKiernan, 2009). The result worked and GE quickly became a leader in innovation, which is deemed the best indicator of whether or not learning has taken place in an organization (Senge, 1990). There is of course a downside to such examples, namely that human beings are independently thinking individuals with preferences for learning which defeat flock behaviour in our particular species (Perloff, 2010; Vera & Crossan, 2004).

Learning and its importance is associated with the need for change. Sometimes change is required and sometimes sought after (Burnes, 2005). Either is preferable to the alternative which is to not change at all, which leads to stagnation in organizational terms (Senge, 1999). An organization that is set up to consistently seek out ways to learn about new innovations, will accept either form of change more readily and willingly (Dai & Duserick, 2008). With this set of attitudes towards learning, change is not so frightening even if it is reactive, and will be seen as an opportunity for improvement (Comfort et al., 2001). Therefore, a learning organization is now a highly sought after type in any industry and the systems approach to learning is becoming more important to attempt to utilize due to its ability to link learning to such natural occurrences as the ones listed above (Senge, 1990). Most individuals will follow such 'common sense' or 'everyday' examples much easier than a more complicated technical example which is outside of their abilities to perceive.

When discussing an organization attempting to involve itself in the process of learning it is important to point out the barriers to learning as well. These barriers have become major obstacles to improving CM polices and the inability of leadership to work past barriers to learning is a problem (Farazmand, 2001). Barriers include; a rigid organizational culture, ineffective communication, decoy phenomena, cognitive narrowing or blockages, maladaptation, single-loop learning focus, and lack of corporate social responsibility initiatives. These barriers discuss the various ways in which a group of individuals in an organization may either intentionally avoid a learning opportunity or be unable to take advantage of, despite their efforts. If the culture is rigid, then little attempt will be made to accept advice or expertise deemed coming from 'outsiders', and this leads to communication that is ineffective in a number of ways (Pearson et al., 2007). Cognitive narrowing refers to the inability of individuals to perceive and comprehend the information they are receiving (Pearson et al., 2007). Single-loop learning is when a learning initiative doesn't have multiple cycles of reflection for analysis and improvement, which can lead to maladaptation of the information found in the loop (Pearson et al., 2007).

Also considered important is the study's take on some of the main learning organization principles set out by Senge (1990) in *the Fifth Discipline.* His two concepts that such organizations must have the ability to design themselves to match the intended or desired outcomes of the culture, and that they must have the ability to recognize when the initial direction of the organization is different from the desired outcome, requiring a change to correct this mismatch in perception and reality, have been critiqued from this study's viewpoint. First, in regards to design matching desired outcomes, the research finds in its review of CM literature that organizations facing crises are in that situation because their desired design was considered appropriate but was in actuality far too complex for them to properly manage no matter what learning they were engaged in. Second, regarding the need to recognize the time for change, it is evident from the same crisis literature that individuals may engage in collective learning but they are experiencing a crisis subjectively. Their desire to want to change will only exist if they do not fear the change itself, and personality attributes more often block efforts to change even when capacities are severely threatened.

Senge (1990) has postulated that systems theory will assist in the application of learning organization development; however it is the study's view that while this is true, complexity in the form of a crisis will defeat many of the suppositions about such learning initiatives unless proper leadership and systems understanding is put in place first. Complexity is both the cause of, and problem with, creating learning organizations when it comes to developing learning about crisis in leaders. The study does believe in the systems theory approach to looking at larger interactions to determine performance, but in the sense that we must look at the core group of individuals and how they create the trends of the larger webs of interactions to know what is really going on. In other words, it is important to look at its teams.

3.5.3 Teams:

Relevant literature on teamwork provided a background on the concept of teams and teamwork, and how they function. A team is a type of group, and groups have many definitions since the definitions of a team are dependent on the characteristics of the group. Groups have been defined as any collection of individuals who perceive themselves as a group (Brooks, 2009). Bass (1985) said that groups were any collection of individuals who believe their existence as a collective is rewarding to each individual. Schein (1988) furthered this in stating a group is any number of people who interact, are aware of one another, and perceive themselves to be a group simultaneously. A common belief exists among the past literature that groups that exhibit cohesion, effectiveness, and shared focus can be considered a team (Bass, 1985; Beach, 2006; Brooks, 2009; Goleman, 1998; Lewin, 1948; Vroom & Jetton, 1973).

Due to the interchangeable nature of the terms 'group' and 'team', they can be considered essentially one and the same. Some theorists state that a team is a more cohesive and smaller version of a group (Carron & Hausenblas, 1998). Katzenbach and Smith (1993) state "a team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable" (p. 15). While this thesis agrees with the elements of this definition of a team, a group can be considered as small as two people, so the idea of separating team and group definitions based on size does not seem useful.

This thesis instead bases its definition of a team on the performance and purpose elements of the supplied definitions. These are also reinforced by the idea of teamwork, which is what separates

a group from a team in the view of this thesis. Teamwork is when the members of the team perform a series of tasks for the purpose of achieving a specific goal (Brooks, 2009; Katzenbach & Smith, 1993). Groups of people may not actually engage in teamwork, whereas teams, by their formation into such an entity, engage constantly in a collective sense of work for achievement of some goal (Katzenbach & Smith, 2001). Schein's (1988) work on the subject showed that effective teams share the following work related skills: a clear understanding of the team objectives, a range of skills and know-how to deal with tasks, inter-team types exists, respect and trust are apparent among the individual members, and a form of reward exists. Groups do not necessarily have to share in these components to be considered a group. A team without these however, cannot function as a team with effective teamwork as a goal (Katzenbach & Smith, 1993).

This thesis focuses on SEOC's because they are viewed as teams, engaged in teamwork. They have common goals which are also based on individual goals, and represent a collective whereby their interactions are dynamic and complex (Carron & Hausenblas, 1998). From these dynamic interactions, which are illustrated by communication, decision-making, and goal-setting, teams undergo team formation, which h in turn allows them to formulate how to best achieve their goals through teamwork (Carron & Hausenblas, 1998). An SEOC undergoes this phenomenon to achieve its end goal, the staging of a sports event. For these reasons the research on teams and group dynamics, and how they deal with complexity, will be explained further in the subsequent sections.

3.5.3.1 Why Teams? Collective efforts vs. Personality clashes:

Sports events, especially major-sized, are not controlled or led by an individual alone but rather a committee made up of professional sports managers; specially trained administrators with a sports/competition background (Bill, 2009; Burbank et al., 2001; Carron & Hausenblas, 1998). There is far too much complexity involved in the planning of any large-scale events, as shown previously, to allow all decision-making power to rest in one individual's hands. Such dependence has led to systems failure in many industries (Boin, 2009; Mitroff, 2004; Perrow, 1984). As previously mentioned, SEOC's are a type of team they are a collection of individuals whose personal experiences and skills are what make their efforts turn into a successful event.

In the decision-making processes of today's large organizations, the emphasis on teams making the decisions collectively has never been higher (Covell et al., 2007; Katzenbach & Smith, 1993). The advantages and disadvantages of using teams to make decisions has been debated for some time, with some theorists insistent that for serious, quick decisions, a centralised form of organization utilizing an unencumbered individual leader is best (Katzenbach & Smith, 1993). Other theorists now point to the need for such decisions to be made by the actual employees in real time, as they are the ones with the most "field intelligence" to make the right calls (Mitroff & Anagos, 2000). However, the organization must know that their teams have been properly trained to cognitively function in such circumstances effectively, without panicking (Comfort et al., 2010). This thesis attempts to evaluate whether or not it is possible to instill such knowledge and skills proactively into the individuals making up the teams as well as the systems they rely on through learning activities.

According to Covell et al. (2007) advantages for teamwork in the face of decisions include several different points. These include;

1. A better understanding of the reasons for the decision to be made by involving others.
2. A greater commitment to making a decision that works.
3. Greater creative potential.
4. Careful evaluation of the alternatives.

Covell et al. (2007) also state the disadvantages of teams being involved in their own decision making processes are;

1. Increased time spent in discussing different stages of the process.
2. Difficulty in reaching consensus.
3. The possible creation of in and out groups.
4. Groupthink.

It is apparent from these advantages and disadvantages that the subject of ORG-CRIS situations will greatly impact an organization no matter how prepared they are. The strength of a team is also its weakness, which is the ability to include a variety of opinions and experiences (Covell et al., 2007; Katzenbach & Smith, 1993; 2001). When involving others you will involve all opinions and attitudes on the subject. As the situation becomes more serious in its potential consequences and impacts, an OC could find itself facing several serious threats.

First, they could encounter opposing views which refuse cooperative efforts on the subject, due to perceived differences of its severity. Second, a division could occur between factions feeling their area is not being protected enough during a crisis. Third, a complete lack of commitment may occur from certain team members due to their personalities, and cognition levels. As mentioned in earlier sections of the literature review, people will view ORG-CRIS as personally and professionally threatening, so the need to self-preserve could overcome any desire to see the organization safely through the crisis. At this juncture, it can be viewed that teams are disadvantaged if the leadership core is not fully aware of the commitment levels of each member. One abandoned post, or one person's effort to save their reputation over the reputation of the organization, could spell disaster in such scenarios, further complicating the issue of pro-team decision-making.

However, as outlined by the early work of Vroom and Yetton (1973) certain decisions can be made by the leader alone while others are best determined by the team. Despite literature pointing to crisis situations ideally being handled by highly trained individuals (Apgar, 2006), the study chose to explore the possibilities of using the fifth type of involved decision making as outlined by Vroom and Jetton (1973), known as Group II whereby the leader meets with the group and directs the discussion but allows the group to come to a decision on it. The study postulated that teamwork would allow a SEOC to fully utilize the benefits of situational contingency management through leadership (Vroom & Jetton, 1973), and further advance it by applying the concepts of nonlinear dynamics.

Another important aspect of the disadvantages of teamwork is the concept of group-think. Group-think refers to the inability of people to function effectively in the decision-making process due to being very close-knit (Irving, 1982). Due to a desire to minimize conflict and reduce weaknesses in the organizational culture people do not critically evaluate the decisions of others, thereby resulting in the selection of decisions that may not be the best solution (Irving, 1982). In an arena like a SEOC the effects of group-think can be far-reaching and devastating. Sports managers have experience with teams of some sort and therefore may already be susceptible to the concept without knowing it. A "for the good of the team" mentality may prevent them from making choices critically.

Alternatively, their insistence that the SEOC be built like a team that only has group goals and does not care for dissenting voices due to their disruption of success could encourage group think in new members of the SEOC. No matter which way the effects of groupthink are studied it is apparent that its potential to affect the decision-making process could be quite widespread. As an SEOC may have many "coach" or "captain" personalities on it, there may be little desire to explore the options of many decisions. These strong personality types may enforce the idea that decisions being made about serious crisis signifier events be a "team" effort in all respects, meaning no one is to question the validity of the team's answers for fear of failure (Irving, 1982; Pearson & Clair, 1998). The possibility of teamwork being affected by individuals for various unknown reasons led the study to consider the possibility of dissonance in their cognition abilities. Data analysis later confirmed that cognitive dissonance was playing a role in the results.

3.6 Cognitive Dissonance:

Dissonance theories by their nature are closely linked to the subjects of complex and bewildering situations. They are often hard to understand and go against the traditional rhetoric of the mainstream theories. Due to the nature of cognitive dissonance it can be closely linked in epistemological terms to chaos and complexity, due to their ability to create dissonance in individuals subjectively and formulate unique perceptions of crises. Cognition is the ability of an individual to comprehend signals and information they perceive in their environment, in order to make decisions (Comfort, 2007). Dissonance is a negative, unpleasant state that occurs whenever a person holds two cognitions that are psychologically inconsistent. There are several core components to the notion of dissonance as identified by Perloff (2010) from the original conceptions of Festinger, et al. (1956). They are:

1. Dissonance is psychologically uncomfortable, and drives individuals to reduce it.
2. It occurs when a person holds two clearly incongruent thoughts, expends effort to participate in what turns out to be a less than ideal activity, or is unable to find justification for their attitude or behaviour.
3. The amount of dissonance depends on a host of factors, including the number of dissonant elements and the importance of the issue.
4. People are motivated to take steps to reduce dissonance, including changing their attitude in response to a persuasive message.
5. Different people employ different strategies to reduce dissonance, some more effectively than others.

6. People may not always succeed in alleviating dissonance but they are motivated to try.

Cognition is known as the information processing abilities of a person's psychological functions (Mitchell, 1972). Individuals perceive their environment in many different ways, such as socio-cultural contexts. People's attitudes and personalities can be altered by their experiences in a variety of ways, and in the negative context of dissonance, there is a commonly held belief that unlike other theories, changes in behaviour can produce changes in attitude (Festinger et al., 1956). For this to happen a critical requirement is necessary: people must persuade them to adopt a new attitude on the topic (Festinger et al., 1956). This element of people's personality can be illustrated by the study's subject of study, ORG-CRIS events.

A crisis can alter behaviour to the point of creating dissonance. In the terms of cognitive dissonance, a person can be so affected by a crisis event, even its planning process, that their dissonance is actually one of perception beforehand. The crisis does not have to happen. Trying to anticipate a worst-case scenario will affect people by creating a dissonance in their behaviour, and they will not be able to contribute to the planning exercise for prevention, because the associated uncertainties represent a symbolic alteration of their behaviours in the future. This is judged as unacceptable, and from there dissonance is experienced (Brehm & Cohen, 1962).

The concept of cognitive dissonance affecting organizations has been looked at recently as complexity has increased throughout the world. This is because dissonance is a complex problem and can be caused by many different lapses of the attitude/behaviour matchup. Job performance has been shown to be greatly affected by satisfaction (Brooks, 2009; Robert & Ventriss, 1992). Satisfaction is related closely to the attitude one holds of their work, so if the attitude is poor then satisfaction drops.

Despite someone having an attitude that getting paid is important, if their satisfaction with their job is low, their performance will be negatively affected (Locke, 2009; Massarik, 1990). Despite wanting to succeed, the individual may not attempt to enhance their performance if this reward is not present. This negative response to work is a concern to management as it can influence productivity (Locke, 2009). The gap between this attitude of 'work is important to do' and the behaviour 'I just don't care enough about it to try hard' is just one example of how attitude and personality creates dissonance.

In CM terms, a group of individuals forming a leadership core must be aware of their collective and individual personalities and attitudes towards the subject of crisis. It has been shown to be easy for a person to be overwhelmed by a crisis and hold an attitude of helplessness against solving it (Drennan & McConnell, 2007). This attitude, combined with efforts to try to mitigate it (the behavioural response), will invariably lead to cognitive dissonance because they do not have the knowledge to correct the problem at the root, namely, they do not have the self-efficacy to get their attitudes and behaviours to match again. An individual's response to crisis will be determined by their attitude and personality (Drennan & McConnell, 2007). So, in terms of the cognitive response in relation to attitude formation, several crisis specific factors have been uncovered that will affect strategy in organizations in the literature.

3.6.1 Cognitive blockers and crisis signifiers:

Literature illustrates what could be called 'blockages' to a person's cognitive skills. These blockages can signify various types of crisis situations that require unique management and leadership responses and preventive steps. The behavioural responses to these blockages are varied according to personality, but in the context of crisis situations their ability to create cognitive dissonance is important to identify. Drennan and McConnell (2007), as well as Mitroff (2004), Boin and McConnell (2007) and many others have identified five main dimensions of crises. These types of crisis represent what this thesis views to be major signifiers and blockages of potential cognitive dissonance in organizations members.

First, crises have varying degrees of familiarity (Boin & McConnell, 2007). These range from the 'everyday' crisis (i.e. kidnappings, terrorism in general) to the 'incomprehensible' degree, which this study refers to as the Worst Case Scenario (WCS). The issue with this degree of familiarity is that experiences which are common, lead to a decrease in preparation intensity by those responsible for it (Boin & McConnell, 2007). For example fire alarms are an easy fix to the issue of house fires, an everyday crisis. However, they do not really increase the cognitive ability of anyone to deal with the problem. Instead, we have created a system that solves it for us. Our dependency on the technology to solve the issue for us leads to a 'lazy' attitude towards fire safety (Boin et al., 2005).

Despite fire alarms being required in every house, there are still several deaths from house fires every year in North America alone, because the occupants usually did not put in place any other

type of response, or better yet, an anticipatory system for the potential crisis (Boin et al., 2005). The belief, or cognitive response of the attitude, that the system will save us is a warning sign that complexity leads to technological overdependence (Miller & Page, 2007; Mittleton-Kelly, 2003). Incomprehensible situations are what this study is most concerned with. The ability of such situations to improve cognitive abilities is an untapped resource that has limited information available. If an everyday crisis leads to overdependence on a CAS, then an incomprehensible planning scenario can potentially lead to learning 'outside the box', in the view of this thesis.

3.7 Summary:

In summary, the literature on sports event management illustrates that sports events classified in the major and mega type categories have, over the last 30 years, grown exponentially in the number and type of organizational systems required in managing them. This has increased the organizational complexity of the organising committees that make up the leadership group of these events. Increased organizational complexity has led to an increase in the likelihood of risks affecting the event and its organisers. The complex interactions of the myriad systems both inside and outside a sports event have also led to an increase in the severity of the threat level of these risk consequences, creating environments where risks become crises more often than in the past. CM requires a different mindset than its predecessor RM, as recent literature states that crisis situations require more holistic contingency planning efforts which attempt to anticipate rather than react to a severe threat to properly prevent or manage them.

The belief that SEOCs represent a new form of organizational complexity is indicative of how these organizations are a type of CAS. The application of NLDS theory to their workings is potentially useful. This supports this thesis attempt to apply the concepts of both Complexity theory and NLDS theory to further the understandings of how CM efforts may be improved. The focus of this thesis is on creating such advances through leadership behaviour manipulation. Relevant literature states leadership behaviour is shown to have a major impact on an organization's abilities to deal with CM initiatives. This is due to leadership behaviour impacts on group dynamics such as building organizational culture, self-efficacy, collective efficacy, trust, vision-sharing and cognitive skills. Through efforts by leadership members to learn collectively about these concepts, they can become more amenable to organizational change.

They have even been shown in the literature to be able to encourage more planned change and deal with reactive change more easily when required.

As crisis situations occurring are directly linked to the complexity of an organization's systems as shown in the literature, the importance of developing a leadership group that attempts to learn collectively about the various elements of organizational complexity has become very important. Chaos theory and CAS theory provide pathways to shift thinking and learning styles of leaders so that they begin to see the opportunities in such methods rather than the threats associated with them. The abilities that are possible to build through utilizing such scenario planning efforts that take advantage of the extreme and catastrophic end of the WCS scale of CM planning efforts are very valuable to constructing organizational resilience. Due to the nature of a CAS and its ability to self-organise via emergence, it is considered possible by the literature to incorporate such practice into the decision making functions of the sports event organization. This thesis supports the belief that increasing cognition skills through shifting the viewpoints of the leadership group on CM will lead to a more efficient event management experience in general.

The next chapter will introduce the methodology and the methods required for this thesis to meet its aims and objectives. The literature reviewed in the previous two chapters was used to select a methodology that would accept the existence of complexity in a work environment and more importantly, find ways to work with it rather than against it. The methodology chapter outlines the epistemological approach to knowledge creation that this thesis holds, and how the concepts explained in the previous sections contributed to it. Also the selection of a variety of methods and their purposes will be explained. These methods were chosen because of their ability to uncover new ways to deal with complexity and chaos and assist a research population in unravelling the problems that were affecting them. The design the research took towards data collection and analysis will be presented in this chapter. The major challenges facing this thesis in gathering the data required to answer the research questions will be explained in further detail as well.

4 Methodology and Methods

4.1 Introduction:

This thesis utilizes a qualitative methodology to gain insights into the how and why type questions surrounding the research topic. It is attempting to build a rich, diverse set of data based on findings from in-depth methods in the following formats; interviews, facilitated work groups, and field observations. The study utilized an epistemological approach following the constructionist point of view, wherein individuals create their own unique reality based on social interactions, and how they perceive the world around them. Qualitative data was gathered that associated each individual's perception of the research project subject matter and how that affected group performance. The research participants formed a community of inquiry according to the Collaborative Inquiry methodology. Within this framework, they and the researcher formed a collective that went about trying to qualitatively address the problems they found relevant to their environment. The methodology sought to use this type of data to frame a conceptual model of their own design for optimum relevance. This chapter will provide the methods used throughout the experiment, and illustrate how they contributed to the overall aim of this thesis to contribute knowledge to its target fields.

4.2 Epistemology:

Epistemology is the branch of philosophy concerned with the nature and scope of knowledge and how we attain it, identify it, and know that we know something (Crotty, 1998). The epistemology of a thesis is the formation of how the study creates knowledge and identifies what is or isn't knowledge (Bray, Lee, Smith, & Yorks, 2000; Crotty, 1998). The theoretical framework or perspective of this thesis has been generated via review and analysis of the relevant literature. The epistemology describes how that framework assists in the selection of a methodology that will allow for the necessary knowledge generation. The epistemology of this thesis is rooted in the idea of experiential knowledge, or the knowledge gained by doing, or from the experiences we have throughout our lives (Heron, 1996). This has led to the following views on knowledge and the assertions of this thesis towards useful knowledge creation.

The research methodology is based on the epistemological approach known as c*onstructionist,* or the psychological theory of knowledge. Constructionist views argue that humans generate

meaning and knowledge from their own experiences (Crotty, 1998). According to the constructionist view, accommodation is the process of reframing one's mental representation of the external world to fit new experiences (Crotty, 1998; Locke, 2009). Accommodation can be understood as the mechanism by which failure leads to learning: we act on the expectation that the world operates in one way and when it violates our expectations we often fail. By accommodating this new experience and reframing our model of the way the world works, we learn from the experience of our failure (Heron & Reason, 2001). Learners with different skills and backgrounds should collaborate in tasks and discussions in order to arrive at a shared understanding of the truth in a specific field (Bray et al., 2000).

The view of the universe in this paradigm is one of active participation by an individual with their surroundings, through this participation we are in touch with the 'other' and thereby know what it is (Crotty, 1998). Reality is subjective-objective in this paradigm's context. Our interactions and experiences with the rest of the outside world are shaped by our own terms of reference, creating subtle differences in the opinion of what is or isn't significant. The subjective of the known is so because the mind gives it form and the objective is so because our minds interact with the universe and perceive its shape based on the reference (Heron, 1996).

4.2.1 Linking epistemology with theoretical perspective:

Crises are similar to this constructionist epistemological sense; they provide a different reality to each individual as it unfolds in front of them based on the level of personal threat an individual will feel towards the experience and consequences (Comfort, 2007; Crotty, 1998; Doll Jr. et al., 2005; Drennan & McConnell, 2007). For this reason, the constructionist viewpoint is being utilized for its notions of individually constructed realities, each one presenting a subjective reality of the crisis as it unfolds in the organization (Heron, 1996; Kiel, 1994; Mitroff & Anagos, 2000). This relates it to the methodology of collaborative inquiry (CI) because CI has been shown to be a "significant tool for adult educators and others seeking to facilitate learning that helps people make meaning from their lived experience, and to foster change in their lives" (Bray et al., 2000, p. 2)

The subject matter of this thesis requires that one understands the necessity of individuals perceptions of the impacts of these phenomenon because of the unique interactions they have with other individuals that make up their OC (Bray et al., 2000). From a cognitive skill standpoint, it is important to grasp that a team of people will react to a crisis as individuals, no matter how strong their organizational culture. The volatile thoughts and emotions such events trigger in humans occur in an individual way. It is necessary to understand and construct the reality of this thesis around the concept of the individual and their own cognition skills. The ways in which we all experience crisis events are important to understand, and anticipation of how a group will respond is measurable from the actions of its leaders, who are acting as individuals with collective interests in these cases (Drennan & McConnell, 2007).

4.3 Methodology:

Due to the study's exploratory nature, a qualitative methodology known as Collaborative Inquiry (CI) from the area of Action Science is considered the most effective. The questions being asked by the study are about *how* and *why* the issues being studied arise, and how interactions between people cause them. For example, questions like *why and how do crises affect sports events of this scale? Why do such crises continue to happen? How are they planned for? How are the leadership core members dealing with them once they occur?* These are just some examples of such questions raised by this thesis.

The data being collected is based on a very specific population, it is not chosen randomly like quantitative data. The specificity of the research participant's individual responsibilities towards their organization's goals and objectives makes it essential to fully understand the nuances inherent in their work. Qualitative measures are the most effective in gathering data of this type as it is possible to gain an ethnographic view of the subjects and how their interactions help shape their daily lives and create consequences that must be observed closely to be noticed (Bray et al., 2000). The chosen community is the sport event management committee of a major sports event organization. The committee members who are designated as the leadership core make up the primary research participants. All research was done in conjunction with the collaborative efforts of the participants for the current event and committee members.

4.3.1 Action Science: Validity and Justification

Action Science was coined by Kurt Lewin (1948), and is also known as action research or action inquiry. It involves a higher degree of social learning and responsibility on the part of the researcher than its predecessors. This methodology was introduced into social psychology by Lewin (1948) so that qualitative data could begin to be viewed as valid as quantitative data. This had been (and continues to be) a difficulty for qualitative data since it is usually associated with small population sizes, mere dozens -perhaps less- of participants, unlike quantitative data which relies on many more participants for its results (Argyris, 1985). Quantitative research methodologies also place all control and authority of the project in the hands of the researcher and typically do not make any attempt to better the lives of the participants (Heron, 1996). Even in action science, there is an historic emphasis on research being done for the sake of the researcher alone, despite there being much fairer and equitable sharing of what information is valuable and how it will be gathered from the participants (Argyris, 1985).

However, the elements of traditional participative action research (PAR) were deemed inadequate for this thesis after the initial design plans. A pivotal part of the CI methodology is the push towards social action, which was later expanded upon by academics like Heron and Reason (2001), and Torbert (2004), both in solo and collective studies. The traditional PAR methods lack this insistence for social action that CI includes. Despite the need that developed to forego traditional PAR methodologies, their roots and their influence on the study design is important to recognize.

Action science is research that requires a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action, from which learning can occur (Lewin, 1948). Action science pushed qualitative research to new heights of validity and enable the social sciences to gain major ground in their quest to apply their knowledge to society (Argyris, 1985). Action science allowed organizational studies to become capable of more than just economic forecasts. For the first time ever it was possible to understand a company's success or failures as causal relationships between human agents (Argyris, 1985). Without action science there would not be any platform to begin to understand that human behaviour is at the heart of organizational performance. Without the methodology's efforts to understand why

behaviour in the workplace is so important, there would be little of the advances in this field today that offer us so many useful management tools (Argyris, 1985).

Action science aided in the development of the Planned Change Model, which showed change in organizations occurring along the lines of 3 steps: unfreezing, melting, and refreezing (Lewin, 1948). This concept of how new ideas are introduced, break down barriers, cause confusion, and then re-organize a group have been advanced through different methods and tactics ever since. This model was the first attempt to understand the human interaction side of organizational behaviour and performance (Burnes, 2004). Without the Planned Change Model there would not have been the foundations for studies that eventually delved into the evolving complexity of society (Burnes, 2004). Lewin's work allowed for qualitative methodologies to grow into human behaviour measurement tools across many social science disciplines and is still considered useful today (Burnes, 2004).

Argyris' (1985) view that the researcher should get involved directly with the subjects to better enhance the quality of the data was in contrast to the traditional positivist and deterministic notions of validity. However, because of this involvement action science began to validate qualitative sampling and methods as true scientific practice that yields rich, diverse data (Argyris & Schon, 1992). The inability of understanding the nuances of data sets was something action science sought to change, and qualitatively assessing data gave meaning to otherwise incomprehensible information (Argyris, 1985). The methodology allowed this thesis to formulate a design which would serve two purposes. First it will allow for the collection of in-depth data required to understand the nuances of an organizational culture. Second, it will allow for both groups (researcher and subjects) to gain something valuable from their relationship.

4.4 Methodology and Objectives:

This thesis argues that a qualitative methodology, such as action science, is an appropriate starting point for meeting its objectives and aims. The delivery of the study will be enhanced by this methodology's concepts because of several factors. First the sample size is quite small; only certain members of the SEOC are responsible for the areas of leadership, so a large size reminiscent of quantitative formats is not needed. Second, the data required to answer the

research questions is qualitative in nature. It is necessary to gather opinions, beliefs, and attitudes, not just statistics as to why the organization struggles or succeeds in its work. Third, the ability to not only study the community of the SEOC, but to enhance its knowledge base for its betterment, needs a level of interaction only attainable through action science. This data will be formed from the actual community being studied, and its value and validity will be field tested in real time so that its significance can be seen and felt by the SEOC members. The methodology must be able to meet the social responsibility the researcher feels towards the organization.

However, it has been noted by Heron (1996) and Heron and Reason (2001) that traditional action inquiry does not take into account the transformational needs of some research participants. That is why this thesis has taken the idea of PAR one step further, as they did, to implement a CI research methodology design. This CI design allows for a type of PAR that is concerned with qualitative data of a transformational nature, and attempts to move the experiential qualities of a researcher and population interacting with each other into a set of beneficial guidelines (Heron, 1996; Heron & Reason, 2001). These efforts of engagement are very focussed on a need to produce useful information for both academics and the population being studied for mutual benefit. The following section will elaborate on the development and use of CI and Action Inquiry.

4.5 Collaborative Inquiry: Validity and Justification

CI involves a researcher and a group of subjects creating a "community of inquiry" whose object is enhancing that community's knowledge or experience somehow with their combined input (Heron & Reason, 2001). Collaborative inquiry is "a process consisting of repeated episodes of reflection and action through which a group of peers strives to answer a question of importance to them" (Bray et al., 2000, p. 6). It holds its origins in the work of Lewin (1948) and Argyris (1985) and their counterparts in social research and PAR efforts. Heron and Reason (2001) outlined much of the original modern day research methods of collaborative inquiry. The community of inquiry in this case will be members of the organising committee of the sports event, specifically divisional leaders from its various event committee areas and its project managers.

CI holds a special distinction in that it follows closely in the belief of Argyris (1985) that social research should enhance useful knowledge for the community being studied. By choosing a community, a study is intending to become involved not just for their own benefit, but for the benefit of said community (Heron & Reason, 2001). The relationship is not parasitical, but mutually beneficial, or symbiotic (Heron & Reason, 2001). A study utilizing this methodology believes that enhancing a communities learning through adaptability will provide the data they seek to answer their research questions (Heron & Reason, 2001). Inherent in a collaborative inquiry are the concepts of knowledge and how it stems from four areas of belief; *experiential, presentational, propositional* and *practical* (Heron, 1996). Experiential belief is the belief from experiencing something; presentational is the belief of an intuitive feel of a pattern in something; propositional refers to the belief from action or witnessing something exist; and practical belief is the belief taken from acquiring a skill instead of learning about it in theory (Heron, 1996).

In terms of how a CI methodology breaks down into a more detailed series of steps, it is necessary to outline how the elements of the interactions will be categorized according to the various elements. For this study, the collaborative process will take on a *Transformative Inquiry Process,* wherein the object is to have practical skills and knowledge come from its efforts (Heron, 1996). This is a useful approach when attempts are being made at transforming social structures, such as an organizational culture, like the aims of this study (Heron, 1996).

A collaborative inquiry has many elements, and combinations of various methods of conducting it. This study will utilize an *externally initiated, partially formed, mixed role, inside-group process inquiry* with *open and closed boundaries,* and a combination of *Apollonian* and *Dionysian* cultural inquiry elements (Heron, 1996). This means the initiation of the process is external from the group, namely the researcher, and a partial form is used because the researcher is not a co-subject. The mixed role is used because the subjects and researcher come from different professions, and the inside-group process is preferred for studies looking at what goes on inside a group and how it affects them.

Using open and closed boundaries means the interactions of the group's internal environment will be used. The interactions it has with the external world and how those affect them will also be studied (Heron, 1996). Apollonian and Dionysian cultures refer to the Greek mythology figures of Apollo, representing rigid structure and linear paths to solve a problem. Dionysius

represents an organic method of learning where structure is not enforced and group members are encouraged to engage each other at will (Heron, 1996). These elements of the collaborative inquiry have been chosen as the most applicable to meeting the objectives of the study.

It is through this type of collaborative inquiry that the study aims to achieve total convergence and divergence. This refers to the ability of group members to come together over the things they learn and after the action and reflection phases (Heron, 1996). People will disagree and then resolve their disagreements at different stages, creating a divergence and then a convergence of beliefs in the effort to have transformative inquiries lead to greater practical knowledge (Heron, 1996). Chaos and CAS by nature indicate that a collaborative inquiry group must be ready to explore all possible bifurcation possibilities in order to have any serious attempt at proactive planning and mitigating crisis. The Group-Inside inquiry method will utilize collective research cycling, where all members of the group will contribute to two-way feedback loops, characterized by Argyris' (1985) Double-Loop Learning model.

In terms of the validity of choosing CI it is the opinion of this thesis that quantitative analyses of statistical measures of performance are not enough to answer the research questions. This is justified by several of the elements of the study. First, the issue of crisis events complicates using other methods because crises are subjectively felt by individuals, even if they are happening to a group. Therefore, not using subjective measurement tools will provide inaccurate analysis. Second, the environments of the SEOC and the nature of its machinations are too complex for other measures, because initiating contact one system at a time or isolating a system from its counterparts will only lead to another inaccurate view of the CAS as a whole. Through CI it is possible to get a ground level view of the actual participant's share of their CAS. This will allow for an accurate observation of how they perceive their environment.

It is necessary to use a methodology that allows for direct contact of the members responsible for the areas being studied due to the experiential nature of the knowledge in regards to these topics. To better understand the leaders and how they operate within this complex system, a deep understanding is necessary to comprehend the layers of complexity of the system and how they impact on each individual. From these interactions will grow the knowledge an individual of the SEOC will hold about what their capacities are in relation to a crisis. Therefore, to engage collectively in WCS scenario planning efforts will require the participants to go through a similar

experience-driven set of activities. The elements of CI allow for engaging a participant closely. By using their specific knowledge that has been formed from experience and reflection of new ideas, we can begin to develop leadership theory data that is specific to them, making any contributions to the theory of sport management all the more useful. However it is important to rely on the knowledge creation techniques afforded by CI and its methods of group interaction on intimate levels.

4.5.1 Double Loop Learning:

Double-loop learning is the intended outcome of a collaborative inquiry project (Argyris, 1985). It was developed for studying organizational as well as individual learning capacities (Argyris, 1985), and therefore is very relevant to this thesis' aims of organizational change. Argyris (1985) holds the view that human reasoning and not just behaviour defines how we respond to conflict. When humans engage in either individual or organizational learning, they encounter single and double loop learning processes (Argyris, 1985). When the organization undertakes actions to not only solve a problem but to openly inquire about the conflict in question with the purpose of transforming variables in order to openly learn to do better, double-loop learning has occurred.

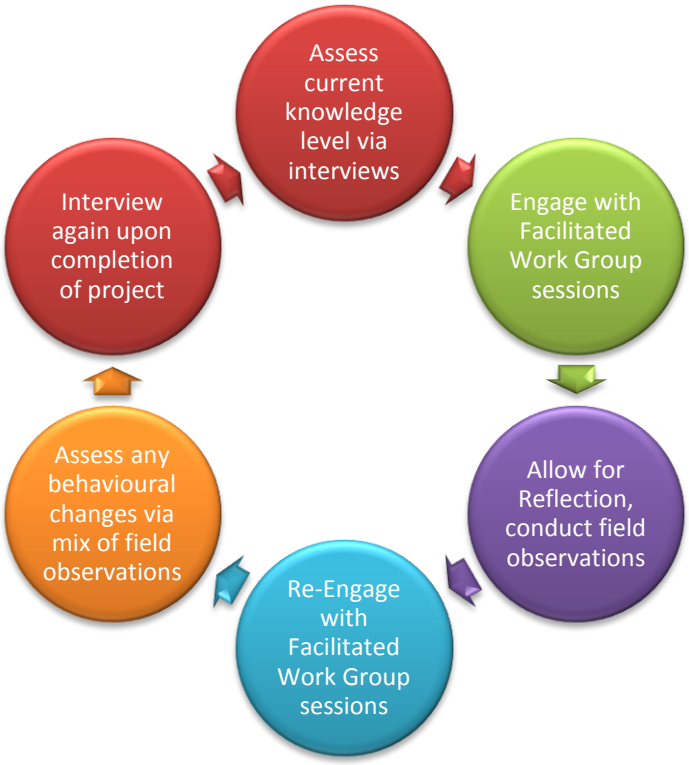
Double-loop learning is when a group enters the research phase of compiling data with the researcher, and has both a planning phase and then an action phase (Argyris, 1985; Heron, 1996). During the latter, they take what they have collectively learned into the field, and then return to have a reflection phase (Lewin, 1948; Argyris, 1985). It is in this phase that learning occurs, as the testing of the notions they came up with first are deemed worthy or not of keeping or changing (Lewin, 1948). This evaluation leads to another action phase with the updated ideas (Lewin, 1948). When they come back for another reflection phase, this is where double-loop learning is hopefully occurring, they are enhancing their own knowledge through trial and error with the researcher's assistance, and this can be recorded for data analysis (Lewin, 1948; Argyris, 1985).

Because Argyris's (1985) work is centered on Organizational Behaviour and learning, it has been chosen as the most suitable for this study. Also, a central concept of Argyris's (1985) views is

that conflict arises in organizations because of human interactions on a complex scale. Although complexity theory and chaos theory were not widely used at the time, one can see the similarities in a theoretical framework where complexity of the systems inherent in both areas makes them relatable. Research should be undertaken to generate knowledge useful in solving practical problems (Argyris & Schon, 1992).

The issue of leadership in a sport organization is a practical issue that causes many consequences to real people in real time. By utilizing a methodology that seeks to improve the complex systems from a variety of perspectives for the good of many people's interests, the research is generating useful knowledge. There is not only a need for a study on an academic level to provide extensions to theory to be valid. There is a social need of the people involved in an OC, and the people affected by its decisions externally, to have extensions of 'real life' knowledge that will make their decision consequences as positive as possible for all involved for the sake of the event and themselves. A visual representation is provided below to illustrate the way the CI inquiry methodology will be utilized.

Figure 10 Diagrammatical Representation of Collaborative Inquiry Methodology



4.5.1.1 Assumptions:

The assumptions made by this thesis associated with a collaborative inquiry environment are that it will allow for learning to occur in the following ways:

1. Leaders who are unaware of complexity's effects on them may become aware of it.
2. Leaders who are unaware of how complex their systems are become aware of it in a more holistic sense.
3. Generations of ideas may be enhanced when everyone's opinion is given freely at the same time.
4. The ability for the leaders to learn about an area that is not under their direct control during 'normal' operational status but rather during 'crisis' operational status may be developed.

An assumption exists that the attempt to create a crisis anticipation system instead of an emergency response system will be extremely difficult. The assumption is that directing people to engage in behaviours which make them plan for an alteration to their future behaviours significantly is enough to create a change in attitude. The assumption persists that the action of purposefully planning for chaotic WCS is more than the bounded rationality of most individuals can accommodate.

Further assumptions of this thesis towards the methodology is that if leadership cores in organizations employed a specifically-designed methodology directed at uncovering the complexity surrounding employees during crises, more accurately gauging a person's response to that type of stress may occur. Such tools could offer avoidance in hiring or retaining people not useful in high stress situations brought on by the cognitive difficulties observed in any ORG-CRIS.

4.5.2 Design:

This thesis uses qualitative research methods in its data collection and analysis efforts. Qualitative research is known to use multiple methodologies when necessary to understand people in their own social settings in terms of the meanings those people bring to their situations (Heron, 1996). Qualitative research seeks to understand not just the 'who' and 'where', but also the 'why' of the subject. This thesis incorporates a methodology known as collaborative inquiry (CI), which is a relative of the Participatory Action Research (PAR) method. Normally qualitative research does not involve participants in decisions about the design of the study, only

negotiations of access (Bray et al., 2000). CI however is designed to allow a researcher to bring their contributions to a community who are interested in reviewing and changing the way they do their business for the betterment of all parties, it is research *with,* not *on,* people (Bray et al., 2000; Heron, 1996; Heron & Reason, 2001).

The design is meant to allow the researcher open and recognizable access to the participants in order to assist them in creating this possible change. The design also seeks to allow the researcher to have immediate and in-depth exchanges with the participants regarding their decision-making processes before, during, and after the study. This way a rich, detailed map can be created illustrating how they have approached and dealt with each problem they encounter in the field. The feedback and input of the community in question is meant to reflect an in-depth portrait of how they approach a paradigm shift for possibly the first time in a number of areas, and what its impacts might be.

4.5.3 Population:

The population of the research was made up of the management and leadership teams for two of the largest sporting events of amateur status held in the country of Australia that follow an annual and quadrennial schedule. The population consisted of 14 individuals who directly participated in the research methods, and they comprised the community of inquiry. From these individuals grew the policy and processes for the entire sports event. The population size is very novel in the sense that it is a small sample size compared to other quantitative representations of other studies. Unlike other quantitative sample sizes it is not numbered in the hundreds. However, this is irrelevant to the study as it was concerned with studying the most relevant demographic of a sports event responsible for leadership decisions. The population represents the entire leadership core of the events, meaning all leadership roles of seniority were handled by this group, making them the most valid to work with.

The population were all previous event management specialists, either in the field of sports management or tourism/event management. They were representatives of the organization and participated collaboratively with the researcher to address the research objectives. Their areas of responsibility included Sport Logistics, Venue Preparation and Competition Logistics, Sport

Regulations Compliance, Transportation and Administration Management, Communications, Marketing and Sponsorship, Social Program and Entertainment Management, Security and Risk Management, and overall Project Management departments. However, the significance of the lack of specific sports event management experience in some members of the population once the data analysis began led to the need of this thesis to create two classifications of the population. These are; *Sports Event Familiar* (*SEF*), describing the individuals with previous sports event experience and *Sports Event Unfamiliar* (*SEU*), referring to the individuals who had no previous sports event experience specifically. The importance of this distinction will be discussed in the results chapters.

The population consisted of five males and nine females. A large cross-section of ages was present, encompassing an age bracket from 21-45 years of age. Some individual participants had over a decade of related experience with such organizations, whereas others only had a minimal amount (less than a year). This provided diverse data on how experience affects perceptions of organizational complexity. Among the research participant population every facet of their sports event management departments was represented. This made them the appropriate group to study in terms of leadership responsibilities. In the discussion of the data found in the methods, the participant's comments from transcripts are presented in a non-identifiable way.

They are referred to in the findings as "SEOC Participant", when a single individual's comments are being used for an example of data analysis and extrapolation. At times, several comments from many individuals are used for the same purpose. In these instances their comments are represented as "SEOC Participant A", "SEOC Participant B", "SEOC Participant C", etc. This is to acknowledge the uniqueness of each statement, when the data extrapolation required a series of unique statements and not a conversation. When the data was meant to represent a conversation, individuals are represented as "SEOC Participant A", and "SEOC Participant B" only and these identifiers repeat to keep the flow of the conversation clear. It was deemed necessary by the national ethical standards to keep the participants completely non-identifiable in such a way. Also, it was not considered relevant in the views of the research to be able to identify which participant said what in the presentation of findings, because the methods were a collaborative effort, where all contributions were equal and status or seniority was not meant to separate anyone's ability to contribute.

4.6 Methods:

This thesis utilized qualitative methods due to the specific small population being studied. All of the methods chosen for this study have been shown to be used to encourage action science's goal of double loop learning and collaborative learning initiatives (Heron, 1996; Heron & Reason, 2001). CI methods involve a deeper level of connection with participants than traditional action inquiry methods. For this reason, interviews were chosen for data analysis of opinions. Facilitated Work Groups were the major element of this experiment as they allowed for the completion of the purpose of the CI method, namely the attempt to engage a research population at a deep level to ascertain any impact on them, and conjointly provide beneficial information for the population as well as the researcher.

Field observations provided timely and useful data during real-time event operations. The CI methodology led to this method of data gathering to be very useful because it allowed the researcher to shadow all the major leaders of the SEOC during the time of most heightened stress. The ability to be so closely linked to the participants during this time and have such detailed access was due in part to the CI methodology. If the purpose of the study had not been to benefit both parties, then it was unlikely the researcher would have been granted such intimate access, as the real-time delivery of a sports event is a highly stressful period of time and anyone deemed 'underfoot' is quickly removed, especially if they are not essential to operations. For a further illustration as to how the methods will assist in meeting the research objectives, see Table 6 which shows what method contributed the most to answering each research question.

Research Question	Method
What will be the impact on a SEOC's leadership and decision-making behaviours, from the implementation of a mixed complexity/nonlinear dynamical systems theory based framework designed for enhancing crisis management techniques?	Interviews, facilitated work groups, field observations
Are crisis anticipation systems actually beneficial or practical for Sport Events?	Interviews, facilitated work groups
Would SEOCs experience a more efficient event management experience if their leadership styles were changed according to Complexity Theory and Nonlinear Dynamics paradigms?	Facilitated work groups
Will it be possible to measure or identify any successful learning opportunities within the SEOC community?	Interviews
What are the possible implications of using WCS to reformat crisis management plans for an SEOC?	Interviews, field observations
What are the possible implications for SEOC members engaged in a Collaborative Inquiry research project that focusses their efforts on affecting their cognition abilities/levels?	Interviews, field observations

Table 6 Alignment of Research Question with Method

4.6.1 Interviews:

Structured interviews were conducted with as many of the participants as possible who were a part of the SEOC population. Interviews were conducted prior to the FWG with all 14 members of the participant group. Interviews conducted in the post FWG time were completed with 12 out of the 14 SEOC members. The missing interviews were due to SEOC members being absent during the time of the collection of post interview answers due to leaving the organization for another job and they were not reachable. By utilizing an open-ended question format, the researcher sought to obtain further information from the subjects as to how effective they felt the process of the collaborative inquiry methodology efforts had been in the pre-FWG interviews.

This open-ended format of interviewing led to more opinion-oriented answers, which provided an evaluative tone for analysis. By giving the subjects an opportunity to assess their

participation in the experiment, the belief was they would feel both a deeper sense of connection to the project and their importance to it, as well as a sense of closure. Interview transcripts formed a large part of the data analysis efforts. Responses sought to evaluate the subject's attitudes and opinions towards all topics focussed on during their exposure to the experiment.

The initial post-FWG interviews provided several points of interest. First they provided an introduction to each member of the SEOC to the researcher, and this helped to establish a comfort level and trust in the method of this thesis. Second, the researcher obtained background contextual information on the SEOC members, allowing for an understanding into their past work experiences. Third, the interview's structure provided the researcher with a more detailed understanding of the background the staff members have of CM. This information assisted the researcher in structuring the FWG into the most relevant form.

The post-FWG interviews were used as post-assessment tools for attempting to measure any perceived impacts of the theoretical framework or methodology on the participants. They provided proof by admission of the individual that they perceived themselves as learning either as a collective or not. Also they illustrated whether or not they created new knowledge for themselves and their community to solve the problems that were raised as issues. The post interviews provided another important part of the action science-oriented CI method, meaning they assisted in articulating any knowledge the participants may have from a reflection phase.

The post interviews were conducted several weeks after the FWG. This gave the participants time to reflect on their experiences. The post interview provided them with a chance to reflect on their experience and put into words what they may have learned or felt changed or did not change in their environment, or their own attitudes. This is known as presentational knowledge (Heron, 1996). Due to constraints of time and geographical space, the post interviews were conducted by email and the pre interviews in person.

4.6.2 Facilitated Work Groups:

Within the community of inquiry made up by the above mentioned staff members of the SEOC, a facilitated work group (FWG) was created to complete the elements of a collaborative inquiry methodology. This is unlike a 'focus group', whose intention it is to review collectively a

specific thing and then get input from all involved as to its features (Heron & Reason, 2001). In the FWG, a work group is formed and led by a facilitator. In this case the researcher was the facilitator and the selected staff members were the work group. FWG's are chosen over focus groups for the purpose of becoming fully involved with participants in the discussion and analysis of the topic whereby both parties become co-researchers (Heron & Reason, 2001).

The group is led, or guided by the researcher, only they are not responsible for providing members with opinions or any type of persuasion. The only direction-giving is that the researcher initiates the project (usually) and then co-ordinates the necessary formalities with the subjects to get started (Heron, 1996). The facilitator's role is to provide a focus on the topic, inform the group about the new information, answer questions about the topic from the group if necessary, assist them in understanding new areas if necessary, and maintain an open flow of ideas about the topic of focus. Through these roles they become a facilitator and then co-researcher with the participants as they work *with* the participants to solve problems that they raise (Heron & Reason, 2001).

The concept of the FWG is known to be beneficial in social science studies, especially those on organizational systems, because of its intention to engage participants in many types of "knowing" especially propositional and practical knowledge (Heron, 1996; Heron & Reason, 2001). Presentational knowledge is the knowledge type wherein a person knows something from personally having lived it. Practical knowing is the knowledge acquired from the skills possessed to do something. The reflection on experiences allows individuals to form these types of knowing and their associated knowledge types.

A FWG is in essence a group of people sharing lived experiences so that they might engage in a furthering of knowledge about a topic, through collective analysis and synthesis of their experiences (Bray et al., 2000). In an FWG it is essential that participants *participate* as fully as possible. Without this type of interaction the method really does not work. However even in such behaviours as non-participative attitudes a researcher can gather information on how effective the method is for learning for that particular group (Heron, 1996). Participating in the research gives the members a sense of ownership of the results, which can further enhance their likelihood of actually changing behaviours for their betterment. If an individual feels no connection, ownership of, or commitment to the results due to not fully engaging in the creation

process of the information in question, they are unlikely to implement it into their daily life for any significant period of time (Bray et al., 2000; Brehm & Cohen, 1962; Dai & Duserick, 2008; Goleman, 1998; Kiel, 1994; Mitroff, 2004; 2005; Schoemaker & van der Heijden, 1992; Senge, Scharmer, Jaworski, & Flowers, 2005)

The FWG was initiated by the researcher through email communication to the management of the organization. The organization agreed with the researcher that such a study could be beneficial for both of their parties as they had been struggling with the issues the researcher was interested in studying for some time. The researcher contacted the specific individuals from the information given by the organization and set up the initial meetings and times for the FWG experiment to begin. The community of the research participants were briefed as to the purpose and length of the study and timelines were adjusted after negotiation with the management for the benefit of both groups' time constraints.

The researcher conducted four FWG sessions with the research participants over several months, allowing for reflection periods in between so that the self-analysis and experiential knowledge of the participants could be formed. More FWG sessions were planned but this population was transient, temporary, and under strict deadlines. Although this was an initiating factor the information gathered was still in-depth and very diverse, and the range of methods used by the study, once combined, allowed for a very detailed picture of this population to be presented.

The FWG was constructed to flow as a group discussion amongst the members of the SEOC and the facilitator prior to their actual sports event. The group discussion was also meant to be a learning opportunity for the members. It proceeded along the following format; the group was introduced to the facilitator and were seated around a large table facing an Audio Visual presentation screen. The screen was hooked up to a laptop and was showing the screen view of the program called Inspiration Software. Inspiration software is a visual mapping program used to create concept maps and other types of visual aids like flow charts so that ideas can be quickly transformed into visual representations with text and any other necessary components. The facilitator explained that they would be using the software to assist the group build their efforts into a visual tool for easier understanding.

The facilitator's role was to operate the software and record their discussion points as they saw fit. The facilitator did not at any time dictate the ways in which the diagrams and models of the work group were put together or used to represent any topic. This was directed by the group members. The FWG members were advised that the point of their discussions were to attempt a set of criteria. These criteria were also the basis of the checklist that the researcher used to establish a measurement of how effective the FWG was in meeting the objectives, so as the participants conducted their FWG sessions, the researcher followed the checklist below to establish how each individual was contributing to the qualitative data:

Is there discussion openly amongst everyone about any issue or risk that could be construed as a potential crisis?
Do they develop a Crisis Anticipation System (CRASYS) by way of modeling a cause/effect cascading model with the Inspiration software for this example?
Do they explore any nonlinear dynamics to examine the impact on any part of the sports event, either human or infrastructure related, from the example?
Do they identify as many causes and preventions of the issue as possible?
Do they identify how far back in time from the event occurring it was necessary for the SEOC to go in order to see when implementation of preventive measures were needed to be beneficial?
Do they identify how many consequences could grow from the crisis indicated?
Do they continually attempt to push the boundaries of what the groups perception of an "unthinkable" or WCS" event could be and attempt to repeat the previous six steps with each new example?

Table 7 FWG Primary Observations Checklist

The FWG proceeded with no set hierarchy of who spoke in what turn, or any other established seniority roles. It was made clear that anyone could bring up anything as a topic for discussion during this time as a chance to learn about it. It was also made clear by the facilitator to the work group members that this time had been set aside for them to not worry about any other work tasks. This time was especially created for them to take part in an unorthodox creative think tank session and they did not have to worry about spending time away from other tasks because of it. This was important to establish as the stress of doing so was an doubtable factor in their minds. The discussions varied according to the topics and the models/diagrams that were created. The discussions of the group were also audio-recorded. After completion the conversations were transcribed and coded according to qualitative analysis measures so that patterns of meaning could be ascertained. The FWG were attended by all members of the SEOC minus one who was unavailable on that day, meaning participation occurred in 13 of the 14 total population members.

An FWG has three essential purposes, according to Heron (1996), if it is to be successful in measuring its chosen subjects. First, the initiation of group members into the methodology so

they make a claim of ownership to it must happen. Second, the emergence of participative decision-making and authentic collaboration for true co-operation occurs. Third, the creation of a climate in which emotional states can be identified so that stress/tension aroused by the inquiry can be openly accepted and processed and similar positive feelings may also be expressed with it and each other occurs (Heron, 1996; Heron & Reason, 2001). These three elements allow for the research population to feel empowered cognitively, politically and emotionally which is important because without such feelings of empowerment there will be little serious discussion of the issues at hand.

The facilitator provided the initiation of the group members into the methodology. This was done by spending time before the FWG started giving a brief presentation using plain language to associate everyone with what was about to happen. Also in this presentation were the concepts of NLDS theory and CAS theory were presented. An overview of previous ORG-CRIS events in other industries was given to the participants as the background information they needed to understand the history of the topic of CM.

Emotional empowerment came from the actual group dynamics in the FWG. The abilities of this group led them to be a tight knit team that already had experience with each other. The FWG allowed them to actually go deeper into their interactions with each other as they explored how each member would hypothetically lead themselves and their teams through a crisis. Once the research population became comfortable and reassured that they were intentionally attempting to plan for unthinkable scenarios, their creativity replaced their trepidation at proposing a WCS.

Dionysian approaches were also utilized in their initiation of the FWG. It stressed the ways in which action emerges by diffusion from reflection by the community of inquiry members, and improvisation was valued most in each situation (Heron, 1996). Improvisation is an important tool in a crisis manager's arsenal (Hicks & Pappas, 2006) as those situations require thinking unique to their parameters (Masterpasqua & Perna, 1997). Deciding how to deal with even deterministic chaos behaviour requires a high degree of creative decision-making (Demers, 2007), making Dionysian model behaviour a useful partner. The Dionysian inquiry model takes more of an imaginative, expressive, spiralling, diffusion/improvisation-based approach to creating interaction between making sense and action in its members (Heron, 1996). The choosing of this approach married well the two concepts of the facilitator's conducting of group

meetings. Also the fact that the Apollonian approach is conversely associated with linear progressions and rigid preplanning phases for making sense and action made it useful (Heron, 1996).

The researcher also conducted a secondary checklist of observations to capture the behavioural interactions within the FWG. This provided a more detailed analysis of the dynamic nature of the FWG activities. The checklist is presented here:

Who initiated the WCS example?
Was it the leader of that area/department or someone else?
Who contributed the most to this CRASYS attempt? Count # of contributions to the conversation.
Who contributed the least? Count # of contributions.
Who encourages the others to contribute the most?
Who insists the CRASYS is finished first? Who encourages continuing to push its boundaries?
Who says "that will never happen to us" the most? The least? Count # of contributions.
How many admit to the FWG they do not know how the system in question works? How many don't?

Table 8 FWG Secondary Observations Checklist

As the theoretical components of this study are concerned with attempting to find ways to benefit from NLDS theory it seemed inappropriate to use a linear method of sense-making and planning in the FWG. The marriage of the two opposing views was deemed potentially confusing and unproductive for the participants. However, despite the focus on NLDS theory efforts, and Dionysian nonlinearity approaches, it could not stop some of the individuals from using linear thinking to deal with the examples created in the FWG. There will be a further discussion of the impact that nonlinear and linear thinking created on the group dynamics.

4.6.3 Field Observations:

After the work group and CRASYS creation attempts were over, field observations of the subjects were undertaken. Field observation data was collected during what is known as 'Games Time', the period of actual competition. How daily issues that may or may not signify pending crisis moments were observed and recorded as well. It is predicted this data allows for a first-hand experience of how the leaders would deal with organizational crises if they happened, and whether or not any impacts occurred in their abilities to improve their leadership.

Field observations have been a long time component of qualitative research methods. They offer a strong validity and reliability when done correctly. However there can be issues associated with them (Argyris & Schon, 1992). These include the inability to replicate observed behaviours in controlled situations if needed for validity. Also there is the issue of whether or not a researcher should be known or not to the group being observed (Argyris et al., 1985). The argument is valid that if a group or individual knows they are being watched they will behave differently than if they were not being observed (Argyris, 1985). This has created the need for qualitative researchers over time to become very sensitive to the empathetic needs of their observed research participants (Argyris, 1985).

When referring to a CI methodology it is important to illustrate that the relationship building between the two parties be based on open communication and honesty, and a belief that information is not being gathered for another purpose besides mutual benefit. The relationship this thesis cultivated with the research community of participants was one of non-judgement of anyone's leadership techniques or skills. Hence when it came time to observe the participants as they worked, it was the expression of this thesis through its objectives that judgement was not occurring in any way. Rather the focus was on providing a record for both parties to analyze afterward to seek out improvements.

The researcher engaged in *direct continuous observation* quite often during the 'Games Time' period. This means they were directly observing people and they knew of it (Argyris, 1985). This can have unwanted effects on a person's behaviour, such as the Hawthorne Effect (Argyris, 1985). This occurs when a person's productivity is either increased or decreased, but it was a necessary technique to engage in for the purpose and intent of full disclosure with the community of inquiry. Other times the researcher engaged in a variant of *unobtrusive, time allocated disguised field observations,* wherein they observed subjects with their permission but without their direct knowledge of exactly when (Argyris, 1985). This is more difficult to do but with the complete access given by the organization it was possible quite often. This enforces the point that full access is essential in gathering data with this level of richness (Heron, 1996). This type of observation was done the majority of the time.

The researcher engaged in observing various SEOC organizational elements. This was done in locations picked beforehand, which is the time allocation element of the method. At those times

a confluence of events was happening, making the situational complexity of that location quite intense. The researcher wished to observe exactly what would happen and how people would react. Sometimes the researcher was a part of the spectator crowd making observations of how the SEOC handled issues. At other times the researcher was positioned in places where an overview of the site was possible. Any point of view that could provide another glimpse of complexity and how it was handled was utilized by the researcher due to their full access.

The variable types of observations were interpreted along the following ways: descriptive observations, meaning something was seen and written down; and inferential observations, meaning the researcher made inferences to what they were writing by attaching an emotional state to the observed behaviour (Argyris, 1985). Also an attempt was made to do evaluative observations, whereby the researcher makes an inference and a judgement from the behaviour observed in order to assess whether or not a relationship of some kind exists between the two (Argyris, 1985). These were done in the following example; the researcher observed SEOC members talking to the volunteers responsible for setting up equipment. If the equipment is set up wrong, the competition is delayed. The gestures and facial expressions of the SEOC appear to infer frustration at this delay, and furthered by the lack of ability of the volunteers to prevent it or solve it. It is inferred the person is upset because the schedule is disrupted and it complicates the rest of the day. From this behaviour and inference the evaluative observation of the researcher is that schedule delays frustrate this SEOC member greatly and their relationship with time management is a stressful one. From this example we can begin to observe how this behaviour will have certain impacts on people dealing with this individual.

The field observations gave valuable insights into the organizational culture of the SEOC. It provided the researcher with a chance to view their natural behaviours, as much as possible, during times of great stress. The abilities of people in the cognitive sense were revealed in rich detail from this method. The value of the data was enhanced by this methods ability to colour in the background in a sense of the sports event. The overall complexity of the event was visible from the many points of view the researcher took. It was possible to view the event from through the eyes of the SEOC themselves, and also the lower staff levels and volunteers. The method provided a cultural backdrop into the routines and practices and also the chance to view how these individuals worked as a team to deal with each situation that presented itself to them.

The insights as to their leadership behaviours which were observed will be covered in more detail in the following chapters.

4.6.3.1 Data Analysis:

Data analysis was done according to the qualitative methods approach associated with coding and included analysing the transcripts from all interviews, FWGs, and the field observations from the sports events to uncover the implications that formed the results and discussion chapters.

4.6.3.2 NVIVO Software:

NVivo is a software package that allows for the processing, cataloguing and analysis of qualitative data like notes, transcripts, observations, and interviews (QSR International, 2011). It provides researchers with the ability to associate this type of data and code it in great quantities very quickly through computer tabulation. The data is then presented in very quantitative formats, such as the percentages and deviances of when certain codes appear or not in a data set. NVivo provides a further level of validity to qualitative data by stringently testing the codes and patterns the researcher finds in their data.

4.6.3.2.1 Coding:

Coding follows the thematic type for all transcripts, notes, and observations. From the primary themes are derived the secondary key groupings of terms and data, and from these secondary codes are created the most relevant signifiers of the results the research has acquired (Heron & Reason, 2001). The whole purpose behind coding of any kind is to interpret the data in a way so that the impressions of it can be grouped into a quantitative format to lend it reliability and validity for further testing if necessary. This is actually the greatest criticism levelled against coding, since it narrows the distinction between qualitative and quantitative research (Heron & Reason, 2001).

4.6.3.2.2 Thematic Analysis:

Data was grouped into *themes* or contextual patterns denoting the same significance across their features. This follows Hay's (2005) concepts of basic coding, in which information is grouped according to the overall themes, and then interpretive codes in which the patterns inherent in those themes are further broken down and analysed for meaning. The whole purpose behind coding of any kind is to interpret the data in a way so that the impressions of it can be grouped into a quantitative format to lend it reliability and validity for further testing if necessary (Hey, 2005).

4.6.3.3 Ethical Considerations:

Ethical considerations for this thesis have been considered and accounted for in the process of applying for ethical approval by the National Standards Board of Australia for Research on Humans. Ethical approval was granted on 30/09/2010 for this thesis to be conducted. At all times were the guidelines of ethical research on humans and related conduct adhered to.

Such considerations were primarily the concern over the methodology and its efforts to get participants to consider and evaluate WCS. The concern over such methods and actions was that in doing so an individual might dwell on a catastrophic past experience and experience some form of psychological discomfort. It was noted however that in any conversation on the topic of risks or CM such feelings could become present regardless of the methodology. The occurrence of such feelings were noted as the possible cognitive blockers deemed necessary to observe and catalogue by the research so that it could be ascertained as to whether or not they can be overcome through the methodology for the sake of organizational resilience. In order to enhance resilience it is necessary to push forward certain attempts at shifting paradigms. All ethical guidelines were followed and participants were free to disengage from the study at any time, free from prejudice.

4.6.3.4 Limitations:

The population size was small, lending a novel element to this study compared to some others that have much larger populations. However, the population was the ultimate number of people

responsible for this thesis objective. The one-off nature of a sports event limited this thesis to studying what could be considered phenomenological since it was not possible to replicate an event over and over to observe and validate. The inability to repeat the phenomenon of sports event or a crisis because they are so complex was a limitation. The time allowed with group was a limitation due to the inability to spend as much time with each member as desired. Real-time limitations of planning phases and access to organizations spread across a country occurred. The organization had offices all over Australia and the geographic and financial restraints placed on the study due to that was another limitation. The dissipation of the organization upon the adjourning phase of the event finishing created a limitation of making it difficult to track down participants for their reflective datasets.

4.7 Summary:

This thesis has provided a methodology based on a constructionist epistemological approach that matches the goals and objectives of the research and its questions. By undertaking a qualitative methodology, this thesis projects they will be able to answer questions as to *why* a SEOC reacts the way they do towards the topic of CM and complexity in their organization (Argyris, 1985; Bray et al., 2000; Heron, 1996). By undertaking a Collaborative Inquiry methodology this thesis holds the assertion it will be possible to begin to gain understanding on *how* we can initiate change in complex organizations from using various methods based around the concepts of qualitative nonlinear dynamics (Burnes, 2004; Demers, 2007; Heron & Reason, 2001).

This CI approach is considered appropriate because of its ability to match the epistemological belief in constructionist ontologies wherein each individual subjectively creates their own reality as they experience it and therefore the individual construction of not only knowledge but the hierarchy and significance status of their own knowledge is important to this thesis' philosophy (Argyris, 1985). This constructionist approach to our ability to create and sort knowledge and therefore understand our reality is mirrored in the topic of CM. The crisis affecting a tight knit and closely working together group like an SEOC will nevertheless be viewed individually and subjectively by each member (Drennan & McConnell, 2007). Paradoxically they are expected to work as a team to solve it or prevent it. The methods of the study are based on the innovative

combination of pre and post interviews, facilitated work groups, and field observations based on the concept of PAR and its double loop learning process.

The pre and post interviews were designed to gauge knowledge of the topics of crisis and complexity, as well as the views of the participants on group dynamics and collective learning. The FWG was designed to give the SEOC a chance to experience (hypothetical) crisis scenarios. It also was structured to give them the opportunity to view how other SEOC leaders would react. The field observations allowed the researcher to engage in observation of how or if behaviour may have been affected by a reflection phase and how the participants go about the action stages of the learning process during 'Games Time'. The methodology and its methods attempted to observe any shift in behaviour and attitude towards what complexity is and how it complicates crisis situations. Also a furthering of their organizational systems and the role that NLDS theory might play in assisting them is an objective. The next chapter will explain the results and findings from the first method, which were the interviews conducted before and after the FWG sessions.

5 Interviews: Results and Discussion of Method

5.1 Introduction to Interview Data Results and Discussion:

This chapter will give an explanation of the significant findings from the data collected from all of the interviews that occurred in the study. A series of analytic statements will be made about the most significant observations from the pertinent data. A discussion about these results based on analysis of their potential significance and how they assist in achieving the research objectives will be provided. Examples showing their relevance to the various important areas of this thesis will be illustrated from the actual data sets (i.e. interview transcripts).

The areas of importance in relation to the research questions as to whether or not paradigms of nonlinear dynamic systems can be implemented revolve around the concepts of organizational change in leadership attitudes, behaviours, and decision-making towards the area of ORG-CRIS. The interview data assisted in answering the research questions. The following Table 9 will outline the primary and secondary themes of the findings as outlined in the results chapters:

Table 9 Primary and Secondary Themes of Findings

The opinions of the participants on the topics of sport event management, leadership, complexity in the workplace, chaos, and crisis situations were analysed both before and after the FWG. Before the FWG the participants displayed a certain set of attitudes and subsequent behaviours about these topics that guided their decisions. After the FWG sessions, what appeared to be learning in a collective sense occurred in several managerial areas in relation to ORG-CRIS. The Post-FWG interview data showed that many participants' attitudes had changed and learning had

occurred in several of the topics and areas mentioned. However, most significant in the study's findings was the difficulty some participants expressed in changing their behaviours to match their new attitudes. This proves the existence of cognitive dissonance in the individuals of the organization and its implications for building resilience are significant and will be discussed further. The chapter will outline these findings and provide the evidence of their impact upon the research questions and objectives.

5.1.1 Crisis Management Findings:

The interviews were conducted in a semi-structured format which utilized open-ended questions. Their data supported the following indications about the SEOC member's attitudes towards organizational CM and their perceptions of its meaning, impact, and consequences.

Finding One: Participants represented all the levels and types of event management experience normally found in an SEOC, and they did not differentiate between RM and CM at the beginning of the methodology (Pre-FWG interviews). **Data Examples**:

Answers to Questions: "What is your opinion of what Risk Management is? What is your opinion of what Crisis management is?"

SEOC Participant A*: I thought you were supposed to use Risk MGMT as an anticipative system anyway?*

SEOC Participant B: *one and the same? In RM don't you just look out and prepare for all possible risks and crises with the same policies?*

SEOC Participant C: *In doing one you cover the other don't you?*

SEOC Participant D: *RM is when you identify all the potential risks and threats, CM is an extension of that, or just another part.*

Analysis*:* despite clear differentiation in the academic fields between RM and CM in terms of purpose and intent, in the application of theory to practice in this organization there was a significant lack of perception of any difference in the participants. In regards to the concept of separating risks from crises, there is no active separation by the participants in the majority of the population (10 out of 14 participants did not think the two were different concepts). The conclusion is that any solutions or steps for either a risk or a crisis are not being followed with separate policies with separate goals. This in turn will lead to confusion in relation to several

areas, such as; what exactly is being dealt with, a risk or a crisis? What exactly is the best course of action? (Massarik, 1990).

People who do not understand how to differentiate between a risk and a crisis are viewed as having low cognition levels, since they cannot comprehend the significance of that threat in a nonlinear sense (Comfort et al., 2001). This means their ability to deal with a chaotic situation instead of a static one will be reduced since they cannot tell the two apart. Confusion about the type of crisis being dealt with has led to serious consequences in the past (Rosenthal et al., 2001). Cognitive skills must be increased in order to narrow the gap between the belief and the reality of what constitutes a crisis. The existence of this gap is theorized by this thesis as signifying a serious internal type of ORG-CRIS the SEOC may be threatened with and not even realize.

Despite the existence of two separate fields of academic research into *crises* and *risks* for many decades, the participants could not produce opinions that allowed the two concepts to be separately considered initially. The implication is that attitudes amongst these sports managers are that they are one and the same, and therefore can be managed and dealt with by leadership in the same manner at all times without efforts being made to separate them. The further implication is that a crisis in the academic literature is viewed as a serious threat with far more long-lasting impacts than any kind of risk. Preparing for a crisis with a RM plan has produced some of the worst industrial disasters in history (Rosenthal et al., 1989). If these two concepts are considered the same thing by the participants it leaves them vulnerable to a loss of resilience if they encounter a crisis. Learning opportunities should be taken advantage of to enhance their understanding of the general nature of these two separate concepts, because further evidence suggests the collaborative learning effort improved their understanding of the two concepts as being distinct from each other.

Finding Two: Participants were capable of creating a personal definition of a crisis when asked to do so, but only according to their unique, personal perceptions; they were unable to create a personal definition that matched any of the accepted current research definitions.

Data Example:

Answer to Question: "What in your opinion is a crisis?"

SEOC Participant A: *A crisis is an issue that is external to the organization that is difficult to solve, but it needs to be solved right away to avoid problems*

SEOC Participant B: *It's when something negative and harmful to the organization occurs and causes a catastrophe.*

SEOC Participant C: *A massive breakdown or failure of the organization or its resources.*

Analysis: the research from previous academics like Pearson and Clair (1998), Mitroff (1987), Boin et al., (2003; 2005; 2009), and Drennan and McConnell (2007) is supported by this finding. Crises are a subjectively experienced phenomenon by each individual who is affected by it. All the participants gave different personal definitions of a crisis. A person is limited by their bounded rationality when it comes to perceiving the world around them and how it interacts with them (Brooks, 2009; Cilliers, 1998; Demers, 2007). Through this limitation each participant is only capable, upon initial questioning, to phrase an idea of a crisis as it would affect them personally. This is evidenced in the different definitions provided in all the participant interview transcripts (14 different definition attempts). The consequence proposed by other theorists is that in a crisis, the management system quickly unravels because of the bounded rationality problem (Demers, 2007). This has been supported by the findings of this study.

Therefore, it is indicated that attempts to assess the bounded rationality of individuals involved in CM prior to their participation in it should be performed. The proposition of this thesis is that a more in-depth Human Resources screening tool can be developed with this knowledge, its value being the ability to alert senior leadership prior to a crisis that a certain individual will struggle to comprehend the situation and be a potential liability. Removing that person and replacing them with someone whose screening suggests their ability to cognitively assess the situation more effectively may have invaluable results for the organization.

Finding Three: Participants were not capable of creating an accurate definition of an ORG-CRIS specific to a sports event as per the guidelines set out by Pearson and Clair's (1998) definition, regardless of their level of experience within the sports event industry or event management industry. **Data Example:**

Answer to Question: "What in your opinion is an Organizational Crisis?"

SEOC Participant A: *I don't know about an ORG-CRIS, probably just more of the same types of issues…?*

SEOC Participant B: *ORG-CRISIS is an immediate financial undermining of the organizational structure.*

SEOC Participant C: *I never heard that word before.*

Analysis*:* most definitions of an ORG-CRIS did not actually involve any reference to the organization being attacked or impacted upon by external sources in 10 out of 14 interviewed subjects. The majority of ORG-CRIS definitions relate to some type of internal deficiency of the organization causing a crisis. Data drawn from the interviews supports and further enhances the notion that bounded rationality complicates attempts to standardize a CM response. By extension, it supports the notion of this thesis that more time and energy should be spent on proactively seeking creative, anticipatory ideas on how to cope with 'unknown unknowns' in sport management projects (Horne, 2007). This would be more beneficial to theory-building because it would explore untapped potential and skills of the SEOC workforce by enhancing 'outside the box' and 'bigger picture' thinking (Mitroff, 2004).

The data supports an extrapolation that since a standard definition of the problem is difficult to create when needed, then the efforts to create a standard response should be changed to accommodate the fluidity and nonlinear nature of the situation and attitudes present in the team. Upon completion of this experiment the participants defined ORG-CRIS very differently; their definitions reflected complexity and more external impacts upon their systems. Notice in the excerpt how 'SEOC Participant B' changed their definition of an ORG-CRIS to no longer reflect just a single area of impact by the situation. They also developed a much more in-depth view of the complexity of the problem. **Data Example:**

Answer to Question (Post FWG): "What is your opinion of an ORG-CRIS now?"

SEOC Participant B (from above): *That everything within an organization and project is interconnected and when a crisis occurs within this framework or network of people, teams, roles, tasks and action every aspect of the team and project has the potential to be affected or impacted on by the crisis. The process of mapping out the various areas of the organization that are impacted by a particular crisis situation using the 'mapping' exercise was a great tool for me to visually see which areas of the organization or project team would be affected in the event of a particular crisis scenario and it painted the whole picture of how the whole organization was affected instead of just how my particular areas within the organization would be affected.*

Finding Four: Participants all use the same negative types of language to define a crisis. Frequently used words that have been found in the qualitative NVivo data coding of interviews included:

Coding for Descriptors of Crisis: *Worst-case-scenario, harmful, negative, life threatening, catastrophic, undermining, defective, unplanned, reactive, out-of-the-blue, immediate vicinity, unforeseen, unstable, massive change/impact/consequence to ORG, long term effects.*

Analysis: despite individual perceptions of the ORG-CRIS problem, the general areas of impact type were considered similar by all 14 SEOC participants. Therefore a conclusion is that efforts to standardize CM responses in some respects are still valuable, despite other research that stipulates this perception problem makes standardization a waste of energy in the minds of industry leaders (Heath & O'Hair, 2009). There is an opportunity for the leadership to build upon this common ground of the topic to develop a framework that the majority of the participant population can agree on in terms of how to anticipate crises. Evidence presented here suggests shared meaning of the subject can lead to shared knowledge if the proper efforts are made by a motivated team (Katzenbach & Smith, 2001); such motivation to change is what led the collaborative inquiry initially and usually leads to success (Heron, 1996).

Finding Five: 12 out of 14 participants felt their current RM plans had already created something similar to a CRASYS prior to the FWG, despite not being clear on how they actually *anticipated* any potential threats, or what an anticipation system might look like. ***Analysis:*** this attitude existed in spite of the outright disclosure from the senior management levels that the organization's exponential growth over the last few years made it increasingly unlikely its RM plans would remain adequate unless reviewed extensively and possibly amended if the need was required. It was also their attitude despite evidence from previous studies showing the improbability of that happening when no system of anticipation is in place (Uhl-Bien & Marion, 2008; Whitworth & May, 2006). NVivo analysis of comments made at various points in time over the duration of the field work showed senior management amongst the participants expressed complete trust in their systems of RM. Simultaneously and somewhat contradictive to this, they expressed concern over the unknown complications they might encounter due to complexity and a disbelief that they were prepared for "everything".

These contradictive attitudes and the behaviours related to them are further proof of the cognitive dissonance present in the minds of the participants; their expression of concern had not been met (at that point) with any efforts involving collective learning, or CRASYS development. Yet they went about their business believing a system not built to anticipate their greatest fears would somehow anticipate it. Research shows such rationalizations are common when the need to reduce the physiological discomfort is present in individuals (Festinger et al., 1956). However this thesis reiterates such a gap's presence is a significant precursor to an internally focussed ORG-CRIS.

Further data analysis of interview transcripts revealed a positive response from all participants towards the value of the effort to create CRASYS in the FWG (11 out of 14 participants believed it potentially useful). The increase in collective efficacy is noted through the sharing of information and roles in situations that require anticipation as well as teamwork. The participants expressed positive emotions over their newfound realizations of just how much teamwork was required to handle some situations in a CRASYS context. The clarification of who was in charge and what was to happen in various scenarios developed positive-themed reactions in 12 out of 14 participants. This happened in both areas pertaining to leadership roles according to existing RM plans, and possible leadership roles in unforeseen scenarios. Past evidence shows the positive correlational relationship between high levels of collective efficacy and organizational resilience as well as successful crisis mitigation (Comfort et al., 2009; Farazmand, 2004).

Finding Six: Despite identifying possible benefits of shifting the decision-making paradigm to a CRASYS type, no knowledge existed of *how* to do so, or if doing so was *essential* at the onset of the interviews. ***Analysis:*** this expression of the general attitude of the group of participants was due to their trust levels in the existing organizational systems. Analysis of interview responses related to organizational competence revealed a very high level of trust in the people and systems already put in place. Only 2 out of 14 participants expressed any concern over possible crisis situations arising from identified threats. The leadership present in the organization, combined with past successes in event management, developed a high level of trust that anything and everything was not only manageable, but already thought of, by the participants. This level of trust, which the researcher does not believe was misplaced, still presented an issue for the

inexperienced staff members (*SEU*). Their level of trust in the systems surrounding them was absolute, due to no previous experience or evidence of failure by the organization from their personal perspectives. Due to this data analysis results, the implications of how and why to alter the decision-making paradigm are made difficult. **Data Examples:**

Answers to question; "*What are some of the difficulties or weaknesses of this organizations leadership?"*

SEOC Participant A: *Weaknesses include lack of communication between staff group teams.*

SEOC Participant B: *Weaknesses are being reactive rather than proactive with some things.*

Follow-up Question: "How effective do you think your leadership team will be at dealing with these?"

SEOC Participant A: *No problem, we will handle it all in turn.*

SEOC Participant B: *I believe we will deal with it well, I think we will figure out what needs to be corrected when the time comes.*

These attitudes present two issues: on the one hand OC's born from such trust and beliefs are strong and often resilient (Comfort, 1994; 2007; Kouzes & Posner, 2002). However if an actual crisis impacts them heavily, such cultures can suffer the most damage and loss of resilience because the belief levels of followers were so high that any evidence of inability to save the organization from defeat is very devastating personally (Kiel, 1994; Pearson & Clair, 1998).

Therefore, this thesis found that despite the belief in the leadership competencies of the organization being strong, it opens the door to potential catastrophe later on if problems are not solved appropriately or quickly (Comfort et al., 2010). Also, this data enforces the notion that such organizational culture, while strong, are the ones that need the most flexibility and adaptability in their decision-making paradigms, because a crisis of any kind will affect them with serious consequences (Mitroff, 2004; 2000).

Finding Seven: When asked questions about their attitude towards the escalation of risks into crises, participants displayed little concern over the possibility or belief in this occurring. **Data Example:**

Answer to Question: "Do you believe any of these risks you've identified could escalate into more significant threats or a possible crisis?"

SEOC Participant: *These are not currently crisis situations, threats yes if in a public area, risks yes, but not emergency yet. A crisis is a situation or event that has a significant impact on the people and the event in the immediate vicinity.*

Analysis: despite stating an understanding of the emergence of threats and specific examples for their own areas, no identification of potential crisis signifiers were made by individual department leaders. None of the participants seemed either willing or able to admit that the threats they personally identified as serious to themselves at present, could escalate into crisis situations. This thesis was unable to identify if the participants were unable or unwilling to do so, as their expressions on the issue were noncommittal. It has been noted in the CM literature sections that individuals have a pre-disposition to maintain their EQ state through indirect denial of a situation's negative connotations (Apgar, 2006; Bracken et al., 2008; Brehm & Cohen, 1962; Prigogine & Stengers, 1984). This is also reflected in the chaos theory literature which illustrated the desire of an organization to maintain its EQ in order to preserve its competencies (Doll Jr., 2001; Doll Jr. et al., 2005). It is theorized by the study that the WCS's proved sufficient in their hypothetical seriousness to prevent most individuals (10 out of 14 participants) in admitting the risks could grow into crises. **Data Example:**

Answers to question; *"Would you describe any of these issues you've described as threats, as potential crisis situations?"*

SEOC Participant A: NO.

SEOC Participant B: I don't know about an ORG CRISIS, probably just more of the same types of issues.

SEOC Participant C: HRM issues are a potential crisis, all of this stuff is a potential threat, risks are possible for all as well, and emergencies are going to happen.

However, as noted in these examples EQ is impossible to maintain indefinitely, and adaptation will be forced upon the organization eventually (Prigogine, 1997; Prigogine & Stengers, 1984). This thesis establishes the supposition that individuals who interact with CAS are not intentionally trying to ignore the necessity to adapt for learning purposes. Rather they are confounded by the complexity of their environment and therefore unable to initiate the change process due to the cognitive dissonance they are experiencing in their organizational duties. The greater this dissonance and the more interrelated it is with the concept of complexity; the less able they are as individuals to identify potential levels of threat, uncertainty and urgency in

significant events. In the case of WCS examples, the level of adaptability for such an example was too high for some to implement anything worthwhile.

This leads to the indication that a high level of reliance on the organizational systems and structure itself to insulate and protect them from a crisis existed at that time. **Data Example:**

Answer to Question: "You have identified many situations that you consider to be threats; do you believe the leadership here will be able to deal with them all successfully despite the weaknesses you pointed out?"

SEOC Participant: *(Yes) The Organising Committee is very effective at dealing with this stuff so far. I believe we will do it; they have been successful in the past.*

There appeared to be no understanding that reliance on technology historically leads to crisis, instead of preventing it (Rosenthal et al., 1989). The level of systems reliance for security in both self and organization was high. Data collected during the pre-FWG interviews showed a lack of knowledge about the historical significance of technological systems reliance and the issues that can arise. As noted by Perrow (1984) the *tight coupling* of people and technology creates a relationship based on interdependence which is far too complex to undo after it is created. The result is that when a technology fails it impacts the human aspect of the organization seriously (Perrow, 1984). Also, human error is introduced into the technology in ever greater amounts of frequency, and the impacts are multiplied as the system's reach into human society grows (Perrow, 1984). Through this notion, the research has made the inference from its data that ignorance of past crisis situations may protect individuals from psychological discomfort, but it leaves them vulnerable to repeating the mistakes of the past.

Through system reliance the participants felt that an unseen force would identify problems for them before they arose. Also, it would solve them if they spontaneously appeared. The research sets out a conclusion that sports event management professionals, despite being well-trained, have fallen victim to the same plight as other industrial professionals who deal with CAS. Namely, that these systems breed an attitude of complacency in their overseers. This complacency leads to oversights in the actual threat, urgency, and uncertainty levels of any signifiers occurring in the environment of the organization. Even more pertinent, this thesis data illustrates a lack of urgency in the organizations leadership base to enhance skills and

competencies to combat this malaise, because the state of EQ is so entrenched as to deter any agitation from within the OC.

Finding Eight: when questioned, participants expressed two dissonant attitudes about the RM system already in place. First they expressed concerns about the possibility of the RM plan being outdated. Yet when questioned further they expressed confidence in the RM policy being capable of defeating or averting crisis situations. **Data Example:**

Answers to Questions related to "On RM's history and place in today's events?"

SEOC Participant A*: I thought you were supposed to use Risk MGMT as an anticipative system anyway?*

SEOC Participant B*: The local issues come through in different areas and different views, it's pretty intangible. It makes it hard to argue for shifts in change in how we standardize.*

SEOC Participant C*: We do try too hard to standardize everything from East to West coast. It's not possible.*

Analysis: Mitroff (1987; 2004; 2005) has made many statements about how there needs to be a re-structuring of how we perceive and then deal with risks and crises. As potentially low-consequence events, risks do not require overly complicated management plans at times. However, the very definition of a crisis makes it by nature unmanageable by conventional means (Rosenthal, Boin, & Comfort, 2001). While a RM plan might take into account several areas of stakeholder interest, and have capacity and resilience saving functions built into it, it should not be relied on as a universal plan. This thesis proposes that a separate CM plan that alerts leadership group members as to the need to think creatively, innovatively, and in a nonlinear fashion so as to meet the demands of the situations they have not considered, should exist for such sport management cases and it does for other industries.

5.1.2 Organizational Complexity Findings:

Evidence from the Pre and Post FWG Interviews indicates that significant shifts in the attitudes of the participants occurred in relation to this notion. In effect, learning occurred which enhanced their ability to perceive situations significance to their goals, and cognition was increased in some individuals. The following findings from interview data represent the

evidence that such increases in cognition regarding organizational complexity occurred. **Data Example:**

Answers to questions related to "What is your opinion on present levels of Organizational Complexity"

SEOC Participant*: Our complexity has gone through the roof since 1993, it's obvious, our goals are so shifted, but people don't recognize it.*

Answers to questions related to "Taking time for cognition development"

SEOC Participant: *Event management is more complex than I thought.*

Answers to question "What were the most useful concepts or ideas raised by your experience in participating with this project?"

SEOC Participant A: *The incredible flow-on effect that a crisis can have by mapping this out.*

SEOC Participant B: *The ability to work backwards from the identified effects to address proactive planning approaches that could assist to anticipate and avoid potential crises.*

Answer to question "What is your opinion of complexity and its impacts on your work after participating in the project?"

SEOC Participant: *The way in which what may seem a certain isolated area/aspect of an event is actually interlinked to many areas and if not addressed can escalate to have a major effect on many areas.*

Finding One: The combined external and internal environments of this sports event were considered a complex, not simple, environment. Despite this, the participant level of awareness of complexity theory was virtually zero, as well as the understanding of the notion of NLDS.

Data Example:

Answers to Question: "Do you consider this event to be a simple project or a complex project?"

SEOC Participant A: *This event is complex in nature. The effectiveness of our efforts is a challenge.*

SEOC Participant B: *It's definitely a complex environment and project.*

SEOC Participant C: *Our complexity has increased over the last decade. I am concerned we haven't looked at the effects of that.*

Analysis: from a theoretical standpoint it was apparent that any type of advanced knowledge based on academic sports event management literature or risk/CM literature was missing in the research participant population. This leads to the conclusion that a disconnection between knowledge generated for the industry by its academic counterparts exists. The concern over this realization from the data is that professional sports event managers are missing two vital contemporary knowledge bases; Complexity Theory and NLDS theory. The knowledge transfer in this sense was found to impact negatively on their cognition, keeping it at a perceived low level. This finding underscores the importance of applying recent knowledge to workplaces in order to implement useable organizational change.

The data found in the case of these participants illustrates that grasping the existence of a complex environment does not automatically translate to knowledge about how to manage it intuitively or about complexity and its affects in general on systems. The Pre-FWG set of interviews uncovered the lack of knowledge and also the lack of understanding of how that knowledge gap could affect them in the delivery of CM plans. In the Post-FWG interviews, further evidence is provided of how their knowledge has been increased about the same issues. The results is proof that knowledge enhancement through collective learning efforts allows for some personality types to engage with the concept of complexity theory in a new way, resulting in an enhancement of their ability to perceive their "complex environment". The further implication is that through repeated attempts at the FWG knowledge, and experience may be increased about how to deal with NLDS and related environments through enhancement of theoretical knowledge.

Finding Two: the interviews illustrated that the participants held the opinion that having outwards-based communication towards the external environment was essential, and it would lead to a more in-depth knowledge of how the organization works. **Data Example:**

Answers to questions related to "What is your assessment of information quality from divergent sources?"

SEOC Participant A: *I look at it as the same piece of information coming at us from 5 different sources, and trying to figure out what the most important or relevant point of view to follow. You need that professional opinion so you don't have panic.*

SEOC Participant B: *We need to be aware of over-communicating. They don't need 1,000 pages of information. They need to know what is important for that particular group to know in their sector, setting boundaries so they don't get overwhelmed with the whole system.*

Answers to questions related to "Importance of Communication in planning phases"

SEOC Participant A: *I believe it certainly got staff thinking about what planning, policies and processes need to be considered, established, and communicated prior to the event to ensure clear and concise tools are in place to handle a range of potential scenarios.*

SEOC Participant B: *This project is overly complex and now I feel the team have a better coping method for considering that complexity and not being overrun.*

Answers to question; "What are the strengths of the leaders in the event organising committee members?"

SEOC Participant: *Communication and open door policy.*

Analysis: these questions were designed to assess the attitudes and knowledge of the participants towards various concepts of leadership. The purpose was to assess what the current state of satisfaction was with the leadership capabilities of the organization and begin the assessment of how effective the individual leaders found their organization to be at that point in time. The participants increased their knowledge of the complexity of their external environment through recognition and realization of the concept from theory to real life application to their work. The external environment for them was made up of a wide variety of stakeholders whom all had specific goals in relation to why they wanted a successful event. The ways in which the SEOC communicated with them became more important in terms of how to prevent crises arising as the scenarios were planned out. Upon reflection from this action phase, it became apparent to the participants that communication to stakeholders being handled properly would have direct impacts upon any of their crisis leadership/management plans due to its ability to enhance their understanding of what potential threats were really unfolding (Comfort, 2007; Coombs & Holladay, 2010).

The participants identified communication as the skill that led to the development of beneficial leadership behaviour in relation to reducing the likelihood of any crisis occurring. More specifically they identified the need for "open and effective communication between

departments". Coding of the observation data through NVivo software identified various functions of leaders that the SEOC participants believed important for establishing excellent leadership behaviour. Communication was the most frequently listed skill and function with the highest positive relationship to management effectiveness. Coding showed *communication* was listed by all 14 members as a highly desired leadership skill and function. *Lead-by-example*, *approachableness*, *experience* and *honesty/trustworthy* all appeared in 13 out of 14 interview answers by comparison.

Comfort (2007) and Comfort and Haase (2006) have stated the importance of communication as a tool for sharing knowledge and information within an organization during times of urgency and potential crisis, and it is essential for building resilience. A transformational leader would emphasize the need to communicate effectively with their followers by utilizing tools like *active* or *empathetic listening* (Avolio et al., 1999). Both of these tools dictate the need to let the person you are communcating too feel like they are being clearly heard *and* understood. This skill was indicative of the type of communication the participatns experssed a desire for.

Knowledge management was also identified as a useful tool related to effective communication, in both a cause and effect capacity, for increasing the opportunities of organizations to engage in learning activities when attempting to develop entities such as self-managed teams (Chiva & Alegre, 2005). Halbwirth and Toohey (2001) identified transference and management of knowledge during large-scale sporting events as an invaluable tool for effective management to understand the complexity of their event. Knowledge transfer via efficient communication channels has been known to lead to improved CM and resilience in the SEOC, like other organizations, would be improved if communication could be improved for such mitigation purposes (Comfort, 1993; 1994; 2007; Comfort et al., 2001).

In the reviewed literature on the topic of disaster management and crisis mitigation, a lack of cognitive skills by individuals within leadership positions were attributed as major factors in allowing crises to evolve (Comfort, 1993; 1994; Farazmand, 2007; Rosenthal et al., 2001). This was due to several factors, such as the individuals in leadership positions engaging in the rationalisation of the situations as not being chaotic but controllable. They engaged in this attitude rather than accept their loss of control over the situation, which was unacceptable on many levels for the psyche (Apgar, 2006).

Also they were found in some cases as ignoring the information coming from subordinates, and they subsequently allowed things to progress out of control, perhaps due to 'group-think' or another communication issue (Apgar, 2006; Drabczyk & Schaumleffel, 2006; Farazmand, 2007; Whitworth & May, 2006). Comfort (2007) stated "the collective capacity of a community to act to reduce risk can be increased through timely information search, exchange, and feedback processes that create an inter-organizational learning system..." (p. 197). The community of inquiry's efforts to act as a learning organization in their CM efforts relate to this statement very strongly. Through their efforts, they began to understand the timelines different types of crises can take. The effort level required for crisis anticipation systems to be created under these conditions was better understood because of this. The observation was that the collective efforts of the SEOC allowed for knowledge transfer in the FWG sessions that created enhanced awareness of ORG-CRIS mitigation.

From this analysis of the importance and usages of communication by organizations in various types of project management, the study found that the belief of the SEOC participants that communication in their leadership behaviours and skills would lead to effective event management was well founded. The correlation between perceived communication effectiveness and effective leadership in general was viewed as a positive relationship.

After data analysis, the major finding from the interviews that pertained to the area of CM and leadership was collated. It has been summarized in the following statement which comes from the synthesis of all the analysed interview data:

The participants who were unable to at least attempt to shift their leadership paradigms, or found it difficult to do so for a training exercise beyond the normal issues of RM, or reactionary policy in general, could be at a disadvantage during a full-blown crisis due to their insistence of using traditional management methods.

Situations which fit into the typologies of crisis situations do not adhere to any predetermined plan of containment, and usually flourish when such rigid fields are applied to them due to their ability to jump across organizational boundaries both vertically and horizontally (Bracken et al., 2008; Comfort, 2007; Drennan & McConnell, 2007; Mitroff, 1987; 2004; 2005). The participants who made strides in grasping a new understanding of the complexity of their environment made important new understandings of just how much of their environment was

controllable and more importantly how much was *not* when they were interviewed after their FWG sessions. These notions of an individual being able to learn about complexity and NLDS, rather than a previous paradigm, leads to the possibility of positive changes in the individuals decision-making process due to the need for re-establishing a state of order from chaos (Comfort, 2007; Davies, 2004; Farazmand, 2003; Doll Jr. et al., 2005).

This newfound understanding expressed in the post-FWG interview data potentially opens a person's mind to a lot of the fear of the "unknown unknowns" of event management, depicted as the darkest possibilities that are so unimaginable we don't imagine them for fear of their possible emergence (Horne, 2007). The 'that will never happen to us' attitude described in CM literature appears to be a manifestation of a lack of, or blockage of, cognitive skills that would have otherwise allowed a leader to adapt their behaviours according to whatever scenario unfolds around them, despite how much chaos created by it affects them (Mason & Mitroff, 1981; Pearson et al., 2007; Rosenthal et al., 1989; Uhl-Bien & Marion, 2008).

A lack of comprehension of the benefits of this thesis's methods could be attributed to the lack of an OC that recognizes the need for a coordinated, nonlinear, anticipatory system because there is an inherent belief in the hierarchy surrounding them (Farazmand, 2007; Houchin & MacLean, 2005; Schoemaker, 1990). The paradox of such attitudes is that they are commonly held by organizations most in need of restructuring their top-down systems into laterally thinking, self-directing leadership modules, capable of comprehending nonlinear event timelines (Farazmand, 2007; Kiel, 1994). The following findings from interview data related to an individual's ability to create a learning organization and were analysed with open-axial coding, confirming this thesis' questions on that particular objective.

5.1.3 Individuals and the Learning Organization - Findings:

In Figure 11 (p. 156) the visual presentation of the theoretical framework for this thesis has been created. Also, it relates to the finding regarding attitudes towards changing decision-making paradigms in the previous section. The major blockage of trying to get this type of paradigm shift in the decision-making leadership skills of any organization dealing with CM is that the need of such organizational change is one of time vs. money vs. energy (Boin et al., 2005; Drennan & McConnell, 2007; Mitroff, 1987; 2004; 2005).

The main point of the argument is that it takes so much time, energy, and money to plan for threats and create RM plans in the first place, that to spend extra time on planning for unthinkable scenarios that may never happen due to incredibly low likelihoods is a waste of those resources (Farazmand, 2007). However, Mitroff (2004) clearly states that to create a state of crisis preparedness, a more flexible approach is now needed. Figure 11 illustrates the conceptual framework of working with NLDS and complexity in general, and supports the foundations laid out by Mitroff (2004; 2005) by providing an original alternative attitude the questions of using resources.

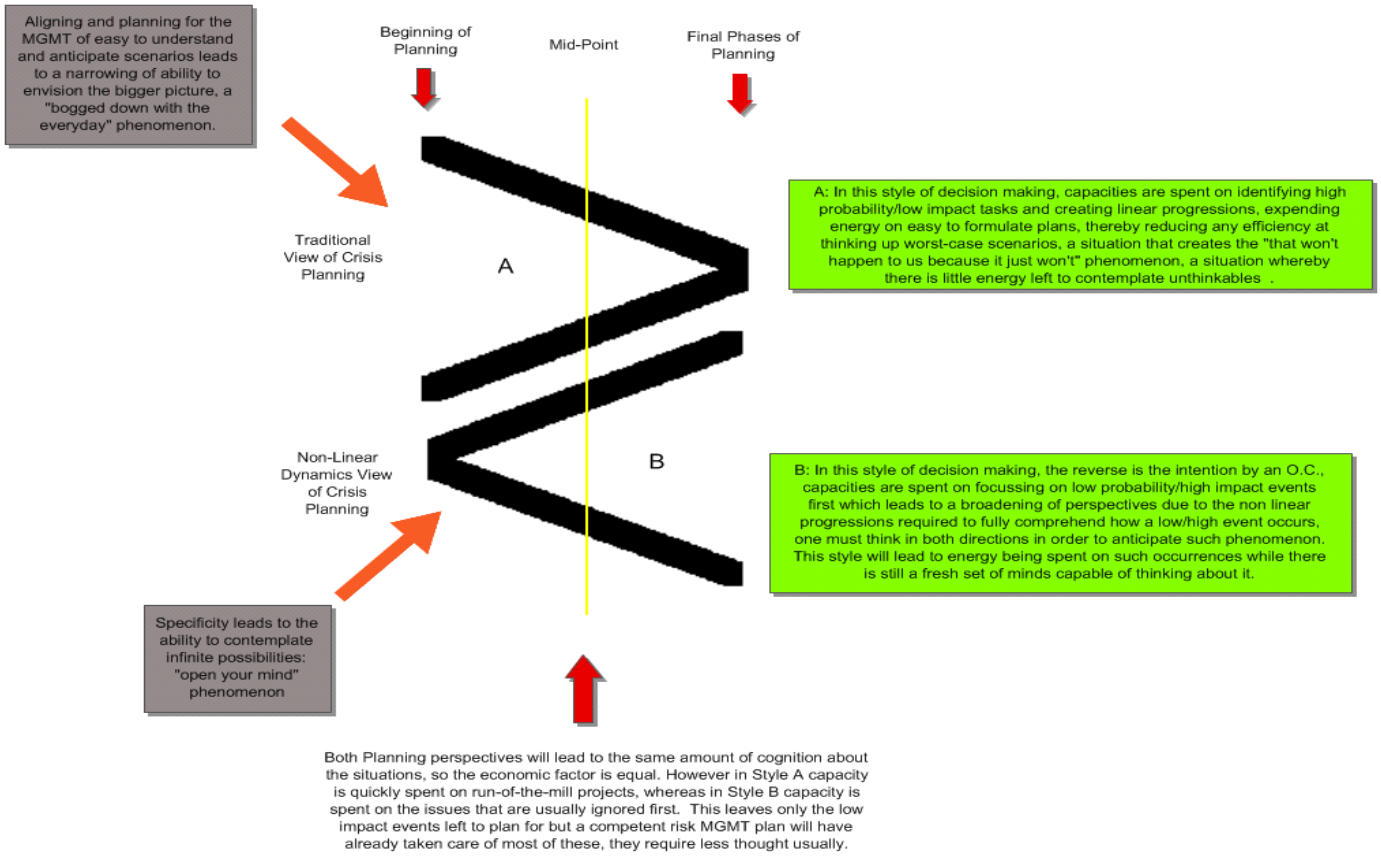


Figure 11 Nonlinear vs. Linear Paradigms of Decision Making Example: Comparison of Energy Levels by Direction

In this original representation of this thesis' theory of sport management styles, the A-type traditional planning process represents organising committees who start thinking about all possible likely scenarios that may affect them as minor threats. As they progress their thinking on how to prevent and mitigate these HP/LC events, their time/money/energy is rapidly used up. By the time they approach the halfway point of these reserves, already they are cognitively

incapable of thinking creatively and vividly about LP/HC events which are the real crisis indicators. Additionally their efforts are based in this decision-making style on *response*, not *anticipation*.

In the B-type approach to decision-making and planning for the same issues (the approach taken by the study), organising committees start by thinking of a specific, narrowly focussed WCS defined by chaotic patterns, extremely high consequences and very low probability. From this initial *unthinkable* starting point they widen their focus to include the ways in which complex systems create tight coupling effects (Perrow, 1984). The aim is to prevent multiple effects over long periods of time. The planning progression proceeds by uncovering all heretofore unknown weak links in the logistical and operational chains. As they use up their time/money/energy resources they are approaching situations and effects, and scenarios/contingencies, that more closely resemble the basic, minor threat events they were starting with in A-type planning methods.

The benefits of the contemporary approach are illustrated in Figure 11. Regardless of which directional type of decision-making and planning you use, the halfway point is basically the same in terms of how much of the time/energy/money resources have been used, if done correctly. Therefore, it is not wasteful to try this approach for those reasons. The other more important benefit outside of that justification is that in A-type approaches, an organization may never get from one end of the risk matrix spectrum to the other due to the staff being too exhausted or mentally fatigued to approach the extreme consequence end.

In the B-type approach, an organization can potentially uncover much more of the risk matrix's two far ends and also find many more gaps in the middle layer of each threat and consequence. For these two main reasons, it appears justified to at least try to incorporate this decision-making and planning approach since the waste of resources is not accurately portrayed, and the potential discoveries may save invaluable amounts of time/money/energy in the long term. Therefore, the proposition is that potential for learning is greater in the B-type example as there exists more opportunity to explore more diverse knowledge creation.

Finding One: interviews showed the attitudes of the participants had changed towards the potential of CRASYS detecting the emergence of serious threats at the end of the experiment.

Data Example:

Answers to Questions related to "On the Importance of anticipation skills for leaders?"

SEOC Participant: *The importance of being able to assess the right bits of information, not paying attention to one person's view or information, but assessing all pieces of information to make decisions is vital in making decisions.*

Answers to Questions related to" What is your opinion of developing these types of models? Are they beneficial or not? Why or why not?"

SEOC Participant A: *Certainly beneficial as a thought provoking tool to identify how quickly certain things can escalate to crisis point. The important aspect of such a session and process we went through is to follow it up with the development of further tools, policies etc.*

SEOC Participant B: *I think the idea of anticipating crisis and doing the critical thinking around potential scenarios is a really useful and creative way of approaching RM strategy development and training.*

Analysis: data analysis illustrated the plausibility of the FWG enhancing the knowledge bases of several participants (12 out of 14 interviewed) in some fashion in regards to the usefulness of switching to anticipation systems rather than reactionary management principles. Further evidence of the benefit of such NLDS planning and decision-making model creation is found in the interview data. The participant's attitudes after their double-loop learning experiences illustrated the acceptance of the potential benefit of using the alternative paradigm of viewing resource allocation methods, evidenced in the following statements:

Answer to question "In your opinion, is it possible to incorporate nonlinear dynamics based thinking frameworks in a sports event management committee?"

SEOC Participant A: *Yes. It is evident that small changes in formulating processes can have great effects on outcomes within the planning of a sporting event.*

SEOC Participant B: *Yes. Because it makes you think and plan for every (or most) situations. Therefore, developing policies and procedures for different situations staff are able to be trained to handle situations the best way possible.*

Answer's to question "Are there any useful points or concepts raised by your experience in participating with this project?"

SEOC Participant A: *The most useful points and concepts raised by my experience in participating in this project was the idea of starting with the worst case scenario of possible crisis and then reverse engineering the steps and processes to check that we had the adequate steps, procedures and policies in place within the project to manage and respond appropriately to the crisis scenario should it arise. The other major benefit of this process was that it highlighted any areas where process, policy, or communication amongst key team members was lacking in order to deal with the hypothetical scenario. This then gave us the ability to review and create the processes and policy required and brief the relevant staff involved so that the team is prepared in the event that that particular scenario occurred during the course of the project.*

SEOC Participant B: *I think the idea of anticipating crisis and doing the critical thinking around potential scenarios is a really useful and creative way of approaching RM strategy development and training.*

SEOC Participant C*: The timing of doing something more like this proved more beneficial than I thought, as in its going to reset my mind on a couple of things. I'm not sure it's opened a new way of thinking yet, but it's opened up a new side of my head… I've found myself more productive having stepped out of it for a little bit and getting a (new) perspective going.*

The FWG provided an opportunity for them to easily share knowledge about topics not in their direct area of responsibility but still important for them to understand for comprehending the whole of the CAS. The interactions amongst internal systems prevent leaders from being involved with their primary responsibilities when a crisis potentially looms near. In regards to the implications to the OC of the SEOC, it is indicated that through the FWG the participants engaged in a 'rite of passage', through which the inexperienced members gained valuable insights into the complex inner workings of the organization. The evidence below illustrates one participant's reaction to going through this 'rite of passage' element of the FWG. **Data Examples:**

Question: "What do you think the FWG's impact was on your ability to work as a part of a team, or the teamwork of the SEOC in general?

SEOC Participant A: *I feel like I have more knowledge of what I have to do and what everyone else has to do when a situation arises.*

SEOC Participant B: *I definitely have a sense of greater awareness of just how many people can get involved in dealing with a situation, I feel like I can rely on more than one person now for assistance with someone that comes up in my area. I also feel like I have a better understanding of what I could do to help departments not my own when they need it.*

SEOC Participant C: *Yes, I think the project team involved in the delivery of the 'Event' has learned to view crisis and RM in a different light as a result of the project. The fact that the session involved the entire project team in a face-to-face forum would have helped to ensure the group learned as a collective.*

Rites of passage are important elements of OC due to their ability to build relationships of shared experience and create behaviours deemed useful for progress (Trice & Beyer, 1984). The FWG was not intended to be any sort of ceremonial ritual, but after the analysis of transcripts from participants it appears that such a view of the experience has been formed from their shared experiences.

5.1.4 Leadership Findings:

The overall leadership of the SEOC made comments about their newfound awareness of what level of intuition and knowledge they felt their counterparts had about various potential crisis areas throughout both sets of interviews. The abilities of some to adapt a plan to an incomprehensible reality, was described as an "eye-opener" in their minds as to the need for establishing a high level of collective-efficacy in the team. Farazmand's (2007) study of FEMA's mishandling of Hurricane Katrina led to his proposition that crisis managers must "prepare for simultaneous and multiple crises or disasters, and institutionalize a new way of thinking about crises as sudden, unexpected and inconceivable events that may happen any time and any place" (p. 156). As stated previously, this proposition is complicated by the findings of this thesis which revealed that participants could not accurately define an ORG-CRIS.

The main leadership of the organization felt it was necessary to make sure all members were communicating about such issues in the same way, as it was noted from the work group sessions that not all participant attitudes allowed them to consider contingencies in the same way. The effort to collectively summarize individual attitudes towards a crisis into a collective one is at odds with the evidence pointing to the individual's perception of such phenomenon (Sellnow et al., 2002). Comfort (2007) refers to communication as the tool necessary for an organism to achieve an evolution of its function. In other words, without cohesive and useful

communication, especially in the area of crisis contingency planning, an organization cannot begin to be innovative or build any related capacities.

This was seen as a focal point as the event drew closer and the time when many sub-levels of staff would be taking their direct behavioural cues from these individual leaders, replicating a sense of resilience throughout the organization. However, the difficulties they had as a group and as individuals with the concepts in the study are now believed, after data analysis, to be the result of this desire to have individuals thinking about phenomena in a collective sense when they should instead be trusting their cognition to guide their interpretation of such events. A centralised view of these issues would defeat efforts at building self-directed leadership teams (Daft & Pirola-Merlo, 2009). If the individuals were given the ability to lead with the sense that their abilities were trusted to bring the requisite individual perceptions to the CM table and *then* go about trying to create an effective management plan by way of collaborative effort, the results could be theoretically enhanced. The results presented in the following pages represent the ability of the leadership group to work within the conceptual framework of transformational leadership and self-directed leadership (also known as self-managing teams).

The results illustrate the parameters for the transformational framework in that the direction of the overall desired leadership behaviour was oriented towards putting organizational success ahead of individual success, an essential element of transformative leadership style according to Bass (1985). The transformational style depicted throughout the findings related to leadership also point to the ability of the SEOC to move normal transformative behaviours into the realm of self-directed leadership. The identified behaviours and styles indicate significant support for the transformative type of leadership to be portrayed in the SEOC. Furthermore, the data indicated strong support of the desire of the departmental leaders to create teams underneath them that could self-manage, or lead themselves, during time of crisis. Self-directed leaders initiate their own group's goals and patterns of behaviour and find it possible to work within their environment despite a lack of overall leadership from the top of a hierarchy (Daft & Pirola-Merlo, 2009; Robbins et al., 2008).

Finding One: Interview data gathered concluded that leadership was considered the most essential tool for successful sport event management with events of this size and complex nature to avert and mitigate ORG-CRIS. **Data example:**

NVivo coding revealed that all 14 of the interviewed participants stated that without proper leadership they felt that *direction, coordination, and communication of vision* would not be achieved amongst all staff members.

Analysis: In regards to building a strong organizational culture, high levels of self/collective efficacy, and resilience in the face of adversity, the data gathered on participant attitudes towards leadership shows a clear correlation between the perceptions of adequate leadership and how much of these concepts an organization builds. Without leadership viewed as capable based on the described coding themes, an organization will potentially suffer greatly when it comes time to deal with high levels of threat, urgency and risk (Drennan & McConnell, 2007; Kiel, 1994; Leavy & McKiernan, 2009). **Data Examples:**

Answers to question; *"How important is your middle and senior leadership core in dealing with either type of situation?"*

SEOC Participant A: *Balance of both necessary.*

SEOC Participant B: *Very important.*

SEOC Participant C: *Extremely important for coordination of staff issues.*

SEOC Participant D: *It is very important for leadership base of the ORG to provide guidance during these times.*

This data supports the notion that leadership is an essential component to event management success (Bill, 2009). Leadership is the most important component to the team that comprises the SEOC completing and meeting its goals and objectives according to the participants. The participants had a strong belief that with proper leadership, they would be able to achieve the overall vision of what a successful major-sized sports event should be. Also, they felt that their leadership in times of crisis or stress was important for any other staff or volunteers to have so that they may have direction behind their actions. Leadership was viewed by all participants as the single most important determinant of a project this large being measured a success by stakeholders in the end.

Finding Two: Analysis of initial interviews using thematic axial coding revealed the most desired leadership skills described the following positive themes in relation to the most desired leadership qualities, both in general and in terms of decision-making and problem solving situations by all 14 of the interviewed participants:

Codes related to desired (positive) leadership skills:

- *Decision-making,*
- *problem-solving,*
- *communication,*
- *lead-by-example, and*
- *approachableness,*
- *ability to follow-through,*
- *adaptability/flexibility,*
- *honesty,*
- *professionalism,*
- *empowering*
- *creativity.*

Analysis: these elements of leadership traits describe personality characteristics that related strongly to transformational leader types, as well as provided the basis for self-direction of teams (Bass, 1985; Kouzes & Posner, 2002). Transformational leaders have been found to be the best at dealing with certain types of crisis situations in the past (Bracken et al., 2008), due to their ability to perceive and comprehend the emotional states of those around them (Goleman, 1998). Also transformational leaders clearly set themselves at a lower priority level than their followers and their organization's safety, and create the same attitude in their followers (Bass, 1985; Early & Davenport, 2010).

By doing so, they create high levels of organizational resilience and can reduce the damage done to the psyche of their follower base, which in a crisis situation is essential if the organization wishes to survive relatively intact (Pearson & Clair, 1998; Rosenthal et al., 2001). The research participants have clearly indicated that they wish to be led by a transformational leader and also conduct their own leadership behaviour according to the same paradigm. This thesis proposes that in an SEOC environment identified as complex by its inhabitants, an individual's emotional comfort (and thereby EI) levels can be increased if they believe they are being led by such a leader type.

These codes support the theories of leadership that fall under the transformational paradigm. When it comes to leaders being transformational, they must be inspiring and capable of communicating a set of higher organizational goals to their followers (Bass, 1985; Kouzes & Posner, 2002). Transformational leaders are the type of leader who are described in the literature

as being the most likely to survive a crisis situation and keep their organization relatively intact, including their organizational capabilities in terms of self and collective efficacy (Pearson & Clair, 1998; Pearson et al., 2007).

The leadership that is desired most by the participants in the SEOC is that of a transformational leader, and the coding supports their belief that the type they currently have from the project manager and upper management fits into this paradigm. With this type of leadership behaviour setting the vision and moral compass of the organizational culture it is possible to assume that a learning environment supportive of creativity can exist in relation to planning for crises (Comfort & Haase, 2006).

Finding Three: Coding of interview data revealed that participants rely on organizational systems already established to give them direction for making leadership decisions in virtually all decisions of departments during pre-planning stages. **Data Example:**

Answer to question "How effective is your organising committee at dealing with any potential threats and risks so far?"

SEOC Participant A: *Our Organising Committee is good at dealing with these issues so far…Our strengths include the experience, openness to communication, and support bases…of our group from the senior MGMT.*

SEOC Participant B: *Our strengths are decision making, experience, knowledge, and inclusion (of all staff) in decision-making.*

Analysis: Reliance on the system to direct decisions dealing with risk indicators is potentially a problem when adaptation is required for systematic restructuring when the situation requires it (Uhl-Bien & Marion, 2008). However, this is a managerial reality in the world of business (Simola, 2005). Without previous templates and the ability to follow them for each subsequent related project, events such as these would take forever to complete (Cilliers, 1998). The repetition of knowledge to put one of these large-scale events together is essential. Knowledge transfer methods are an important part of making sure the next group responsible for event planning has a workable and useful set of tools developed by predecessors (Lowstedt & Stjernberg, 2006). Also testing measures did not exist in this study to determine this behavioural component as a separate in-depth issue.

From the interview data and subsequent coding, it is apparent that with the percentage of participants who had no previous sports event management experience (7 out of 14 participants) there existed a high level of belief (or confidence) in the pre-existing systems abilities to foster resilience. There appeared to be no understanding that in a situation that progressed into areas not already planned for, or anticipated, the systems may not be able to handle the situational demands. This leads to the concept of a crisis of legitimacy and crisis of rationality growing in an organization whereby a group begins to question their purpose because of a significant failure at a task, and this leads to a lack of belief in their legitimacy to lead or manage (Pearson & Clair, 1998; Pearson et al., 2007).

If these behavioural attitudes can be observed in any area of work it can be construed in this research example as being a part of the community and its belief in a system to handle anything that arises. Once this is disproved by any significant threat any type of crisis could occur (Mayer, Moss, & Dale, 2008; Mitroff & Anagos, 2000). **Data examples:**

Answer to question "What are the greatest risks to your organising committee planning and executing a successful event?"

SEOC Participant A: *Our weaknesses are staff being new to the event, and the unknowns about it. Also our Management team needs to be quicker in dealing with issues, dictate the pace more, rather than deal with.*

SEOC Participant B: *Weaknesses are changes to dynamic in knowledge base, loses to HR and relearning people and time loss.*

SEOC Participant C: *Weaknesses are gaps in experience across the committee and operational structure.*

In the excerpts, it can be seen that the participants feel a low level of confidence in their committee structure and the level or prior experience that exists in some of its members for event planning. They identify that the weaknesses of their organization are the lack of knowledge and experience of other group members, as well as the ability to make decisions quickly and transfer knowledge. This represents a set of attitudes which will affect behaviours such as decision-making; if two individual hold opposing thoughts on the same subject - in this case the *SEU* group believing they lack the knowledge to make decisions and the *SEF* group believing the overall group's knowledge base is adequate - then they could introduce conflict into the groups planning processes (Brooks, 2009; Locke, 2009).

This may lead to the participants being reliant on the pre-existing organizational structures as well as knowledgeable veteran staff to cover various points of contention. With gaps such as these in staffing, it is predicted that knowledge being completely uniform across the organization will not occur. It also indicates significant potential difficulty in creating effective self-directed leadership teams. If the teams suffer from an inability to communicate a lack of knowledge during normal duties, a stressful and fractured communication environment has the capability to push individuals beyond their limits (Heath & O'Hair, 2009).

Finding Four: Interview data showed significantly different attitudes of participants towards RM's effectiveness for certain situations, and how it should be applied by the leaders. **Data Example:**

Answers to questions related to "Do you think you will change any of your leadership behaviours in the future? Why?"

SEOC Participant: *Yes. I will undertake processes of running hypothetical crisis scenarios myself and encourage my team members to do the same whenever we or they are undertaking an event or process. This approach brings a creative / imagination approach to RM and crisis anticipation that make the usually bland process of assessing and mitigating risk more interesting, interactive and even a little bit fun.*

Analysis: once the action and reflection stages present in a double-loop learning methodology were completed, participants had altered their perception of RM and how it could be used. Also, they had altered their perception of the difference between risk and CM initiatives. Double-loop learning allows participants to engage in an action stage (FWG) of attempting to change their attitudes towards a certain subject (Argyris, 1985; Heron & Reason, 2001). Once this knowledge has been acquired they reflect on the experience of using it and potentially change their attitudes based on knowledge acquirement. This is the evidence of the subjects learning about the topic (Argyris, 1985).

In this thesis's population, 12 out of 14 participants found the learning exercises useful, 9 out of 14 indicated they had learned something new about the differences between RM and CM, 9 out of 14 indicated they had learned something new about how RM operates in our organization, 10 out of 14 indicated they had learned enough to change their leadership behaviour for the short term of their specific project, and 4 out of 14 indicated they had learned how to significantly

change their leadership behaviour towards how to conduct RM/CM for the long term. **Data Example:**

> ***SEOC Participant:*** *I realised that I need to know more about each department within the organization to be able to help out as much as I can in a crisis situation… I didn't realise all the possible things that could go wrong. It opened up my eyes.*

These results from the interviews qualitatively analysed any discernible change in the participant's attitudes towards learning after their double-loop learning process. The results indicate that learning occurred in various stages of permanence and intensity for the majority of the population. They also indicate that FWGs and a learning framework designed to use NLDS and the concepts of chaos are beneficial for enhancing the bounded rationality of SEOC members, in regards to how they perceive complex situations like ORG-CRIS.

5.1.5 Comprehending the Likelihood of Crises: Expression of cognitive dissonance:

Several implications were found in the interview data that illustrated how the topics of ORG-CRIS and complexity affected the participant's attitudes towards their work and their ability to deal with crisis. Individuals were observed rationalizing their behaviours so that they could continue to participate in what they felt was a 'pointless' scenario, usually when it crossed the threshold of likelihood they found reasonable. Rationalizations can reduce cognitive dissonance somewhat, but must be supported by other members of the community for it to take effect (Festinger et al., 1956). In this instance, the dissonant members were not supported in their rationalizations openly in the FWG.

This led to an interesting observation about how they continued to not only hold onto their dissonance but also appeared to reinforce it despite the lack of rationalization support. Analysis pointed to a prevailing attitude that considered it very easy for SEOC leaders to say WCS planning purposes were important, but their behaviour was dissonant because they could not engage fully in the exercises at times. 4 out of 14 members of the leadership group exhibited this dissonant behaviour at multiple times. It was observed in 6 of the 9 WCS-planning efforts by at least one member of the SEOC.

This indicates a significant amount of attitudes representative of the "waste of time and energy" argument against such crisis management techniques as described in the various research efforts conducted by Mitroff (1987; 2004; 2005) in his efforts to create *crisis-prepared* organizations. This was also indicative of the first elements of the paranoid personality type being observed in the participants; namely their inability to believe in an idea that does not fit into their own designs (Post, 2004). Also, displaying an unwillingness, or stubbornness, in budging from their preconceived notion of a situation, regardless of group preferences is a part of this type (Post, 2004).

The participants were observed expressing attitudes that attempted rationalizing the reason they could not complete the FWG exercises as easily as they anticipated. They stated the issues themselves were unimportant because of their highly unlikely occurrence probabilities and the fact that it is far more difficult to think about something unthinkable than it is to say you are going to think about it. By rationalizing in this way, it is possible to continue the existence of a perceived state of EQ (Brehm & Cohen, 1962). The expressed sentiments of the SEOC leaders in question are constructed in a way that allows such rationalizations to occur for the purpose of not accepting change which is seen as destructive to the normal state of things, instead of viewing it as a learning opportunity.

The results illustrate that while the written intent of scenario-planning seems clear in the intent to incorporate flexible planning (Schoemaker & van der Heijden, 1992), the reality is that what does get planned for are somewhat predictable models that are actually not very flexible. There is little about the examples reviewed which are dynamical in nature in terms of how they develop, and the cognitive processes involved in their creation are rarely helpful in coming up with significant crisis events. This thesis postulates that this is due to the lack of comprehension of what constitutes a real ORG-CRIS, as discussed in the previous findings sections.

Finding One: in the initial interviews, participants expressed emotions that pointed to an effort on their part to rationalize their concerns about the long-term impacts of ORG-CRIS. They appeared to be doing this because they did not fully comprehend the potential serious nature of these problems. Efforts were made to make situations appear non-threatening, and not possible of creating a crisis. Further questioning in the interviews showed a reversal of these attitudes

towards these subjects over time however. The following coding of interview transcript data in NVivo illustrated the following:

***Coding themes identified as potentially negative**: Crises not being identified as fitting into any typology, time management issues causing problems, and lack of familiarity with management systems and local environment.*

Analysis: There was a recognized level of belief in the existence of complexity (both environmental and organizational) and a further acceptance of its potential to impact on them. However, their attitudes were observed as reflecting a fairly low level of cognition about the issue. Observed attitudes did not uncover anyone who appeared concerned about seriously considering organizational complexity at the interview stage.

Data example:

Answers to question; "*What are the major issues facing your organising committee currently?"*

SEOC Participant A: *Issues of concern include registration, participant #s, marketing and promotional issues, technical system issues, online registrations and reports and time lines, as well as Time MGMT.*

Answers to question; "*Are any of these issues considered potential crisis situations?"*

SEOC Participant A: *No, the issues are potential threats and risks*

SEOC Participant B: *No, these are potential risks, not serious at the moment.*

SEOC Participant C: *No, I can't imagine any of these becoming a crisis, we have lot of serious threats but there's no way any of this could get out of hand on us.*

Interview data revealed evidence of this in the coding of participants attitudes towards describing complicating factors of managing a complex event. It is considered possible in this sample that evidence of some elements of paranoia about the severity of the subject matter, even hypothetically, became a factor in their cognition, as evidenced from the paranoid personality type attributes described earlier. These themes presented themselves in this set of interviews when participants were asked to express any concerns they had over the size and nature of the event. They indicate concern levels with not just the human, but technological and procedural areas of influence over their work.

5.2 Sport Event Management Implications:

The implications of the data and their related findings are that the lack of understanding of complexity (environmental and organizational) by SEOC staff creates opportunities for chaos to occur in the execution of plans. The overlapping of integrated systems in the event management environment provides an indefinite number of ways for clashes which can spiral out of control if not properly heeded by leadership members (Kiel, 1994). For example, the Olympics were not seen as a tool for insurgent terrorists groups to gain international exposure through their actions until 1972 at the Munich Games, during which 11 athletes were murdered by the Black September Group (Taylor & Toohey, 2007; Toohey & Taylor, 2008). Management of security was deemed woefully insufficient to the task of preventing this, but no one had thought to anticipate such a contingency in the first place (Toohey & Taylor, 2008). Due to the long-lasting impressions of that incident, today's Olympic Games have security budgets that cost over a billion dollars (USD) to implement, adding to the overall cost (London East Research Institute, 2007; Horne, 2006). The opportunities exist for these systems to fail each other still (Kiel, 1994; Mitroff & Anagos, 2000).

In the interviews conducted with the research participants, the researcher attempted to gain an understanding into several elements of the specific sports event they were responsible for. These elements included questions meant to gauge the cognitive level of the participants in regards to the following topics: *complexity in organizations, crisis events*, *ORG-CRIS*, the ability of a group to *learn collectively*, the preferences in individuals of *learning styles*, and the *importance of leadership* to the successful management of a large-scale sports event. The questions were all standardized and repetitive to obtain as much similarity and reliability among the participants answers as possible. In the analysis of the questions via NVivo coding, several observations and inferences were made which represent implications to sports event management issues.

First, the SEOC members were made up of a mix of two different types of event management professionals, rather than just 'sport event management professionals'. This refutes the idea that former athletes or sports participants make the best SEOC members, but they come with their own set of challenges. The two types have been categorized as *sports event familiar (SEF)* and *sports event unfamiliar (SEU)* in terms of their previous level of experience with events like the

one they were hired to produce. This classification code comes from the fact that when questioned about their previous work experience, 7 of the 14 total leaders had no specific sports event work experience to draw on to give them a sense of familiarity with their particular event. The implication from this information is that in terms of understanding on a technical level the particulars of a sports event system, these participants were disadvantaged compared to the other seven leaders who had previous experiential and practical knowledge specific to those types of organizations and systems to draw on if necessary.

The SEF type leaders were noted as having a high level of familiarity with related organizational systems specifically from having worked in a previous major-sized sports event of this scale, and in a related role according to the data. However the SEU participants did have relevant work experience to their actual position in the organization studied. This level of systems familiarity was represented in 11 out of 14 members of the population. The implication from this is that it is possible, for a time, for these participants to operate correctly in the SEOC environment but, it is conceivable they will at some point falter due to their systems unfamiliarity.

The sport management implication of having a workforce that is divided in terms of its work experience is that in terms of getting everyone to come together as a management unit, difficulties may arise because of the cultural standards that exist from previous experiences. In this example, 7 out of 14 participants were inexperienced with sports events of the major type, whereas 7 out of 14 were experienced. The inexperienced members of the SEOC represented a possible increased likelihood of where the most systems disruption could occur. The interviews uncovered that 6 out of 14 members of the SEOC population were inexperienced with any type of sport management at all, not just sports *event* management. This represented a lack of systems familiarity or knowledge.

Another implication from a sport management perspective from having SEU type employees in leadership positions is the lack of familiarity with the specifics of group dynamics in the OC of an SEOC. There is no useful evidence from any study depicting the difficulties experienced by non-sports managers assimilating into a sports management organization to refer to, but the group dynamics of sports groups such as teams, and other generic tightly knit organizational teams is useful for explaining this implication. In a tightly knit group wherein individuals work closely together for the same goal and have intense deadlines, an example of such can be a

major-sized sports event; there is often a strong OC. However this culture's strength is dependent on the leadership providing the right vision and ensuring adequate growth in everyone's collective efficacy and trust in the shared abilities to work together (Carron & Hausenblas, 1998).

As this organization is represented by two major types of experienced staff, there is a split between those who have previous knowledge of what it will entail to produce this major event and those that do not have the knowledge. This group of staff will understand intuitively what needs to be done for success, based on their previous experiences. They will understand the particulars that go along with dealing with the specific types of infrastructures, financial data, consumers, and challenges of such an event and have shared experiences to assist them as noted in the data. The SEU group, in comparison to the SEF group, did not have such shared experiences to bring to the burgeoning organizational culture. This led to divisions amongst the leadership core as it came under the specific types of stress the FWG exercise was set up to explore.

Teams that lack the cohesiveness of shared experiences can have a more difficult time dealing with stressful situations (Carron & Hausenblas, 1998). In the interview data, there were several attitudes presented about the inadequacy of office communication during stressful situations. During times of duress it was the opinion of these participants that communication amongst SEOC staff was lacking in its efficiency and purpose. They were, in colloquial terms, 'not on the same page', when it came to solving problems. In terms of an ORG-CRIS, the focus of this group, there is already the issue of subjective experience and sense-making. Experience levels amongst staff affect the OC and its cohesiveness, making it difficult to come together as a unit and solve the crisis. Averting it is also difficult due to the implication of experience creating a divide amongst the SEOC communication pathways.

SEOC leaders must incorporate strategic change initiatives at certain times for organizational success to continue just like other industries (Wilson et al., 2010). This OC had an overall leader who was described by 4 out of 14 of the population as being "too encouraging of change" and having "too many ideas with no time to implement them". They were viewed as so in favour of change that nothing was given time to become a standard practice. The senior leadership of this group was evaluated as putting too much thought into change, rather than stability at times.

Beach (2006) states that "even when members can be convinced that the threat is huge and the foreseeable future is vastly incompatible with the culture, proposed changes that are strongly incompatible with it still are going to meet with resistance" (p. 44).

The implication from this data is that change initiatives to everyday decision-making represented by the FWG method will potentially increase the cognitive dissonance of some individuals of an OC. For example, "I don't see this scenario ever happening, therefore this session is a waste of my valuable time", is an attitude that should be expected if this method is not planned carefully. This attitude can potentially weaken the OC rather than build its resilience, so a senior project leader should be very aware of how the timing and the structure of such a method is to be used in their team environments.

An OC, and by extension its leadership culture, is inherently concerned with maintaining the *status quo* (Beach, 2006). This implication proves problematic for a group wishing to understand complexity and the impacts of NLDS, as the emphasis in these systems are that it is necessary to abandon the *status quo* in order to utilize the productivity and innovation from DEQ (Apgar, 2006; Doll Jr. et al., 2005; Sellnow, et al., 2002; Uhl-Bien & Marion, 2008). OC's will allow for minor changes as long as they do not force too much destruction of the current paradigm in existence (Beach, 2006; Malott & Martinez, 2006). However, ORG-CRIS represent a time when all normal standards might need to be abandoned to survive (Shrivastava et al., 2007).

Therefore, it is necessary for an SEOC to explore their contingency options in the area of crisis anticipation if it could potentially prevent or minimize the amount of reactive change they would experience from crises (Whitworth & May, 2006). Data analysis illustrated that a refusal to accept nonlinear dynamical models and their usefulness does occur in some individuals who cannot cognitively assess the situation. Opportunities to reduce unwanted future change are ignored as this simpler option of ignoring their significance upholds the *status quo* factor of not pursuing discordant thoughts and ideas, such as spending time thinking about something that may never happen no matter its threat.

5.3 Sport Event Management Conclusions*:*

Sport events have become synonymous with more than just their constituent athletic pursuits, thanks in part to the large-scale of their operations. They are now linked with several larger issues such as urban transformation, the re-imaging of a global tourism destination, economic benefits (both micro and macro levels), and more subtle socio-political contexts such as the re-structuring of a national identity through sport (Ahlert, 2006; Bill, 2009; Burbank et al., 2001; Deccio & Baloglu, 2002; Gratton & Preuss, 2008; Hiller, 2006; Horne, 2006; Masterman, 2009). The professionalization of sports event management in these contexts has created a system of management that is much more complex than its predecessors from the "kitchen-table" era of sports management, in which volunteers ran associations and coordinated sports events out of their own homes due to lack of funds and resources (Masterman, 2009; Roche, 2000).

Interviews were conducted both before and after a FWG method in this thesis. The interviews were used to make qualitative measurements of the attitudes and knowledge bases of the participants of the most important concepts of the research. The data illustrated some significant findings about how attitudes and knowledge was changed after engaging in the full experiment. The following conclusions were made about the application of the theoretical concepts of complexity and NLDS to a SEOC from the interviews conducted with the participants.

Conclusion One: interviews indicated a desire at the end of the experiment that most participants desired a system of CM which solved utilized CRASYS to reduce the potential damage caused to them personally and their organizations reputation.

Conclusion Two: initial interviews showed a positive relationship between participants having a high level of self-efficacy in their leadership skills and event success, as well as the belief that their leader/follower dyad with the senior leadership would lead to event success if it was similarly high. Later rounds of interviews showed a positive relationship between people's engagement in the collaboration process and their attitudes about complexity and CM. In short, those that engaged heavily in the FWG made statements in the later interviews that illustrated an enhancement of their personal knowledge on those topics, and a belief in the importance of attempting such exercises and CRASYS in general. Some impact on cognition was made in this respect, apparently in a positive way.

Conclusion Three: the different rounds of interviews illustrated a change in the knowledge participants held about the areas of CM and complexity, meaning learning occurred along the collective timeline of the methodology. They increased their awareness of CAS and NLDS theory applications in their specific workplace. Through this they developed their cognitive skills in the areas of how to perceive and comprehend potential ORG-CRIS.

Hiring employees for sport event management roles leads to various organizational cultural gaps when their experience levels are different, including communication gaps, norms/rules/standards gaps, and other associated roles being conducted in a different way in each area (Xing & Chalip, 2009). Even employees that have related experience in the role in a technical or operational sense lack the innate understanding during the pre-planning phases of what the finished product will run like and therefore react slowly to various managerial phases and tasks, or communicate in a way that hinders operations.

Also the ways in which these concerns are communicated by the *SEF* types to the *SEU* may be confusing and misinterpreted. It is apparent that a lack of sports event management experience directly impacts the leadership capabilities of the SEOC as a *team*, the implications being quite serious as CM was meant to be a team effort. Even more pertinent is the possible lack of knowledge by leadership that this gap exists. As complexity in all its various potential forms increases amongst event management systems, these issues become more likely to miss the signifier event of a risk moving towards a crisis. It is also apparent that such experiential knowledge gaps in some staff members, furthers cultural gaps between them and the members who do have such knowledge, and negatively affects teamwork during an ORG-CRIS mitigation effort.

5.4 Summary:

The interviews conducted with the participants revealed some significant data that made strides in achieving some of the research aims and objectives. The interviews conducted in the period of time before the FWG provided evidence of the several significant findings; participants admitted they believed their work environment was comprised of complex systems, but did not express any detailed understanding of how that might affect them in the long term.

They also were unable to define personally an ORG-CRIS according to any accepted academic definition already in existence. The participants were able to define a crisis and postulate as to what a risk that could escalate into a crisis was, but in terms of a specific crisis that could affect them they did not express any opinions or beliefs in what they could entail. This was significant as this attitude is evidence of a pre-existing attitude of the OC's resilience that may be the first indicator of an inability to create anticipation systems for crisis prevention.

Several areas of leadership were expressed as highly important and desired by the participants. These included communication, lead-by-example behaviour, decision-making ability, the ability to create and share a vision, and trustworthiness. Despite listing communication as one of their greatest skills, they paradoxically listed it as one area that needed the most improvement when situations became stressful. How they expected to have adequate CM procedures when they did not believe their communication pathways was an interesting development found in the interview data.

Interviews conducted after the FWG revealed that many attitudes and beliefs of the research population had been changed. Some individuals were not possessed of a belief that they must approach the concept of complexity in their task environments differently than they previously believed in terms of making adequate decisions. The belief of others about how effectively they shared knowledge with their subordinates and each other was affected in what was considered positive ways by this thesis. This was due to the interview data pointing to a higher degree of satisfaction among some members of their knowledge level of systems they had previously been unaware of in terms of the possible interactions they might have with them in a crisis.

The other significant finding from the interview data sets was the existence of a new-found attitude in the population that relying on RM systems already in place to deal with highly unlikely situations could be harmful in many ways. This was developed after the came to realize through the FWG discussions of such scenarios that their plans would be inadequate to deal with the scenarios in a way they really found beneficial. Their belief that the RM plans in place were adequate for *any* contingency was challenged enough by some of the WCS to provide evidence of a need to shift their attitudes towards such methods. In the following chapter the final conclusions about these realizations and evidence will be synthesized so that a more complete framework of these ideas can be presented.

6 Facilitated Work Group and Field Observations: Results and Discussion of Methods

6.1 Introduction:

In this chapter the results gathered from the data analysis of the Facilitated Work Group (FWG) sessions are presented. Also the field observations conducted by the researcher during the FWG and during the 'Games Time' period, when they shadowed the leaders during their work days, will be presented. These sessions and observations comprised a major part of the methodology and also represent how the participants attained knowledge based on their unique experiences, even when they are collectively shared.

The field observations represent the FWG time spent by the researcher and participants engaged collaboratively in addressing the issues of complexity and ORG-CRIS leadership practices, and the researcher's observations of how they conducted their leadership efforts in real life. The FWG uncovered many observable interactions between the SEOC team members that were recorded by the researcher and measured according to their significance within the framework of the observation checklist provided in Chapter 4 (p. 126).

The FWG session efforts at designing their WCS models were found to be very useful in achieving the research objectives. This thesis found the participants models transformed into what it classified as Nonlinear/Multi-Directional Cascading Models (NMDC Models). This is due to the participants creating models that, upon completion, allowed simultaneous viewing of multiple interactions, levels, and directions for each crisis impacting their organization. These NMDC models are considered a variation of *cascading models*, which are a type of model commonly used to explore linear progressions of how an event unfolds according to either a timeline or a pathway of consequences, typical in disaster management literature (Whitworth & May, 2006).

Partial participation in the CI was observed in 13 out of 14 members of the SEOC population. Partial participation was considered to be any amount of participation in at least one of the three methods by a participant. The number of participants who participated fully in all three methods represented 12 out of 14 members of the population. Various factors resulted in all 14 members participating fully and totally to be impossible. Reasons included changing work locations making access impossible, termination of contract employment, and relocation to another event.

Several findings indicated how the group viewed the topics of complexity and leadership. Also, several findings related to how an individual would view their leadership role in an ORG-CRIS situation. Through analysis of these findings from NVivo coding and concept mapping, deductions about what types of behavioural clues might be observed from certain personalities as they engaged with collaborative learning as well as CM issues were created. From this set of findings the study begins to postulate about what types of leaders are best suited to benefit from the creation of CRASYS and what these systems impacts will be on them.

Indicators of cognitive skill development like EI and communication skills were found throughout the FWG data within the NMDC models that were created to describe the nonlinear approaches to the scenarios. What follows in this chapter are the diagrams that describe each scenario and a description and analysis of the data each one represents. Discussed with each diagram are the significance of each model and what types of learning and knowledge creation they each meant to the SEOCs development of their leadership and decision-making skills.

Analysis of each diagram shows the possibility that learning was enhanced in the minds of some of the participants in the framework of the study's research objectives. Understanding of organizational complexity was apparently enhanced. Other cognitive development was viewed as occurring in the FWG in the fashion of engaging in creative learning exercises. All of the figures in this chapter are the collaborative creation of the participants and not the researcher. The researcher only contributed to keeping the discussion on track at times when necessary, and using the computer software package that allowed for the diagram creation because they were most familiar with its details. This ensured that the data was original and valid; also the flow of conversation was efficient enough to cover as many areas as possible in this manner.

6.2 Facilitated Work Group - Indicators of Cognitive Skill Development:

6.2.1 Description of Worst-Case-Scenario # 1:

The first scenario planning effort of a WCS that the participants engaged in can be seen in Appendix 1 (p.251). It illustrates an initial attempt at this type of exercise and shows the difficulty of the research objective to create such anticipatory processes. This scenario is not what most examples of the relevant literature would consider a WCS. The participants however,

considered it one initially. The example of a water quality issue cancelling an entire sport event was a serious threat to this particular group due to several factors which caused them to treat it as a WCS, when in fact it turned out to be a much more manageable and an already somewhat planned for example. The main reasons for picking this scenario at first was it was an immediately pressing concern for the group in finalizing their sport venues and they wanted to tie up its 'loose ends'.

The sport was causing two major points of contention; first the location had no alternative venue, meaning a water quality issue would cancel all water sports for that location. This was felt by the SEOC as a serious threat to their image as adequate planners because, without an alternative, the expense and effort of transporting water craft from all over the country by the athletes would seem in vain and cause high levels of dissatisfaction. In relation to a scenario meeting the ORG-CRIS criteria of affecting multiple areas in severe ways (Pearson & Clair, 1998), this situation was more a blow to their reputation and pride than anything endangering their physical infrastructures. Second, the inability to actually know what kind of symptoms poor water quality might have on a person contacting it made many of the SEOC participants nervous. A similar cancellation in the past, that a few had experienced firsthand, increased their feeling of urgency and uncertainty, but did not push the first attempt into what would be considered a real ORG-CRIS (Drennan & McConnell, 2007).

6.2.2 Analysis of Worst-Case-Scenario #1:

The significant elements of the scenario in Appendix 1 lay in two areas. First, it was the initial attempt made by the research population. Second, it illustrated the nature of a crisis to be experienced and assessed by cognition by individuals subjectively based on their leadership core group position. According to the data this scenario was viewed by all separate individuals across a wide range of the threat spectrum, from imitating a serious threat to a minor concern. These differing opinions appeared to be based on their position and how personally responsible each individual was for it coming to pass.

In relation to the first factor of it being the initial attempt made by the research population, the nature of the scenario presented is significant. Like most first steps, this one was deemed tentative by the researcher. At this stage the group being studied was well formed and lines of seniority and power were established over the time they had been together up to that point. This

affected their first attempt in that they looked to their senior leadership figures for the initial push to start the exercise. Also, in the opinion of the researcher the unfamiliarity of the exercise's parameters and objectives made them select a scenario that, while unlikely, was still quite plausible based on available data of the region and did not really constitute a WCS. The conversation and attempts to push cognitive boundaries were therefore not as serious as hoped for. However, this was considered normal for such an exercise and methodology. The initial attempt was bound to be one based on familiar ground, and dropping in a situation that would have completely stupefied the cognition of the participants was viewed as a poor way to establish rapport by the researcher.

Resistance to change is expected in such efforts to change paradigms (Kuhn, 1962) but building trust was considered an essential element to the CI methodology's success (Heron, 1996). The implication of this attempt being grounded in such a level of risk/minor crisis in the view of the research is that it confirms the supposition this type of organizational change will be met with resistance at some level by each SEOC member no matter how they present their supposed willingness to do so in an interview (Apgar, 2006; Bandura, 1982; Brehm & Cohen, 1962; Farazmand, 2001; 2002).

Analysis of the second finding confirmed that sports event managers, like other the leaders, experience crises subjectively according to their individual perceptions of their surroundings (Pearson & Clair, 1998). This is in conjunction with the constructionist epistemology wherein individuals create their own understanding of reality based on their personal experience, through interactions with the outside world (Crotty, 1998). The participants all contributed in some manner to the initial scenario building effort. However, only one expressed any concerns about it growing from a risk to a crisis. The rest were observed as having a much more relaxed manner towards its potential consequences.

Data Example:

SEOC Participant: *Sorry, I'm probably being too specific rather than being on this side of it but I know there are established pieces to the puzzle already, in regards to how that decision occurs and the chain of command and the knowledge of who does have the authority to cancel and who doesn't.*

The team did not appear rushed or stressed in coming up with contingencies for the various systems failures it created. Also, they referred quite often to pre-existing RM plans already created to cover the majority of the areas. This confirms two suppositions of low scale risk matrix examples. First, it is not possible to increase cognitive skills when the scenario being studied does not register in their individual perception as an actual crisis in the real world. Second, if a pre-existing RM plan based on reactionary tactics is available, and the situation clearly can be handled by it, little effort is made by any individual to think outside of it, meaning the coupling of human and technological systems was even tighter than expected (Perrow, 1984). It had an adverse reaction to the motivation levels of the leaders. **Data Examples:**

SEOC Participant A: *My thought was that we are redoing a lot of the risk MGMT policy instead of thinking from the start what could happen, I'm giving a scenario and we're working through what would happen but I'm wondering if there is another step before that which is the crisis leadership part of what we should be doing? How do we do that?*

SEOC Participant B*: That was my concern when we threw that up in the board provided we don't approach this as what we already do then we cannot go about it as if a policy exists. There are other processes in place that assist with this right now.*

The statements being made above by various participants about how they perceive the seriousness of the situation, illustrate how their recognition of this fact is affecting their creative decision-making and related leadership styles. The actual insistence of some that not enough 'new thinking' is being done on their initial effort is viewed as the initial stages of learning based on recognition of the need for change (Bray et al., 2000; Chiva & Alegre, 2005; Houchin & MacLean, 2005).

6.2.3 Description of Worst-Case-Scenario #2:

Appendix 2 (p. 253) depicts the NMDC model which explores the complexity of dealing with a fatality of an event participant during 'Games Time', and its impacts. Appendix 2 explored many elements of how such an event would impact the various management systems for which the SEOC had responsibility for. The NMDC model in Appendix 2 explored the possible causes of the fatality, such as accident or venue failure causing the problem. It also explored the participant's efforts to grasp the many different implications such an occurrence would have on their work day, such as whether or not certain activities would be cancelled or not, venue closure, relocation of resources and equipment, as well as insurance issues. Within the fatality example the community of inquiry also discussed how the situation would impact the communication pathways to their staff, the volunteers, and the host city community. Long term impacts such as the brand damage caused by the safety concerns for participants were also raised.

6.2.4 Analysis of Worst-Case-Scenario #2:

The information in the second attempt confirms the supposition that extreme consequence scenarios challenge an individual's perceptions the most in terms of the effort to rationalize it (Festinger et al., 1956; Comfort, 2007). Cognitive dissonance is increased when the rationalizations that have been made by the individual increase in severity, because the situation makes it necessary for them to reconcile their attitudes towards it (Festinger et al., 1956). In this scenario, the death of a participant pushes the comfort level of consideration of the participants to an extreme level, especially since this was one of the early attempts that took place before all the individual participants were observed as being comfortable with the scenario exercises.

Data Examples:

SEOC Participant A: *Our planning process should provide a plan or guidelines for when this needs to be put in place and make clear to everyone what they need to do or where to be. A list should be developed as a tool for every staff to know what to do.*

SEOC Participant B: *So seriously this is the structure to follow for everyone, a HR plan for the staff team to anticipate and know what to do with such emergencies.*

SEOC Participant C: *But when do we see and read that because we haven't right now.*

The severity of this example combined with the low level of comfort amongst the group at this particular time created low levels of discussion from most participants. 6 out of 14 of the

population contributed significantly to this scenario. It is the view of the researcher that such extreme scenarios, while valuable, lose their ability to contribute to the learning organization framework. The visions they produce of a successful event are too far removed from the comfort level of the staff trying to learn new procedures. They produce too many gaps for the first principle of these organizations to form due to the crisis component (Senge, 1990; Comfort et al., 2010).

To cover this issue properly, serious consideration has to be given to an extremely stressful situation. The dissonance caused by the attitude towards a fatality happening (extremely low) and the behaviour of trying to anticipate it (extremely difficult) is high in these individuals due to the high need to rationalize the necessity of thinking about a fatality. However, the complexity of emotions related to this issue causes many difficulties for managers trying to enhance collective or self-efficacy (Brehm & Cohen, 1962). The inability of some to contemplate the death of a person they would be responsible for during 'Games Time' was clearly present to the researcher while they were acting as the facilitator. The ability of this scenario to be developed further was thwarted by its early introduction to the group, leading to the conclusion that such extreme WCS should be used once a high trust and comfort level has been attained by the research population with the methodology for them to be really useful.

Data Examples:

SEOC Participant A: *I would guarantee it. At least 50 per cent would be upset at cancellation for any reason due to their lack of involvement with that area. The external parts are linked to the internal, because public perception always spreads outward to those participant's relationships with other people being affected by the decision to cancel. People who aren't even here will call up and complain about why we are doing this.*

SEOC Participant B: *So for the HR plan, the communication plan part branches off of this document and its use of multiple scenarios. We have stock responses and stock plans, chains of command throughout our events for different scenarios in terms of how and when I get involved and talk to the media or other things like that, due to elevation of seriousness of the situation.*

Other significant data that came out of this attempt was that the reliance the SEOC participants placed on stock responses already existing in their RM plan. The notion of stock responses and plans lends credence to the notion that mindsets and attitudes are based on pre-ordained

scenarios that will fit whatever specific situation arises (Farazmand, 2004; Mason & Mitroff, 1981), when in truth they may be totally unsuited for the situation at hand (Mitroff & Anagos, 2000). Present in the population at this point of the experiment was a significant amount of faith in the RM plans that already existed to manage WCS. Despite the insistence that the community wanted to follow decision-making efforts that would lead to a learning organization, in this attempt they did not clearly succeed. The research supplies the following propositions as to why this was the case; first the trust level in the exercise parameters was low. Second, the collective knowledge of this example was low. Third, the timing of introducing this WCS example was too soon and disrupted the bounded rationality of the participants before they were ready to contemplate it.

All of these disruptions to their perceived state of EQ in this circumstance led to a deduction by the research that they fell back on systems reliance to solve the issue for them. They went backwards to their beliefs in the system that already existed to solve a very uncomfortable problem. By doing so, they provided themselves with an easy rationalization and escape from dissonance (Brehm & Cohen, 1962). This leads to the conclusion that organizations that state their desire to engage in activities designed to make them a learning organization in relation to CM, will have to gradually increase their exposure to WCS levels of severity or they will defeat their own attempts.

Data Examples:

SEOC Participant A: *It's a good time to enforce daily inspections - especially if they are shared with other users.*

SEOC Participant B: *Also as 'A' said it's good to know what non-sport related issues are going to complicate them.*

SEOC Participant C: *How you do run the event here during the Games because it's not business as usual. They need to understand the major issues and our support role.*

6.2.5 Description of Worst-Case-Scenario #3:

Appendix 3 (p. 255) represents the third attempt to understand the implications of a WCS. It describes a total failure and breakdown of the transportation system meant to deliver event athletes and participants to their venues and accommodation around the city. It goes on to explore several causes and consequences of what may happen if such an event would occur. Also, it attempted to outline several preventive measures designed to anticipate the event occurring. Preventive and anticipatory measures that were placed within this scenario's parameters included more emphasis on the importance of due diligence of the SEOC to make the right decision in choosing an external transportation provider. In this figure there is a noticeable lack of complexity described through a high number of interactions compared to the other attempts. The discussion surrounding this event was full of comments related to its unlikelihood. Despite the disappointing level of complexity created by the participants to describe consequences of the initial signifier event, it illustrates an important threshold being crossed in terms of when the community began to push forwards into more LP/HI scenarios that inhabit that quadrant of the risk matrix scales described earlier (see Table 5 Risk Analysis Matrix Scale, p.44).

6.2.6 Analysis of Worst-Case-Scenario #3:

Appendix 3 of the transport failure scenario represents a more conscious and deliberate attempt at pushing the cognition of members into a more intense level of comprehension, based on the fact that more 'bubbles' exist that describe increasing unlikely yet catastrophic consequences, while the overall number of bubbles are less than in other NMDC models. This thesis supports the indication that the hypothetical EoC required to be contemplated by the SEOC to make this a reality pushed them very near the LP/HI ratings of '5' or 'extreme' than its predecessors.

Data Example:

SEOC Participant A: *No, it wouldn't happen*
SEOC Participant B: *No seriously, put drivers going on strike up there, and then put it back there*

There are more serious risks of infrastructure damage, and the threat level to athletes is high in this scenario as indicated by the consequences and their related levels (Standards Australia, AS/NSZ 4360, 2004). The level of chaos depicted in this scenario is quite high as evidenced by the areas depicting injury, death and stranded competitors.

Data Example:

> ***SEOC Participant:*** *Sport program impact which leads to complete rescheduling of event.*

Also significant from an analytical point of view are the comments that were part of the discussion about formulating the CRASYS for this scenario. At this time many outright comments of denial were recorded. These comments show how some individuals might have begun to experience cognitive dissonance because their attitude was "this isn't going to happen" but they were willingly engaged in planning for it anyway, which affected their comfort levels mentally (Brehm & Cohen, 1962). The impact on the behavioural component of their attitude was displayed in their inability to come up with more NMDC implications for the model to explore after it crossed a certain likelihood threshold of occurring. **Data Example:**

> ***SEOC Participant:*** *No, this is what we talk about with the whole team later, which is at an extreme crisis level who is in charge of what, so at the Games center it would be 'A' takes General MGMT, 'B' takes Emergency MGMT, somebody else takes media, and everyone in the workforce knows that in that case I have to go to 'C' and those people automatically step in, so as soon as I say 'B' bus crash, 'B' manages those emergency services details.*

6.2.7 Description of Worst-Case-Scenario #4:

In Appendix 4 (p. 257) the group attempted to explore nonlinear dynamical thinking by using the example of a scenario depicting their registration system collapsing in a catastrophic way. Various preventive methods are explored in an anticipatory sense throughout this scenario. The NMDC model technique is utilized to explore as many consequences as possible in the minds of the group of participants. The participants formulated an impressively complex diagram of the potential consequences of such an event happening. They created scenario consequences that followed potential impacts to the staff, the athletes, and various other stakeholders who would be affected by the issue. They proceeded to push this scenario towards the far end of the risk matrix rating scales of 'extreme' and '5' ratings where possible (Standards Australia, AS/NSZ 4360, 2004).

In Appendix 4 the SEOC participants managed to get fairly close with the impacts describing 'loss of future tenders' and communication pathway disintegration between themselves and their stakeholders. The fourth attempt at CRASYS development and WCS planning provided an opportunity for the community of inquiry to explore the issue of communication breakdowns as

well as the dependency they had towards a technological system that was ultimately controlled and monitored by another external organizational system. How this loss of data would impact upon their SEOC operations became a focal point of the discussion.

6.2.8 Analysis of Worst-Case-Scenario #4:

This WCS in Appendix 4 illustrates an important step forward by the SEOC participants in their efforts to engage in combining nonlinear dynamic systems thinking with their CM in an effort to be a learning organization. In the area of NLDS it is considered important for organizations to consider the complexity of their various environments in order to make proper decisions (Demers, 2007). In this figure, the participants had reached a comfort level with the exercises and were pushing their boundaries more in their efforts to examine issues along the objectives of the FWG to incorporate more of the '3', '4', and '5' level risk matrix descriptors (see Table 4, p.43).

In terms of comprehending chaos as a learning opportunity rather than a threat, this example provides confirmation of the concept that methods of decision-making that encourage the usage of complexity rather than avoidance can help create a crisis-prepared organization that favours learning and adaptation (Mitroff, 2004; Pauchant & Mitroff, 2002). Evidence of this is taken from the data in the diagram that shows the participants exploring the more serious issue of a technical system losing their data from not only the administrative loss of time and energy but the logistical consequences of losing faith in an external supplier, as well as the loss of faith from their customers in their ability to communicate the problem to them.

In conjunction with this evidence is the data from the FWG discussion which indicates how they came to the realization that if the primary administrative leader is missing or unavailable, several *SEU* individuals did not express confidence in their abilities to attempt to help with the problem despite their desire to do so. This supports the deduction of this thesis that this lack of perceived self-efficacy in relation to a non-priority duty, led to these individuals expressing a behaviour that poses a serious issues to the SEOC's CAS responsible for this scenario. The reliance on the technology is high due to the existence of tight coupling which makes them dependent upon that system to perform their duties (Perrow, 1984).

Data Example:

SEOC Participant: *Well, we are talking here about a backing up of data to deal with a collapse, but the issue is that we had a collapse, so that doesn't help at all, what is it that we can control to avoid that happening? What is in our control internally to keep it safe? We're relying on supplier to maintain our system.*

Despite this high reliance, belief remains high in the community that it will not fail them, and their backups will work. When pressed to explore the unforeseen possibility of backups also failing, the attitudes of the *SEU* were suddenly expressed by their comments that they do not understand the system or how to help in such a scenario. From this the senior *SEF* individuals proceeded to give a more detailed explanation as to what they would want from each person in this situation. The clarifications that occurred after this were significant for several *SEU* individuals. From this observed data we form the supposition that the scenario, once progressed far enough into a chaotic state, allowed for a learning organization system to occur due to the collaboration. Practical knowledge was increased and the complexity of the issue provided the basis for this evidence to be visible.

Data Example:

SEOC Participant: *This (event of the) registration system collapsing affects us for the entire breadth of the EVENT from now until afterwards as well. This is a serious problem so I want all of you to throw in as many possible situations as you can think of, any considerations, and any scenarios that will help us.*

6.2.9 Description of Worst-Case-Scenario #5:

Appendix 5 (p. 259) shows the CRASYS methods that the participants described for handling the WCS of workforce uniforms not showing up for the staff and volunteers to wear while working at the sports event. This scenario explored the possible organizational problems of such a crisis as it pertained to the ability of the organising committee to conduct its work. This provided insight into an interesting ramification of complexity from external partners affecting a human resources issue. The ramifications of this threat to event success covered many areas, such as brand damage and breaching of the psychological contract between volunteers and the organization. Also presented was possible confusion amongst athletes as to who to ask for help, and safety concerns over how security is provided by - and for - staff and volunteers.

Appendix 5 features an anticipatory side of this scenario involving many areas such as establishing relationships with the uniform providers and various other external contracting bodies. Creating contingencies for such an occurrence were explored in the scenario as well as the need of providing alternative strategies for conducting due diligence in choosing external partners for such services that are reliable. This scenario describes a seemingly innocuous issue that upon examination by the whole group revealed a striking level of complexity, hidden with its myriad cascading impacts.

6.2.10 Analysis of Worst-Case-Scenario #5:

This NMDC model example represents some interesting elements of group dynamics and decision-making in the form of how and what the SEOC participants were considering to be important consequences. It also points to some significant confirmations of suppositions about CM and leadership. First this scenario is initially not describing a crisis situation; it does not seem on the surface to be creating any of the consequences or impacts associated with the appropriate levels of threat, urgency, and uncertainty indicating a crisis (Boin, 2009; Boin & 't Hart, 2003).

Data Example:

> ***SEOC Participant****: We could have loss of volunteers (because) they are unhappy with not getting something.*

It is upon further development of the NMDC model topic that the significant yet subtle perturbations of the overall complex system of the event management process were seen. Prigogine and Nicolis (1977) stated that small perturbations in a complex system are often too small to be viewed as significant threats at their initial point of contact upon the system, and this example certainly provides evidence of this in the study's context.

Data Examples:

> ***SEOC Participant A****: You could have lack of authority out there due to that.*
>
> ***SEOC Participant B****: Confusion and lack of authority as well. It's a genuine return on their emotional investment.*

As time progressed the indeterminate patterns of chaos acting upon such a system become increasingly clear in terms of how severely they were affecting its EQ (Prigogine, 1997). In this

example it can be seen, upon analysis of the data, that such a phenomenon is present and being cognitively appraised by the SEOC participants. After a few small disturbances to the overall workings of the system, the complexity of just how many areas are interacting with the chaos becomes too great to contain (Black et al., 2007). The issues of worker safety, inability of staff to comprehend the volunteers' status, and brand damage due to a public perception of poor management in choosing a supplier who is unreliable may occur. Even the possible consequence of accidents due to people not being properly identified is added. This data confirms that SEOC participants at this point began to grasp the nonlinear dynamical nature of their complex environment and that their awareness of just how a systemic problem like this could grow out of hand might affect them all.

Data Examples:

SEOC Participant A: *Inappropriate clothing (causes) safety concerns. Because there is no policy they could wear whatever they want and that is not good.*

SEOC Participant B*: We would encourage supplier to have blank stock so we could have a common colour and they could use it for other stuff, but we can encourage only for that.*

SEOC Participant C*: That way we can do a reorder if necessary. If we missed a deadline we could do a turn around. A lot rides on the trust we have with our suppliers.*

6.2.11 Description of Worst-Case-Scenario #6:

In Appendix 6 (p. 261) a scenario depicting the main entertainment feature of the sports events social program withdrawing from the engagement at the last possible moment is presented. The CRASYS elements of this scenario depict how this could be avoided by procuring various legal insurances against such an occurrence with the management of the artist. It also attempts to chart the progression of the impacts felt by all areas of the SEOC from the initial occurrence. This scenario also goes as far as to postulate what would happen if a riot broke out amongst the crowd of spectators and threatened to engulf the proceedings. How this catastrophic occurrence might impact the SEOC and who would be in charge of handling it was explored in of detail. The NMDC model's elements directly resulting from the scenario split along an interesting pathway of complex interactions, one of the only NMDC's to do so.

6.2.12 Analysis of Worst-Case-Scenario #6:

Appendix 6 represents some significant findings of the study. The researcher also observed some of the more interesting behaviours and group dynamics surrounding this scenario. This scenario was created by a SEOC participant because it directly related to their area. However, they did not create it willingly of their own accord. Instead, they were pushed, with what was observed as great reluctance by the researcher to get involved, by their compatriots. The group wanted everyone to provide a scenario that touched on all the major areas of management and departmental leadership. However, in this case a particular participant did not willingly volunteer their area to be used. Instead they were asked directly by their compatriots to engage and take part, which they eventually acquiesced to.

Data Example:

SEOC Participant (to participant in question): *I want 'A' to give one…'A' say one!*

There were evident levels of dissatisfaction from several SEOC members observed by the researcher over this individual's inability or unwillingness to get involved in the collective learning process. An individual's resistance to engaging in an activity that requires adaptation or perceived change can indicate a lack of competency in the organizational sense, or a missing skill in the area of management (Uhl-Bien & Marion, 2008).

Data Example:

SEOC Participant (to participant in question): *Of course that's our area of concern, right? My God, I've got a lot of work to do with you, don't I?!*

It can also represent a lack of self-efficacy in that individual if they are not engaging in decision-making activities or group learning activities where participation is expected regardless of individual learning preference (Bandura, 1977; 1982; Zaccaro et al., 1995).

In this instance, a perceived lack of self-efficacy was compounded by the fact that this individual had indicated in their Pre-FWG interview that they preferred to learn in a group environment. In addition, they were classified as being a part of the *SEU* group of staff, furthering their discomfort in talking about complex systems because they had no previous knowledge to assist them in comprehending what to do. All of these factors were found to contribute to their

inability to provide any meaningful contribution to the discussion, despite their admittance that such an unlikely occurrence had almost happened to them before. Of the six individual SEOC participants that contributed to the conversation in developing this CRASYS scenario, the originator's comments equalled only 6 per cent of the total conversation based on total unique comments counted, while the other five contributors were all evenly distributed, contributing 18.5 per cent of the total conversation each.

The behaviour of this individual leads to the supposition that a refusal to willingly engage in group learning activities in such a collaborative inquiry exercise can potentially lead to a weakening of that person's contribution to the collective efficacy of the group. It supports the indication that some individuals are simply ill-suited to learn in such a fashion about such a topic, namely collective learning efforts about crisis leadership and management decision-making. The deduction of this thesis supports the notion that this was due to a combination of the individual's personality type, cognition level, and self-efficacy level. The self-efficacy of this individual was deduced as being low, due to the fact they let other more *SEF* type participants take charge of their scenario and direct the conversation.

It is believed they allowed the practical and experiential knowledge of the leaders with more event experience to overwhelm them. They expressed an attitude that displayed little confidence in their ability to contribute, another sign of low self-efficacy (Bandura, 1982). Their personality type was observed as being highly introverted, due to the observance that they were content to not volunteer information or take the lead in the exercise, and were extremely uncomfortable being the center of attention at that point in time (Jung, 1966).

Data Examples:

***SEOC Participant A**: We should cover the issue of personal injury, and also the appropriate sourcing of the liquor license. 'Blank Group' is responsible for liquor license.*

***SEOC Participant B**: How is that linked to main entertainment dropping out?*

***SEOC Participant A**: Your liquor license provider is who determines how many security and emergency personnel you have on site and the risk notification process.*

***SEOC Participant B**: I had no idea that's how it worked.*

***SEOC Participant A**: Liability of liquor license is quite huge, by having them manage the license they are better at finding the security and necessary people to handle it. It's amazing the affects you can get if you don't know the issues.*

This type of behaviour in a leadership group member raises certain significant concerns. For example, if such an exercise overwhelms their sense of self-efficacy, what will happen in a real life crisis? Also, how will the senior leadership figures in the SEOC increase their level of self-efficacy to an adequate level? What are the impacts that this individual's lack of resilience and competency will have on the collective efficacy of the SEOC? These are important issues raised by the research that pertain to how a leadership group will go about building an organizational culture without such possible issues in the future. Related research shows that power relationships that are pre-existing in organizations cause serious blockages to the decision-making process for such instances when those relationships control the dominant aspects of the OC (Wilson, Branicki, Sullivan-Taylor, & Wilson, 2010).

This thesis also established that certain relationships within OC's based on experience and power can cause gaps in the decision-making for strategic value. The complications of this actual scenario raised various issues and gaps in relation to the practical and experiential knowledge bases of several SEOC members and how they adapted themselves to it (Heron & Reason, 2001). The vast area of significant relationships with external stakeholders that would directly impact on the efforts to anticipate and mitigate this crisis was unknown to most participants.

6.2.13 Description of Worst-Case-Scenario #7:

Appendix 7 (p. 263) describes the second attempt at planning and preventing a Mass Transport System Failure, and it is a revisiting of this particular issue by the SEOC. Despite there being no clear statement of this example being considered likely or significant to plan for by the inquiry community participants, it was revisited as a scenario in the experiment. Despite this, it provides an interesting test for double-loop learning within the organization. In Appendix 7, the participants explored the various issues that would cause a failure of this system, like financial difficulties or poor management, as well as union trouble. They also tried to create CRASYS styled anticipatory measures to ensure their due diligence in choosing a transport service

provider was adequate. The long reaching impacts in Appendix 7 were discussed as were the ramifications the crisis would have across the host city on the athletes and their social programs.

6.2.14 Analysis of Worst-Case-Scenario #7:

Perrow's (1984) concept of 'normal accidents' caused by failures of the technological and human systems of organizations interacting, in combination with the incomprehensibility of systems significance associated with bounded rationality (Locke, 2009) pertain to the interactions of the SEOC's external and internal systems represented in this scenarios depiction. The seventh attempt in Appendix 7 with this revisited example represents some level of double-loop learning occurring according to the learning organization concept. This is due to a furthering of presentational knowledge based on the re-framing of the ideas the team came up with in their first attempt (Heron & Reason, 2001; Senge, 1990).

Data Example:

> ***SEOC Participant A****: Depending on what it is failing, Metro will have their systems of contingency kicking in as well, we need to know that.*
>
> ***SEOC Participant B****: That just threw up a massive alarm bell in my head, in terms of how to get a massive message out to everyone during the event, how do we communicate that to all of the people involved? How do we do that?*

In turn the participant's practical knowledge was observed as being affected because they contributed to new ideas about the scenario from the original attempt (Huysman, 2000; Mebane & Galassi, 2003). **Data Example:**

> ***SEOC Participant****: Yes and the other meetings of other groups. We need to move it down to the simplest steps, so we need to start the communication to the common step of all the venues; everyone is going to a venue so we start communicating from there.*

In Appendix 7 the NMDC model components pertain to CM meetings and other communications between various leadership groups from the external stakeholders as well. These new components in the second attempt at this system's failure example provide evidence of what is considered the reflection phase from the first attempt, this is where the community of inquiry spend time thinking about the first action phase associated with the first try at anticipating such a WCS (Argyris, 1985).

Data Example:

SEOC Participant A*: People not visiting the Games Village so we have sponsors getting no traffic inside it.*
SEOC Participant B*: We can have a financial meltdown due to this.*
SEOC Participant C*: The GIG meeting helps establish they are aware of the impact on us right?*
SEOC Participant D*: We have a communication center that will play a big role in each scenario we've brought up today.*

From one attempt to the next, they have brought an increased amount of practical, experiential, and presentational knowledge back to the decision-making process and produced a more complex yet useful NMDC model for the scenario. Their attempts at learning about how to deal with this type of crisis seem to be improved from this evidence. Also, they classify this situation as having more significance of consequence than previously. This lends support to this thesis' notion that this experiment might alter cognition levels. Such statements indicate evidence of a more careful effort at comprehending the scenario and its complexity. The SEOC leaders apply more significance to this scenario's possible consequences to more external stakeholder groups than just themselves in a manner considered much more in line with a complexity-cognizant point-of-view which accepts the chaos of the situation and does not panic about it. Rather they move forward quickly and decisively, as seen in the examples.

6.2.15 Description of Worst-Case-Scenario #8:

The NMDC model in Appendix 8 (p. 265) illustrates the attempt to build a CRASYS over the issue of a sport association withdrawing their sport from the entire competition. It affects all areas of the sports event, most especially the impact on participants of that sport who would be unable to compete after travelling to the destination. The NMDC model goes into significant levels of detail in trying to assess the ramifications of this to the SEOC in general and the affected event participants. This attempt looks at the financial issues related to refunds and other sponsorship/marketing concerns, as well as how the unfolding of the crisis would affect various levels of external systems (e.g. transport). This WCS example also pointed out the importance of having properly set up communication pathways with each association responsible for bringing their respective sport competition to the event and ensuring its official criteria are met.

6.2.16 Analysis of Worst-Case-Scenario #8:

The significant finding from the data analysed in this NMDC model were the identification by the SEOC members of how nonlinear dynamics occurs in the form of small perturbations within their overall organizational system that prove too subtle for them to identify at once (Black et al., 2007; Byrne, 1998; Prigogine & Stengers, 1984). Also, the various interactions from the complex system described above became more seriously affected and harder to contain as the situation evolved. As this became more apparent to the SEOC participants, comparisons of how the evolving interactions of organizational systems are often the signifier of potential risks that need to be addressed were made (Cilliers, 1998; Gilpin & Murphy, 2008). This was evidenced by the eventual recognition of the participants in their discussion over how a lack of communication between them and a sport association may lead to a level of dissatisfaction in the second party that could be potentially dangerous to leave festering.

Data Example:

***SEOC Participant A**: These aren't linear issues though are they? They come off in all directions?*

***SEOC Participant B**: From 3rd party suppliers, they just need to know what impacts that has on them. Jumping back from where it happens at first, we have to deal with negative word of mouth in the Games Village as they hit the area.*

***SEOC Participant C:** Especially since we funnel our contingency plans for this into two people, our plans are based on communication to just two people for the whole area of this concern.*

***SEOC Participant D**: But all our plans are the same for contingency planning, registration is just the area of two people, marketing is just two people.*

Also significant in this CRASYS example was the data that acknowledged that the participants collect and store their data in ways that make it difficult for other leaders to access. Also, they began to realize that they rely on their various organizational systems (RM plans, documents, policy) to protect them and make decisions for them in this instance as well. **Data Example:**

***SEOC Participant**: But we put all the information into the files and databases and keep it secure so if there is a 3 car pileup and we all die someone can retrieve it and continue.*

Another significant finding was the statements from the FWG discussion regarding the discontent some participants felt about the limited number of people in charge of the competition data they were gathering. Participants felt this was a reckless practice since it limited the sharing

and transfer of knowledge potentially important for them all to know about, or at the least how to access if necessary. This related back to the former issue they identified in the earlier CRASYS attempt (see

Appendix 4, p. 257) dealing with the registration system failing. The accumulation of an extensive amount of knowledge in just a few people made them uncomfortable, especially since they had not realized this beforehand. **Data Examples:**

> ***SEOC Participant A****: I think we need an escalation process understanding. Of when to go to 'A' or 'B' or someone about what is happening.*
>
> ***SEOC Participant B****: Right now the communication of the sports is between two people, over 60 sports, which are narrow, and we have the manager for the sports but there is only so much they can do. For me there is an element of reliance on their knowledge, what happens to us if something happens to them? How do we keep going if one of the two is unavailable?*

This confirms the belief of this thesis that the sharing of collective knowledge in this method can enhance practical knowledge once the phases of action and reflection are completed (Bray et al., 2000). This data provides confirmation of possible emergence occurring in the organization's members, as emergence occurs when EQ is re-established after chaotic activity occurs (Kauffman, 1993; 1995). In this instance, EQ being disrupted is represented by the attitudes of the participants changing as they become dissatisfied with the current system of knowledge sharing and transfer. The re-establishment of EQ is seen after their contemplation of the systems fallacies proved that change is necessary. Emergence is viewed metaphorically as the state when knowledge is increased in the participants. The attitude shift some of them expressed towards how their data is secured was viewed as an example of this (Kauffman, 1993; 1995; Prigogine, 1997; Sellnow et al., 2002).

6.2.17 Description of Worst-Case-Scenario #9:

Depicted in Appendix 9 (p. 267) is the NMDC model depicting the WCS example outlining the CRASYS attempt at containing a bio-hazard outbreak. This scenario attempts to chart the nonlinear dynamics impacting upon their organizational systems from a medical emergency that grows out of control to affect the entirety of the organization and its objectives. The SEOC participants outline what possible types of events (Sexually Transmitted Diseases, airborne, waterborne viruses) may afflict the event participants. They proceed to outline further cascading effects as the crisis grows out of control negatively and affects them in various ways. Possible impacts are explored as far as total event disintegration in the efforts to put it on. Possible prevention tactics are also applied in the efforts of moving back in time to see where avoidance of potential crisis signifiers could have occurred. Elements such as safety and medical briefings

are identified as potential CRASYS. The nonlinearity of this dynamic system fluctuation is described throughout by the descriptions of how medical facilities are slowly overloaded until the momentum of the outbreak outstrips the management policy's effectiveness.

6.2.18 Analysis of Worst-Case-Scenario #9:

An important feature of Appendix 9 was the financial implications of losing sponsorships and future clients. These are considered essential elements for successful sports event management and their loss is a serious threat to organizational competency (Abrams, 2004; Bill, 2009; Horne, 2006; Masterman, 2009). This scenario was the last of the scenario planning efforts by the first group of SEOC participants. It is unique in that it represents the most difficulty the group had in attempting to creatively address the concept of chaos and complexity in their midst. This is because this scenario was a serious effort at a truly improbable event that was well within the high end of the risk matrix for LP/HI consequences (see Table 5, p. 44).

Data Examples:

SEOC Participant A: *You could do gastro across the entire event, but that's so unlikely….*

SEOC Participant B: *Something that affects the workforce, in a broad sense, like swine-flu. I almost lost an event to swine flu last year.*

The participant who came up with this example intentionally tried to push their colleagues to a whole new level of implausibility with this example and it revealed interesting effects on their behaviour. The scenario creator refused to reduce the severity of the situation at any stage and insisted on maximum impact across all fields for consideration. Also they refused to allow anyone to raise the point that in the real-life case of any serious medical emergency, the state run medical emergency services would simply take charge and handle it. Instead, they insisted on framing the situation as one where the links between the two organizations broke down and the hospitals were unable to handle the number of casualties caused by the crisis. This created a major effect on the participants: they stopped talking during the scenario planning.

The implication of this is that the participants were finally, after successfully being creative in their thinking, faced with a problem so incomprehensible they could not fathom any of its

elements, or how their management systems would interact with it. The very nature of scenario planning is to get participants of its theory to practice contingency creation for situations that require dynamic thinking (Schoemaker, 1990). However, as outlined in qualitative Chaos theory research, EQ is a state that is not disrupted easily, and an organism experiencing the shift from EQ to DEQ will feel threatened in a variety of ways and resist, until forced to adapt in many cases (Black et al., 2007; Doll Jr., 2001). The struggle witnessed in this scenario planning effort was that its creator insisted they adapt set plans and normally effective strategies to deal with a completely improbable crisis occurrence. The other participants felt it was so far off the end of the risk matrix scale that even the acceptance of the fact that this was the point of the exercise could not get many of them to contribute to its creation. This scenario also provided the first outright statements of disbelief that such an event would occur, as well as statements regarding the uselessness of planning for such an improbable WCS.

This is significant because it confirms this thesis proposition that only certain leadership personalities are going to be able to actually push forwards into the realm of the truly chaotic WCS planning exercises to see what they could learn. Also, it confirms that learning about CM scenarios for most individuals is limited because of their bounded rationality. Once this rationality is breached by considering something deemed implausible, the physiological discomfort associated with cognitive dissonance occurs and makes the individual disengage with the exercise. This is because their behaviour (engaging in the exercise) is at odds with their attitude (this scenario is far too implausible for me to consider). The result is the expression of disbelief and other attitudes over the usefulness of such a scenario. However, the creator of the scenario felt this was the most useful one for them afterwards. Expressing it really illustrated how far their fellow SEOC members could be pushed in the areas of creative, innovative, and adaptive thinking and decision-making. In the excerpt below notice the existing reliance towards the ERS used to manage a serious crisis by the organization.

Data Example:

SEOC Participant: *If there is a biohazard outbreak and we go to a public hospital and they can't handle it we turn it to the state. Once beyond that, we don't have control and the unknown unknowns are just things we have to deal with. We rely on the state system because it's bigger than us and more complete.*

In this next excerpt notice the difficulty in expanding the comprehension (via cognition) of just how serious a chaotic event might be to pre-determined RM plans previously created by the participants. The effort of one participant to get the others to accept the possible significance of systems failure is expressed.

Data Example:

Researcher: *I know that's the belief but what if it does?*

SEOC Participant A: *If we presented 50 people at a hospital, and they can't handle that, it's about what would happen if that would ever occur, right?*

Researcher: *Yes, that's the point, what if they don't? What if they don't know?*

SEOC Participant B*: That's where it comes back to MGMT touching base with them prior to the event.*

SEOC Participant A: *Yes, but what if that does happen and it does go wrong?!*

Researcher: *Yes, in that incidence?*

SEOC Participant B: *It would be just further communication between us and them…I don't know?*

In the next excerpt, the denial and rationalization of why they should not be attempting to plan for the WCS despite identifying the threat it poses is noted. Cognitive dissonance appears here as they express frustration over something they deem impossible and therefore unnecessary to deal with, in order to deal with the discomfort felt at the effort to consider it coming true.

Data Example:

Researcher: *What about a state of confusion occurring about when the state should step in and take control? How would you deal with it?*

SEOC Participant: *That wouldn't happen, because they would step in.*

Further analysis of the significance of the FWG data will be presented in the following sections. Also, the field observation data will be synthesized into this analysis to show how the observations of the SEOC members during both methods presented a more complete picture of the collected data.

6.3 Field Observations – Introduction:

In this section an explanation will be provided of the analysis of the field observations made by the researcher during 'Games Time'. The field observations made by the researcher were conducted openly with the knowledge of the participants as per the guidelines of Participatory Action Research (Argyris, 1985; Argyris et al., 1985). Observations were made of all participants going about their managerial and leadership duties during the time of actual competition. Within this time period, the researcher observed many conversations, behaviours and expressed attitudes of the participants in relation to leadership, decision-making, and complexity-based circumstances. Also present in this chapter are observations that were made by the researcher throughout the FWG sessions, as this part of the methodology provided many useful insights that were observed but were not a direct part of the NMDC model discussions.

Primarily, it was observed whether or not there was any evidence of a participant showing an acceptance or elevated response to complexity or chaos in their daily work during 'Games Time' decision-making, and if so, did they utilize the mindsets and frameworks developed in the knowledge creation sessions of the FWG. Benefits or detractions from successful event management were also observed by the researcher. The field observations uncovered several findings in regards to the group dynamics of the SEOC and their work during 'Games Time'.

'Games Time' was the time when the actual event preparations came to fruition and the major sports event was executed in the host city, with the athletes competing in all sports. During this time, the roles of the participants changed drastically. During pre 'Games Time' their main duties were administrative in nature for the most part and all work was conducted mainly at the office and via telephone and email to various partners. During 'Games Time' their roles become based in the leadership realm of setting the tone and vision for their followers to emulate. Many of them go out into the field themselves and approach issues at venues with logistics, operations, or staffing personally. Others operated out of the 'Games Center', a communication hub that directs all communication for the various elements of the event. The duties of the leadership core were primarily to act as the group that directs the activities of all people responsible for the running of the event in its entirety for its duration - some 600 plus people. Their leadership is

also what will guide the organization either away from, or through, a risky situation or a crisis event if it arises.

6.4 Findings Related to Leadership - 'Games Time' Leadership Behaviour:

Leadership behaviour is very important to the SEOC participant population. The results analysis and the behaviours exhibited by the participants illustrate the intuitive understanding they had of the research topics and objectives concerned with leadership behaviours. From the various observations conducted by the researcher, the following deductions were made:

Finding One: The displayed leadership during 'Games Time' indicated that it met the criteria of the transformational paradigm, and efforts were made by senior leaders to extend this into the self-directed team types. ***Analysis:*** transformational and self-directed leadership is seen as the form taken by the senior and most experienced of the SEOC leadership core, due to the exhibited behaviours of placing autonomy and accountability in the hands of the smaller teams (Bass, 1985; Katzenbach & Smith, 2001; Kouzes & Posner, 2002; Mitchell, 1972; Vroom & Jetton, 1973). Also they placed a large amount of trust in their various team's abilities to complete their daily tasks. A self-directed team is a form of self-organization in the sense that a pattern of behaviour and standards were set by the parts of the overall system inherent in the organization for the independent team to use as a guideline to achieve their goals in any way they see fit, and can be viewed as an extension of transformative leadership (Beach, 2006; Kauffman, 1995; Mittleton-Kelly, 2003). The individuals of the organization are system components, and they can self-organise if given the leadership style of self-direction to follow and the need for change is apparent (Prigogine & Nicolis, 1977; Rizzuto & Maloney, 2008). Such behaviour can be viewed as a response to stress, like crisis events, which force the organization (system) to self-organise (Comfort, 2007; Farazmand, 2007).

Trust is viewed as an essential element for self-managing or directing teams to form (Katzenbach & Smith, 1993). They kept a vigilant watch over the actions of various teams who were struggling to contain the issues within their individual venues. They did not intercede unless requested to, and they had the power to do so if necessary. They presented their opinion on what they would prefer be done for serious issues but did not impress this forcefully on their teams as

the only way to proceed. There was also a fair amount of charisma displayed in their portrayal of an individual who was in control and experienced enough to know what to do.

Also, they spent a period of time at the end of everyday reviewing reports from every self-directed team's area so that they had an accurate up-to-date picture of what was affecting that group. From this, they attempted to forecast possible scenarios in the vein of the FWG efforts in terms of what risks or threats these reports might be signifying. They provided the other departmental leaders with the example of professionalism the follower group had asked for through their identification of the 'lead by example' skill attribute. 'Leading by example' is viewed in most cases of leadership style to be indicative of an individual who wishes to express appropriate cultural values to their follower group (Vroom & Jetton, 1973). Their cognition was deemed high because of this effort to expend energy on signal comprehension and sense-making of potential crisis signifiers from these team reports (Demers, 2007; Pearson & Clair, 1998).

Finding One: Analysis of the data gathered from observing the FWG activities found that the leadership core of the sports event favoured the concept of self-directed leadership in its various departments during 'Games Time'. **Data Example:**

SEOC Participant: *I look at it from the elements of leadership as well, in our specific environment. So there are you guys in your areas doing what you do and leading as you can through whatever situation may or may not occur. Then there is the leadership of people like me and others who assist with the overall communication of how to deal with things they haven't seen. I have the tools already and then you guys can refine them from there.*

Analysis: This revelation about self-directed leadership was evident because each department had many responsibilities in terms of dealing with the external and internal management environments of the sports event. In addition, they all had distinctive contributions in building the OC. Each department leader had control over their daily activities under the guidance of strategic corporate level goals. Such structuration is evident in self-managed teams (Katzenbach & Smith, 1993). The overall project leader for the sports event expressed their desire for self-directed teams to operate under them, as these types of teams were considered the most beneficial from their experience. The operations of a large-scale major-sized sports event of this type were too complex to execute with a centralised type of decision-making styles for its myriad teams, as seen in other companies that struggled to use such flexibility combined with rigid decision-making styles (Lalonde, 2007; Mason & Mitroff, 1981).

The SEOC wished to develop a culture whereby self-directed teams went about their activities and duties without direct supervision, possible due to a high level of collective-efficacy felt by each unit (Senge, 1990). The implication of complexity upon their organizations systems was intense and visible. It affected how their communication pathways developed, how their RM and CRASYS plans developed throughout the methodology, and how their daily routines changed regularly. Complexity also led to their organization becoming reliant upon many technological systems to support them, due to the *tight coupling* concept wherein separating human and technological systems becomes impossible (Perrow, 1984). Therefore, complexity's impact led to not only the need for self-directed teams, but also the creation of an environment that made them the best type of team to develop. The findings from the field observation data made throughout the 'Games Time' time period illustrates the participant's notion of the importance of self-direction in their sports event environment. **Data Example:**

> ***SEOC Participant:*** *The escalation is that you should get that call and realize you can fix it, but if you're not sure you need to talk to 'A' or 'B', and then to me if that knock-on effect is to be dealt with and not made worse by your lack of knowledge.*

6.4.1 Emotional Intelligence:

Emotional Intelligence (EI) is the ability to know and comprehend ones emotions, and also the emotions of those around you. Through such comprehension comes the knowledge of how to manage individuals to achieve goals based on their emotional state (Goleman, 1998). EI was viewed as being very significant to the development of the appropriate transformational leadership behaviour needed to lead people during a crisis event as outlined by the participants. Without a seemingly high level of EI the self-directed teams and related transformational leadership behaviour would not be possible, as the leadership of a team would lack the ability to cognitively appraise the status of its follower's resilience (Goleman, 1998; Petrides & Furnham, 2000). Validating EI's place in the social sciences was not the focus of this study as mentioned previously. Rather, the components of EI became significant to understand in order to comprehend what the data was pointing to. Instead, a qualitative assessment based on the specific findings of this study was conducted to confirm the significance of EI to this group's desired leadership behaviours and attributes. The findings related to EI's role and importance during the field observations made during 'Games Time' and the FWG sessions led to the

following assumptions by the study for the organization and its systems presented in Table 10 (p. 205):

Conclusions Based on Field Observations	*Field Observations Data Example*
1- Without a high level of EI the SEOC leadership core members cannot properly provide direction during a stressful situation like a crisis during 'Games Time'.	***SEOC Participant**: again, that is the relationship we have with them that their rangers come along and deal with that issue on our behalf. That's the ability to establish a relationship with them.*
2- High levels of EI allowed certain SEOC members to use their subordinates and followers in a more effective manner than those with low levels during 'Games Time'.	***SEOC Participant**: what is necessary is you understanding the communication pathway…any issue that comes up, you go to here, and the person who gets that is the one who needs more of this we tell them who is working with them and above them and what the chain of command is.*
3- The participant's realization of the importance of EI levels in the group learning situations was viewed as them experiencing an epiphany in their efforts to build organizational capacity.	***SEOC Participant**: this is really coming down to our ability to establish and maintain a lot of relationships with the outside contractors.*
4- Capacity and resilience in the organization had a positive correlational relationship to the amount of EI exhibited by SEOC members.	***SEOC Participant**: I think because of a lack of knowledge beforehand about this issue, if someone told me our rowing venue is going down, I would know what to do, and with this, I can begin to think about it because there are similar elements to it.*

Table 10 Observations and Conclusions of Emotional Intelligence findings from Field Observations Data

Energy and patience were observed as being very high in the beginning of 'Games Time' in the SEOC. This was especially noticed in the areas where volunteers were needed and their learning curve was quite steep and they were relying on the leadership group for direction. The attitude persisted during these initial stages that looking outwards was important to avoid calamity

further into the event, and significant organizational capacity remained at this point to put into initiating proactive practices at venues.

'Games Time' represents a time when the decision-making timelines are compressed to a point where immediate action is needed. Having a high level of EI will allow a leader to assess who to use for crisis mitigation and prevention methods, and how they will fare in such endeavours based on their emotional stability in the face of uncertainty (Petrides & Furnham, 2000). A leader who is faced with making decisions about how to utilize staff capacities in a complex environment such as 'Games Time' will be required to utilize a skill such as EI. EI will allow a leader to grasp the toll on themselves for such CM issues, and what the actions of their followers will be in an assistance capacity.

6.4.2 Vision:

A vision is what some theorists such as Bass (1985), House (1977), Bolman and Deal (1984), and Kouzes and Posner (2002) believe to be one of the most important beliefs a transformational leader must create within their organization. A vision is more than just a mission statement; it sets the strategic goals of the organization in motion while providing an ideal for employees to strive towards, while being motivated by more than just personal gain (Bass, 1985).

> Vision defines the ideal future, perhaps implying retention of the current culture and the activities, or perhaps implying change. That is, the vision may require no more than natural evolution of the present, or it may require radical changes in what the organization is doing and in its culture in light of trends, threats, and opportunities present in its external and internal environments. (Beach, 2006, p. 50)

The vision is meant to ideally tell the organization who they are now and who they want to be in the future (Kouzes & Posner, 2002). The vision is not the plan, it is the end result of whatever plan the organization decides will take them to it (Bass, 1985). Also, in reference to previous comments about how catastrophes are potentially learning opportunities, the vision is not meant to deal with threats, but instead to offer chances to take advantage of opportunities to the follower group (Beach, 2006). This could be achieved if the vision outlines the need for such creative and adaptive thinking.

According to Beach (2006), visions have four elements that every leadership figure or group should include in their vision construction and implementation. These elements illustrate how vision is an integral part of the concept of transformational leadership paradigm sought by many of the participants in their own styles of leadership. These have been presented in **Error! Reference source not found.** below.

Element	Purpose	Transformational Leadership
Goals	The most important part of the vision and needed to outline the thrust and scope of the organization so that it reaches its desired future.	The goals should be aligned to the organization and not the individual.
Priorities	Allow leaders to put their goals in order of importance so that productivity is maintained by avoiding issues such as inertia or entropy, (i.e. meaning the loss of energy in the form of resources).	Priorities lie in protecting the capacities of the organization and through this, the individual's connection to vision.
Requirements	The lists of skills needed to approach and solve various problems and issues relating to the goals.	This leadership style requires someone who is able to create an environment where such sharing of skills is a cooperative effort.
Implications	The fallout effects of succeeding or failing.	There is no blaming or 'pointing of fingers' under this style when the vision is not reached, also the success of reaching it is shared by all.

Table 11 Four features of an organization's Vision

It should be noted in accordance with the comments on accepting the change vs. risk comparison that such acceptance of risk is necessary in order to create change for success. While failure is at the heart of people's fear of changing, it can be negated by anticipating it early (Byrne, 1998; Comfort et al., 2001). The transformative leader's vision is an important building block in outlining the organizational culture of a workplace. A transformation leader especially will apply energy in making sure the vision is clear in the minds of their followers because it allows for a clearer method of how to place organizational goals ahead of individual ones (Bass, 1985). It will also impact directly and indirectly as to how high or low the levels of job satisfaction are within the workplace (Wolff et al., 2002).

Findings from the field observation data analysis indicate that these notions of vision and its importance to transformative leadership are verified to be true in this case of sports event managers and their unique organizational culture. SEOC participants expressed a strong inclination and desire to build a strong and clear vision for the 500 plus volunteers and staff they would be leading once 'Games Time' began. They ranked creating such a vision, as outlined in the transformational leadership concept above by Beach (2006), highly within the things they believed important for overall event success. The vision of the SEOC was seen by the participants as a necessary tool to establish Trust, Self and Collective Efficacy, and effective communication between them and their respective follower groups. **Data example:**

SEOC Participant A: *Our planning process should provide a plan or guidelines for when this needs to be put in place and make clear to everyone what they need to do or where to be. A list should be developed as a tool for every staff to know what to do.*

SEOC Participant B: *The vision I want is allowing that person to make a decision, empowering them to make a decision.*

Upon analysis of this concept, the indication is to support the supposition that the collaborative inquiry method is a useful tool in developing vision, because it provides all leaders taking part to express ideas about what is important to them for achieving event success. The sharing of knowledge and opinion in this method allowed for the vision of the group as a whole to be compared with the vision of their parent organization and its senior leadership core, according to the tenets of transformational leadership. Through this, a modified and more truly collective vision as to what should be done in the area of CM to satisfy everyone's needs and concerns was developed and shared. This is considered a significant growth in the collective efficacy of the group and indicates that learning in both the presentational and practical knowledge forms was achieved through the methodology. **Data examples:**

SEOC Participant A: *If the RM element from before used and created a catalogue of plans like that, the ability to amend and approach things would be extremely valuable. It would be a useful learning process.*

SEOC Participant B*: I do that by building trust, through our systems, trust the judgment of the professionals we have on site to do things without emotion but through skill and experience.*

SEOC Participant C*: People need to be trained, attend training, have the confidence our training works…making the main responsibility theirs and having them know the system supports them.*

6.4.3 Trust:

In relation to the concept of transformative leaders providing a vision for their organization and followers to strive for, they also need to establish trust in them as well. Trust is an essential element of the transformational leadership equation. If followers do not trust the leadership, they will not follow it for long (Bass, 1985). Without trust, the power leaders had over their followers, or the ability to influence their behaviour will be insignificant since non-coercive power types are utilized in these types of organizations (Beach, 2006; Bill, 2009). Trust in the leadership core's skills and experience was essential for the sports event volunteer force to have in this example. The SEOC represented an experienced, focussed, and determined group of professionals who had all the right skills and abilities to put on this type of massive project in the eyes of their follower group. This attitude existed, as observed by the researcher during 'Games Time', because of the trust they had in the SEOC's leadership. **Data examples:**

***SEOC Participant**: We held hands too much in previous years, we didn't give them the freedom to handle things competently, we are trying to put the onus back on those comp managers. We don't want to create a lack of accountability for them.*

This links to the concept of the study's research questions concerned with enhancing the leadership skills of such organizations, because doing so will theoretically lead to even higher levels of trust in them by the follower group. This increase in trust is postulated to come from the belief in the SEOC's CM skills in preparing for ORG-CRIS by creating the CRASYS and establishing resilience in their staff by extension. The field observation data showed that, by engaging in the FWG method, the sharing of knowledge allowed individual members of the leadership core to more fully understand the complexity of their collective tasks. Transformational leaders wish to foster the belief in their followers that they trust their abilities to succeed in the face of adversity; this has been proven to lead to better overall performance by those same individuals in problem-solving tasks (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio et al., 1999)

Participants were given a chance to engage with the organization's vision, and other personal visions of teammates much more intensely than before. In doing so, they experienced an increase in their collective efficacy. From this, observed increases in their trust in each other's

abilities occurred, as well as possible shifts in their cognition abilities. All of these factors contribute in theory to increasing the organizational capacities and resilience of a group (Bandura, 1982; Comfort, 2007; Comfort et al., 2001; Ferkins et al., 2009; House, 1996; Katzenbach & Smith, 2001; Leavy & McKiernan, 2009; Weese, 1996). If such an organization can have such trust levels in themselves and their abilities it will trickle down throughout all levels of their systems and proper vision-sharing and trust building in the lower levels of the follower groups will lead to a highly productive and efficient workforce (Bill, 2009; Bolman & Deal, 1984; Goleman, 1998; Kouzes & Posner, 2002). **Data Example*:***

SEOC Participant A*: Having them know we trust them, knowing the trust is there in their skills.*

SEOC Participant B*: We need to give them the responsibility so they feel responsible.*

6.4.4 Self- efficacy:

Finding One: Self-efficacy was an important element to build by the overall project leader upon analysis of the interview data in their followers. This element of organizational competence was essential for proper crisis avoidance as well as everyday management of the sports event by the leadership core. Self-efficacy was high in the smaller SEF group and lower in the SEU group initially but overall collective efficacy grew after the FWG sessions. **Data Example:**

Answer to Question, "Is it important to continue learning as a group in this matter?"

SEOC Participant A: *Crucial, the follow up and expansion on the areas discussed during the session will be very important. In addition to this, the development of plans/policies etc. to address, negate, manage such crisis, and communicate/educate all staff on this will be crucial come event time. The benefits of addressing this as a group are the ability to clearly discuss and see the impact situations have on all areas within the event rather a single staff area.*

SEOC Participant B: *Very important. We are all connected as a team and our actions impact each other on a daily basis. So when new people come into the organization there is a responsibility at the team level to introduce them to this way of looking at crisis anticipation and management. It is also crucial that we continue to remind each other to do the critical thinking and hypothesising every time we approach any aspect of the project and discuss our thought processes with relevant colleagues within the organization to keep the conversation alive and actively incorporated into our daily working lives.*

Answer to Question "What were the most useful concepts or ideas raised by your experience in participating with this project?"

SEOC Participant A: *That I needed to be more aware of how inexperienced this group is compared to others I have had in the area of Crisis and RM.*

SEOC Participant B: *That leadership is not the sole responsibility of management or people in senior positions within and organization. Every person within a team has a responsibility to lead and the opportunity to lead by example and actions when working in a team.*

Answer to Question, "How would you describe your attitude now towards the systems of event management?"

SEOC Participant: *Improved through better understanding of where I am now and who is around me.*

Analysis: observations of interview data pertaining to the relationship between work/event experiences, familiarity with sport event culture and the complexity of the organizations structure exposes the gaps between the expectations and reality of being familiar with an OC. Experience does not automatically lead to familiarity with a specific OC like an SEOC. When all of these concepts are weakly linked, there is a correlation to low levels of self-efficacy in the individual (Beach, 2006; Leavy & McKiernan, 2009). When an event has serious impacts and consequences that threaten its ability to function normally self-efficacy is also possibly lowered if the organizational culture is weak or its members perceive their competencies as being low (Bandura, 1982).

Pearson and Clair's (1998) research reflected the importance of organizational resilience through maintaining capacities during a crisis. It is essential that keeping these elements of an organization depends on the self-efficacy of each individual who works there and by extension that collective efficacy of the group in maintaining their identity. The shattering of resilience, as explained in the literature review, is perceived by individuals who have little to no belief in either type of efficacy. The indication is that such methodologies uncover two propositions:

1. Training exercises like these will lead to early identification of the personalities most likely to suffer from a lack of self-efficacy, thereby allowing leadership to remove them from positions were they will be ineffective.
2. The ability to see a collective effort at building a CRASYS could encourage collective/self-efficacy growth in certain personality types who otherwise would have believed the level was low.

The following sections will examine the analysis of the other major elements of the leadership behaviours and attributes discovered through the method.

6.5 Communication and Decision-Making Findings:

The FWG data and the interview data indicated a confirmation of each other's propositions towards how the participant's attitudes surrounding communication practices and decision-making were related. Communication and decision-making are essential elements of sport organization management in general (Ferkins et al., 2009; Weinberg & McDermott, 2002). In the area of CM and leadership, these two components become even more important. Without proper communication across all horizontal and vertical levels when necessary, as well as the ability to comprehend information being received, a leader will experience significant difficulties in completing their leadership duties pertaining to crisis prevention (Mitroff, 2004; Perloff, 2010). The SEOC participants expressed a collective belief that without effective communication, their decision-making skills would be impaired.

Data Example:

> ***SEOC Participant****: The supplier needs to have awareness at the same level of us, they didn't know the issue existed the first time it happened until the customer called to tell them they couldn't access anything, and this is a problem when no awareness exists of issues until it's too late to deal with complaints.*

The expression of the attitude that communication was one of the most important leadership quality needed for a successful event to be conducted was present in all 14 member's opinions. Conversely, there was an expression of frustration over how their communication practices suffered during certain situations by 7 out of 14 of the participants. These were identified by the participants as;

1) *Communication problems between departments*
2) *Between the parent organization and themselves*
3) *During times of stress*

4) Inclusion of all SEOC leadership areas in some communiques

Data Examples:

***SEOC Participant A**: Does this not affect our relationship with these people? If we always have no answer to the questions they have it makes us look bad after a while?*

***SEOC Participant B**: (This) makes us look like we have diminished capabilities.*

***SEOC Participant C**: Collating information and putting it with a gatekeeper. They need to know what issues are raised in those and how to act accordingly.*

Despite the statements that communication was the most important tool for all leaders to have, findings showed there was a level of dissatisfaction in a large contingent of the population over how it was conducted during certain situations, and this attitude grew in severity as the situations being communicated about grew in their severity of consequence. From this data the study infers that as a situation becomes rated higher on the risk matrix consequence scale (see Table 3, p. 42) the higher the need of the organization's population to receive an appropriate level and type of communication. However, further analysis of the attitudes of the participants towards inter-departmental communication during times of stress revealed their behaviour reflected more dissonance.

Data Example:

***SEOC Participant A**: We do have files and data of organization from previous staff.*

***SEOC Participant B**: Except it's not filed in any useful way.*

Their attitude of communication being one of their greatest strength's does not correlate to the statements about how ineffective it is during times of stress between the departments. Holding these two opposed views on communication will proves the existence of cognitive dissonance in the organizational culture. In this instance, their ability to communicate a shared vision of how to talk about and deal with crises affects their ability to perceive leadership communication during these times, and is a serious issue to be explored in further research efforts.

6.5.1.1 Information Silo Effect:

Finding One: As time progressed, communication between the departments leaders in the SEOC became limited to the personnel they only had to communicate with to solve the problems at hand. Anticipating problems in other areas did not appear to be a consideration for the entire SEOC leadership group. Certain individuals did make extensive efforts to anticipate threats; these were noted to be the participants who engaged the most actively with the FWG. ***Analysis:*** The deduction was made that the SEOC was experiencing an *information silo effect.* An *information silo* refers to a department or group within an organization that does not communicate or share knowledge/resources with other departments (Cote, 2011). The information the team has is not made accessible to others who may benefit from it for some reason, and this leads to further breakdowns in communication and general cooperation as the organization progresses in its business without instituting a knowledge transfer scheme (Cote, 2011). Impacts of this silo effect can be: a lack of trust, and sabotaging projects (Cote, 2011). It was observed in several areas of the Games Center that each department was becoming concentrated in its own work only. As volunteers and staff get tired and the leadership runs out of energy, cognition declines.

The first casualty of this seemed to be the inter-department communication. It has been observed in many industries that a view is often taken by people in charge of their areas to only pay attention to their areas as things get hectic. The inherent complexity of a sports event only increases as it nears completion. It should be noted as well that pre-interviews with other members showed they already felt that pre 'Games Time' inter-department communication was too limited when one leader was under stress. The increase between then and now could have several negative nonlinear effects. The observation was that as time compressed reactions, rather than lean on each other for systems support and understanding, these personality types opted for the silo technique to maintain what they felt was a semblance of control over the complexity presented to them.

'Games Time' lasted over a week, and patience and energy are limited resources and, as days went by, there was little to no observed relief for the leadership core. The result is fewer observed communications amongst them on issues that used to garner much more attention.

When communication breaks down in such a matter, the CAS which required frequent interactions to operate properly will become dangerously unstable (Kauffman, 1995). CAS operates best on the EoC already, and their multiple interactions with other systems create an environment where communication is vital to success in organizational examples (Kauffman, 1995). However, despite the metaphorical synchronicity, an organization at the EoC state is full of people experiencing exhaustion, and the result is lower performance eventually.

Unless a red light was flashing, the attitude that everything was fine in the SEOC environment was apparent in some individuals. They became victims of their own success in the view of this thesis. This observed behaviour was considered a natural progression in people who get tired and stressed. However, it does show how nonlinear dynamics are at play in an organization. Minor decisions at the early stages of 'Games Time' would be the perfect types to have chaotic implications further down the road. The small perturbations that impact a complex system have been shown over time to produce massive and unpredictable changes if not effectively communicated (Kauffman, 1993; Mason & Mitroff, 1981; Mittleton-Kelly, 2003). In regards to the communication issues that were observed between departments and individual leaders during 'Games Time' in the SEOC, an *information silo effect* (Cote, 2011) could be used to describe what was happening over time as complexity compressed the boundaries of systems and their decision-making requirements.

6.6 Findings Related to Complexity:

The field notes from observations illustrated both positive and negative points once the coding was analysed. The initial observations of the researcher of the behaviour of the participant's level of engagement in the project areas, such as the interviews and the FWG was that they were eager to contribute to something they felt had potential to help them. No participant was observed as being openly negative or hostile towards the project in general or in any of the methods during pre 'Games Time'. Most were observed as being very curious about the subject matter. Once the FWG sessions were underway, their curiosity was observed as increasing as the explanation of complexity was revealed to them, as well as the simple elements of NLDS theory framework. During 'Games Time' the observed behaviour was that some responded to complexity better than others, and the ones who struggled either cognitively or EI-wise with their

daily responsibilities were the most difficult to observe closely by the researcher. This was due to the participants adopting avoidance behaviour; wherein they would physically avoid the researcher if they found themselves sharing physical space with him.

Upon further questioning by the researcher these participants revealed they were "afraid (you) were looking for something bad" in their work or demeanour. This led to what the researcher believes is a misreading of their managerial capacities during 'Games Time'. These individuals were not actually as stressed or incapable of dealing with complexity as they appeared, but they were uncomfortable being openly observed by a researcher. This is in direct opposition to their earlier declarations where they insisted they were eager to have such observations take place so that they could use them as a learning experience. In truth, the reality of being observed was far too uncomfortable for some participants during 'Games Time', and they avoided such practice whenever possible.

6.6.1 Complexity and Attitudes:

Observations made by the researcher of the participants during the FWG method revealed some positive responses in relation to their level of engagement with the FWG method overall. Coding of the data through NVivo illustrated positive and negative themes related to participation of the participants. Participation in the FWG method was achieved with 13 out of 14 of the leadership population. The only member that missed out on the majority of the FWG did so because of a previous commitment that could not be avoided for work purposes. All other members were present, and while all had various levels of engagement in the collective exercises, it was apparent that not all were comfortable with this exercise as a vehicle for learning.

However, the engagement level of those that took to the FWG method with enthusiasm was surprising even to the researcher. The positive response to tackling issues of complexity and chaotic WCS did not phase many of the participants at all, and their high level of interaction and eagerness to explore options and contingencies never before considered in some cases was considered as providing valuable data into the abilities of a team to push themselves into new areas when a clear focus is provided.

Themes of Participant Responses related to perceptions of organizational capacities to manage complex systems and environments	
Positive Codes	**Negative Codes**
Communication **Interactions** **Anticipation**	Dissonance Systems issues Technology/Systems Dependency Reactive External systems

Table 12 Positive and Negative Coding Themes of perception of Complexity

Table 10, above, refers to the data uncovered through coding with NVivo software that identified positive and negative themes in the responses of the participants. At various times throughout the experiment they were asked how they felt about various issues that were identified as complex or exemplifying complexity related concerns. For example, when they identified that the process of how departments were supposed to deal with the technology responsible for handling certain operational functions was a complex issue, they were asked further questions about their attitude towards how they would relate to it if problems arose. Their responses to this request to hypothesize their answers to such a scenario lead to several themes that described how they felt towards their organizational capacities in relation to crisis in general.

6.6.1.1 Positive Coding Results:

Positive responses observed during 'Games Time' specific situations were enhanced *communication* amongst leaders and their followers (see **Error! Reference source not found.**). This communication was in some participant examples, observed to be highly efficient and "bigger picture" in scope in an effort to better assess CAS (Mitroff, 2004; 2005). In one example an SEOC member experienced 10 different situations presented to them in a 30 minute span, and four of those came simultaneously. Their ability to assess and comprehend what each person was telling them, make sense of it, and then make decisions was done at a highly efficient rate. The researcher observed that at least three of these situations could be considered potential crisis indicators when applied to the criteria of the Risk Matrix Tables outlined by Standards Australia and New Zealand's RM policy (see Table 3, p. 42 and Table 5, p. 44). This pace continued for seven days.

Communication was two-way and even multi-directional at times, with department leaders utilizing every form from electronic to face-to-face methods to get their message across. This led to the positive perceptions of how the SEOC *interacted* with each other. Also observed was the ability of the leadership group to come together many times to ensure that a cohesive message of poise and managerial competence was being spread to the lower levels of the staffing and volunteer hierarchy. It was considered highly important by the leadership group, upon discussion, that they check into each area individually and then at the end of the day go over a complete overall synopsis of each area and its issues, so that contingencies could be prepared for each new section and future event, furthering the perception that they *anticipated* properly at times.

6.6.1.2 Negative Coding Results:

Negative-themed codes in Table 10, revealed through NVivo data analysis in relation to complexity, outlined the concerns individuals had at times over their inability to separate themselves from relying on technical systems. They also struggled to perceive the problems caused by the gap in their attitudes and behaviours towards problems potentially poised by external organization's systems clashing with theirs. As explained in previous sections, cognitive dissonance is the existence of a discrepancy between a person's attitude and behaviour towards a subject (Festinger et al., 1956).

Observations of the SEOC participants during 'Games Time' revealed this problem took the form of statements towards certain scenarios that were made by SEOC participants as they unfolded. They were stating on one hand how important they perceived them to be. Afterwards, however, the behaviour towards dealing with those issues was observed as being dissonant by the researcher because there was a discrepancy between the two.

For example, in several cases information was given to SEOC leadership core members in the Games Center which was perceived as being a potentially significant risk scenario. However, little action was taken to solve that potential concern because it was occurring at a faraway venue and there were many pieces of information coming into this participant's realm of bounded rationality and comprehension that took precedence. It was interesting to observe the level of reliance in the systems responsible for these areas. There was an observed belief in some

individuals that the system would "work the problem out for itself" through RM policy already put in place.

In relation to the efforts of the study to observe and identify possible personality types as defined by Post (2004), this study found the following indications. Very little evidence pointed to the existence of the narcissistic personality type in the group during their FWG sessions or 'Games Time' as observed by the researcher. However, certain behaviours led to the belief that elements of compulsive and paranoid personality types were present. Compulsive types tend to over-analyze situations before acting, and as crises become complex, this can paralyse them into inaction, frustration, or both (Post, 2004).

In this specific sample, 4 out of 14 participants expressed significant amounts of these tendencies through their behaviour, as observed by the researcher. For example, as the FWG sessions wore on and began to deal with very complex problems, these individuals were the ones who became the most frustrated with the overall complexity and seemingly impossibility of properly managing the situation. They were observed as the individuals most likely to express sentiments like "But it just keeps going!", "How do you even know when to be concerned about that?" and "You will never know when to make that call", in regards to the situation as it spiralled hypothetically out of control.

Paranoid types express a high level of distrust in situations that they know they cannot control, they also can be very rigid and unwilling to change (Post, 2004). Of these behaviours, the ones most easily observed and identified by the researcher was the rigidness and unwillingness to change their opinion. As mentioned previously, a common observed expression from the majority of the population during the FWG was "that will never happen". This sentiment was expressed multiple times during the initial stages of the FWG by the majority of the participants, this was considered due to the fact they were not used to the method and it was a natural expression. However, 2 of the 14 participants continued to express this sentiment throughout the entire FWG and seemed unable to change. Based on this observation, this study proposes that they were experiencing elements of what is known as the paranoid personality type negatively affecting their ability to contribute to teamwork efforts.

6.6.2 Complexity and Cognitive Dissonance:

The significance of the issue of the individual's perception of complexity was closely related to cognitive dissonance and was also observed by the researcher upon analysis as having close ties to the issue of bounded rationality. Observations of some SEOC members showed they were closed to adaptation, and unable to comprehend NLDS in relation to their small perturbations having long term major impacts on the event management practices. Each departmental leader had their primary responsibilities. Despite a clear insistence from the overall project manager that each of these individuals should strive to take the FWG's message of complexity for the sake of overall success, they naturally fell into the pattern of watching out for their own areas first as time progressed. Complexity created tighter and tighter couplings of systems that often clashed rather than helped each other (Perrow, 1984), furthering the information silo effect mentioned previously (Cote, 2011).

6.6.2.1 Cognition:

Finding One: apparent cognition difficulties complicated the issue of attempting to create self-directed leadership behaviours throughout all levels of the event management team as time progressed. ***Analysis:*** For example, there were several observed instances where an issue that was brought to the attention of one SEOC leader was perceived as important to them and was indicating a risk or threat. When brought to another leader however they did not see the significance of such indicators, nor the impetus to act on it. The opposite pattern was also observed in some cases. This lends more proof to the notion of individuals uniquely perceiving crises significance and the concept that cognition is a learnable skill. It also lends support to the study's major theoretical development; that the gap that exists between an individual's attitude and behaviour towards a crisis is the real signifier of a crisis level threat in an organization.

During the FWG sessions the plans were hypothetical in nature, so little concern was given to the problem having already occurred, and the events were highly unlikely to occur anyway, as is the nature of WCS. Also, during the event, leadership behaviours proved sufficient to hold back most serious crisis events from developing too far. This lack of occurrence of a WCS provided significant challenges to the study's belief that proactive creation of such paradigms are possible without having to actually experience a WCS.

The attitude of several leaders was that such efforts to anticipate crisis were unnecessary, and were no doubt confirmed in their mind when no crisis event occurred to threaten their organization as the games progressed. Such examples are seen in other literature showing how residents of areas that are neighbours to each other will witness a disaster befall their neighbour. Despite the near-miss they experienced, it did not happen to their community, so they rarely attempt to ready their own community for such a likelihood of an event, no matter how realistic the possibility (Whitworth & May, 2006). The mentality of "but it didn't happen to us did it?" prevents some from becoming proactive (Mitroff, 1987). Despite their lack of apparent concern for pushing their communication in some ways, the knowledge sharing exercises of the FWG appeared to benefit their overall leadership abilities in this manner.

6.6.2.2 Cognitive Dissonance:

Festinger's et al., (1956) original work on dissonance states two principles that are still relevant today for the subjects;

1) The level of belief must be sufficiently specific and sufficiently concerned with the real world so that events may clearly refute the belief.
2) Such undeniable dis-confirmatory evidence must occur and must be recognized by the individual holding the belief.

Within the study, these conditions and their importance to perceptions by the participants were evident throughout the two groups of interviews. The group's targeted scenarios were all specific and related to their work. In some instances previous similar situations had already occurred, lending real impetus to their significance and the desire to reduce or prevent them all together. There were areas deemed to have a high level of 'unknown' consequence or results as well, but they were grounded in the real world aspects of having to do with physical structures, landmasses, geographical issues, and problems with personnel and communication.

The proclivity to partake in these behaviours reinforces another aspect of dissonance theory. The attempts to reduce dissonance brought about by witnessing something that violates the belief in its occurrence can sometimes take the detrimental form of forgetting or reducing the importance of those cognitions that are in a dissonant relationship (Festinger et al., 1956). This was evidenced by the two leaders and filtered to other groups around and beneath their supervision.

An attitude existed, perhaps through their need of self-preservation or survival instincts deeply ingrained in a person's psyche that these issues were not important to plan for, despite being technically very important to plan for. It is very important to consider WCS, yet they are relegated to the background of important issues because of an assumption that they are inconsequential when compared to issues of minor significance or consequence that happen regularly (Mitroff, 2004; Pearson & Clair, 1998). The comfort level gained from achieving success over inconsequential emergencies is seen as far more valuable in these particular individuals, because they cannot comprehend the possible failure in achieving success over a crisis (Boin & McConnell, 2007; Pearson & Clair, 1998).

Despite the majority of the team grasping the usefulness of a NLDS planning paradigm, these other members held onto the belief that it was a waste of time to plan in such a manner. This was despite direct involvement and encouragement by the other team members to do so. The cognitive skills of these members appeared to be blocked. The observance of the research is that the individual personalities and leadership styles of those participants created a rationale that insisted on preparing for the known issues, and not the unknown issues of event planning. Comfort (2007) found that the human capacity to recognize risk conditions was increased directly when information was relevant to the responsibilities of each decision-maker in the system. Perhaps it was impossible for the SEOC individuals to partake in this planning method because the complexity of the model created did not reflect, in their view, a direct responsibility of their own area.

An inability to comprehend the usefulness of adaptation has been illustrated from many different management research articles as a major problem for any organization involved in a rapidly changing industry (Gainey, 2009; Hicks & Pappas, 2006). The decision making models the group engaged in represented an organization committed to a direction of planning. However, once a possible crisis signifier was introduced to their planning model, it represented the chance of a bifurcation, or a choice to be made about direction (Davies, 2004). That splitting of the intended pathway created many different options for the group to consider, too many in fact to possibly plan for given time constraints (Sellnow et al., 2002). This variety in decision-making options serves to increase the level of uncertainty felt by an organization, which in turn leads to an increase in both the associated threat and urgency levels to make a decision (Farazmand,

2007). The result is a decision made in haste, or a reinforcement of linear processes relating to a hierarchy unable to grasp the lateral movement of a crisis (Malott & Martinez, 2006).

A crisis will negate the concept of overall success due to the extremely narrow chance of escaping from it unscathed; it is not possible to be completely successful in dealing with one as they move too rapidly and cause such widespread damage (Drennan & McConnell, 2007; Pearson & Clair, 1998). Damage will occur and the results will be serious, so to not accept this disruption of their environment these individuals seek to maintain their state of EQ (Doll Jr. et al., 2005). By doing so, they reduce the perceived importance of planning for unthinkable scenarios (Mitroff & Anagos, 2000). This however is a mistake, because crisis events, no matter how unlikely, are not unimportant, and not attempting to reduce their impacts makes them all the more destructive once they do impact upon your area of responsibility (Boin, 2009; Comfort, 2007; Gilpin & Murphy, 2008; Kiel, 1994; Shrivastava et al., 2007).

6.7 Sport Event Management Implications:

These findings provided the evidence necessary for this thesis to outline implications for sports event managers facing complex situations. This thesis is referring to the data collected that observed the gap between the individual's sense-making abilities, or their cognition, when it came time to assess potential threat levels of unfolding events brought to their attention. The SEOC participant's ability to identify, or perceive potential threats signifying an imminent crisis, or *crisis signifiers*, was observed as inadequate at times by the researcher upon data analysis. The ability of an individual to identify pieces of information that might potentially be a crisis signifier is essential (Mitchell, 1972; Mitroff, 2004). The ability to comprehend these various pieces of information and assign meaning to their significance is indicative of a person's cognition level (Comfort & Haase, 2006; Farazmand, 2007). The participants displayed a wide scale of cognition when it came time to identify and express personal opinions about signals that were construed as signifying imminent crises.

This thesis found that when the participants were trying to define a crisis or an ORG-CRIS when discussing them as a group, the definitions varied widely. The participants defined a crisis using words and phrases that conveyed what many would consider an appropriate level of seriousness,

through phrases like "*catastrophic"*, and *"harmful"*. However, as noted previously, only 2 out of 14 SEOC members could provide an adequate definition of an ORG-CRIS. Only 1 out of 14 interviewed provided a definition that actually included the context of external threats, which is a key component of an ORG-CRIS (Pearson & Clair, 1998; Rosenthal et al., 2001). The implication from this evidence is that sports managers lacking the ability to comprehend a crisis signifier will make impaired decisions about how to manage situations.

During the FWG sessions, the researcher observed the responses of participants as mixed. Some individuals were observed as actively engaging with other people, while others did not appear to do so in the hypothetical scenarios. The indication supported by the data is that these individuals were unable to engage in collective learning, despite their statements that they would in the interviews. This thesis proposes that they were intimidated by the enthusiasm of other group members' experiences, and ability to contribute early in the FWG method, as the observation of their behaviour indicated their discomfort level at times.

The implication from this evidence is that the inability to define or understand exactly what an ORG-CRIS is or the forms it can take will detrimentally affect any efforts to create a CRASYS. Upon reviewing the data related to participation levels of individuals in the FWG activities, this supposition was confirmed. The SEOC participants, who provided the weakest definitions, or no definition at all of an ORG-CRIS, participated in the FWG session discussions the least. Those that attempted to frame a definition of those terms participated in the discussion the most, and were observed as taking more from the experience than their counterparts did. For example, the individuals that contributed the least to the FWG discussions did not change their definitions about ORG-CRIS in the later interviews.

Those that did contribute significantly to the FWG discussions had significantly more complete definitions and expressions of what an ORG-CRIS is and what they could do about it in the interviews. The implication is that any efforts to build a cohesive management style for everyone to emulate might be impaired by the individualistic nature of these participants in regards to their inability to perceive the significance of events.

Some crisis signifiers were recognized quickly, like infrastructure damage. Also reputation-based signifiers were identified in regards to physical or tangible product failures. For example,

any damage to a building, venue, or location was identified quickly and the resulting financial and branding damage was likewise quickly identified and contingency plans created swiftly in all scenarios. The mismanagement of a venue by staff, or issues such as damage due to weather or natural disaster, were all quickly comprehended as having serious catastrophic consequences.

However, there was little comprehension or ability to accept the potential betrayal of agreements by stakeholders or partners which could harm the organization. For example, the possibility of one of their myriad partners mismanaging their end of a contract or tender to provide services was deemed impossible by many participants (i.e. transportation strikes or failures, food and beverage service providers causing contamination of athletes). Even with multiple examples and the insistence of some participants who had experienced this negatively in the past elsewhere, it took a lot of time and effort to get some SEOC participants to comprehend the significance of these situations developing and what could be done to prevent them. The implication of this data is that past event successes and a reliance on existing warning systems creates a false sense of security in the SEOC participants. Also, as they were dealing with hypothetical situations in some cases, it is considered likely that made it difficult for them to grasp any severity.

6.8 Sport Event Management Conclusions:

Several conclusions have been formed from this chapter's data as it pertains to this sample of a group of sport event managers, and their efforts to conduct CM planning for their unique event and organization. These conclusions were drawn from the data uncovered by the researcher as they followed the two observation checklists presented below. The first was used to find data pertaining to the achievement of the research objectives in developing CRASYS. Also it provided evidence of whether or not the behaviours of the participants met the criteria for the potential new crisis management paradigm.

Is there discussion openly amongst everyone about any issue or risk that could be construed as a potential crisis?
Do they develop a Crisis Anticipation System (CRASYS) by way of modeling a cause/effect cascading model with the Inspiration software for this example?
Do they explore any nonlinear dynamics to examine the impact on any part of the sports event,

either human or infrastructure related, from the example?

Do they identify as many causes and preventions of the issue as possible?

Do they identify how far back in time from the event occurring it was necessary for the SEOC to go in order to see when implementation of preventive measures were needed to be beneficial?

Do they identify how many consequences could grow from the crisis indicated?

Do they continually attempt to push the boundaries of what the groups perception of an "unthinkable" or WCS" event could be and attempt to repeat the previous six steps with each new example?

The second checklist was directed at allowing the researcher to assess each individuals behaviour during the WCS planning efforts and was applied during the FWG, but also afterwards during data transcription and analysis. This was done so that multiple reviews of the data would result in a better compilation of results from examining the questions:

Who initiated the WCS example?

Was it the leader of that area/department or someone else?

Who contributed the most to this CRASYS attempt? Count # of contributions to the conversation.

Who contributed the least? Count # of contributions.

Who encourages the others to contribute the most?

Who insists the CRASYS is finished first? Who encourages continuing to push its boundaries?

Who says "that will never happen to us" the most? The least? Count # of contributions.

How many admit to the FWG they do not know how the system in question works? How many don't?

The conclusions are presented here in a set of statements designed to illustrate their significance to various elements of the research aims and objectives. The limitation of this sample include the small size, that while representative of such organizational types, was still limited in terms of the ability to apply to the largest organizational structures with higher degrees of formalization

and centralisation. Conclusions are deemed to be applicable to similar sized SEOC's with similar timelines, budgets, and structures at this point in time.

Conclusion One: Cognitive Dissonance exists between the leadership group of the SEOC in their attitude towards crisis and their behaviour towards planning for it. Evidence upon data analysis of FWG transcripts and field observations show the participants express the attitude that such NLDS planning is important and desired, but their behaviours as leaders do not indicate attempts to incorporate it completely.

The ability to comprehend what a *crisis signifier* event might be was observed to be lacking in some individuals. This was observed as being due to the aforementioned difficulty in defining what an ORG-CRIS is in the collective mind of the SEOC. The indication is that a lack of standardized definitions due to individual perceptions complicating the attempt to do so will reduce the cognition of some individuals in perceiving ORG-CRIS. If low cognition towards recognizing and assessing the significance of a situation's threat level goes unnoticed the potential for catastrophe could be greatly increased.

Conclusion Two: Despite leadership being a shared burden for the overall event by the SEOC group, an 'information silo effect' (a lack of communication amongst departments in an organization) (Cote, 2011) was visible and expressed by participants upon data analysis. There were direct comments referring to the inability of departments to communicate between each other during times of stress and other issues of reciprocity in the various stages of group development. This is referred to as an *information silo* since the valuable goods are contained within an inaccessible framework (Cote, 2011). The SEOC was primarily involved in the forming and storming stages according to Tuckman's 5 stages model for group development (Brooks, 2009). Issues such as interdepartmental communication can lead to problems in forming an effective and efficient organizational culture if the sharing of knowledge is not sufficient (Burnes, 2005; Perloff, 2010; Weese, 1996). **FWG Data Example:**

SEOC Participant: *Interoffice communication needs improvement, between staff the communication goes down as pressure is applied from anywhere…filtering of information is only good between certain people; between others it's quite poor depending on personality.*

An *information silo effect* is a potential consequence of reduced cognition. As time progresses in 'Games Time', SEOC leaders begin to lose their ability to perceive information due to an

observed lack of energy. This is normal, as the average work day is quite long for such leaders, and their energy resources become drained as the 'Games Time' progresses. As the time and complexity of decision-making increases due to more interactions, the *information silo effect* was observed in the participant population. The potential of missing *crisis signifiers* when this occurs is decidedly higher than at any other time.

The indication of this effect is also related to the communication issue expressed by the participants. Their desire to have effective and open communication between all levels and departments of the SEOC indicated that knowledge management was impaired surrounding certain tasks. Essential to knowledge management is the concept of communication, there were at times in this sample a definite lack of satisfaction amongst those interviewed about how effective communication was enacted between organizational levels.

Conclusion Three: WCS-Planning for Crisis/Contingency Management was attempted and viewed as a useful exercise. However, the application of attaching it to workplace duties afterwards in the long term outside of the FWG could not measure the in-depth various personality types present at all stages of the organization due to time and access constraints. While the expression of blockages by an individual of either their inability or ability to contribute were useful, it is considered essential that in the future more in-depth personality tests are administered early to analyze which types are present in the organization being studied.

Data Example:

> ***SEOC Participant:*** *I think it has opened our eyes and got us thinking. Not sure how long term it is – great at the time of the session and for a few days after – but I can honestly say now that I haven't thought about it much since. I think follow up sessions or actions would be important to keep reminding us, or to actually implement some procedures.*

Participation in the FWG led some individuals to develop different attitudes towards the importance of being a transformational leader who develops trust, and shares a vision in order to increase the self-efficacy of their followers. The sharing of knowledge in that method, led to the observations during 'Games Time' of some leaders attempting to anticipate how unfolding events would affect their followers. These individuals were observed as expressing a high level of EI. This EI led to their ability to respond to crisis signifiers in an observably more positive fashion than those that didn't.

There was also an indication that the nature of the subject matter of the FWG affected some individuals in such a way that they began to express elements of the compulsive and paranoid personality types. An inability to compromise, see the "big picture", or acceptance of a lack of control over a situation were just some of the observed behaviours in these individuals which were representative of certain aspects of these types (Post, 2004).

These elements appeared to affect their ability to participate fully in a detrimental way. While certainly not an indication of their dominant personality types, the fact these behaviours appeared in a teamwork-based WCS-planning effort indicates a need for further understanding of how crises affect each individual's ability to contribute to a team-oriented crisis mitigation approach.

Conclusion Four: In the overall project leader, the concept of proactive crisis leadership following the view of Mitroff (2004) as opposed to traditional reactive management was viewed as an excellent tool for building not only self-directed teams, but organizational resilience. Whether this was the case for all other SEOC members was difficult to determine. It is possible that the position of project leader shifts decision-making and cognition in general to a point of view that accepts this effort more readily than the other SEOC leader positions.

Throughout the methods of this thesis the researcher observed through direct and indirect methods the behaviours and expressed attitudes of the participants towards the management of the sports event. The data gathered from this method of observation provided this thesis with valuable insights into how the stresses of the daily tasks affected each individual, and how they interacted with their environment. In the context of complexity, the observation method allowed for the collection of data which indicated how the myriad interactions of many systems comprised the whole of the sports event organization and product. In the metaphorical context of chaos application to the procedure, the observation method allowed for an in-depth, close-up look at how the community of inquiry's leadership was affected by the chaos of transpiring events that were out of their control. From all of these observations this thesis is able to present conclusions about the SEOC and its workings in the subsequent chapter.

The findings and relevant information from this chapter have been analysed and discussed. The implications and conclusions have been drawn from the data analysis and presented. The

following section will summarize the importance of this information towards meeting the research objectives.

6.9 Summary:

The FWG sessions provided the SEOC participants with a significant amount of learning experiences in some individuals. They learned as a collective about their organization and their place in it, as well as how complex some relationships they had with various systems were. This was accomplished in various ways. First, their participation in the FWG provided them with a chance to engage in a specific time meant only for creative thinking. This was important, as it provided an opportunity where absolute focus on one subject was achieved without distraction from all the mundane daily tasks of event management.

Second, their efforts at collaboratively learning about a variety of issues opened their perspectives to a new level of awareness about their environment. This shows that a person's comprehension (cognition) of the complexity of their work environment may be incomplete if they only concentrate on their department. Exploring the entire organization and how it reacts provided the alternative viewpoint that their place is not on top of a pile, but rather they are a part of a complicated web that extends in all directions. Some perceptions shifted, and some of them began to realize how many different systems they may have to be familiar with to properly lead during a crisis.

Third, the participation in the FWG provided opportunities for knowledge transfer and the growth of practical and presentational knowledge for some individuals. Knowledge that up to that point had resided in the minds of a few of the most experienced SEOC leaders was shared, often for the first time. What this did was raise the level of knowledge in all participants, and provided practical knowledge to many individuals about what to do in such scenarios. This provided evidence of the importance of efficacy amongst the group in its efforts to be resilient. The group's participation in this method provided the best opportunity to observe the importance of collaborative efforts at problem-solving and decision-making. Findings illustrated the need for furthering an organizations understanding of the complexity of any type of crisis so that effective leadership behaviour can be trained into the employees.

Fourth, the levels of experience were unimportant when gauging how creative or flexible a sports manager will be in their decision-making. In fact, it showed in some individuals the opposite; their years of experience with the systems prevented them from being really creative. Instead, they relied on an existing system of RM to provide the answers to the scenarios. This is significant because if a leadership core puts emphasis on creative, adaptive thinking during times of crisis, this experiment proved that some individuals will rely on past experience to not have to be creative, rather they will rely on what they already know and not learn as someone who had no previous experience.

Various types of behaviours and styles of leadership were observed in the SEOC. Some of these styles related to behaviours were exhibited in the FWG sessions while others were present only during 'Games Time'. The research objectives were aimed at the possibility of improving or enhancing the transformational leadership qualities of the SEOC members through participating in this experiment to expand them into the possibility of creating self-directed leadership teams. Through observation of their behaviours and attitudes throughout the experiments duration, it is postulated by this thesis that their leadership styles were challenged enough to provide adjustments to their short term behaviours.

The most important finding of the observations made of the SEOC leadership throughout the entire breadth of time spent with them is that the cognitive dissonance gap between a person's attitude and behaviour in relation to the cognition levels they use to comprehend ORG-CRIS is the most significant thing to begin to address if a resilient organization is desired by senior management in the face of a crisis. The gap between the attitude and the behaviour in the individual's ability to perceive and then coordinate action for mitigation *is* the indication of a potential crisis in the capacities of the SEOC members being reliable in such situations. The concluding chapter will outline the major findings of the collected data and the conclusions that have been drawn from it.

7 Conclusion

7.1 Introduction:

The sports event management industry has proven that it is concerned with more than just organising events that showcase sporting excellence. It is now associated with affecting socio-political and financial development initiatives in its host communities as well (Abrams, 2004; Bull & Lovell, 2007; Hiller, 2006; Horne, 2006; Jennings, 2011; 2012). Committees responsible for putting on these sporting competitions are now using them as a showcase for a nation's project management skills (Burbank et al., 2001). Large-scale events require urban transformation skills, event management skills, economic and infrastructure resources, and the ability to showcase a host nation's culture to a global audience (Masterman, 2009). Due to exponential growth in most areas, organising committees of this type have become uniquely complex systems (Jennings, 2012). Their organizational depth and richness provides useful opportunities to further the field of CM and leadership theory. In presenting the conclusions, this thesis will pull together the main findings from the data gathered on the viability and consequences of attempting to implement a NLDS approach to crisis leadership directed at crisis prevention and mitigation. First, the research objectives and questions will be revisited so the attempts to meet them can be addressed.

7.2 Conclusions:

The objectives of this thesis were:

1. To affect the cognition levels and decision-making skills of the SEOC leaders by exposing them to a new set of criteria for developing a CM planning approach.

2. To alter perceptions of complexity and organizational systems in a SEOC participant population.
3. To use worst-case-scenario planning to develop crisis anticipation theory.
4. Establish how effective or ineffective the delivery of the new theoretical planning framework was to the participant group and its potential impacts on leadership behaviour.

By utilizing a theoretical approach which combines elements of all these theories into a multi-disciplinary approach, the resulting data was analyzed and compiled. Evidence has been supplied as to how this SEOC was affected by such experiments with their CM decision-making styles.

This thesis' methodology created examples of how to use the innovative idea of developing leadership behaviours that are tailored to anticipate and mitigate crises through collaborative inquiry efforts. This evidence supports the notion that we can begin to enhance the theories of CM by using multidisciplinary approaches to create new knowledge in similar SEOC's, mainly by affecting cognition levels in the individual leaders faced with incomprehensible scenarios.

CRASYS that utilized anticipatory - rather than reactionary - behaviour were created. Their value to the organization was viewed as potentially very significant by the participants. Several individual participants expressed the belief that their cognition in relation to how they comprehended environmental and organizational complexity was enhanced through this study's methods. Evidence indicates that *crisis focussed* anticipatory practices can have just as much value as reflecting on a real-life previous WCS experience for a team of this type and size, when they are involved in a project directed at developing learning opportunities.

Learning in the SEOC can occur in some individuals at a level significant enough to foster long-term behavioural change in their leadership style; however the majority experienced only short-term changes. In short WCS are not a waste of planning-time for these types of teams; they are actually potentially valuable for CM prevention initiatives for small teams who face complex environments, systems, and threats. The issue lies in the ability to induce long-term change to an individual and an OC, both proved significantly more difficult than predicted.

The methods illustrated that by pushing the boundaries of scenario planning into incomprehensible areas of considerations for crisis planning, individuals of an SEOC did not have to actually experience a crisis to learn something about their leadership capacities in such a situation. The participants found value in creatively exploring such WCS in an anticipatory way, and the organization did not actually suffer any damage to any of its systems as the efforts were based on hypothetical crises. Using chaos as a learning opportunity proved fruitful, as it increased the amount of creativity, adaptability, and collective efficacy in large percentages of the research population.

7.3 Research Question – Initial Conclusions:

The following primary research question arose from the aims and objectives of the study:

"What will be the impact on a SEOC's leadership behaviours and decision-making skills, from the implementation of a multi-disciplinary complexity and nonlinear dynamical systems theory based framework designed, and aimed at enhancing crisis management techniques?"

The efforts to create CRASYS explored the cognition levels of the participants and how to develop the conceptual framework of complexity and chaos as learning opportunities instead of destructive forces. The resultant data supported conclusions about how this SEOC's group dynamics made it possible or not to engage in such learning activities successfully.

Evidence indicates that affecting cognition in SEOC individuals through collaborative efforts of this design results in some positive benefits. An enhanced awareness of the complexity an ORG-CRIS creates was developed in many individuals of this research population; this led to an observed improvement to their individual leadership capacities for decision-making in the FWG exercise, and confirmed by observing them activate these lessons in the field according to the action phase criteria of double-loop-learning.

Further evidence supported the deduction that such team efforts increased the self-efficacy and trust levels of this particular SEOC, leading to a realization of what preferred leadership style was held by the participants, namely a mix of transformational and self-directed (or self-managed). Leadership behaviours were altered in some individuals of the SEOC who believed they could no longer continue making decisions about ORG-CRIS in a traditional sense, or rely on a pre-existing warning system.

The value of anticipatory over reactionary methods was recognized by certain individual participants as improving their leadership capacities. This lends support to the theoretical point-of-view of this thesis that spending time on the neglected areas of WCS can ultimately support the CM efforts of leaders in complex sports event management tasks. This can be achieved by uncovering potential serious gaps in the minds of employees in regards to how they comprehend their leadership responsibilities during an ORG-CRIS.

7.4 Research Gap and Contribution:

This thesis aimed to answer the primary research question (above) about the possibility of reframing the managerial decision-making skills and affecting individual leadership capacities of an organising committee for a major sports event. This has been done by creating a methodology that utilizes efforts to collaboratively build a CRASYS that attempted to affect the cognition of SEOC members in regards to their perception of ORG-CRIS situations. This was done by exploring decision-making exercises on the subject of WCS. By doing so this thesis achieved a series of outcomes which justify a shift in how we comprehend and make leadership decisions about crises in sport organizations similar to this one in size, scope, and project.

In addition, the purpose of selecting the collaborative inquiry methodology was due it allowing the researcher to study a phenomenon and assist in improving the community of the subjects. This thesis enhanced sport management leadership theory and practice for this type of sports organization via a series of exercises designed to affect the cognition and decision making abilities which would ultimately culminate on affects to the individual's leadership capacities. The desired outcome was building such capacities that would help develop overall *organizational resilience* via the development of effective *self-managed teams* pursuing the concepts of a *learning organization*.

The study provided evidence that currently does not exist on the application of this multi-disciplinary approach to sports management studies specifically. In doing so, an enhancement of this industries' previously known management theories should be provided as new data is collected on formally untested methods. Efforts at building a SEOC crisis management specific multi-disciplinary theoretical approach linking the aforementioned elements was attempted with

some measureable success by this thesis. How all of these areas of management knowledge interact and how they impacted on each other in a new arena is part of the major contributions of this thesis. However, the inability of this thesis to meet certain objectives led to some significant findings which will be discussed, as well as and the subject of reflexivity.

7.5 Key Findings and Conclusions:

The following associated research questions arising from the primary research question were met with various results:

1. Are crisis anticipation systems actually beneficial or practical for Sport Events?
2. Would SEOCs experience a more efficient event management experience if their leadership styles were changed according to Complexity Theory and Nonlinear Dynamics paradigms?
3. Will it be possible to measure or identify any successful learning opportunities within the SEOC community?
4. What are the possible implications of using WCS to reformat crisis management plans for an SEOC?
5. What are the possible implications for SEOC members engaged in a Collaborative Inquiry research project that focusses their efforts on affecting their cognition abilities/levels?

These secondary research questions led to further discoveries through the data analysis and are addressed by the following findings.

In response to the first and second questions posed above, data supported the following conclusion. The participants of the SEOC are aware of 'complexity' in general, but did not fully grasp how deeply it affects them, despite classifying their work as "complex in nature". The implications of complexity and its impacts on their daily lives/activities/OC were not completely comprehended by most participants. In the context of an example of sports event management, wherein the event is classified as a 'Major' sized project, complexity exists in its management systems (Jennings, 2011). This complexity is viewed as existing at a high level and permeates throughout all levels of management (Jennings, 2011). Both the internal and external environments are subject to increased complexity as the event planning process progresses from inception to completion (Masterman, 2004; 2009).

However, neither of these factors was observed as being comprehended by the participants fully. Therefore, the conclusion is that a lack of comprehension of complexity and its implications for the organization will occur despite a stated recognition of its presence by SEOC members. This

will lead to complications of CM plans in the future of the organization which is complex in nature.

Furthermore, *work experience* (both past and present) contributed to an individual's cognition in terms of recognizing potential crisis signifiers, but not in the way expected. Experience from either the sports event management industry directly or another discipline has an impact on their cognition, but the findings indicated little to no observed improvement on whether or not a *SEF* participant can deal with crises better than an *SEU*.

From a management perspective, the conclusion is that a sports manager who has witnessed firsthand an ORG-CRIS may not actually have learned anything from the experience if their cognition did not become altered by the experience. The evidence supports the conclusion that if an attitude exists that reflects a belief in the likelihood of a crisis ever happening again as being highly unlikely; the individual will ignore the potentially catastrophic levels of complexity around them even more intensely than the members who have not experienced a crisis or worked in the field before.

By contrast, the *SEU* individuals expressed what could be described as a "healthy" level of paranoia about the potential for crises occurring at a certain point in the experiment because their lack of experience made them more aware of what they were possibly not considering to be a threat to their organization. They also sought out the answers to these questions more than *SEF* individuals.

Current CM literature points to one of the only benefits of a crisis having occurred as being the forced stage of learning and reflection engaged in by the people affected by it after the fact (Boin, 2009; Drennan & McConnell, 2007). This thesis concludes that directly related work experience and previous crisis experience did not automatically lead to any learning in the SEOC members of how to prevent it happening again in the future. An alteration of their cognition towards the subject must occur for such learning to occur.

Some of this thesis' unique contributions to this problem of 'learning' are that experiencing a crisis is unnecessary; it is actually possible to affect individuals' cognitive capacities through anticipation of a crisis if the exercise is framed properly. In this sample population, when the framework of the anticipation exercise is pushed far enough into the realm of the

incomprehensible, almost everyone was forced to alter their perceptions of how to deal with the scenario presented to them.

In response to the third, fourth, and fifth questions the data supported the following conclusions. The need to collaborate in original ways (as seen in the FWG), assisted the participants in developing new types of understanding of organizational complexity, and the complexity of the decision-making process. The participants also built up their leadership capacities by improving the lines of communication between them and coming to some realizations about their predicted roles and duties in such WCS efforts. However, this only proved true in the individuals who exhibited certain positive attitudes towards learning collectively.

The third and fourth questions were addressed by the evidence related to the individual's struggles with the FWG concepts. The individuals who persisted with the attitude that management systems already in existence would prove infallible, supports the following conclusion of this thesis. *The ability to learn how to plan and prevent crisis situations is almost completely blocked for the SEOC individual who cannot grasp the nonlinear nature of dynamical systems like sport event management environments and their interactions with other CAS*. Participants, who refused to accept any value in planning for an unlikely crisis no matter the hypothetical nature of the exercise, were observed exhibiting the most visible signs of stress, such as an aggressive or impatient tone of voice, or impatience towards have to wait for news updates, during the events of 'Games Time'.

Based on the field observations of the individuals who exhibited this attitude towards the FWG objectives the conclusion was made that, based on their exhibited behaviour; their inability to engage in creative decision-making could have prevented them from utilizing the resources of the leadership core around them had a severely threatening ORG-CRIS presented itself.

In accordance with this deduction, the evidence points to personality and attitudinal displacement having a significant impact on how individuals operate in the FWG exercise. This thesis found that certain personalities (Post's (2004) compulsive, paranoid, and narcissistic) and attitudes (e.g. "that will never happen to us") will prevent individuals from participating in FWG exercises designed to affect their cognition.

Chapter 5 and 6 illustrated several examples of when these attitudes towards the subject matter occurred for certain participants. The conclusion drawn from this finding supports the previous one that an attitude of disbelief will prevent an individual from participating in a group learning setting despite the stated goals of the group. Also, the elements of the compulsive and paranoid personality types observed in some SEOC individuals were viewed as contributors to low levels of participation in the FWG exercise. This supports the belief that participation in real-life crisis mitigation may also be present in these individuals.

The second, third, and fourth questions were also addressed in part by the data revealed about attitudes and behaviours in the population. This data indicates that cognitive dissonance exists in the members of an SEOC in the context of how they think about and approach CM as leaders. Essentially, there exists the attitude that any type of crisis, or serious risk scenario, is a negative, and should be dealt with as proactively as possible. However, there were few behavioural adjustments in many participants that would account for a match to this attitude. The behaviours did not match the expressed attitudes on the subjects of how to plan, when to plan, and how much money and time should be spent planning in relation to being proactive rather than reactive on these issues in the FWG.

From this finding this thesis draws its most important conclusion which relates to all of the research questions including the primary one. This conclusion is formed from the data that confirmed the existence of cognitive dissonance in certain participants. As stated previously, if an individual's attitude towards something is in direct opposition to the behaviour they exhibit towards the same thing, they experience a physiological discomfort brought upon by the gap between the two (Festinger et al., 1956; Mitchell, 1972). The discomfort is eliminated by the individual usually by rationalizing the behaviour. For example, "fast food is bad for me, but here I am eating it, now I feel guilty and stomach-sick (physiological discomfort)…but I had no choice, I only had 10 minutes for lunch, nothing else is close, it's just one meal…etc." This rationalization is a simple solution to the problem of dissonance.

The most significant major conclusion and contribution to existing theory is;

The existence of a gap between an individual's attitude and behaviour in the context of perceiving ORG-CRIS occurring IS the first indication of a looming crisis facing that organization's internal structure and ability to form a resilient leadership core.

The existence of this gap is the first signal that a sports event management team should recognize as a signal they will have problems further along the CM path. The signifier that their team lacks the individual capacities to properly anticipate a serious ORG-CRIS is what this gap represents. If the gap between attitude and behaviour towards crisis prevention is large enough in that individual, they may never perceive the unfolding events around them as signifying a potential threat growing from risk to crisis.

Rationalization was not an option for these individuals in the FWG method after a certain point of likelihood was breached. Once the scenarios went further into the territory of a '5' rating (see Table 2 p 37) they could perceive with their existing cognition skills, their bounded rationality became threatened and they disengaged. They went as far as to disengage entirely in some cases, so the conclusion is that in an actual crisis they will be the proverbial "weak link" that creates more chaos instead of preventing it.

The indication from evidence is that they will refuse to acknowledge the significance of events because in their minds they can't possibly signify a loss of control so severe that chaos is about to destroy a system they believe is infallible. Such a leader does not have the capacity to augment an organization's resilience when it is needed most (Mitroff, 2004; Mitroff & Anagos, 2000).

This thesis put individuals in a situation where they were asked to partake in behaviours – namely, anticipate for the WCS and try to figure out how to prevent something they don't think will actually happen. Their attitude was in opposition to this behaviour. They did not truly believe the likelihood of most of these occurrences happening. The gap between their belief in the FWG's value and their internal dilemma that this was a waste of time because such WCS were statistical improbabilities created some significant gaps that required serious rationalizations on their part in order to continue engaging in the FWG. Such a large gap existed for some that they exhibited the observed behaviours of not partaking in the exercise at all at

times when the scenario chosen stretched their creativity and desire to learn too far. They narrowed the gap by choosing not to partake; this became their 'rationalization'.

This is a serious implication for sports event management theory development as well as organizational applications. If an individual perceives ORG-CRIS planning with such a suspended sense of disbelief in its value as to not partake at all in a group exercise meant to develop collective efficacy, what will they do in a real life crisis that requires all of the leadership core members to participate in preventing/mitigating it? How useful is a SEOC leader who does not value *anticipating* these events?

SEOC leaders who rely on self-managed teams must have faith and trust in the capacities of each of those sub-leaders. If any of them have this type of dissonance gap in their ability to comprehend ORG-CRIS, they are a potential liability. Steps should be taken to either remove them from a position where they are not capable of performing, or train them in a way to reduce this gap and get them aligned with the concepts of anticipation rather than reaction-based CM.

The traditional risk management perspective has been that crises are learning opportunities because once you survive one you can go back, reflect, and then make appropriate changes for future prevention (Mitroff, 1987). This thesis illustrates that an organization can avoid waiting for such an unpleasant opportunity, by way of utilizing Senge's (1990) concept of the learning organization. The nonlinear dynamics of WCS planning in the FWG method are a unique way for a sports organization to do this.

Early identification of the individuals in an SEOC who will not serve well in an ORG-CRIS is possible. Their *dissonance gap* is the signifier of internal crisis that must be addressed first. Once done, a team that embraces the adaptive leadership style of nonlinear dynamics and complexity in their crisis decision-making can be formed with potentially far-reaching positive capacity building efforts for themselves and the organization.

Also in response to the fifth question regarding the collective inquiry methodology tools is the conclusion they are capable of exposing individuals to the concept of shifting paradigms in the areas of CM and leadership. In addition, the methodology provided the research participants with a level of ownership in the results which increased the richness of the data. It also provides a level of trust that incorporates the PAR relationship in a way that provides for a real and

significant level of impact to be made at the initial stages for implementing change. The conclusion drawn from this is that collaborative inquiry is an appropriate choice for developing these types of experiments further.

In relation to the question of potential benefits of CRASYS for an SEOC, EI is a major factor affecting the ability of SEOC members to adopt a CRASYS format. A high level of EI was observed as being capable of allowing individuals to participate in the FWG exercises more effectively than those with observed low levels of EI. A lack of EI was deemed a major contributor to a group not being able to function in a collective sense in terms of CRASYS creation. Also it affected the ability to notice during 'Games Time' whether or not someone was subjectively experiencing escalation of threat levels from unfolding events.

EI was observed as having further impacts on the ability to perceive the significance of events during 'Games Time'. ORG-CRIS were not understood or given precedence in the SEOC individual's minds in general. The ability to engage in "bigger picture" (Mitroff, 2004) thinking about WCS was limited in individuals with observed low EI and cognition. In these individuals cognitive dissonance towards the subject of ORG-CRIS led to a perceived lack of leadership capacities because of no perceived need to do so. Evidence suggests this is because low cognition levels prevented proper comprehension of signals received by the SEOC leader from the surrounding systems.

Despite initially stating being comfortable with group learning exercises, certain 'blocked' individuals cannot contribute to such exercises when the subject matter triggers cognitive dissonance. Such individuals may potentially be unable to operate as a group in a crisis situation, or at least not in a leadership role. Systems reliance is high in such individuals, i.e. "The system will save us, the system will provide a solution for any scenario".

Evidence from this study suggests that such individuals in this type of organization will be able to deal with a certain level of incomprehensibility in the scenario confronting them. However, if the scenario reaches severe levels of uncertainty (as seen in Table 5 Risk Analysis Matrix Scale, p. 44) they may lose the ability to function as a leader, due to an inability to comprehend the information being presented to them, since they never accepted its likeliness of happening. Despite it happening to them, they cannot perceive it as reality. Therefore, the conclusion is that

EI and cognition are essential components of transformational leadership to develop in these types of organizations as complex crises continue to present themselves as possible threats.

7.5.1 Recommendations and Limitations:

After reviewing the various methods and objectives of this thesis, several recommendations can be made for future related research projects. Also, several limitations were identified from the results and observations made that impacted the data. While several propositions were made at the beginning of this research, only some were proven in the way they were anticipated. Also, several 'real world' implications and limitations became apparent and had a significant impact on the research thesis, as is the nature of social science studies.

The first recommendation would be that the amount of time and repetition of the FWG method be increased whenever possible for future research aimed at the same objectives of affecting cognitive skills and observing attitudinal displacement in group dynamics. For change to become permanent or at least long-lasting, repetition of the methodology needs to be implemented for more replicable and measurable results. Most individuals exhibit personality traits and attitudes that prevented them from accepting the complexity of their environment after just a few exposures to the experiment, which was expected. What was unexpected was the fierce determination to hold onto these pre-dispositions. The data gathered in this study is yet another reaffirmation of the gradual nature of paradigm shifts, especially in terms of changing attitudes and behaviours in people.

Creating long-lasting change in attitudes and behaviours is considered possible but extremely difficult based on these results. Permanent change, or just effective change is possible but only if leadership behaviour and style is appropriately adjusted to reflect the importance of this paradigm of decision-making and group learning at an early stage in the development of the organizational culture. The individual leader must make the connection between the importance of marrying their attitude and behaviours on these issues for success.

Also, testing for the identification of personality types present in the leadership group of any team studied in the future should be conducted. This will add a valuable layer of depth and validity to the data collected. Identifying personalities could enhance the identification process

of which types of leaders will respond most favourably to not only the methodology but real life crises. Personality testing should be done by professionally trained facilitator as early as possible. Funding for this resource should be obtained and using their expertise in assisting with the data analysis for the tests would also be invaluable. A limitation of this study was its inability to procure the time and resources to initiate detailed personality tests.

More time should be spent in the field observation phase as well for increasing the reliability and accuracy of data. The largest sporting events take several years to plan and being able to observe during these phases would be invaluable. If possible two things should be done to improve future attempts at this method; more time should be spent shadowing and interviewing the participants at different phases of planning and more observations of the leadership core should be made by the participants themselves, so that multiple SEOC members can be observed at once. This would gather a more comprehensive picture of the complex systems being observed in a truly PAR fashion. The researcher was unable to shadow more than one person at a time in detail unless they were directly located in the Games Center for any significant amount of time. Despite the sample size being small by some standards, the ratio of researcher to participant was still 1:14, making it impossible to closely observe them all at once.

Another recommendation for repeated attempts at this type of study would be to improve the interview process by creating more intricate or detailed questionnaires, which would be linked to the personality tests done beforehand. The subject matter of complexity is inherently difficult to grasp and since personalities and attitudes only became significant factors to understand later in the methodology, inferences were difficult to make at times. An extra method or assistance from an outside specialist in personality measurement would be useful in understanding why the group's dynamics unfolded the way they did. Including a personality questionnaire of the Myers/Briggs Indicator Type tests would be useful here, but again, these are trademarked tests and must be administered by trained facilitator.

The major limitation of the study however was the population size. The benefit of all leadership decisions congregated into a leadership core of approximately a dozen individuals made it easy to contain the focus. However, such a limited number creates a novel population that while representative of the size of most similar event management teams. It also makes it difficult to

quantify results with studies from other industries where hundreds of samples were taken from multiple organizations.

Further limitations were the unique nature of SEOC's in the sense that they are dissipative after their task is done. They follow their own rules of conduct in many senses, and their fluidity of structure makes it very limiting to apply measurements in the same vein as other management studies which have utilized larger sample sizes. This thesis accepted from the beginning that such a sample size, despite being the perfect group to focus on for reaching the aims, was still a limiting factor in research terms when trying to create a reliable sample. The size of the sample population disqualified the research from being able to utilize quantitative methods almost immediately, and the validity of the data rested on its qualitative value.

7.5.1.1 Researcher Reflexivity

The concept of reflexivity was addressed as well in this study. Reflexivity refers to the ability of an observer of a social system to influence the social structures and systems just being an observer. Their own reflection on the processes they are studying can cause unintentional influences. The research study acknowledges that with a collaborative inquiry (CI) methodology this concept becomes a significant concern. The researcher actively engages openly with the participants, so the ability to not influence them but rather get impartial actions and data from them can be very difficult.

To combat this issue, the research followed the principles of CI as outlined by Heron and Reason (2001) to create the most objective environment possible to gain unpolluted data. While the researcher does not believe it to be possible to study a group of individuals in this manner without affecting some influence on them and their social structures (such as the desire in the participants to provide the answers they think are being sought, rather than their actual opinions) the foundations of the CI method provided ways to deal with this issue.

First, the population was chosen because they were a community already formed, which was seeking answers to problems they did not readily have the means to answer themselves (Heron & Reason, 2001). The researcher made it clear that this study's objectives were to attempt to implement a paradigm shift, and that in no way was it guaranteed to do anything of the sort. Any change would be because of their own efforts to engage in a method that theoretically would do so for the right-minded individual.

Second, the researcher did not even choose the topic of complexity for the population to study they addressed it themselves as a problem. They knew they had a problem with CAS, but did not realize that fact until after the work began. The researcher did not attempt to form any opinions for them on any of the subjects. Even in the FWG sessions, the researcher acted as a facilitator who only controlled the software which compiled the information and efforts the participants deemed necessary and significant.

The researcher at all times made it clear that while they were to observe people, they never outlined the specifics of what they considered positive or negative data. In this way, the researcher maintained a balance on the reflexivity issue. Also, it was always made clear that the real opinions of the participants were the most valuable data being gathered. Disagreeing with each other, the concepts, the methods, and all related elements of these was encouraged if that was what they wanted to present to the researcher.

Interviews were open-ended and allowed the expression of opinions without any leading questions. Observations during the 'Games Time' period never revealed any preferences of what was "good" or "bad" leadership. The FWG sessions were intentionally structured to be viewed as an open forum where any and all questions and discussion of topics was considered valuable.

In all the methods, the researcher sought to make clear in the minds of the participants that they were interesting in all of their opinions, not just the ones that supported the notions of the study. The issue of reflexivity problems can be viewed as being properly addressed by this study by the conclusions that were found. The multi-disciplinary theory of this study's framework stated that benefits would be possible for some leaders, but not all for a variety of reasons. This proved to be true as change was documented in some individuals but not in all, and ranged from short to long term.

A uniformity of results across all participants was not found in any of the methods or results, and if reflexivity had allowed a heavy influence by the researcher on the social structures of the population, a much less diverse set of results should have been the outcome. Also, the most valuable results were found in the individuals who expressed the dissonant attitudes towards the theory and the subject matter and presented unforeseen results and data. This illustrates that the

reflexive process, while not impossible to avoid completely due to the nature of the CI methodology, did not skew results in any significant way.

7.5.2 Implications for Further Research:

Complexity theory is not widely known to industries outside academia and sport management applications appear to be few at this juncture. However, the concept of a complex sports management project or environment is not unfamiliar to the types of organizations and people studied in this research. The implication is that "regular" people in normal industries do not have to have a formal understanding of complexity to engage in a project to enhance their ability to deal with it. However, as found in the areas that work with complexity theory like disaster management and related fields, an over-emphasis on these topics can also be detrimental.

The Olympic Games are the perfect CAS example for this study but are also the perfect example of an organization that suffers from too much attention and over-planning in its risk and security structures. The massive budget overruns for the modern Olympics are the result of some leadership groups taking a far too paranoid approach to the area of crisis prevention (Jennings, 2011; 2012). As the global economic crisis deepens, it will become necessary for SEOC's to become more adaptable for multiple reasons, like not going too far in some areas while learning to push forwards in others.

What this study finds important upon the conclusion of its efforts, is that complexity requires a much more precise and balanced approach to sports event crisis management than previously believed. Striking a balance of leadership types so that a team can properly assess what is important and what is not important to apply mitigation efforts too has never been more important, according to the evidence found throughout this study and in its related counterparts in the sports event management and related fields.

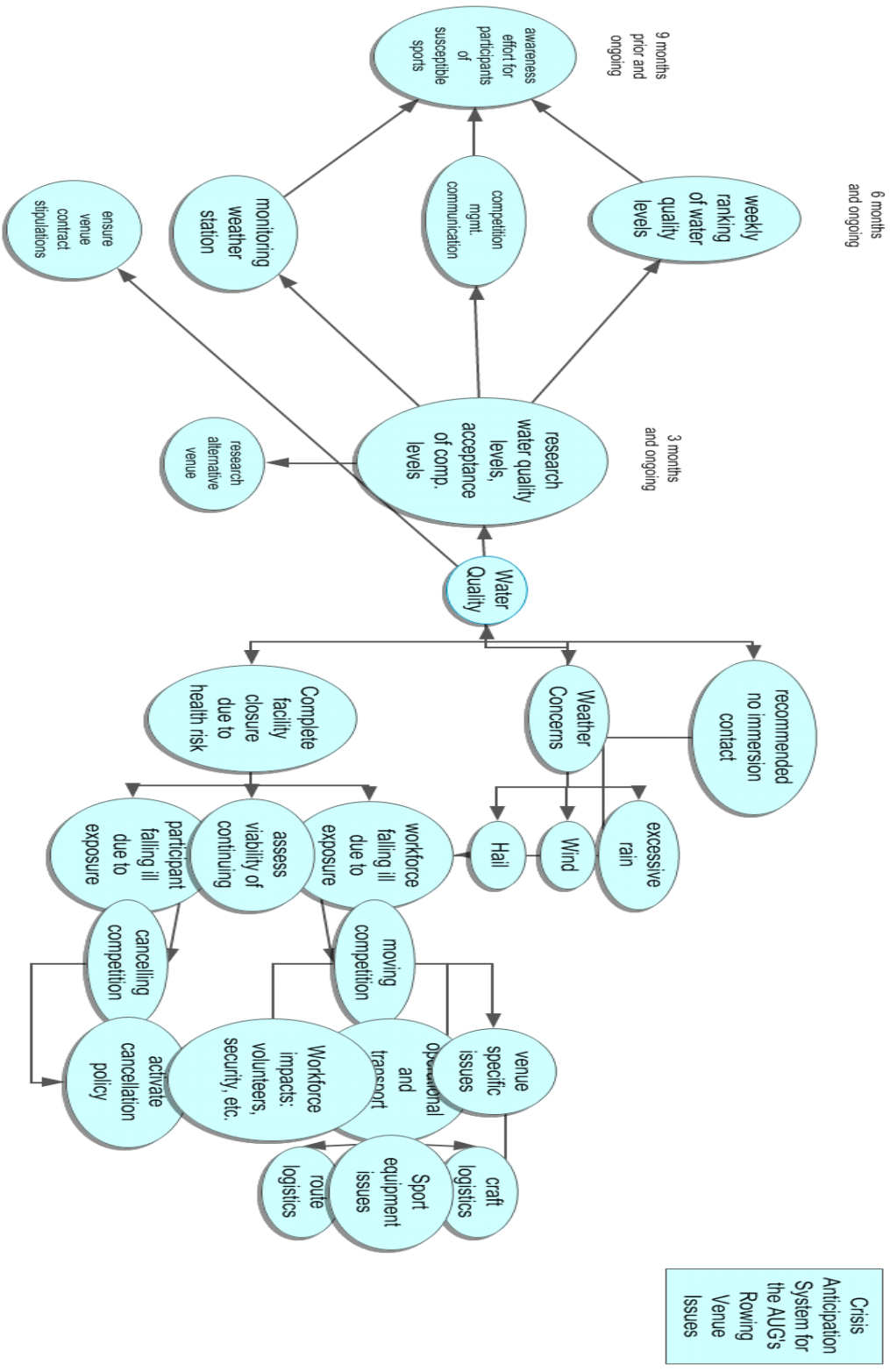
Despite the importance of striking this leadership balance, not having a formalized knowledge base of complexity theory was also useful and provided interesting results. The lack of a pre-determined or formulated approach to complexity allowed SEOC participants to formulate their own unique perspectives on the topic and use its nature to their benefit in learning activities. The usefulness of the framework is undeniably intriguing, especially since it seems to be only limited by how creatively the researcher chooses to be with it.

The concept of chaos as both a theory and a phenomenon proved to have interesting implications as well as complications for further sports event management research. The concept of using chaos metaphorically (in the context of a WCS) as a learning opportunity if harnessed in a hypothetical exercise situation is possible. This implies that further research can begin to uncover more specific and detailed methods of delving into the perceptions and preconceived notions people have of the subject and how they might be able to deal with it. The implication that people can begin to use the idea of nonlinear dynamics in an industry like sport event management for their benefit and also to create new knowledge for CM practices has implications for any single-project management team. The capacity –building initiatives created by such a chaos-enhanced approach could be very beneficial for a learning organization.

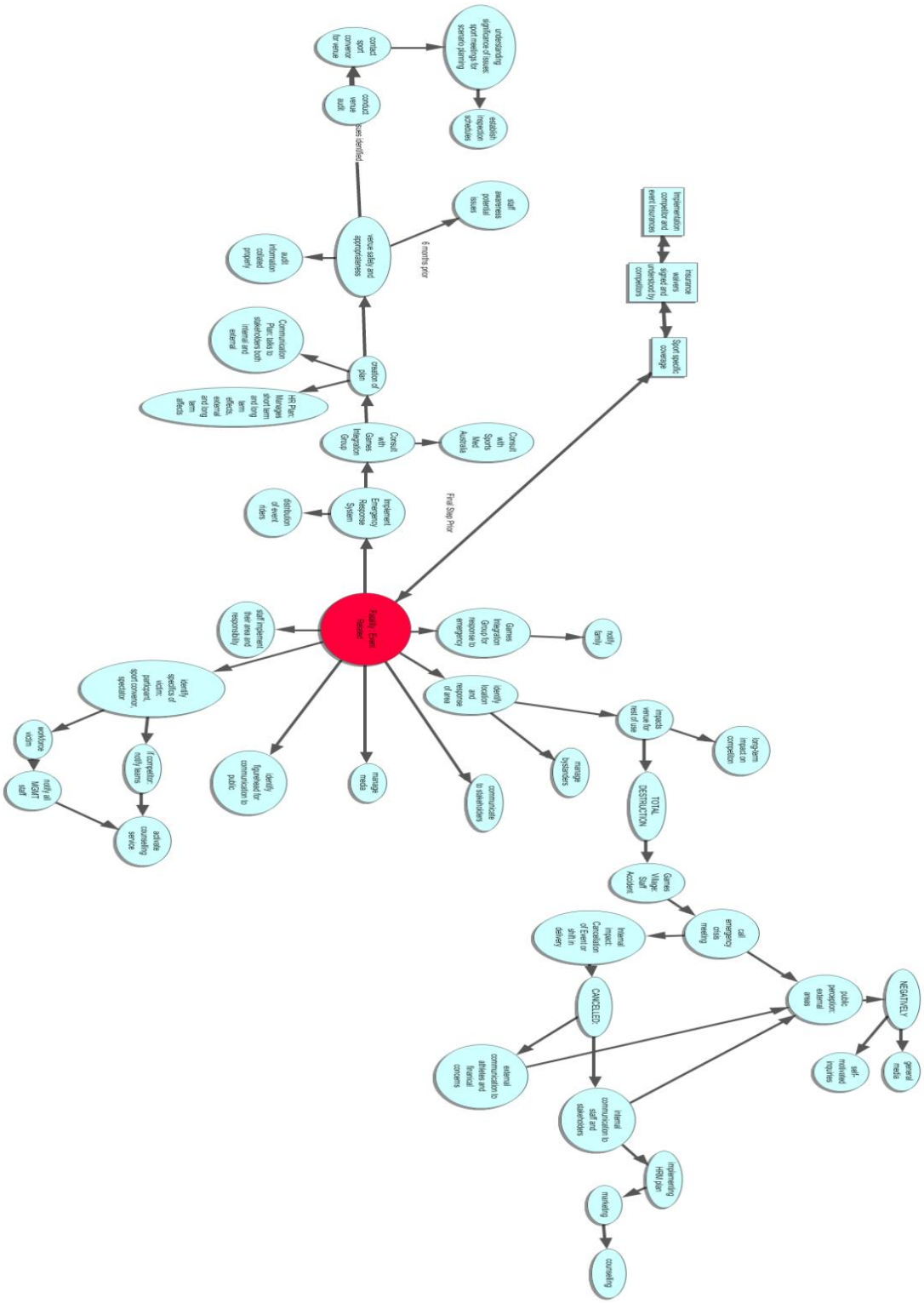
Collaborative Inquiry as a methodology has several implications for future sports event management research as well. First, the ability of this qualitative method to deliver the vehicle for gathering in depth and rich data on a novel set of participants, especially when their project has such a short time span of observation, was valuable. It held the components of how to get into the populations detailed operations quickly and efficiently. Like an embedded journalist, the familiarity so quickly gained from being part of the group and working *with them* rather than *on them* (Argyris & Schon, 1992; Heron & Reason, 2001) was invaluable for such a short time frame. When dealing with a subject that involves cognitive dissonance, it is considered beneficial that the methodology allows for an in-depth understanding of each individual of the study so that the qualitative nature of *why* and *how* they are experiencing such emotions can be analysed.

8 Appendices

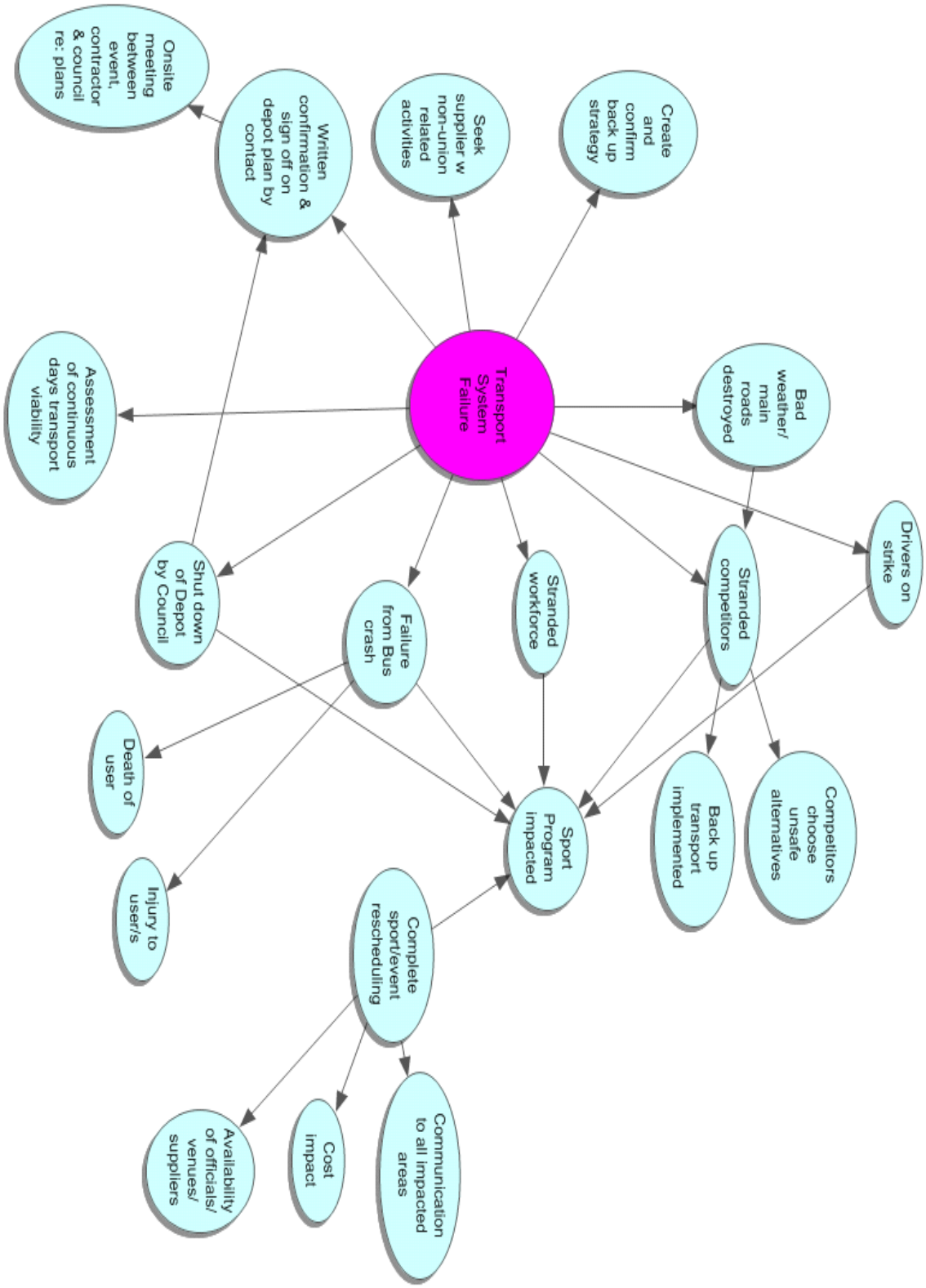
Appendix 1 Crisis Anticipation System, Scenario #1: Water Quality Contamination Issue



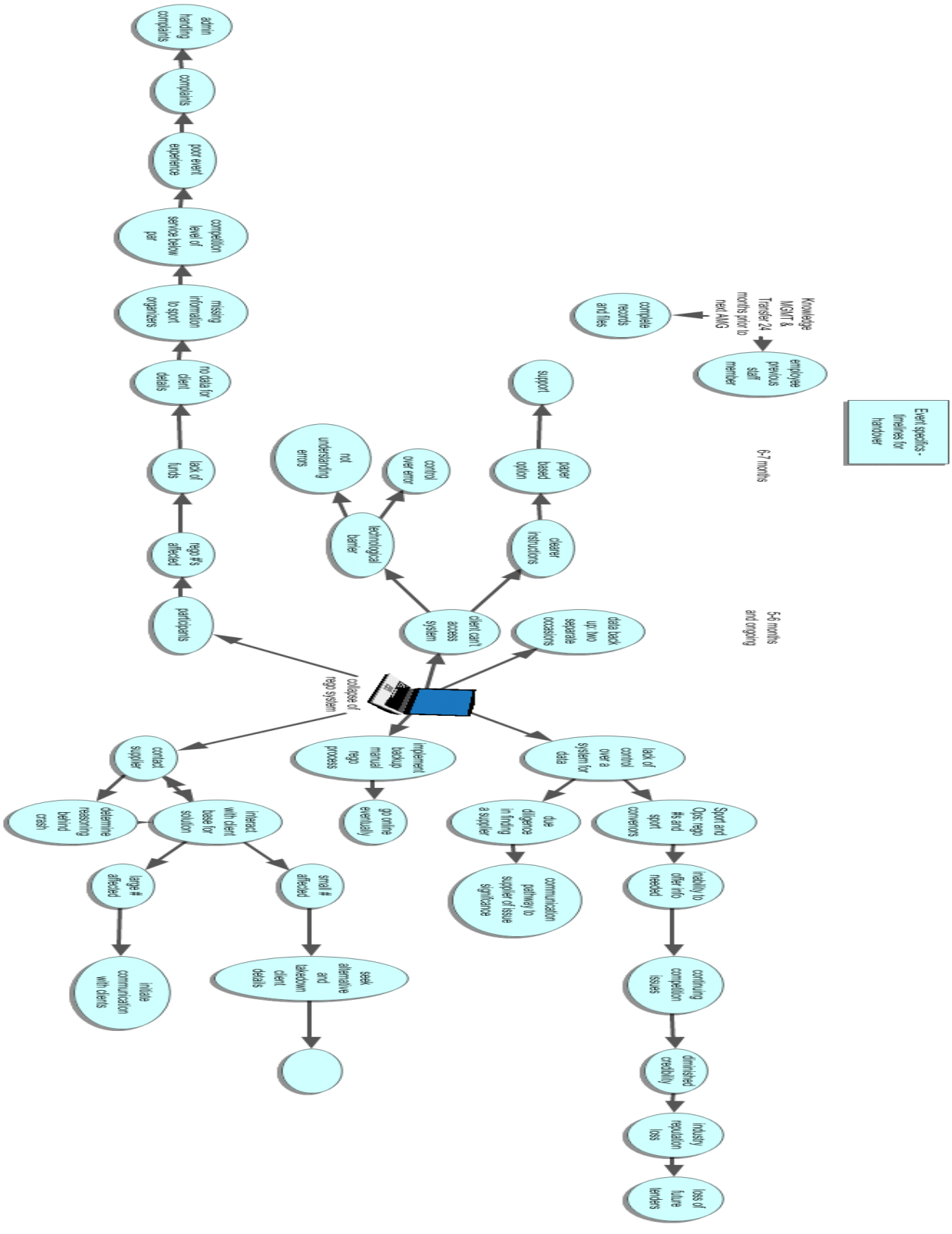
Appendix 2 Crisis Anticipation System, Scenario #2: Fatality of a Person at Event during 'Games Time'



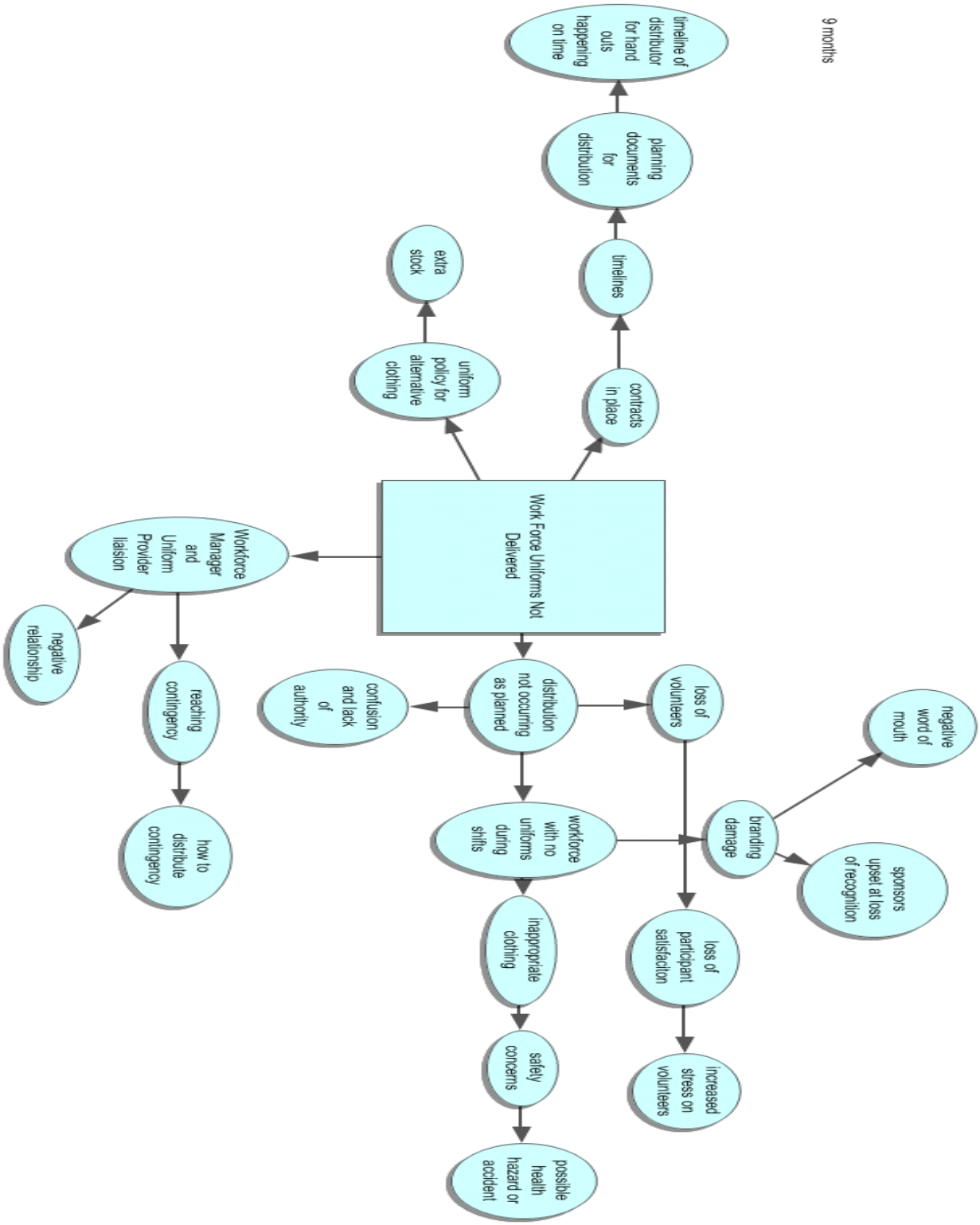
Appendix 3 Crisis Anticipation System, Scenario #3: Transport System Failure - first attempt



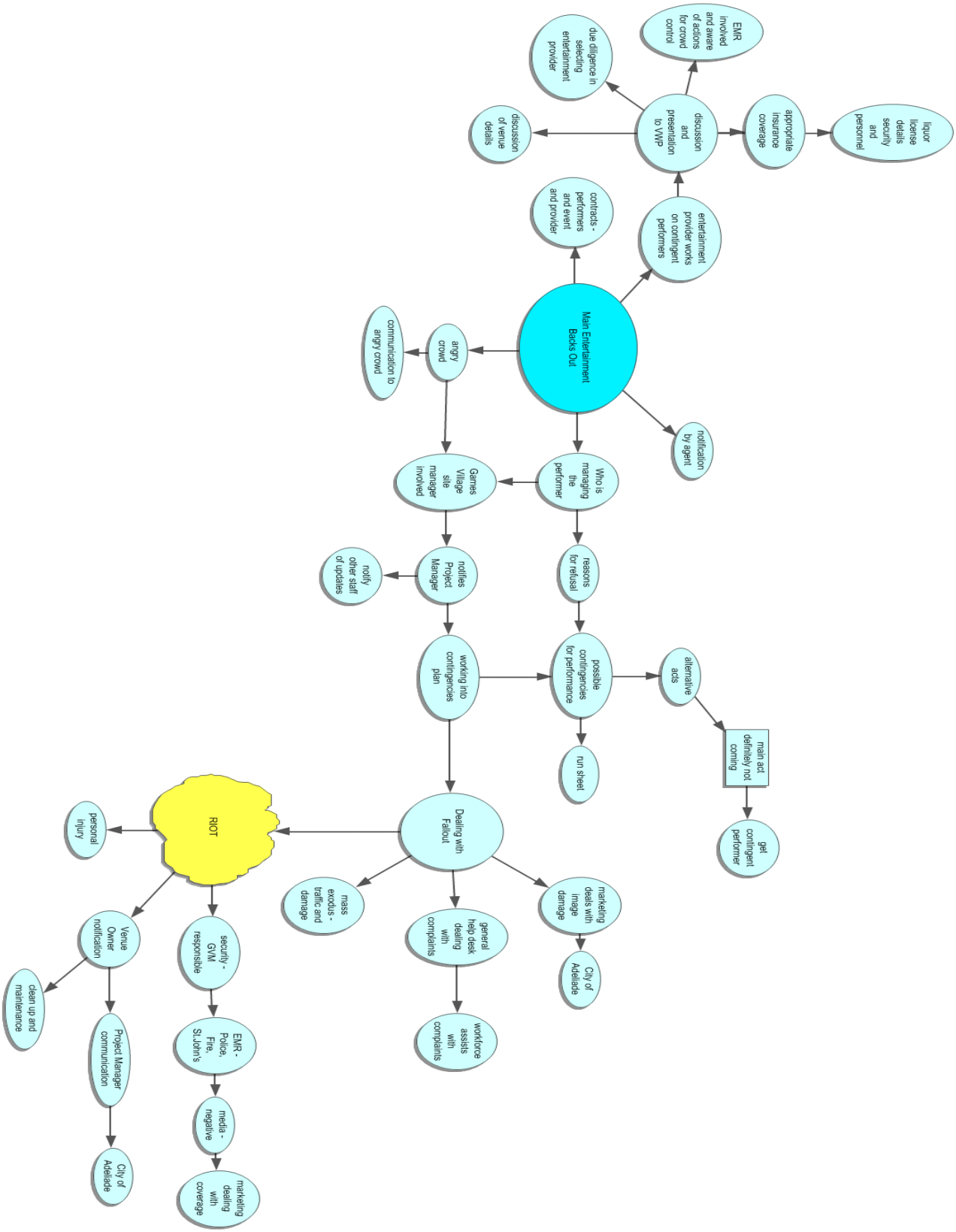
Appendix 4 Crisis Anticipation System, Scenario #4: Collapse of Registration System



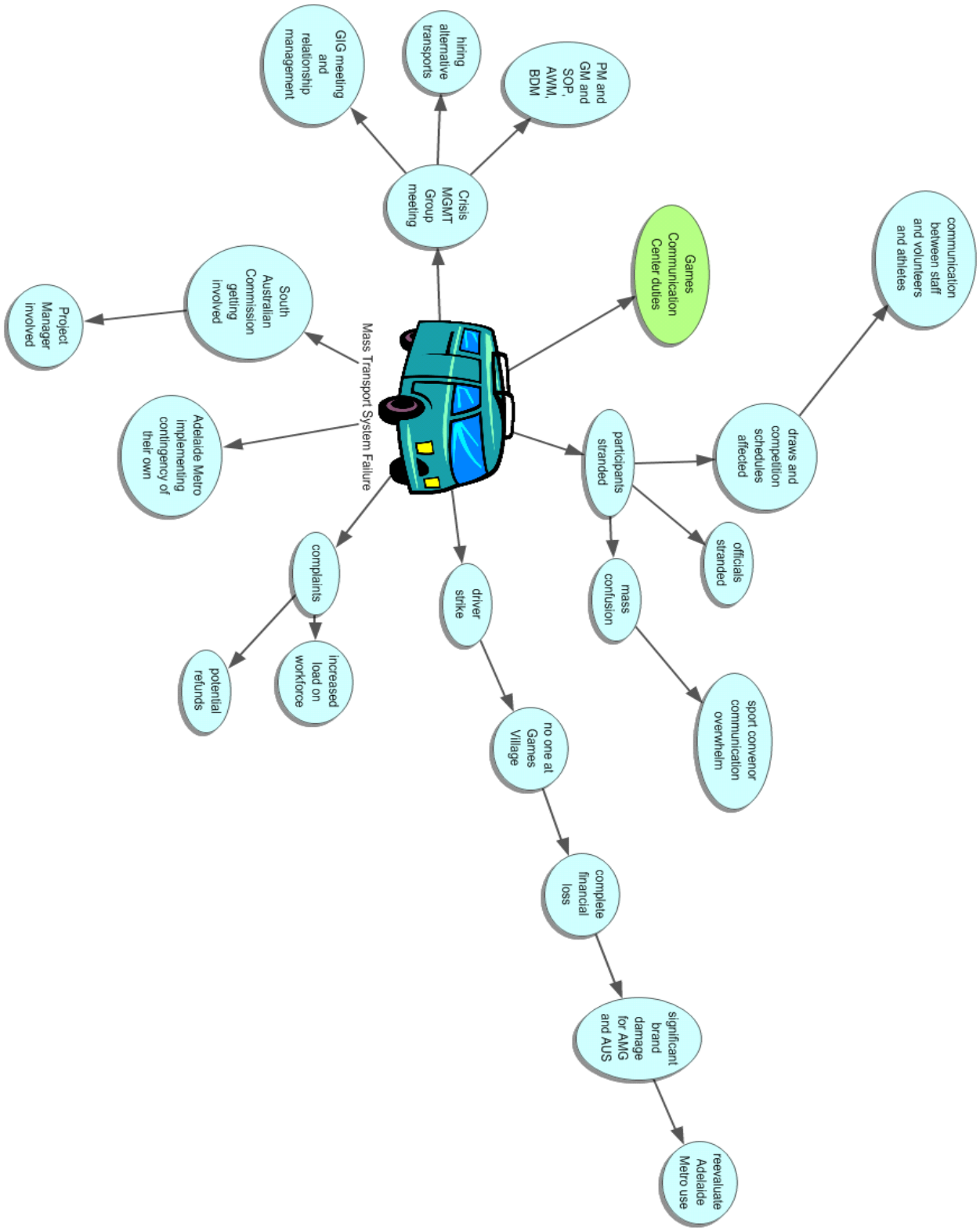
Appendix 5 Crisis Anticipation System, Scenario #5: Workforce Uniforms Not Delivered



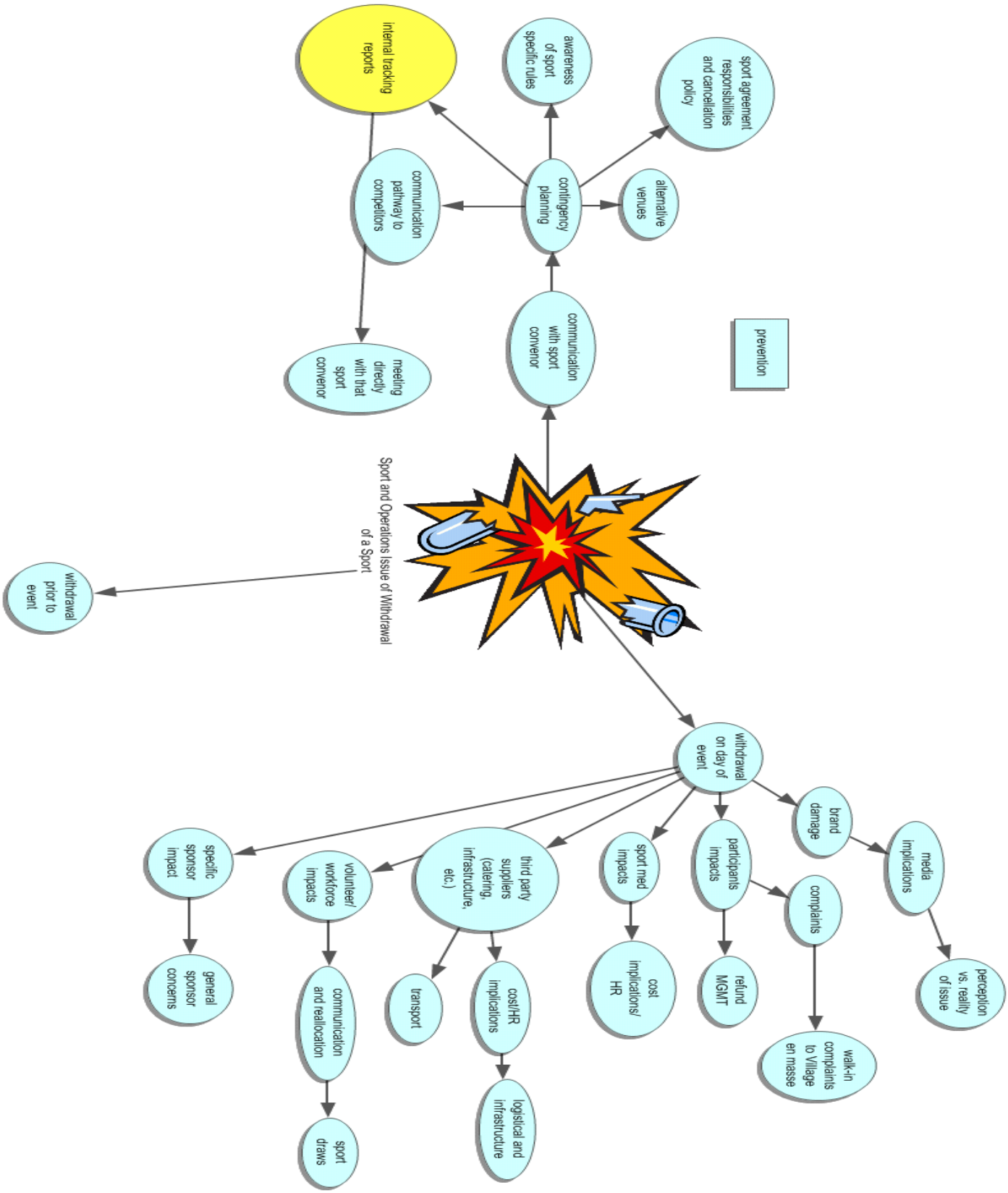
Appendix 6 Crisis Anticipation System, Scenario #6: Main Entertainment Backs Out



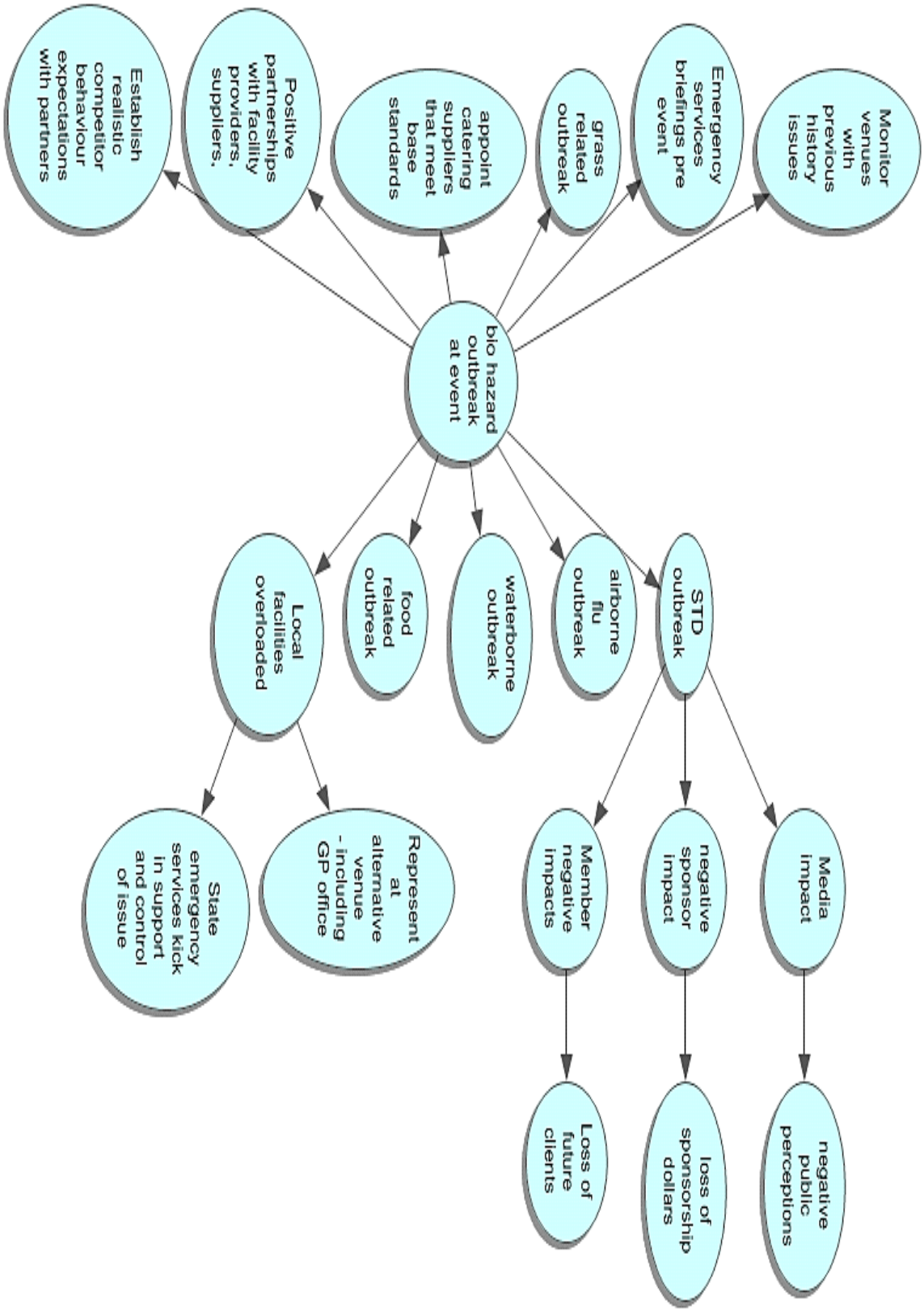
Appendix 7 Crisis Anticipation System, Scenario #7: Failure of Mass Transport System – second attempt



Appendix 8 Crisis Anticipation System, Scenario #8: Withdrawal of a Sport from the Event



Appendix 9 Crisis Anticipation System, Scenario #9: Bio-Hazard Outbreaks at Event



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