

**FACTORS INFLUENCING LEADERSHIP ABILITY TO RESPOND AND
ADAPT TO CHANGE DURING TURBULENT TIMES: A CASE STUDY
OF SWAZILAND RAILWAY**

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DECLARATION

I, Bonginkhosi Nsingwane, declare that **Factors influencing leadership ability to respond and adapt to change during turbulent times: A case study of Swaziland Railway** is my own unaided work, except as indicated in the acknowledgements, text and references. It is submitted in partial fulfilment of the requirements for the degree of Master of Leadership Studies at the University of KwaZulu-Natal. This work has not been submitted before, either in whole or part, for any degree or examination at this or any other university.

Signed



Bonginkhosi Sibusiso Nsingwane

Year: 2016

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ABSTRACT

The aim of this study was to investigate both positive and negative factors that influence an organisation's leadership ability to respond and adapt to change during turbulent times, particularly in a government-owned enterprise. The investigated factors were based on the Complexity Adaptive Systems concepts, derived from complexity theory.

A questionnaire was administered into 13 managers of Swaziland Railway, with varying years of service with the company, and from all the departments within the company. The research was a case study, conducted using the mixed methods approach, which used mainly both the qualitative (interview) and quantitative (questionnaire) method. The qualitative aspect of it was derived from the interview questions and analysis of the responses from the managers of Swaziland Railway with regard to how they perceived each Complex Adaptive System concept and its effect on influencing leadership ability to respond and adapt to change during turbulent times. The quantitative aspect of it was derived from the administered questionnaire.

The results of the study indicated that the positive factors that largely influence leadership ability to respond and adapt to change were mainly artefacts, such as computers, which were viewed as extremely important as business enablers. The study also found that the setting of strategic objectives to guide the implementation of specific functions to ensure business sustainability was a positive factor that influences leadership ability to respond and adapt to change.

One of the main negative factors hindering leadership ability to respond to change was historical legacy, which was used as a panacea to solve emerging problems, by replicating past solutions. Egalitarianism also featured as a strong negative factor, as the culture of the company was one of high respect for hierarchies and authority, leading to the belief that the longer you have served in the company, the more capable you are of making the best decisions for all levels of the company.

The findings of the study were that organisations need a structured Leadership Development programme that focuses on using the Complex Adaptive Systems concepts to equip leaders with knowledge to apply effective leadership to adequately adapt and respond to change during turbulent times or when faced with sporadic organizational changes. The study will benefit stakeholders in leadership positions, which include Trade Union Leaders, the Public Enterprise Unit, and other Parastatal organisation leaders by pointing out that a long length of service and knowledge of the history of the company inhibits leadership ability to respond and adapt to change, leading to a compromised organisational sustainability.

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CHAPTER 1 : INTRODUCTION

1.1 Introduction and background

Swaziland Railway, a parastatal organization in Swaziland was selected by the researcher and conducted research on how the leadership of the company responded to the macro and micro factors that influence and challenged their leadership philosophy to adapt or respond to the Complex Adaptive Systems concepts insofar as they relate to leading the organization during turbulent times.

The study focused on determining the organisation's leadership ability to respond and adapt to abrupt change, which came at an unexpected time when the organization was priding itself as successful as a result of effective and efficient leadership that had steered the organization for the past 50 years. The study determined how the Swaziland Railway managers perceived their leadership style and how it was well suited to respond and adapt to change during turbulent times.

Strategic leaders of any organisation are believed to play a central role in an organisation's capacity to learn from its past, adapt to its present, and create its future (Jones & Sallis, 2013; North & Macal, 2007). Strategic leaders are entrusted with the responsibility of ensuring business continuity by making strategic decisions, creating and communicating a vision of the future, and developing key competencies and capabilities (Poza, 2013).

The turbulent times that Swaziland Railway faced were a challenge to the leaders as they affected the revenue generation capability of the organization and the leaders had to adapt or respond to the change by employing the Complex Adaptive Systems concepts to position the organization at a competitive stance, much against the assumption that they did not have knowledge of Complex Adaptive systems concepts and how they enhance leadership ability to adapt to change effectively.

Leaders are responsible for developing organisational structures, processes and controls, managing multiple constituencies, selecting and developing the next

generation of leaders, sustaining an effective organisational culture, and the infusion of ethical values into the organisational culture (North & Macal, 2007).

The assertion that strategic leaders have to play the role of facilitating an organisation's capability to learn from its past, adapt to its present and create its future has led to the birth of numerous leadership paradigms that seek to define this notion (Starbuck & Hedberg, 2010). The paradigms were developed under the premise of seeking to capacitate strategic leaders with relevant leadership skills to respond and adapt to change at the macro and micro levels, which affects the organisation. The leadership paradigms that were developed formed a basis for the study and specifically to exploring the factors that influenced the Swaziland Railway leadership ability to respond and adapt to change during turbulent times.

1.2 Brief history of Swaziland Railway and its influence on leadership

Swaziland Railway is a parastatal organisation governed by the Swaziland Public Enterprise Unit (PEU). The company was established in 1964 by King Sobhuza 11 (Swaziland Railway Act 1964, and as amended) to provide rail transportation of bulk material and goods. From its inception, the main export commodity was iron ore from the Ngwenya mine to the Maputo and Richards Bay sea ports. Inbound goods that were mainly carried through the rail transportation service were and still are fuel from the Durban seaport and cement from the Richards Bay seaport.

October 2014 marked the company's fiftieth anniversary, which was celebrated in an event graced by King Mswati 111, royalty and other dignitaries from all over the world (Swaziland Railway, Golden Jubilee 2014). In 2016, the Company employed about 370 employees. In 2003, there were major retrenchments owing to the company being over-staffed and in response to shrinking revenue.

1.2.1 Operational model for revenue generation

Swaziland Railway transports a wide diversity of commodities and goods, which mainly include the export commodities of sugar, coal, canned fruit, and timber, as well

as imported goods such as petroleum products and general goods. The Railway also operates a state-of-the-art Dry Port at Matsapha, which is a satellite port for the Durban Port. (Swaziland Railway, Golden Jubilee, 1964- 2014).

The 301 km continuously welded network has concrete sleepers covering the entire network. The network extends east from Matsapha Industrial Site to Phuzumoya, where it connects with the northern rail link to access the South African ports of Durban and Richards Bay. The Mananga link to the North provides access to northern countries such as Zimbabwe, Zambia, and Democratic Republic of Congo. (Swaziland Railway, Golden Jubilee, 1964- 2014).

About 75% of the traffic is transit traffic, which makes the small railway a bridge railway. Thus, this transit traffic is the company's main revenue generation model, mainly from the northern link, which starts from the Phalaborwa mines, going through Swaziland to Richards Bay and Durban. (Swaziland Railway, Golden Jubilee, 1964-2014).

Since 2003, the company has been operating through this transit traffic business model, and experienced financial growth until the beginning of 2015, when the main source of revenue, which came from trains travelling from Komatipoort to Richards Bay shrank due to these trains being diverted to the Maputo harbour.

Swaziland Railway has been exporting about 1.2 million tonnes of iron-ore per year and 275,000 tonnes of sugar per year through the Maputo Port. The rest of the goods, mainly magnetite and general goods, are transported by rail through Swaziland, and the company generates revenue by charging clients at fixed kilometer rates for transporting their goods, (Swaziland Railway, Golden Jubilee, 1964- 2014).

1.2.2 Image and financial performance of Swaziland Railway

Swaziland Railway is rated as one of the best railways in the SADC region in terms of transit time, reliability and predictability, (Swaziland Railway, Golden Jubilee, 1964-2014). It links Swaziland's main industrial centres with the railway systems of South

Africa, Mozambique and other SADC countries that trade with overseas markets. This railway owns and maintains the infrastructure and rolling stock, and operates a 301km rail network, which generates revenue through charging clients per kilometre for ferrying their goods via the railway network.

For the past 50 years, the company has enjoyed a relatively healthy financial standing, as it is the only railway transporter in Swaziland for heavy bulk goods such as iron ore, sugar, ammonia, fuel, cement and ordinary goods (Swaziland Railway, Golden Jubilee, 1964- 2014). Furthermore, the company is classified by the PEU as a category “A” company, which is a top- ranking company based on the book value of total assets exceeding E720, 000,000.00 (Swaziland Government, Circular no. 3 of Public Enterprises,) The voluntary staff turnover average for the past five years has been less than 1%, and the main reasons for turnover are retirement and death. The general public regards the company as a good employer, based on its financial stability and classification as a category “A” company, according to the PEU ratings. The Swaziland Railway leadership has been, for many years, basking in the “Corporate Glory” of being very efficient and effective in leading the company for the past 50 years. The emergent macro environmental problems, which have negatively affected the company’s revenue generation capability, and the Swaziland Railway’s leadership readiness to adapt to the new changes in order to maintain the status quo, formed the basis of this study.

However, for the 2014/15 financial year, the company had experienced reduced traffic of trains from Komatipoort to Golela, due to most of that traffic being diverted to Maputo. This was because the Maputo Harbour was expanded to handle bigger ships, and most companies in Phalaborwa trading in natural minerals, such as magnetite, were now preferring to ship their goods from the Maputo Harbour instead of Richards Bay.

This negatively affected the revenue of the company and for the 2014/15 financial year, the company declared a tremendously reduced profit compared to the previous year (2013/14), (Swaziland Railway audited financial statements, 2013/14), when the company declared profits of E59,932,815.20, which was a healthy profit according to Swaziland parastatals’ operating standards. However, for the 2014/15 financial year,

the company declared a decrease in profits from E59,932,815.20 to E3,961,825.04 (Swaziland Railway audited financial statements, 2014/15).

This shrinking revenue put a lot of pressure on the leadership cadre of the organisation, in that changes in the company had to be made in terms of realigning it to address the problem of a decrease in the revenue. Hence, the main objective of this study was to determine how the leadership in such a turbulent environment adapts to change, and how ready the leadership was to change the current leadership style, in order to adequately respond to the changes that were affecting the company.

1.2.3 Swaziland Railway's leadership style and factors influencing it

i) Appointment of Chief Executive Officers and its influence on leadership philosophy

The appointment of Chief Executive Officers is the responsibility of the Public Enterprise Unit. Notably, the company had a Chief Executive Officer holding that position for 19 years. According to the Swaziland Employment Act of 1980, and as amended, the normal retirement age of any employee is 60 years old. In the case of Swaziland Railway, the Chief Executive Officer reached the normal retirement age in 2010. However, the then Board of Directors advocated for his continuance for a three year period, in the belief that since he had been a Chief Executive Officer for so many years, he fully understood the organisation, and based on the fact that there was no immediate successor. This showed that the Board of Directors ascribed to the leadership notion of maintaining stability, equilibrium and control through a Chief Executive Officer who knew and understood the company. This belief negates the concept of egalitarianism. The newly appointed Board of Directors in 2012 followed the same reasoning and re-appointed the incumbent Chief Executive Officer for another term. The Board of Directors believed implicitly in the leadership philosophy that only long-serving employees who are mature are suitable for Chief Executive Officer Position.

It is noteworthy that Swaziland Railway developed and implemented a five-year strategy in 2014, of which every employee had been informed about it, in order to enhance the company’s competitiveness (Swaziland Railway, Golden Jubilee, 1964-2014). Every employee was encouraged to pursue the strategic goals, as highlighted in the strategy book, and persuaded that doing any other activity would compromise the chances of the company achieving the necessary equilibrium, stability and control for financial sustainability. The idea of implementing a strategy had greatly influenced the leadership philosophy of Swaziland Railway. The five year strategy was a very rigid document, with very specific deliverables that had to be executed over the next five years. It could be argued that such a strategy left no room to accommodate emerging problems that could affect the company.

ii) Finance Department and factors influencing its leadership

Swaziland Railway’s financial performance was very positive, as shown by it being classified as a “category A” parastatal by the PEU (Swaziland Government, Public Enterprise Unit Dividends Policy, 2015). The financial performance of the company had yielded profits over the years, as indicated in Table 1.1.

Table 1.1: Swaziland Railway profits from 2009 - 2015

Financial year	Profit after tax
2008/2009	E5,273,000.00
2009/2010	(E3,733,000.00) loss
2010/2011	E16,000,000.00
2011/2012	(E3,168,000.00) loss
2012/2013	E38,038,000.00
2013/2014	E59,932,815.20
2014/2015	E3,961,825.04

Source: Audited financial statements of Swaziland Railway

The good profits had, over the years, created a leadership legacy at Swaziland Railway that the profits were achieved as a result of effective leadership. The financial success of the company had influenced and instilled the notion that the company had good leaders who have led the company over the past 50 years, and that they only had to do what they had always done when the company faces financial difficulties.

iii) Human Resources Department and factors influencing its leadership

The Human Resources Department was mainly responsible for human capital development, and programmes like succession planning, manpower planning and targeted training had not been given sufficient attention since 2003, when the company retrenched employees due to its shrinking revenue. This lack of robust human capital development initiatives had resulted in an aging workforce, in that 36% of the employees were over 50 years of age. Knowledge management in the company was seriously challenged by the high turnover of retirees, and the recruitment of young people was being frowned upon by the senior managers. This was due to the belief that although young employees are highly educated, they are incompetent and are not loyal, do not value the company except for what they can get from it, and are likely to job hop.

The Human Resources Department was constantly dealing with employee relations problems caused by the lack of knowledge of line managers about handling employees issues, and the misconception was that the Department should solve all their problems. The critical need to develop the leadership capacity of all the people managers had been marginalised by the belief that the real objective of the company was to make money, which the company had successfully achieved. The Human Resources Department was faced with the mammoth task of developing human capital through targeted training, leadership development, culture change and developing a high-performance organisation. The greatest leadership challenge of the Human Resources Department was to change the culture of the organisation.

iv) Engineering Department and factors influencing its leadership

The Engineering Department had recently experienced involuntary turnover due to the retirement of the former Director of Engineering, and a young Director of Engineering had been appointed from internal sourcing. This department was responsible for the maintenance of the Swaziland Railway's houses and other infrastructure. The company engaged in a retrenchment exercise in 2003 due to shrinking revenue. Since then, there had been insufficient budget for maintaining the staff houses, as the company declared that property was not part of its core business. The houses had

been dilapidated over the past 12 years and the company leadership stood by its resolve that property was not part of its core business, despite a huge public demand for accommodation, which could generate revenue for the company through rentals. The history of the retrenchment process had shown that it was an emotionally sapping exercise. This legacy had influenced the leadership of Swaziland Railway from the Engineering Department perspective.

v) Operations Department and factors influencing its leadership

The Operations Department of Swaziland Railway was responsible for operations planning for both the import and export of commodities. This department managed the operational planning for trains in transit and originating in the country. The history of the Swaziland Railway Operations Department had always been that the movement of trains meant the generation of revenue. The train crews were regarded as the most important element and the employees always leveraged the leadership paranoia, which dictated that the latter had to succumb to every threat or demand from the train crews. This influenced the decision making of the leadership, in that the train crews had always been holding the company at ransom, by constantly threatening to go on strike if their demands were not met. This scenario had thrown the employee relations management aspect of the company into disarray, as most of the employees outside of the train crews believed that there was discrimination in the remuneration process in favor of train crews.

1.3 Problem statement

Swaziland Railway celebrated 50 years of existence in 2014 and prided itself on being one of the best parastatals in Swaziland. The profits of the company for the 2012/13 financial year stood at E38,083,000.00 (Swaziland Railway Audited Financial Statements, 2012/13). For the 2013/14 financial year, the profit stood at E59,932,815.20. (Swaziland Railway Audited Financial Statements, 2013/14), and for the 2014/15 financial year, the profit stood at E3,961,825.04 (Swaziland Railway Audited Financial Statements, 2014/15), which was a 93% reduction from the 2013/14 financial year. The reduction of the profit by 93% posed the question as to how

adequately the leadership of the company anticipated the changes in the macro and micro environment. The leadership ability to respond and adapt to change was the topic of this study, in order to determine how it influenced the reduction of profits.

1.4 Research aim and objectives

This study sought to investigate the factors that influence the leadership ability of a parastatal organisation to respond and adapt to changing macro and micro environmental factors that negatively affect the revenue generation capability of that organisation. The research aimed to investigate Swaziland Railway's leadership readiness, willingness and ability to change their leadership style, in order to address emerging challenges faced by the organisation during turbulent times, particularly with regards to the problem of reduced revenue and the leadership ability to come up with innovative ideas for generating revenue outside of the main source of revenue, namely transit traffic.

The objectives of the study were as follows;

1. To explore leadership's ability to respond to change.
2. To determine how leadership adapts to change during turbulent times.
3. To ascertain the role of the strategic plan and its influence on leadership.
4. To determine the current leadership ethos of Swaziland Railway.
5. To recommend leadership styles that could be applied during turbulent times.

The research questions of the study were as follows;

1. What is the ability of leadership to respond to change?
2. How does leadership adapt to change during turbulent times?
3. What is the role of strategic plan and its influence on leadership?
4. What are current leadership ethos of Swaziland Railway?
5. What leadership styles can be recommended for Swaziland Railway during turbulent times?

1.5 Significance of the study

“Traditional views of leadership grow out of the long-held view of organisations as equilibrium-seeking systems whose future are knowable and arrived at by leaders who plan interventions and control behaviors” (Niemandt, 2015: 4; Plowman, Solansky, Beck, Baker, Kulkarni & Travis, 2007: 341). This long-held notion about leadership has been challenged by the complexity theory, which in essence has proven that change is constant (Jackson, 2003), and therefore that seeking a state of equilibrium and certainty of the future through interventions is bound to fail. The emergence of complexity theory has challenged this leadership view of seeking control in organisations through planning people’s behaviours by means of human capital development interventions (Anderson, 1999). He further observed that the complexity theory challenges this linear leadership view, in that complexity brings unpredictable changes, and organisations are often faced with surprises as a result.

This study was significant to highlight the factors that influence the way in which Swaziland Railway’s leadership responded to the complexity of the macro and micro environment, which brings unpredictable change, and the leadership ability to respond and adapt to this change. Stakeholders that were going to benefit from this study were the PEU, government, trade unions and parastatal organisation leaders.

1.5.1 Public Enterprise Unit

Parastatals in Swaziland are governed by the PEU, which was established by government to regulate the operations of all public entities. From this study, the PEU unit would get a deeper insight into how they could influence the leadership ability of parastatals to adequately respond to change, or adapt their leadership style to sustain the organisation during turbulent times.

Moreover, the PEU would be able to appreciate how the recently introduced dividends policy for all parastatals influences the leadership ability to respond and adapt to change.

Based on the research findings and recommendations, the PEU would be able to re-adjust those policies and regulations that inhibit the leadership ability to respond to change, in order to enhance the sustainability of parastatals during turbulent times. Most importantly, the PEU would be informed about how the management of the transport sector affected the financial position of organisations and their sustainability.

1.5.2 Government

The Swaziland government, through the PEU, would be better informed by the findings of this study on how to structure suitable legislation, policies and regulations that are aligned to improve parastatal organisations' efficiency, while maintaining its mandate of protecting civil society, in order to prevent the financial crippling of the very same parastatal organisations established to render essential services efficiently. Furthermore, government would benefit from understanding how its mandate could be carried out efficiently by parastatals, in order to maximise profits and declare the dividends, as advocated by the Dividends policy of 2015 (PEU Dividends policy, 2015).

1.5.3 Trade unions

Based on the findings of this study, the Swaziland public transport trade unions would have a better understanding of the complexities and challenges that Swaziland Railway managers face in leading the organisation during economically turbulent times. The understanding of the factors that influence leadership would enable the unions to align their mandates or strategies of maximising employee benefits, with due consideration of the factors that influence organisational growth.

1.5.4 Parastatal organisation leaders

Leaders of all parastatal organisations would be informed by the findings of this study regarding the best methods of leading in a turbulent environment, especially in difficult economic times. Furthermore, they would be able to interrogate and apply some of the factors that influence their leadership ability to adapt to changes faced by the organisation, especially during turbulent times.

1.6 Scope of the study

This study was confined to Swaziland Railway. It included only Swaziland Railway managers in the various departments of the organisation.

1.7 Assumptions

The following assumptions were made with regard to this study:

- The Swaziland Railway managers lacked adequate leadership skills for dealing with complex adaptive systems and leading during turbulent times.
- The Swaziland Railway managers seemed to have linear thinking when it comes to leadership.
- The Swaziland Railway managers assumed that they were knowledgeable about leadership approaches, because they had been with the organisation for a long time.
- The Swaziland Railway managers assumed that they were good leaders because of their institutional knowledge and memory.

1.8 Research design

This study was mainly a case study, conducted using the mixed methods approach. According to Smith (in Henning, van Rensburg & Smit, 2013), case studies are different from a qualitative study because the former analyse and describe a single unit or bounded system. The study used both closed and open-ended questions. The researcher explored how leadership is influenced by the length of service of leaders in an organisation, how gender influences leadership ability to adapt to change, and the influence of a profession on the ability to respond to change.

1.9 Limitations of the study

This study was cross-sectional in nature and data was gathered at one point in time, which limited the valuable input of analysing and establishing objective trend analyses of leadership in the organisation. The researcher could also not collect data up to the

point of saturation, because time was limited, and the period in which the researcher was permitted to conduct the study did not enable this to be achieved. The researcher also did not exhaust all the academic literature available on leadership, given the time frame, and may therefore have missed some relevant publications. The study used a small sample, which meant that it was not representative of the total population, hence the findings could not be generalised to the greater population. In addition, the researcher found it difficult to barricade his own experience and knowledge of the organisation. A longitudinal study could have provided better insight into how Swaziland Railway managers provide leadership.

However, it is important to note that the limitations experienced during the study did not prevent the researcher from conducting the study or interfere with the outcomes of the study. The intention was not to generalise the results, given the nature of the sampling size, but it was clear that research in this domain is valuable, both from a theoretical and practical point of view.

Participants seemed to be unwilling to provide honest information that had the potential to compromise the organisational leadership ethos. They seemed to be biased in their responses. Participants with over 10 years of services seemed to be subjectively biased towards the fact that the company had been in existence for the past 50 years. Therefore, the subjective implication was that this was due to effective leadership, whereas participants with less than 5 years of service within the company were strongly inclined towards the need for the organisation to transform.

1.10 Chapter outline

Chapter 2: LITERATURE REVIEW. This chapter presents and discusses the evolution of leadership theories.

Chapter 3: RESEARCH METHODOLOGY. This chapter discusses the different research methods employed in fulfilling the research objectives and answering the research questions. It entails a description of the research design, research methods, research instruments, population, reliability, validity, limitations, and ethical considerations of the study.

Chapter 4: PRESENTATION OF RESULTS

This chapter presents the results of the study, including the demographics of the respondents, length of service, age of respondents, and exposure to leadership training.

Chapter 5: DISCUSSION OF RESULTS. This chapter mainly discusses the results of the study.

Chapter 6: CONCLUSIONS AND RECOMMENDATIONS. This chapter presents the conclusions and recommendations of the study. It also addresses the research objectives and makes suggestions for future research.

1.11 Conclusion

Chapter 1 provided an introduction and background to the study, including the problem statement, purpose and significance of the study, research methodology, and an outline of the chapters. It provided a background to the company under investigation, especially in relation to leadership. It also presented an outline of the chapters and the assumptions of the study. Lastly, it highlighted the limitations of the study. Chapter 2 presented the literature review on the evolution of leadership theories.

CHAPTER 2 : LITERATURE REVIEW

2.1 Introduction

This chapter unpacked the evolution of leadership and presents complexity theory. It entailed detailed eras of leadership; it unraveled concepts of leadership; and provided theoretical understanding of leadership in relation to Complex Adaptive Systems. It presented complexity theory and its significance towards leadership. It delineated and unpacked the properties of Complex Adaptive Systems and their application to leadership of complex organisations.

2.2 Definition of leadership

What is leadership? Karp and Helgo (2008: 30) observed that the concept of leadership is arbitrary and subjective. According to Bratton (2007: 132), “leadership is one of the most observed but least understood phenomena on earth”. Grönfeldt and Strother (2006) advanced the definition of leadership by stating that recent definitions suggest that leadership is a process that focuses less on the characteristics of the leader and more on his or her ability to coordinate the efforts of an organisation. With the numerous theories developed on leadership and the realization that there is no one single definition or answer to what makes an effective leader, the anti-leadership era emerged as a reaction to the fact that the concept of leadership is too wide and cannot be confined around one single theory (Gregoire & Arendt, 2014).

Literature review of the definition of leadership points out that there is an overabundance of definitions of leadership (Grönfeldt & Strother, 2006).

Van Seters and Field (1990) posited there are almost as many definitions of leadership as there are authors who have attempted to define the leadership concept. Burns (1990) stated that the leadership concept is one of the most studied and least understood phenomena on earth. Ulrich and Smallwood (2013) posed the question, “what makes an effective leader?” The same question had been asked by Hunt, Krzystofiak, Meindl and Yousry (1989). Van Seters and Field (1990) stated that

leadership is a complex and multifaceted phenomenon for organisations. Bass (in Van Seters & Field, 1990) suggested that extensive scientific research on leadership dates back to the 20th century.

According to Burns (in Barker, Sullivan & Emery, 2006:15-16), leadership is when “persons with certain motives and purposes mobilise, in competition or conflict with others, institutional, psychological, and other resources to arouse, engage and satisfy the motives of followers”. Bratton (2007: 132) stated that “Leadership is the process where an individual, member of a group or organisation influences the interpretation of events, the choice of objectives and strategies, the organisation of work activities, the motivation of people to achieve the objectives, the maintenance of cooperative relationships, the development of skills and confidence by members, and the enlistment of support and cooperation from people outside the group or organisation.” Some other definitions include the following: Drafke (2009: 460) – “Leadership is the ability to influence the activities of others, through the process of communication, toward the attainment of a goal.”; Thompson (2009: 155) – “It involves developing a shared view of the destination you are aiming for and the route you intend to follow to get there ... a good leader ‘pulls’ the team by motivating and inspiring members to pursue shared goals”; and Colquitt, Lepine and Wesson (2011: 483) – “the use of power and influence to direct the activities of followers toward goal achievement”.

2.3 Leadership theories

Various leadership theories have developed in the last eight decades (Grönfeldt & Strother, 2006). The study enumerated on some but not all of the leadership theories, mainly the traditional and modern leadership theories.

2.3.1 Traditional leadership theories

Traditional leadership theories consist of the trait theory, the behavioural theory and the contingency theory.

2.3.1.1 Trait theory

The advent of the trait theory dates back as far as the turn of the 20th century. The focus of the trait theory was on an individual's physical, social and personal characteristics such as height, integrity, intelligence, self-confidence, strong values, attractiveness and creativity, which were then in the 1930s and 1950s regarded as key traits for one to be an effective leader. The trait theory suggested that leaders are born with these traits or characteristics and that people with these traits make better leaders (Bodla & Nawaz, 2010; Bratton, 2007; French, Rayner, Rees & Rumbles, 2009; Grönfeldt & Strother, 2006; Laohavichien, Fredendall & Cantrell, 2009; Manning & Curtis, 2003; Nevarez & Wood, 2010; Von Eck & Verwey, 2007).

2.3.1.2 Behavioural theory

The behavioural theory developed from the trait theory in the 1950s to suggest that leadership is mainly about the leader's behaviour which leads to improved organisational effectiveness and increased productivity through satisfied and motivated employees. (Hunt & Larson, in Van Seters & Field, 1990).

The thrust of the behaviour theory was that there are two types of behaviours that a leader must emulate, namely task- and person-oriented behaviour. The former behaviour refers to the leader's focus on the achievement of goals while the latter focuses on the building of interpersonal relationship. (Bodla & Nawaz, 2010; Bratton, 2007; French *et al.*, 2009; Grönfeldt & Strother, 2006; Laohavichien, Fredendall & Cantrell, 2009; Nevarez & Wood, 2010; Von Eck & Verwey, 2007). In summary, the behaviour theory proposed that effective leaders are those that focus on the task whilst enhancing followers' effectiveness.

2.3.1.3 Contingency theory

The major shortcoming that researchers found regarding the behaviour theory was that leaders with the same traits and behaviours had different outputs and varying success rates in different situations. This led to the development of the contingency theory in the late 1960s, which advocated that output and leadership success

depended on the interaction between the leader's traits and behaviours and his or her specific situation. The thrust of the theory was that leadership effectiveness depends on the leader, the follower and situational factors such as the external and internal environment and the type of work (Bratton, 2007; French *et al.*, 2009; Grönfeldt & Strother, 2006; Laohavichien, Fredendall & Cantrell, 2009; Manning & Curtis, 2003; Nevarez & Wood, 2010; Von Eck & Verwey, 2007; Wang & Berger, 2010).

2.3.2 Modern leadership theories

Following the discovery of the shortcomings of the traditional leadership theories as not adequately answering the question of what makes an effective leader, modern leadership theories emerged and they have remained a focal point of research regarding leadership. The emerging modern leadership theory in the early 1980s was the transformational leadership theory of Wang and Berger (2010).

2.3.2.1 Transformational leadership

According to this leadership theory, people engage with one another and create a connection that leads to higher levels of motivation for both leaders and followers. In addition, Grönfeldt and Strother (2006) mentioned that the transformational theory shifted the focus towards the relationship between leadership and change. According to Spendlove (2007), the leader's charisma and intellectual inspiration forms the basis of transformational leadership. This notion was supported by Von Eck and Verwey (2007), who posited that transformational leadership is based on developing an appealing vision of the future and motivating and inspiring followers to achieve organisational goals. The argument advanced by the above researchers was that charismatic leadership was central to effective leadership through creating a vision and focusing on interpersonal sound relations. Bodla and Nawaz (2010) supported this worldview that transformational leadership occurs when a leader is charismatic and motivates, inspires and stimulates his or her followers intellectually to achieve extraordinary goals.

According to French *et al.* (2009) and Evans (2011), transformational leadership has four dimensions, namely inspirational motivation, intellectual stimulation, individualised influence and individualised consideration. Clearly, transformational leadership emphasises the power of charisma to create a clear vision, communication skills, and empowering people and to get their buy-in into the transformational leader's vision (Von Eck & Verwey, 2007).

2.3.2.2 Transactional leadership

The thrust of transactional leadership was that leaders and followers are guided by a contractual commitment, whereby the leader rewards his or her followers for objectives achieved. This theory states that transactions between leaders and followers such as agreements and the fulfilment of those contractual agreements warrants a reward from the leader and its success heavily depends on occurrence on a daily basis. The transactional leadership theory therefore assumes that followers wield extraordinary efforts to achieve the organisational goals based on exchanges such as contingent rewards (Barker, Sullivan & Emery, 2006; Bodla & Nawaz, 2010; Evans, 2011; French *et al.*, 2009; Spendlove, 2007).

Laohavichien, Fredendall and Cantrell (2009) claim that transactional leadership is a process of exchange whereby the leader rewards or punishes constituents on the basis of the achievement of organisational goals. The essence of this theory rests on the premise that transactional leadership is about clarifying goals and ways to accomplish them in which the followers get rewards for the achievement of those goals.

The major shortcoming of transactional leadership was that, according to Bass and Avolio (1994) and Waldman (1994), transactional leadership can have a negative impact because followers might feel that they are forced to do unpleasant tasks which could then impact negatively on quality of performance.

2.4 Leadership styles

Researchers have noted that there is a wealth of literature on leadership styles such as instructional, participatory, servant and distributive leadership (Nevarez & Wood, 2010). Drafke (2009) and Manning and Curtis (2003) mention three classical leadership styles, namely the authoritarian or autocratic, participative or democratic, and free-rein or *laissez-faire* leadership styles.

Robbins and Coulter (cited in Bodla & Nawaz, 2010: 209) define the autocratic leadership style as “a leader who tends to centralise authority, dictate work methods, make unilateral decisions, and limit employee participation”. The noted impact of the authoritarian leader is that it thrives on group dependence on the leader; it is the presence of the leader that keeps the group together and in his or her absence, no work will be done.

The participative or democratic leader involves employees in decision making, delegates authority, encourage participation in deciding work methods and goals, and uses feedback as an opportunity for coaching employees”. The participative or democratic leader achieves healthy working relationships.

The *laissez-faire* leadership style is where the leader generally gives the group complete freedom to make decisions and complete the work in whatever way they see it fit. Bodla and Nawaz (2010) state that in *laissez-faire* leadership, the leader avoids commitment to making decisions and does not make use of his or her authority.

2.4.1 Past research on leadership

Leadership has emerged as a critical factor in ensuring organisational sustenance. Montgomery, Johnson and Gardiner (1990) argued that effective leadership in organisations provides higher quality of service and goods, provides a sense of direction to employees, sense of intrinsic motivation, personal development and a sense of self-actualisation. Montgomery *et al.* (1990) pointed out that effective leadership enables employees to maximize their creative power and the development

of a good organisational culture, which attracts people to desire to work for that organisation which is effectively led organization by a good leader.

Gerzon (2006) postulated that historical research on leadership led to the realization of three faces of leadership, namely a demagogue, a manager and a mediator. A demagogue leader is the one that dehumanizes other people, uses lies and propaganda to advance his or her course and resorts to violence to maintain dominance or to destroy opponents. The demagogue leader's source of power is mainly derived through position and hierarchy, through manipulation of people, procedures, information and resources to advance his or her agenda (Gerzon, 2006).

Gerzon (2006) stated that a manager leader works with and through people, with emphasis on procedures, information and resources to meet set targets. According to French *et al.* (2009), a simple differentiation between a manager and a leader would be that a manager is concerned with the daily running of the organisation, whilst a leader is more concerned about inspiration and long-term change. Yelder and Codling (2004) advanced the notion that management is concerned about systems, tasks, goals and results, whereas leadership focuses on human relations, organising people and crafting a vision that could be achieved through the right culture. A manager, as described by Gerzon (2006), possesses little inclination to resolving conflict and decision making that is outside of the scope of the work, thus the source of power for a manager is related to the positional level in the hierarchy. Drafke (2009) agreed with French *et al.* (2009) that management is a process of planning, organising, leading and control, whereas leadership is about inspiring people.

Gerzon (2006) stated that a mediator leader leads through influence, persuasion, mediation, collaboration, defines the purpose and operates through procedures, information and resources for the benefit of the whole enterprise. A mediator leader engages with conflict issues, and decides on complex matters. A mediator leader's source of power is through character, skills, ability, and knowledge and builds trust amongst dissenting perspectives. A mediator leader seeks innovation as an enabler to transform and thinks systematically. Gerzon (2006)

2.4.2 The evolution of leadership eras

Leadership theories and eras are constantly evolving, which has led to leadership being an elusive concept in terms of seeking a universal definition and application Gerzon (2006). Stogdill (in Van Seters & Field, 1990) observed that the world keeps posing the question, “What makes an effective leader?” and the answers keep on changing as informed by the evolution of leadership theories. Attempts to define leadership in a universally accepted definition is impossible considering the constant paradigm shift posed by evolving leadership eras and concepts that are adaptable to the particular environment or situation.

Yukl (1990) explained that the evolution of leadership did not follow a chronological order, but rather the advent of each leadership era arose as a result of research into leadership. Most of the research findings leading to the discovery of each leadership era was occasioned by the constant pursuit of seeking to understand and answer the question of what makes an effective leader.

2.5 Eras of leadership evolution

2.5.1 Personality era

The first formal leadership theories, according to Borgotta (in Van Seters & Field, 1990), included the personality era, which was divided into the ‘great man’ period and trait period. The research under the great man period suggested that if leaders followed the personality traits of great leaders of the world like Hitler and Gandhi, then they would be emulating great leaders and become great leaders themselves. This belief was frustrated by the fact that the quoted great leaders of the world in the likes of Adolph Hitler, Mother Theresa and Gandhi had vastly differing personalities and the propensity of the personality era was questioned to the point of extinction by the contrasting and vastly differing personalities of great leaders. The traits era argued that if leaders would adopt specific traits of the great leaders of the world, they would become great leaders themselves. This era was challenged by empirical evidence that there is no single trait copied from a great leader that qualifies the leader to be a great

leader (Jenkins, in Van Seters & Field, 1990). Empirical evidence proved that traits cannot be learned and thus, the personality era became extinct.

2.5.2 Influence era

Following the shortcomings of the personality era as a key factor that makes an effective leader, the influence era emerged to suggest that leadership is fundamentally based on sound relationships between individuals and that therefore it is not a solitary characteristic of a leader. The influence era was defined on the basis of the power that a leader exerts on followers and how that power was used. This approach was challenged by the fact that power of influence can be dictatorial, authoritarian and controlling in nature which has no value and space in today's business world. Negating follower's wants and needs by exerting power to influence them to yield to the leader's dictatorial influence was discovered to have short term effect and thus this era became extinct (Pfeffer, 1990).

2.5.3 Behaviour era

The extinction of the influence era led to the advent of the behaviour era, which advocated that leadership was more about what leaders do, in terms of their behaviour. This era enjoyed major empirical support in that many managers could relate to it by practising those behaviours advanced as most suitable and ideal to be practised by leaders to improve their leadership effectiveness (Hunt & Larson, in Van Seters & Field, 1990). This era emphasised the leaders accomplishing tasks and showing great concern for followers and group cohesion. The behaviour era was challenged by the fact that behaviour changes overtime and as such was not sustainable to qualify it as a key leadership factor for effective leadership.

2.5.4 Situation era

The situation era emerged after the behaviour era proposed that the influence and relationship that any leader has with subordinates is influenced by situational factors including environmental factors and social status factors (Bass, in Van Seters & Field,

1990). The environmental factor advanced the argument that effective leadership is created through the leader being in the right place, at the right time and in a suitable environment. Thus, leadership qualities arise as a result of the prevailing environment, which influences relevant leadership qualities to arise either to salvage the situation or provide direction. This leadership theory advocated that environmental or situational factors influence the leadership qualities, traits, influence and the behaviours that arise to address those factors. In short, this leadership theory proposed that effective leadership is one that responds to the environment and situation adequately. Thus, anyone can be an effective leader by providing relevant direction in any situation and that therefore, the departure of a leader does not create a vacuum as another leader arises to provide direction in that situation (Hook, in Van Seters & Field, 1990).

According to Stogdill (in Van Seters & Field, 1990), the social status factor in leadership advocated that individuals working in a group self-organise themselves by perpetrating their social behaviours in that situation and that an effective leader becomes one who understands and embraces the differences in social status of the group, and channels them to the desired results or deliverables. This argument proposed that effective leadership was the ability to influence people of diverse social behaviours to work together for a common purpose or target.

The situation era was later discovered to have shortfalls in that it focused too much on the behaviours and social standing of the leader in a specific environment or situation, which meant that one could be an effective leader today in a specific environment and tomorrow be totally irrelevant as an effective leader in another situation.

2.5.5 Contingency era

The contingency era which followed the situation era proposed that effective leadership was dependent on the mix of relevant factors of behaviour, personality, influence and the situation. This leadership theory advanced the argument that the situation and environment that prevailed would always need to be assessed to determine the most suitable leadership behaviours, personality and influence. The identified mix of behavioural competencies would then be declared as qualities of an

effective leader, contingent to the environment or situation. This led to the emergence of contingent theories that most researchers believed was finally the answer to the question, “what makes an effective leader?”

The major contingent theories that arose were chiefly, the contingent theory, the path-goal theory and the normative theory. The contingency theory advanced that leaders should be placed or appointed to situations that most resonate with their behaviours, personality and influence (Fiedler, in Van Seters & Field, 1990).

The path-goal theory stated that rather than focusing on the situation or the leader’s behaviour, emphasis should be placed on creating an enabling environment for the subordinates, particularly in the work environment (House, in Van Seters & Field, 1990). The normative theory under the contingent theory advanced the argument that leadership is all about the most relevant and suitable decision making behaviour for each situation and the level of acceptance of the decision. This theory was widely accepted by leaders as its thrust was that leaders should make decisions and the effectiveness of the leader was measured by the level of acceptance of those decisions by the beneficiaries (Vroom, in Van Seters & Field, 1990).

The major shortfalls of the contingency theory, though, was that it was relevant to understanding leadership, but on its own did not address all the leadership qualities required for any situation.

The other major shortcoming was that the theory is too cumbersome and time consuming to enable leaders to always study every situation and the environment in order to make the right decisions, particularly in the day-to-day work environment, which is constantly punctuated by turbulent situations and emergent properties that at times require urgent attention, thus leaving no room for situation analysis and studying the environment to enable an informed decision making process. (Vroom, in Van Seters & Field, 1990).

2.5.6 Transactional era

The transactional era emerged as a response to the shortfalls of the contingency theories. This era advocated that leadership was based more on the transaction that occurs in role differentiation and social interaction between the leader and subordinates, in the work environment. This led to the birth of the exchange theory, which argues that leadership mainly involves various transactions between the leader and subordinate which determine their relationship. This suggested that a leader can behave or lead through different styles as determined by the types of transactions obtaining between the leader and subordinates. The exchange of the transactions with different subordinates determines the type of leadership that best suit the situation. (Van Seters & Field, 1990).

The role development period in the transaction era emphasised that leadership is most effective by having a clear demarcation of the roles of the leader the subordinate's. The subordinate's role involves rendering loyalty to the leader in exchange for the leader's abilities to provide leadership direction. This meant that the exchange of loyalty for leadership direction does not accord automatic dominance to the leader; some influential subordinates could attract the loyalty of peers and be accorded a status of informal leader and in this way the legitimate leader could be rendered ineffective. This notion implies that the leadership domain in the practical sense could reside with a subordinate, based on the role played and the legitimate leader could be in the shadow of the informal leader. (Van Seters & Field, 1990).

2.5.7 Anti-leadership era

The anti-leadership era emerged to challenge all the leadership theories and paradigms. According to Van Seters and Field (1990), researchers began pointing out that leadership skills as such were not the only factor to consider, and there were organisational factors that could neutralise or impede effective leadership skills application. This gave rise to the substitute era of leadership, which proposed that other factors in the organisation substitute for effective leadership, like when the organisation has a culture of bureaucracy and red-tape which can frustrate effective

leadership. The characteristics of the subordinates can also negate effective leadership. More so, if the values, motives and intellectual capacity of the subordinates is highly questionable, and the organisation's history supports their in-congruent behaviour regarding effective leadership skills. This posed more questions than answers regarding the whole concept of leadership effectiveness, hence the advent of the anti-leadership era, supported by the empirical evidence that leadership impact is highly subjective and contingent.

This led to the emergence of the leadership ambiguity period, which suggested that leadership is a perception in the mind of any observer (Mitchell, in Van Seters & Field, 1990). Miner (in Van Seters & Field, 1990) suggested that because of the ambiguity of leadership it was not worth the effort to pursue an explanation of the concept of leadership and that research on the topic should be abandoned altogether.

2.5.8 Culture era

The culture era emerged to argue that leadership is not necessarily about the leader's personality traits, but that it is embedded in the culture of the organisation. This notion was premised on the argument that leadership is about the leader's ability to create a suitable culture of the organisation such that all employees would be attracted to be part of it and adhere to it. Once employees love the culture created by the leader, then they will lead themselves (Van Seters & Field, 1990). This era held the view that when employees fit adequately into the culture, they then do not need to be led as they guide and lead themselves according to the culture. By following the culture, the subordinates develop themselves to be the next crop of that organisation's leaders. The leadership theory advocated that since employees do not need to be led, formal leadership would only be necessary during organisational transition stages, purely to instil the new desired culture. (Van Seters & Field, 1990).

2.5.9 Transformational era

The transformation era is the very latest leadership era, which arose to argue that leadership is more about intrinsic motivation of the leader, pro-activeness in thinking

and decision making, being innovative and creative and being receptive to new ideas (Bass, in Van Seters & Field, 1990). The proponents of transformational leadership believed that the leaders self-drive, enthusiasm, intrinsic motivation, and ability to embrace new ideas, are the cornerstone for creating an environment characterized by enthusiastic loyalty of subordinates, as opposed to reluctant obedience coerced by virtue of the position held by the leader. This era advanced an argument that transformational leadership is key during organisational change processes and for instilling employee loyalty by believing in the leader's vision.

Underlying the transformation leadership theory was the charisma and self-fulfilling prophecy periods. The charisma period asserted that leadership must be based on visionary direction of the organisation, enabling the followers to see into the vision and actually give them a sense of direction, purpose and meaning by following the charismatic leader. In essence, this charisma period advanced that leadership is not a one person show, but a result of the collective whole, who willingly follow the vision and mission. The leader creates charisma by virtue of being a visionary, providing a vision and mission that the followers can adopt (Adams, in Van Seters & Field, 1990). The charisma was believed to be a product of the leader's traits, behaviours, influence, innovative ideas and factors that were receptive to the subordinates. This era noted that a leader with charisma was ideal to create enthusiasm amongst the subordinates.

The self-fulfilling prophecy period based its value on the psychological concept that whatever one believes is a possibility gets relatively fulfilled through the high expectation created (Field, in Van Seters & Field, 1990). In essence, the concept argues that leadership is all about the leader building a high expectation culture that resonates with self-actualisation principles and challenges subordinates to maximise their full potential, enforcing a culture of high expectations from self. This enables subordinates to adopt self-actualisation goals, whilst receiving job fulfilment and recognition. The transformational theory is regarded as incorporating all the other leadership eras, hence its wider acceptance.

2.6 Complexity era and theory

Leadership is shaped by local conditions, individual background/experience and circumstances (Kezar, 2004). The evolution of leadership eras led to the realisation that organisations world over experience complexity posed by both macro and micro factors. Every organisation in its endeavour to produce or render services constantly face challenges of seeking the balance point of adapting to the changing operational terrain and remaining competitive and surviving in the face of macro factors that impose themselves. In response to these challenges, organisations develop strategic plans that focus on positioning the organisation at a competitive advantage over its competitors. (Kezar, 2004).

Agar (2007) noted that most leaders in organisations do not appreciate the ever changing operational terrain and surprising changes that cause un-anticipated problems. Leaders find themselves not ready to respond and adapt to the rapid changes, which are interconnected (Jackson, 2003). As a result of agitation by the ever changing and increasingly complicated operational terrain leaders have traditionally responded by seeking more control and reviewing procedures that have sustained the organisation in the past. Typically, such leaders seek to “get things under control, get better information, standardize procedures, create new departments, do more of whatever you were already doing, just do it better” (Agar, 2007). However, experience has proven that those leaders such solutions are inadequate in dealing with emerging complex problems.

According to Gleick (2000), this era of disillusionment of leaders about the causes of the emergent problems birthed complexity theory, which pointed out that the world and corporations operate in a complex environment. Complexity theory emerged as a field of study as a result of the realisation that striving for predictability, certainty, stability and equilibrium fails in the face of complex situations.

Complexity theory is notably not a single theory, but an ensemble of ideas, concepts, frameworks, propositions and metaphors. The ensemble of the concepts arose out of the study of the complexity that creates unpredictability, uncertainty and ambiguity in organisations and seeks to define or explain the nature of the complexity with probable

solutions for leaders on how to deal with every situation according to the conceptual directives of complexity theory (Houlsby, Kelly & Byrne, 2005). This research study used Complex Adaptive Systems concepts as a basis to interrogate the factors that influence Swaziland Railway leadership's ability to respond and adapt to change during turbulent times.

The significance of the complexity theory for leaders is that leaders need to understand and appreciate that they operate in a complex and turbulent environment which is an open system, subject to macro and micro factors that determine and influence their leadership capability. Unless leaders are able to respond and adapt to these changes they might find themselves failing to sustain the organisations they lead. According to Houlsby, Kelly & Byrne, (2005) the complexity theory concepts have greatly advanced the understanding of leadership in organisations as it supersedes the previous leadership eras in that they accept the reality that corporations operate in an uncertain environment, and that there is no one preferred leadership style which is a panacea for organisational challenges.

In the face of complexity and robust technological changes in organisations, conventional leaders respond by enforcing the development of strategic plans that aim to stabilise the organisation by focusing all employees' attention on the expectations or deliverables of the strategy. This response is typical in the situation where leaders do not fully understand or have time to properly analyse what is causing the robust changes. This frame of reference is evidence that leaders have for a long time viewed complexity as a corporate evil that should be rooted out (Agar, 2007). Evidently, the world corporations operate in a volatile, uncertain, complex and ambiguous environment and conventional wisdom about management practices have been put to the test. The rate of innovation is unprecedented and organisations that fail to adapt to the latest technology and hold on to tried and tested management practices go bankrupt.

As observed by Milter (2015), there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only

lukewarm defenders in all those who would profit by the new order, who do not truly believe in anything new until they have had actual experience of it.

Milner's assertion highlights that resistance to change is the greatest impediment for most organisations, and can lead to their death.

The late Mo Udall, a congressperson in the United States of America, observed that organisations look at the near future and see an optimistic picture. However, when we get to the horizon of our view, we discover that what we expected does not happen the way we predicted it and rather something that we did not anticipate happens. This is the law of unintended consequences (Agar, 2007). In summary, the advent of complexity theory introduced new leadership methodologies which are contemporary and relevant to the search for insight into effective leadership and what makes an effective leader.

2.7 Complex Adaptive Systems concepts and their contemporary implications for leadership

2.7.1 Definition of Complex Adaptive Systems

Waldrop (1993) stated that a Complex Adaptive System is a dynamic network of many agents which may represent cells, species, individuals, firms and nations constantly acting in parallel and reacting to what the other agents are doing.

According to Holland (1995), a Complex Adaptive System is a complex, self-similar collection of interacting adaptive agents, which have a large numbers of components, often called agents, which interact and adapt or learn. Simply put, a complex adaptive system is an open system wherein parts of the system interact for a common purpose under determined sets of rules that govern the operation or behaviour of the system. (Holland, 1995), The four foundational elements or concepts of the Complex Adaptive System theory are:

- Agents with schemata;

- Self-organising networks;
- Co-evolution; and
- Operating at the edge of chaos

All other concepts explaining complex adaptive systems build on these four key elements of complexity theory.

2.7.2 Significance of Complex Adaptive Systems in relation to leadership

The understanding of the Complex Adaptive Systems concepts is critically important for leaders to a contemporary leadership ethos and a paradigm shift from the notion of seeking control, stability, predictability and equilibrium frame of reference to acquiring knowledge and skills of leading in a complex and turbulent environment. The Complex Adaptive Systems concepts formed the basis for the research on what could be influencing Swaziland Railway leaders' ability to respond and adapt to change during turbulent times. The main concepts of Complex Adaptive Systems, which are going to be used in this research study are: agents with schemata, sensitive dependence, path dependence, co-evolution, edge of chaos, fitness landscape, far from equilibrium, emergence, self-organising, history, persistence, artefacts and egalitarianism.

2.7.2.1 Agents with Schemata

The concept of agents with schemata in a complex adaptive system means that agents, which could be individuals, groups or coalitions of groups in an organisation interact and their behaviour gets shaped by a set of rules at a specific point in time. In an organisational context, agents operate within certain defined cognitive rules, which may change or not change over time (Safarzynska & van den Bergh, 2008; Anderson, 1999).

This concept applies in leadership studies in that leaders need to understand that agents with schemata pose complexity through their interaction. Lack of understanding of the influence of agents with schemata in an organisation could lead to a leader

failing to lead people who have a set of un-written rules. A leader who seeks too much control could be extremely frustrated by observing that agents with schemata self-organise and execute work in accordance to their set of rules, which might be out of control of the leader who seeks control of people through written down procedures and regulations. This concept was explored in this study to determine how far Swaziland Railway leadership understand that agents with schemata could get the desired results in their own self organised way, and outside of the purview of the leaders. Most importantly, the research explored how far Swaziland Railway leadership responds and adapts to this emergent phenomenon and how this affects their ability to respond and adapt to change.

2.7.2.2 Sensitive dependence

This concept of sensitive dependence on the initial conditions means that small insignificant changes in the initial conditions can have a huge effect or impact in the overall behaviour (Shenker & Stanford, 2014).

This concept applies to leadership in that even if everything in the system is causally connected in a deterministic way, insignificant changes can alter and produce exponentially divergent behaviour, due to their sensitive dependence. This Complex Adaptive System concept means that some occurrences, resolutions or schematic un-written down rules advocated for in the future are influenced by sensitivity of the past in an organisation and are largely dependent on that sensitivity. This can be simply narrated as the ripple effect scenario that influences the future decisions that are sensitive to the initial conditions. This concepts' implication for leadership is that leadership ability in some organisations is highly influenced by its sensitive dependence on the initial conditions which are connected to history, culture and image legacies that have sustained the organisation and new leaders joining the organisation without knowing or realising the sensitive dependences might find themselves being systematically and subtly rejected by the system.

This research study seeks to determine how the concept of sensitive dependence on the initial conditions influences Swaziland Railway leadership to respond and adapt to

change during turbulent times. It unveiled those sensitive dependence matters that influence the leadership ability to adequately respond or adapt to change necessitated by dramatic changes in the operational environment. (Shenker & Stanford, 2014).

2.7.2.3 Path dependence

Churchman (1999) stated that a simple explanation of this concept is that what happened in the past gets replicated by agents within the same path. In the case of organisations, leaders have a tendency of seeking to replicate what worked in the past and sustained the organisation (Haynes, 2015) when they get challenged by new dramatic changes that pose themselves as wicked problems.

Organisations the world over experience wicked problems, which are a class of ill formulated problems, with confusing information, many agents and decision makers with conflicting values. Considering that for the past 50 years organisational research has largely focused on seeking to control uncertainty through factoring in long terms strategic plans, and forecasting, all geared towards establishing future certainty of the organisations, leaders when faced with dramatic changes tend to seek for past solutions in the same path. The concept of path dependence established how Swaziland Railway leadership had responded to dramatic changes through gravitating to past solutions that have sustained the organisation. The implication of this concept for leadership is that seeking a path dependence during turbulent times with complex problems might not be the solution to endeavours to keep the organisation going.

2.7.2.4 Co-evolution

This concept implies that agents co-evolve with one another, meaning that they transform together, they adapt to the environment to increase their payoff or fitness function overtime, depending on the choices that other agents make and the agents' landscape mapping is constantly shifting (Kauffman, 1991). Co-evolution occurs when system members are forced to adapt continually to the changing context wrought by others' strategies in order to remain relatively fit (Van Valen, 1973; Kim & Kaplan, 2006).

In a business context, the concept of co-evolution is displayed through many organisations which seek to expand operations into foreign markets, not through acquisitions and mergers but through mutual agreements in order to leverage the knowledge and resources of each party (Luoma, 2006). Kauffman (1991) noted that such co-evolution is dynamic, not static. The concept of co-evolution was defined by Kauffman as being a system which changes based on the interactions and adaptation of the elements as they co-evolve together. Kauffman defined co-evolution in the context of a fitness landscape.

The research established how Swaziland Railway had co-evolved with other elements and how the co-evolution concept has influenced the company's leadership ability to respond and adapt to change when faced by turbulent times.

2.7.2.5 Edge of chaos

Complexity in the study of systems denotes that systems subjected to complexity can exist or vacillate between any of three states – stable, chaotic, and one in between (Lewin, 1992). The middle state of any system has been labelled by many complexity researchers as the “edge of chaos” (Lewin, 1992; Kauffman, 1991) where creativity, growth, and useful self-organisation are at their optimal (Frederick, 1998).

One key implication of chaotic systems like an organisation is that long term planning, forecasting and long term strategies and target setting is almost meaningless if it does not cater or leave room to accommodate for dramatic changes. Follman, Petzinger and Kinne (1990) stated that the essence of the concept of an organisation being poised at “the edge of chaos” is that realistically, based on research and observations, living systems operate at their best and most efficient level in the narrow space between stability and disorder, which is basically when poised at the edge of chaos.

The research explored how Swaziland Railway leadership responds and adapts to dramatic changes to the reality that uncertainty is actually not controllable in organisations. It explored Swaziland Railway's understanding of the notion of operating at its best when it is poised at the edge of chaos, since seeking stability,

order and controlling uncertainty remains elusive and is a fallacy in the studies of leadership.

2.7.2.6 Fitness landscape

The highest point in the landscape symbolizes the optimal state of the system where the well-being of the system reaches its greatest level (Kauffman, 1991; Ethiraj & Levinthal, 2004) and the highest point is commonly referred to as a “fitness landscape.” An organisation may reach a peak on the fitness landscape that represents a “Golden Age” of high prominence and profitability that eventually fade away, forcing the organisation to traverse down the peak into a “valley of darkness” before emerging on to another, potentially higher peak on the fitness landscape. A system changes over time, such that the higher it is on the landscape, the more fit it becomes. Complex systems move in a fitness landscape and constantly move and change. Once having reached a temporary peak in the fitness landscape, it must then go down to go up (Kauffman, 1991). This means that in leadership, there are times of exponential growth and leadership effectiveness but this is a temporary peak. Due to dramatic changes which are inherent in organisations, organisations at times face the downward sloping landscape, which takes them to the valley and during such times of being low in the fitness landscape, leaders need to understand that the system must inherently go down in order to re-organise its going up. In simple terms, uncertainty in organisations is inherent and most of the time takes the organisation through valleys.

The research explored how Swaziland Railway leadership has responded and adapted to changes that have taken it to the low peak of the fitness landscape and how it has positioned itself to rise up to the highest peak in the fitness landscape. Furthermore, the research established the factors that have influenced the company’s ability to respond to the changes, most specifically negative changes that take the company to the lowest peak in the fitness landscape.

2.7.2.7 Far from equilibrium

The system can go from stable to total disequilibrium very quickly. A commonly cited example is the threatened dog that either suddenly moves to attack or panics and flees (Simon, 1996). The concept of far from equilibrium means that seeking an internal state of equilibrium in a system makes it vulnerable to external forces as it models itself around the conditions of the internal elements seeking equilibrium. When the external forces impose themselves on the system, the system fails drastically as it has no defense mechanism, since it has not been taking negative feedback regarding it as an undesirable element, whilst the system has been in pursuit of seeking internal equilibrium. Pascale (1999) stated: "Stable equilibrium equals death". Pascale asserted that for any system to survive, it must cultivate variety in its internal controls; if it fails to do so, it will fail to cope with variety successfully when it comes from external sources.

In simple terms, this concept implies that leadership research of the past has focused on what brings internal equilibrium, stability and control but when an organisation gets challenged by external sources and factors, it usually fails to adapt to the changes as it has no defense mechanism or adaptation strategies. Typically, organisations that are based on high technological innovation but fail to constantly scan external forces in the environment that might destabilise them fail in the advent of external attack. An example of such a company is Kodak, which failed to innovate fast enough to counter-attack the introduction of digital cameras in cellular phones.

This concept was used to analyse Swaziland Railway's leadership ability to respond and adapt to change during turbulent times and the company's appreciation of the notion that every organisation operates far from equilibrium. This factor determined whether Swaziland Railway understood that it operates far from equilibrium.

2.7.2.8 Emergence

The concept of emergence in leadership simply means that tangible and intangible phenomena emerge in the operation of organisations and those emergent

properties transform the life of an organisation e.g. the arrival of computers (Maxfield, 1998).

According to Maxfield (1998), this concept means that no leader can easily predict what is going to happen next. In an organisation, the way people are interacting appears to be random and new phenomena appear from the interactions. Patterns tend to emerge from the interactions and those patterns tend to inform the behavior of the system. The implications of this concept for leadership is that leaders need to appreciate that seeking predictability, stability and control is a fallacy as anything can emerge to either stabilise or de-stabilise the system. In this regard, lack of knowledge about emergent properties can compromise leaders' ability to respond and adapt to change during turbulent times and the organisation could fail due to rigidity and the refusal to adopt realistic stances to deal with the dramatic changes affecting the organisation. This concept was used to explore how Swaziland Railway leaders respond and adapt to dramatic changes that emerge or whether the influx of changes cause the leaders to seek more control and stability, which amounts to resisting the change.

2.7.2.9 Self-organisation

Self-organisation refers to the emergence of a pattern of order from a simple set of rules governing agent behavior in a connected network without the intervention of a central controller (Anderson, 1999; Luoma, 2006; Mason, Norton, Van Horn, Wegner, Grafton & Macrae, 2007) that allows limited chaos (Frederick, 1998). The concept of self-organisation states that the emergence of new entities, elements or behavior in a system is a result of the interaction of the agents. Since agents are connected to one another, the particular behavior of one agent depends on the behavior of some subsets of all the agents in the system. Such connection is enabled by feedback loops, thus such systems self-organise as no single component dictates the collective behavior of the system. For self-organisation to take place, some competition is a requirement, so that things happen during interaction, not in isolation (Maxfield, 1998).

In simple terms, the concept of self-organisation means that a system self-organises itself to flow or recodify any wicked problem. Organisation science for 50 years has focused on controlling uncertainty and the last 20 years has been self-organising to re-modify wicked problems (Maxfield, 1998). This concept further means that no single person is absolutely in command or control of any situation. People in an organisation self-organise themselves through formal and informal groups to deal with challenges and thus, there is no leader with real planning and management of the situation, even though they might think they are. In short, agents are always continuously organising themselves without a 'leader' and thus, order gets created out of chaos. This concept was used in the research to explore how Swaziland Railway leaders have responded to self-organisation within the company in the advent of dramatic changes during turbulent times. The essence of the research using this concept was to establish whether the leadership had allowed self-organisation or whether it had been frowned upon it as a threat to stability and equilibrium.

2.7.2.10 History

The concept of history in leadership studies implies that history and time are irreversible, which means that no one can go back in time and change things. Unique histories mean that every decision the organisation makes is context specific, which means that the history of the organisation influences the decisions made in the future, within the context of the relevance and suitability of that decision to the organisation's specific and unique conditions. (Maxfield, 1998).

Leaders should therefore be wary of seeking 'best practice' and 'one size fits all' treatments when making decisions for their specific organisations. History can arguably stand in the way of innovation and impede leaders' ability to respond and adapt to change in such a way so as to propel the company forward, if the decisions made in the context of history are no longer aligned to the dictates of the prevailing terrain that the organisation has to adapt to. The history of an organisation co-determines its nature; the history of an organisation is contained in all the individual little interactions that take place all the time, distributed throughout the system. The concept of history was used in the research to explore how it had affected or influenced

Swaziland Railway leadership ability to embrace change during turbulent times, or whether the leadership was so passionate about the history that all decisions made were contextualised based on the history and so opportunities to enhance the company's competitiveness were lost. (Maxfield, 1998).

2.7.2.11 Persistence

The concept of persistence in leadership implies that a certain phenomenon tends to persist through history and position itself as the culture of the organisation. Culture in an organisation tends to persist through co-evolution. At times, some philosophical framework in an organisation persists throughout the history of the organisation. Culture tends to be built in an organisation through its persistence and the challenge to leadership comes in the event that the culture now is no longer suitable to emergent properties that seek to enhance the company competitiveness. Persistence of an unsuitable culture when there is a need for new paradigms that have to be adopted in order to respond and adapt to dramatic change becomes a problem in an organisation.

This concept was used in the research to establish what factors had persisted at Swaziland Railway and how they had influenced the leadership in its response and adaptation to change during turbulent times.

2.7.2.12 Artefacts

The concept of artefacts in leadership refers to any tangible or intangible creation or construction that transforms human lives to the point that life gets revolutionized and influenced by that artefact. A good example is the invention of electronic communication mediums like electronic mail system, video conferencing and scanned documents. Organisations in the world have been revolutionized by these electronic systems. Leadership that believes in seeking equilibrium, stability and control tends to resist the advent of such electronic systems as part of business enablers, if their leadership philosophy is that based on persistence of history, and high resistance to change even during turbulent times. Maxfield (1998) observed that our artefacts co-evolve with human agents and actually shape our organisations. This concept was

used as a factor to establish how the advent of artefacts had been received by Swaziland Railway leadership as necessary business enablers.

2.7.2.13 Egalitarianism

“Today, if you’re going to have a successful company, you have to recognize that the top can’t possibly have all the answers. The leaders provide the vision and are the context setters. But the actual solutions about how best to meet the challenges of the moment, those thousands of strategic challenges encountered every day, have to be made by the people closest to the action.” (Pascale, 1999). This concept implies that there is not one single agent who fully understands the entire system and how it operates, such that that agent can make meaningful decisions for all and each and every level of the organisation (Pascale, 1999). All agents are equal in that they don’t fully understand the system, which means that there are some areas which operate and function to the total oblivion of legitimate leaders.

Leadership research for the past 50 years has focused on promoting individuals to leadership positions based on their extensive knowledge of the organisation. The belief has been that the one who fully understands the organisation and has many years of service deserves to be the leader of the organisation because they know everything about the company. Whilst that might have its advantages, the notion of egalitarianism argues that it is not possible for a leader to fully understand every level of the organisation. This belief has crippled many organisations in that leaders were expected to fully know every operational level of the organisation and expected to make decisions for those levels. Failure of the organisation is then attributed to the top leader, mainly based on their failure to know what went wrong on a certain level, which leads to the total failure of the organisation. The concept of egalitarianism argues that it is not possible for the leader to have full knowledge of the entire organisation because self-organisation, emergent elements and far from equilibrium events dictate that seeking of stability, equilibrium and control by the top leader is a fallacy; it is not possible for the leader to know every part of the organisation and all the possibilities of what might happen to it. (Pascale, 1999).

This concept of egalitarianism was used to establish how it had shaped and influenced Swaziland Railway leadership in their response and adaptation to change during turbulent times, in particular regarding how the company leaders had imposed decisions on all levels of the organisation in the belief that they know everything about the company.

A summary of the meaning and implication of each Complex Adaptive System concept in a tabular format is depicted in Table 2.1.

Table 2.1: The meaning and implication of each Complex Adaptive System concept

Complex Adaptive Systems Concept	Meaning	Implication to leadership
Agents with Schemata	The concept of agents with schemata in a complex adaptive system means that agents, which could be individuals, groups or coalitions of groups in an organisation interact and their behaviour gets shaped by the set of rules at a specific point in time.	Leaders need to know that individuals, groups or coalitions interact, cause complexity, influence and shape the rules in an organisation. Agents scheme according to their self-organisation.
Sensitive dependence	Minor changes in the starting conditions, can have massive effects later on, small actions can lead to complex outcomes.	Leaders need to understand that some occurrences, resolutions or schematic un-written down rules advocated for in the future are sensitive to the initial conditions and are largely dependent on that sensitivity.
Path dependence.	The past brings us where we are today or to the present which largely influences or determines the direction to the future.	Leaders need to understand that what happened in the past gets replicated by agents within the same path. In the case of organisations, leaders have a tendency of seeking to replicate what worked in the past and sustained the organisation, when they get challenged by new dramatic changes, they fail to respond adequately. For example, an individual will prefer to be a teacher because the father was a teacher, that is the path he knows and his father influenced him to take.
Co-evolution.	The systems or agents co-exist in a way that they affect one another either positively or negatively in the process they have to adapt to the environment with the intention to benefit overtime. Given the choices the agents make share same time, they contribute to continuous shift	Leaders need to understand that agents co-evolve with one another, meaning that they transform together, they adapt to the environment to increase their payoff or fitness function overtime, depending on the choices that other agents make and the agents' landscape mapping is constantly shifting. Such co-evolution is dynamic, not static. Leaders need to know that co-evolution is a dynamic process.

	of their landscape. The choice of one agent has virulence in another.	
Edge of chaos.	At the edge of chaos, the system demonstrates endless diversity and inventiveness. All systems evolve to the edge of chaos, allowing local behaviour to generate global characteristics that alter the way agents interact. They also evolve when new agents are introduced into the system.	The essence of the concept of organisations being poised at, “the edge of chaos” is that realistically, based on research and observations, living systems operate at their maximum best and highly efficient level in the narrow space between stability and disorder, which is basically when poised at the edge of chaos.
Fitness landscape	The more the system traverses its fitness landscape, it develops to higher levels of fitness, depending on the environment (which also changes over time). There is no guarantee that as the system evolves, the resultant order will be organised and not chaotic.	This means that in leadership, there will be times of exponential growth and leadership effectiveness, which becomes a temporary peak. But due to dramatic changes which are inherent in organisations, organisations at times face downward slumping landscape, which takes them to the valley. Leaders need to understand that they have to be ready to take the organisation up when it is going down, not to fight the change.
Far from equilibrium,	The complex adaptive system is characterized by its ability to adapt itself to the changes in the environment around it and adjust to how the events impact on its existence. It therefore functions in a very far-from equilibrium state.	The concept of far from equilibrium means that seeking an internal state of equilibrium in a system makes it vulnerable to external forces as it models itself around the conditions of the internal elements seeking equilibrium. When the external forces impose themselves to the system, the system fails drastically as it has no defense mechanism, since it has not been taking negative feedback in the pursuit of seeking internal equilibrium. Leaders need to understand that seeking equilibrium of their organisations is a fallacy as complexity can throw wicked problems that can destroy the organisation due to un-preparedness.
Emergence,		The concept of emergence in leadership simple means that tangible and intangible phenomena emerge in the operation of organisations and those emergent properties transform the life of an organisation e.g. computers.
Self-organising.	Agents intermingle in a bottom-up approach, influenced by both positive and negative feedback, according to their own principles or rules given that they do not work from one set of rules, resulting in new choices or direction in a self-organising way. System self organises to new levels of order without any external intervention from someone.	Since agents are connected to one another and interact, the particular behavior of one agent depends on the behavior of some subsets of all the agents in the system. Such connection is enabled by feedback loops, thus such systems self-organise as no single component dictates the collective behavior of the system. For self-organisation to take place, some competition is a requirement, so that things happen during interaction, not in isolation. Leaders need to understand that.
History	This refers to the past, recorded in the form of tacit or explicit knowledge and/or information that could be tapped into through the engagement with individuals or documents. The past has a relationship with the present which contributes to the determination of the future. Between the past and the future is the path dependence	Unique histories mean that every decision the organisation makes is context specific, which is the history of the organisation influences the decisions made in the future, within the context of the relevance and suitability of that decision to the organisation specific and unique conditions. Leaders need to understand that history affects and informs the leadership philosophy of a company.

	shaped by the past in terms of where we are. These links are provided by complex adaptive system.	
Persistence,	In as much as the complex adaptive system is able to adjust itself to the ever-changing nature of the environment around itself, there would be those challenges that would be persistent even though they themselves display characteristics of constant change.	The concept of persistence in leadership implies that a certain phenomenon tends to persist through history and poises itself as the culture of the organisation. Culture in an organisation tends to persist through co-evolution.
Artefacts	Tangible or intangible construct that impacts on the lives of people and the environment.	The concept of artefacts in leadership implies that any tangible or intangible creation or construction that transforms human lives to the point that life gets revolutionized to total dependence to the artefact. The implication to leadership is that leaders have to understand and embrace artefacts as business enablers and effective leadership enablers.
Egalitarianism	This is in the society where all people are equal and there is a degree of fairness and classlessness among members. It is, among others, characterized by consensus among and between agents, however, because of complexity, there is lack of understanding of the system leading to obscurity of certain operations and functions in other areas.	This concept implies that there is not one single agent who fully understands the entire system and how it operates, such that that agent can make meaningful decisions for all and each and every level of the organisation. The implication to leadership is that leaders have to allow each and every level of the organisation to make functional decisions, as the converse of egalitarianism creates bureaucracy which negates effective leadership

The table above narrates the meaning of each Complex Adaptive Systems concept and mainly its implication and meaning to leaders in understanding leadership. It also narrates how each concept challenges past leadership theories that were thought to be absolute panaceas of what leadership is all about.

2.8 Summary of eras of leadership evolution

The evolution of the leadership eras forms a basis for investigating factors that influence Swaziland Railway leadership ability to respond and adapt to change during turbulent times, in contrast to the Complex Adaptive systems concepts. The research examined how the knowledge of the leadership eras and its evolution had affected the leadership philosophy of Swaziland Railway managers to the point of influencing its ability to respond to change. The research sought to answer the question of what factors influence Swaziland Railway leadership's ability to respond to change and the

leadership evolution eras and their influence on the current leadership ethos. The research examined how the knowledge or lack of knowledge of the Complex Adaptive Systems concepts influenced the leadership ability of Swaziland Railway managers to respond to change.

2.9 Conclusion

The literature review makes a strong suggestion that there is no one absolute definition of leadership. At the beginning of the 20th century, leadership research focused on seeking equilibrium, stability and control. The 21st century ushered in a new paradigm motivated by research findings that there is no one suitable and effective leadership style, but that organisations operate in a complex environment. This birthed the complexity theory and related Complex Adaptive System concepts. The literature review shows that leadership research has gone through various eras and that past attempts to define leadership revealed that an effective leader becomes one who leads well in that specific situation or environment. Complexity theory and Complex Adaptive Systems concepts resonate well with what it means to be an effective leader in the 21st century who leads in a corporate environment characterized by complex and dramatic un-anticipated changes.

This research study used the Complex Adaptive Systems concepts approach to analyse and form a basis for assessing and determining how leadership ability is influenced to respond and adapt to change during turbulent times, in the context of Swaziland Railway.

Chapter 3 detailed the research design and methodology to examine the factors that influenced Swaziland Railway managers' ability to respond to change during turbulent times.

CHAPTER 3 : RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

According to Goddard and Melville (2004), research is about formulating answers to unanswered questions or creating that which does not currently exist. Research evolves through curiosity or inquisitiveness, which is the mother of all knowledge (Kumar, 2008). As a researcher begins to search for information on any topic, research becomes a “voyage of discovery” (Kothari, Buddhi & Sawhney, 2008), but research is not just a process of gathering information (Goddard & Melville, 2004). Research is a systematic and methodological process of enquiry (Collis *et al.*, 2003; Ghauri & Gronhaug, 2002) and investigation to increase knowledge (Collis *et al.*, 2003). Methodology is a group of coherent methods that are appropriate for producing data and findings that help respond to research questions and meet the objectives of the research (Henning, van Rensburg & Smit, 2013). The fundamental purpose for research methodology is to clarify how the researcher proposes the means by which achievement of the objectives could be realised (Malhotra, 2012). In simple terms, research methodology is a roadmap for conducting the research project (Malhotra, 2012).

The research methodology of this study involved a research design, which entailed both qualitative and quantitative approaches. The focus of qualitative research is based on words and observations (Witteman & Zikmund-Fisher, 2012) and involves a complex process of analysis and interpretation of data for meaning, understanding and knowledge development (Corbin & Strauss, 2008). It is noted that qualitative analysis and interpretation is subjective by its nature according to the researcher’s frame of reference. Considering that the research used both qualitative and quantitative questions, there was a mixed methodological approach to the study. The main instruments for the quantitative data collection was the questionnaire and the instrument for qualitative data collection was the interview.

The objectives of the study were as follows;

1. To explore leadership's ability to respond to change.
2. To determine how leadership adapts to change during turbulent times.
3. To ascertain the role of the strategic plan and its influence on leadership.
4. To determine the current leadership ethos of Swaziland Railway.
5. To recommend leadership styles that could be applied during turbulent times.

3.2 The research design

According to Tustin, Ligthelm, Martins and Van Wyk (2005), the research design is the plan to be followed to realise the research objectives or hypotheses. In addition, it represents the master plan that specifies the methods and procedures for collecting and analysing the required information. According to Rugg and Petre (2007), research design is something you use to answer a research question rather than something that exists in isolation. A research design can be defined as the overall plan that relates the conceptual research problem to relevant and practical research (Ghuri & Gronhaug, 2002). The research design serves as a framework to be followed when conducting research, in order to increase the credibility of results and findings.

Tustin *et al.* (2005) list three types of research design. These are:

- *Exploratory research (qualitative research/observation/online qualitative surveys)*: In this kind of research in-depth interviews, focus groups, online chat rooms and e-focus groups are used.
- *Descriptive research (quantitative research/online quantitative surveys)*: In this kind of research personal interviews, mall intercepts, telephone interviews, mail surveys, facsimile surveys, panels, web-based surveys, e-mail surveys and online panels are used.
- *Causal research*: This kind of research involves experimentation.

This research was mainly exploratory and descriptive as it focused on a questionnaire and interview. According to Tustin *et al.* (2005), descriptive research is conducted to answer who, what, when, where and how questions. The questionnaire sought to

derive answers to mainly the Swaziland Railway leadership ethos to each of the Complex Adaptive systems questions and a perceptual determination of how the managers respond to change. Questionnaires tend to be widely used as they are simple and can also be administered in face-to-face interviews or in some instances over the telephone (Polit-O'Hara & Beck, 2006). According to Dhawan (2010), this method of data collection is very popular.

3.2.1 Mixed methods

According to Creswell, Plano Clark, Gutmann and Hanson (2003), mixed methods as a research approach combines both the qualitative and quantitative approaches. In simple terms, the data may be numeric or information such that the data base presents both quantitative and qualitative information (Creswell *et al.*, 2003). The researcher opted to use the mixed methods approach to strengthen the validity and reliability of the research and to minimize the subjectivity in the analysis and interpretation stage.

3.2.2 The qualitative research approach

According to Leedy and Omrod (2010), the qualitative approach enables the researcher to gain deeper insights into the nature of a complex matter or phenomenon, and reveals the nature of certain situations and ultimately enables the researcher to test the validity of the relevant literature. In the qualitative approach, the researcher seeks to understand complex phenomena or issues and values the opinion of people (Leedy & Omrod, 2010). For this study, 13 Swaziland Railway managers were sampled for the qualitative aspect of the study. The qualitative method in the form of administering the interview was suitable as it sought an in-depth objective understanding of meanings and interpretations assigned to worldviews and assigned to socially lived realities (Irvine & Gaffikin, 2006).

3.2.3 The quantitative research approach

The study was framed to produce ordinal data that would be informed by the questionnaire (Kumar, 1999), The source of information that was used to collect this

quantitative data was the questionnaire and the recently conducted Employee Engagement Survey (see Appendix A), which had questions about leadership style and ability to respond to change, and the rate of speed by which Swaziland Railway managers respond to the change. The survey had been designed by the Swaziland Railway Human Resources Department using a stratified random sampling procedure, which sought to ensure that the Swaziland Railway population subgroups, namely the gender, category of employees' level in seniority, departments and sections were proportionally represented.

3.3 Population sample

According to Wild, Grove, Martin, Eremenco, McElroy, Verjee-Lorenz and Erikson (2005), a population is the total possible membership of the group being studied. Malhotra (2012) stated that a target population is a group of objects that have the information that the researcher is looking for. A population is any group that has common characteristics (Witteman & Zikmund-Fisher, 2012). The population of this study was all Swaziland Railway managers who had been employed for three years and over and held managerial position and actually manage subordinates. For this research, 13 managers were sampled to inform the research, spread proportionately to include 5 senior managers, 5 middle managers and 3 junior managers.

The population of Swaziland Railway managers stood at 36 managers, distributed as 13 senior managers, 11 middle managers and 12 junior managers.

3.4 Sampling methodology

3.4.1 Sampling techniques

Sampling techniques are divided into two main categories (Du Plooy *et al.*, 2014; Malhotra, 2012; Ghauri & Gronhaug, 2002), namely probability or representative sampling and non-probability or judgemental sampling. Witteman and Zikmund-Fisher (2012) stated that a researcher uses purposive sampling to select samples based on his or her personal judgement about appropriate characteristics to achieve a certain purpose. Purposive sampling involves the researcher consciously selecting certain

participants from whom he or she can learn relevant information with regard to the key questions or research topic (Wild *et al.*, 2005). For this research, the researcher selected the managers based on the knowledge that the participants were experienced in their jobs involving leading people, have been with the company for at least three years or more, from various departments of the company and different geographical workstations who held both tacit and explicit knowledge relevant to the research questions. Sampling of the managers interviewed was based on selecting from all levels of the hierarchy, namely from junior, middle and senior managers.

The sampling followed the purposive sampling procedure, which sought to ensure that a well proportional representation of the Swaziland Railway management population subgroups, namely the gender, category of employees' level of seniority, departments and sections were representative of the information that was collected. For this research, 13 managers were sampled to inform the research, spread proportionately to include three junior managers, five middle managers and five senior managers. The purposive sampling was also informed by the manager's years of experience, their knowledge of the railway systems and procedures and expertise in their various railway field of study.

3.5 Data collection method

3.5.1 Questionnaire – quantitative research instrument

The questionnaire (Appendix A) was used to collect quantitative data. The questionnaire was designed to collect data of demographics, gender, years of service and to seek responses for the Complex Adaptive Systems questions, which were later analysed to answer the key research question of determine the factors that affect managers' ability to respond and adapt to change during turbulent times. The questionnaire consisted of both open-ended questions and closed-ended questions. The questionnaire had 13 key questions based on the Complex Adaptive Systems concepts, namely Egalitarianism, History, Persistence, Path Dependence, Sensitive Dependence, Artefacts, Agents with Schemata, Co-evolution, Edge of Chaos, Fitness Landscape, Far from Equilibrium, Emergence, Self-Organising and two general management concepts, namely Change Management and Strategic Objectives.

The thrust of the questionnaire was to determine how Swaziland Railway managers respond and adapt to change in relation to the scholarly meaning and implication of each leadership concept and how it affect managers' ability to respond and adapt to change during turbulent times. The questionnaire was first piloted by the researcher to selected Swaziland Railway supervisors, before it was conducted to the sampled target of junior, middle and senior managers. The respondents were asked to rate variables based on a Likert scale ranging from "Strongly agree" to "Strongly disagree".

3.5.2 Interview – qualitative research instrument

Interviews were conducted to collate qualitative data and mainly one on one open ended questions. This method enabled the managers to unpack and comment on their submissions and responses to the Complex Adaptive Systems based questions. Ehigie and Ehigie (2005) asserted that interviews are one of the best methods of gathering information or salient points that cannot be physically seen or observed directly. This assertion was supported by Bowen (2005) that some structure in interviews enables the researcher the flexibility of data organisation and qualitative analysis and as such, the one on one interview method was used for this purpose..

3.5.3 Journals – research instrument

Under the existing data or documents method of data collection, the researcher used company reports like the Human Resources Department monthly reports to gather relevant information. The company history book compiled for the 50th Celebration ceremony (Swaziland Railway History Book, 2014) was used to gather relevant information about the history of the company.

3.6 Data analysis

Ghuri and Gronhaug (2002) define data analysis as the process of bringing order, structure and meaning to collected data. In simple terms, data analysis is the process of organising the data to be meaningful information. According to Witteman and

Zikmund-Fisher (2012), data analysis is the process of applying reasoning and giving meaning to collected data in order to understand the data (both primary and secondary) that have been gathered or collated.

3.7 Qualitative Data analysis

According to De Vos (2011), qualitative data analysis is the process of bringing order, structure and meaning to the mass of data collected. The collected data was organised for ease of interpretation and substantiation of the data.

The primary data was prepared and processed through editing, coding, capturing, verification and cleansing, labelling and storage. Collis *et al.* (2003) emphasise the need to summarise, categorise and restructure as a narrative the non-standardised and complex data collected during qualitative research, in order to support meaningful analysis.

The collected data in this study was analysed to give interpretative meaning to how Swaziland Railway managers respond and adapt to change, based on their responses to the Complex Adaptive systems questions in the questionnaire. The analysis involved determining consistencies in the responses and deriving the common meaning or trends. The commonality in the responses formed the basis of making meaningful interpretation of the data as to how the Swaziland Railway managers respond and adapt to change.

The researcher notes that participants also communicate using non-verbal cues, they communicate consciously and subconsciously, as well as verbally and non-verbally, in trying to put a message across, which warrants that intuitive skills need to be applied in the interpretation of qualitative data (Ritchie, 2013; Wilson, 2006). As such, the researcher used the inductive method to analyse the transcribed semi-structured interview data in this study.

The data analysis process also followed the format of organising the responses from the questionnaire data in accordance with deriving interpretative meanings that were

compared on a constant basis in relation to their association with Complex Adaptive System concepts (Witteaman & Zikmund-Fisher, 2012). This enabled a comparative analysis for the identification of differences and similarities in responses between respondents. Analysing the qualitative data presented an opportunity to review collated data, in order to organise and interpret the content in a form that directly addressed the research objectives.

3.8 Quantitative Data analysis

The questionnaire responses were presented in graphs and collated into percentage format to enable ease of analysis and interpretation thereof. The responses were presented in graphical format as derived from the responses to the questionnaire.

3.9 Validity and reliability

Babbie, Halley and Zaino (2007) define reliability as the quality of the measurement method which suggests that the same results will be reached each time in repeated data collections. Joppe (2000) defines reliability as the extent to which the results are consistent over time; an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced with a similar methodology, the research instrument is considered reliable. Validity and reliability was used for quantitative analysis of the responses and presentation of findings for this study. To enhance the validity and reliability of the information during the data collection stage, the researcher used the note taking method, which was cross-checked by the interview responses.

3.10 Validity of the data

The split-half reliability method was used to enhance the internal validity by rephrasing the same question and comparing the answers to analyse the response differentiation (Kumar, 1999). Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Bashir, Afzal & Azeem, 2008). Joppe (2000) states that researchers determine validity by asking a series of questions and look for the answers in the research of others as a method of

benchmarking. Moreover, Bashir, Afzal and Azeem (2008) state that researchers rely upon experience and literature to determine validity of the collected information. For the purpose of this study, the researcher first piloted the questionnaire to supervisors to test its validity based on their responses. The questionnaire was sent to selected supervisors who have extensive experience of leading people. The supervisors were asked to respond to each question to determine if it measured what it was intended to measure and provide the relevant information.

3.11 Bias

The researcher notes that the main bias of the study was primarily the fact that about 95% of the Swaziland Railway managers interviewed were promoted from within the ranks and fall within the age group of more than fifteen years of service and have very limited exposure to other contemporary leadership paradigms, except for the tacit leadership style and knowledge acquired at Swaziland Railway. The bias was mainly the probable defense of the current leadership style against a need to respond and adapt it to effectively respond and poise it to address the turbulent times of shrinking revenue. The bias arose based on the fact that Swaziland Railway has been in existence for the past 50 years and has been declaring profits all these years until the last quarter of the 2014/15 financial year. The managers pride themselves in their effective leadership, having steered the ship successfully for the past 50 years. In a sense, the sampled managers were biased to defend their leadership style which has supposedly carried through the company for the past 50 years, as opposed to objectively noting the thrust of the questions which denote that leadership style has to be adapted to adequately respond and adapt to change during turbulent times. This bias is supported by Agar's (2007) assertion that, "a lot of people in organizations complain about the increasing number and frequency of surprising changes, and under such circumstances, leaders respond with the old fashioned recommendation of responding to change of: *'get things under control, get better information, standardize procedures, create new departments, do more of whatever you were already doing, just do it better'*".

3.12 Ethical considerations

Cone and Foster (2006) stated that researchers must conduct any research as ethically sensitive as they possibly can. According to Anastas and MacDonald (1994), ethical research is about a special set of principles and rules, written and unwritten, that place particular parameters on the relationship between the researcher and the people who participate in or who may be affected by the research. Summarily, ethics in research is about the researcher conducting the research in a culturally compliant manner, sensitivity to the feelings of the participants who would be affected by the research and following the rules guiding research principles.

Cone and Foster (2006) provide the following ethical principles and standards:

- Evaluate the ethical acceptability of the research.
- Asses the degree of risk involved for the participants.
- Ensure the ethical conduct of the research by you and others involved in it.
- Obtain a clear, fair, informed and voluntary agreement by participants to participate.
- Avoid deception and concealment unless absolutely necessary and justifiable.
- Respect the participant's right to decline or withdraw from participation at any time.
- Protect the participant from any physical harm, danger or discomfort possibly associated with the research procedures.
- Protect the participant from any emotional harm, danger or discomfort possibly associated with the research procedures.
- Debrief the participant after the data collection has been completed.
- Correct any undesirable consequences to individual participants that result from them participating in the study.
- Maintain strict confidentiality of any information collected about a participant during the research in accordance with agreements reached with the participant while obtaining informed consent.

For this study, the researcher made formal requests to the managers to participate in answering the questionnaire, (Appendix A) and respond to the interview questions

(Appendix B) and making pertinent comments without prejudice. The researcher notes that the above research principles and standards were observed throughout the research process.

3.13 Conclusion

In conclusion, Tustin *et al.* (2005) stated that the research methodology of any study should be easy to follow to the extent that any reader can understand how the research has been conducted. Chapter 3 outlined and detailed the methodology that was used by the researcher in conducting the study on factors influencing leadership ability to respond and adapt to change during turbulent times.

The chapter outlined and detailed the research objectives, the research design, the type of data collected and how it was analysed, the sampling method, the data analysis of this research and what ethical considerations have been applied during this research.

Chapter 4 of this study details the presentation of the findings from the questionnaire (Appendix A) and the interview (appendix B) and comments.

CHAPTER 4 : PRESENTATION OF THE FINDINGS

4.1 Introduction

The purpose of this chapter is to present the unedited findings from the questionnaire and the interview. The comments from the managers are also presented in this chapter. The findings are presented in an orderly format of the overall demographics, gender of the respondents, the respondents' answers by geographical location within the company, by departments, the length the service, age and exposure to leadership training in the last five years.

4.2 Qualitative Findings

The researcher conducted the interview by first explaining to the managers that organisations operate in a complex environment and that in order for any organisation to survive, it must respond and adapt to change even when there is turbulence or difficult times. In the particular case of Swaziland Railway, the example of turbulent times as occasioned by the shrinking revenue and management response to that is complex, and can either enhance the organisation's resilience enabling it to grow from this experience or it will die.

The respondents were made to understand that from such complexity, the Complex Adaptive System concepts were going to be used in the interview and they were requested to answer in an explanatory manner, such that subjectivity could be minimized in the interpretation of the responses. It was explained to the respondents that management ability to respond and adapt to change was greatly influenced by the organisation's understanding of the Complex Adaptive Systems concepts and most particularly how they either positively or negatively affect the response and adaptation to change.

The results of the interviews for each question related to a Complex Adaptive system concept are depicted hereunder along with comments added by respondents.

4.3 Analysis and comments of the interview responses

4.3.1 Egalitarianism:

Question: Can you explain your view on the notion that it is only EXCO and senior managers who fully understand the business?

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers do not believe that it is only EXCO and senior managers who fully understand the business.

Comments: The managers commented that “Swaziland Railway has survived by God’s grace and change needs to be accepted by allowing all levels of management to make decisions.”

4.3.2 History:

Question: 2. What is your view to the belief that the history of SR is the best frame of reference to influence SR leadership ability to respond and adapt to change during these turbulent times?

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers do not believe that the history of the company is the best frame of reference to influence SR leadership ability to respond and adapt to change during turbulent times.

Comments: The managers commented that “Swaziland Railway can adapt its leadership style to better respond to change during turbulent times by eliminating the history legacy of the company by embracing and learning from history.” Other comments were that, “There are important learnings from the past and areas of improvement where if there was an opportunity to reverse time, some things could be done differently.”

4.3.3 Self organizing:

Question: Can you elaborate your perception on the assumption that Swaziland Railway is able to self-organize itself to adapt and respond to abrupt change during turbulent times.

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the company works in “silos” but it

is relatively suitably positioned to self-organise to respond and to change during turbulent times.

Comments: The managers commented that ““The history of the company can help the future leaders to develop on it, and not rely on it only and that Swaziland Railway leaders have the ability to weigh circumstances and self-organise to take the appropriate decision.”

4.3.4 Emergence:

Question: How do you believe SR leadership readiness to respond and adapt to change has fared in response to the emerging turbulent times and how do you perceive the SR leadership style is suited to respond adequately to emerging difficult times.

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the company has not fared well in response to emerging turbulent times owing to the leadership style which relies of imposing past solutions to new complex problems.

Comments: The managers did not have comments on this concept application.

4.3.5 Far from equilibrium:

Question: How do you believe that the SR leadership has been adequately prepared to adapt and respond to change by embracing it in avoidance of falling back to old solutions that have worked in the past, which means that constantly seeking a state of equilibrium (stability) in the business to guarantee sustainability?

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the company was not ready to handle change during turbulent times as it sought equilibrium by recommending past solutions to new complex problems.

Comments: The managers commented that “SR has been in equilibrium for too long and now is moving away from state of equilibrium and the leadership is not ready to handle the emergent problems”

4.3.6 Fitness landscape:

Question: How do you believe SR leadership has responded to the understanding that the organization must at times face difficulty (go down) in order to poise itself to seek and deal with success

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the company was taken by surprise by the turbulent times.

Comments: The managers commented that ““This is a learning curve for Swaziland Railway.” They further commented that, “Swaziland Railway leadership lacks focus to change that is within their control and look for ways to influence factors beyond their control.”

4.3.7 Edge of Chaos:

Question: Give examples of how SR leadership has adapted to operate at the edge of chaos, evidenced by the variety, novelty, creativity and ability to deal with surprises in the business and how do you think the company has fared in operating at the edge of chaos.

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that though the company was taken by surprise, there was some commendable novelty, creativity evidenced by the review of the strategy and the birth of the survival strategy.

Comments: The managers commented that “Swaziland Railway leadership is not ready to respond to turbulent times.”

4.3.8 Co-evolution:

Question: Can you give an analysis of how SR leadership has co-evolved, transformed together to adequately adapt to its environment to increase the payoff or fitness function overtime and give your perception of how the company is suited to adapt and respond to turbulent times through co-evolution.

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the company co-evolves, but such co-evolution is challenged by the “silo “operation amongst departments.

Comments: The managers commented that “Lack of collective responsibility of Swaziland Railway leadership is exposing unnecessary diversity that indicates lack of co-evolution.” The other comment was “SR leadership is united in responding to problems in the market affecting the business, there is still room for improvement to make co-evolution seamless.”

4.3.9 Sensitive dependence:

Question: What do you believe SR leadership is sensitively dependent and well adapted to respond and adapt to change during turbulent times by referring to past effective leadership ethos..

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the leadership is sensitively dependent to the past leadership ethos and thus, is not adequately suited to respond and adapt to change during turbulent times occasioned by complex problems.

Comments: The managers commented that ““The organisation is going through a legacy changing phase as they are introspection over the first half century of existence and letting go of the legacy is very difficult.”

4.3.10 Path dependence:

Question: What influence do you think the past leadership ethos has to the current SR leadership ability to respond and adapt to change during turbulent times.

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that the leadership is path dependent on the past by seeking to replicate past solutions to new complex problems.

Comments: The managers commented that “We are still dwelling on the past, which negatively affects Swaziland Railway leadership to adequately respond and adapt to change during turbulent times.”

4.3.11 Agents with Schemata:

Question: How do you believe Agents with Schemata influence the SR leadership ability to respond and adapt to change during turbulent times?

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe self-organizing, though challenged by

the silo effect, agents with Schemata have minimal negative influence to SR leadership ability to respond and adapt to change during turbulent times..

Comments: The managers did not comment on this question.

4.3.12 Persistence:

Question: Do you believe that the past leadership ethos have persisted at all in either positively or negatively influencing the SR leadership ability to respond and adapt to change.

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that SR leadership is too dependent on the past culture which persists and this negatively affects the company ability to respond and adapt to change

Comments: The managers commented that “Swaziland Railway leadership ability to respond and adapt to change is too dependent on the past culture which persists and this negatively affects our response to change.”

4.3.13 Artefacts:

Question: How do you believe SR leadership has responded to the advent of artefacts as business enablers that assist the organization to respond and adapt to change during turbulent times?

Response: All 13 managers responded to the question and the qualitative interpretation was that most managers believe that SR leadership is well receptive to the advent of artefacts, namely computers.

Comments: The managers commented that “Swaziland Railway leadership ability to respond and adapt to change is too dependent on the past culture which persists and this negatively affects our response to change.”

4.3.14 Change management:

Question: SR leadership is well able to respond and adapt to change effectively during turbulent times.

Response: All 13 managers responded to the question and the qualitative interpretation was that based on the fact that abrupt change took the leadership by

surprise is indicative of the fact that the company lacks a structured change management programme.

Comments: The managers commented that “Swaziland Railway leadership does not have full control of factors affecting the organisation, there is need for a structured change management programme.”

4.3.15 Strategic objectives:

Question: Explain how the SR leadership has responded and adapted to change when turbulent times that were not anticipated by the strategy occur.

Response: All 13 managers responded to the question and the qualitative interpretation was that the company responded well by adopting a survival strategy that sought to mitigate the shrinking revenue problem.

Comments: The managers commented that “Swaziland Railway has responded well by introducing the survival strategy to deal with the complex problems brought by turbulent times.

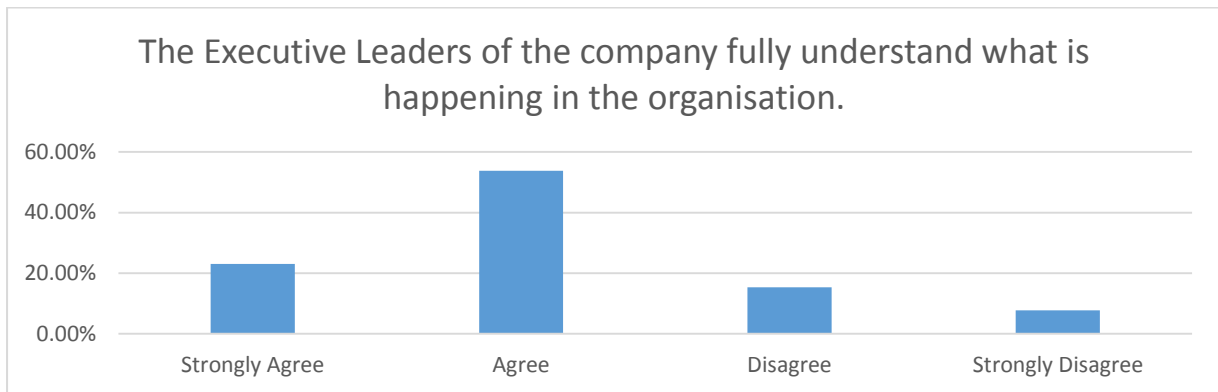
4.4 Conclusion of qualitative responses to the interview

The researcher concluded based on the findings that summarily, Swaziland Railway leadership was not adequately suited to respond and adapt to change during turbulent times.

4.5 Quantitative Findings

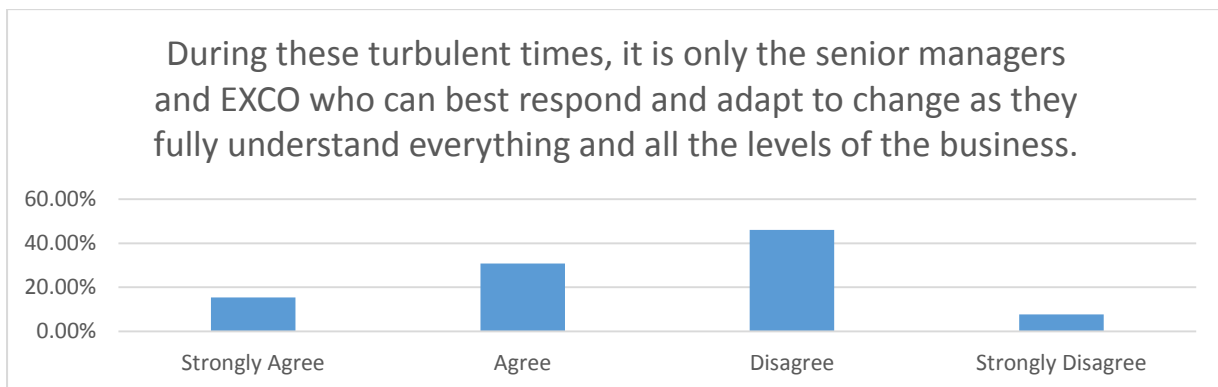
The researcher administered the questionnaire to the 13 managers. The questionnaire was based on the Complex Adaptive systems concepts and the responses for all the questions for each concept are represented in the graphs hereunder;

(a) Egalitarianism



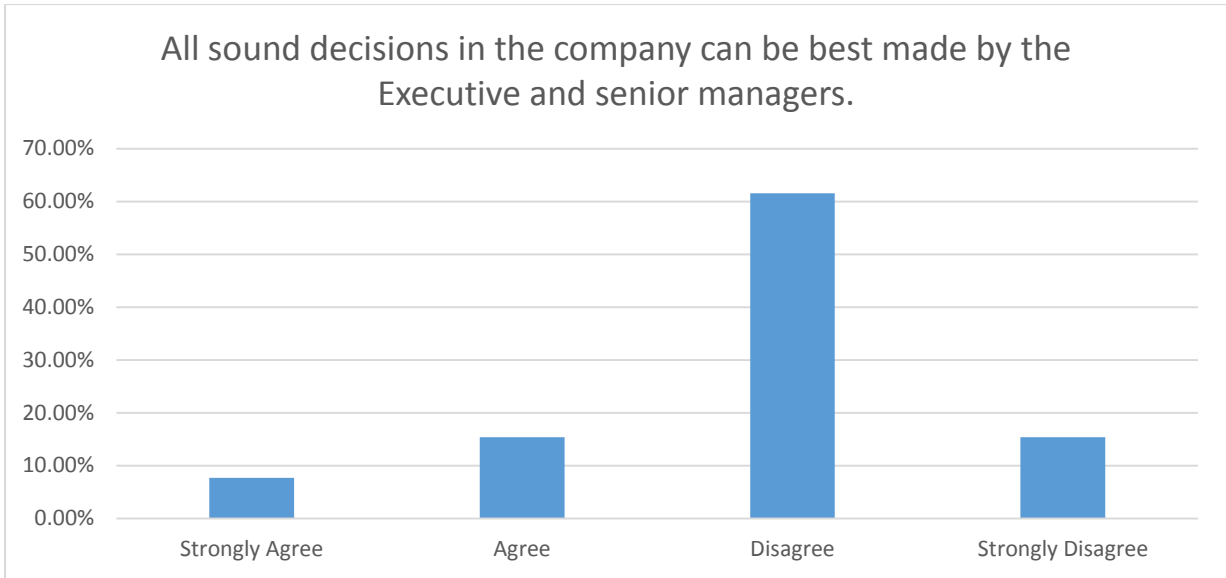
Analysis of the responses;

76% of the respondents agree that the Executive Leaders of the company fully understand what is happening in the organisation.



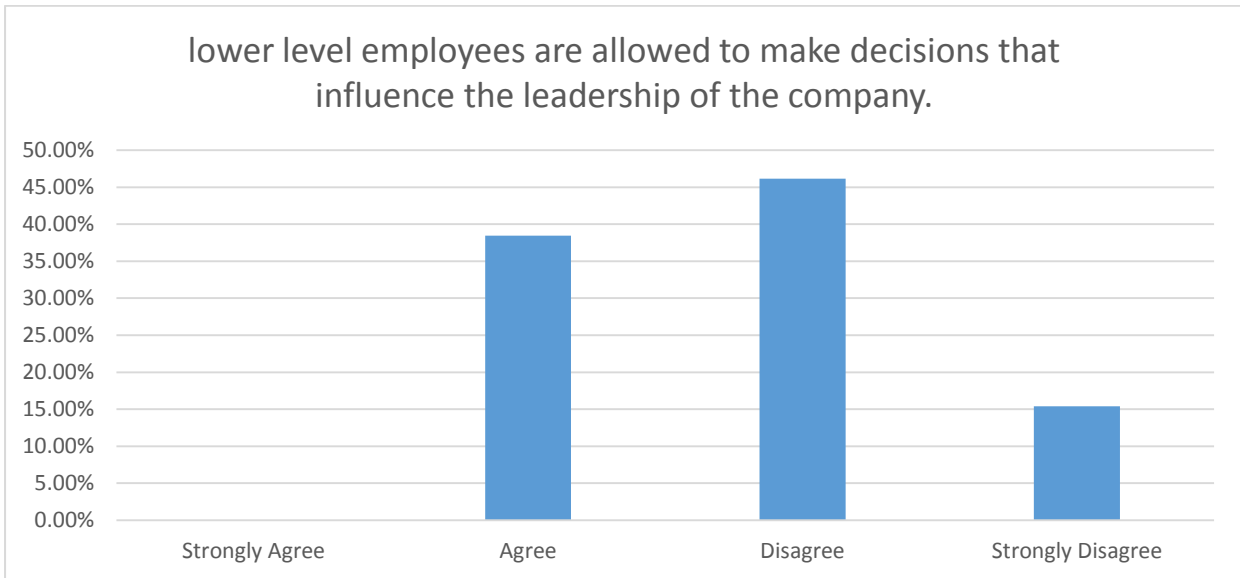
Analysis of the responses;

53% of the respondents disagree that it is only EXCO and senior managers who can best respond and adapt to change as they fully understand everything at all the levels of the business.



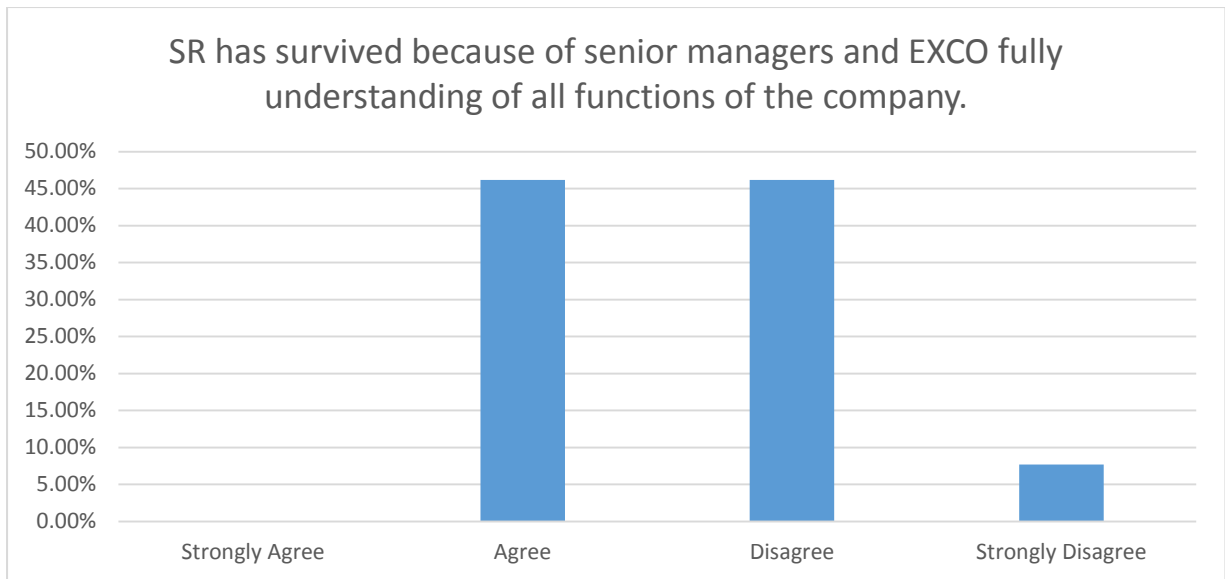
Analysis of the responses;

76% of the respondents disagree that all sound decisions in the company can be best made by the Executive and senior managers.



Analysis of the responses;

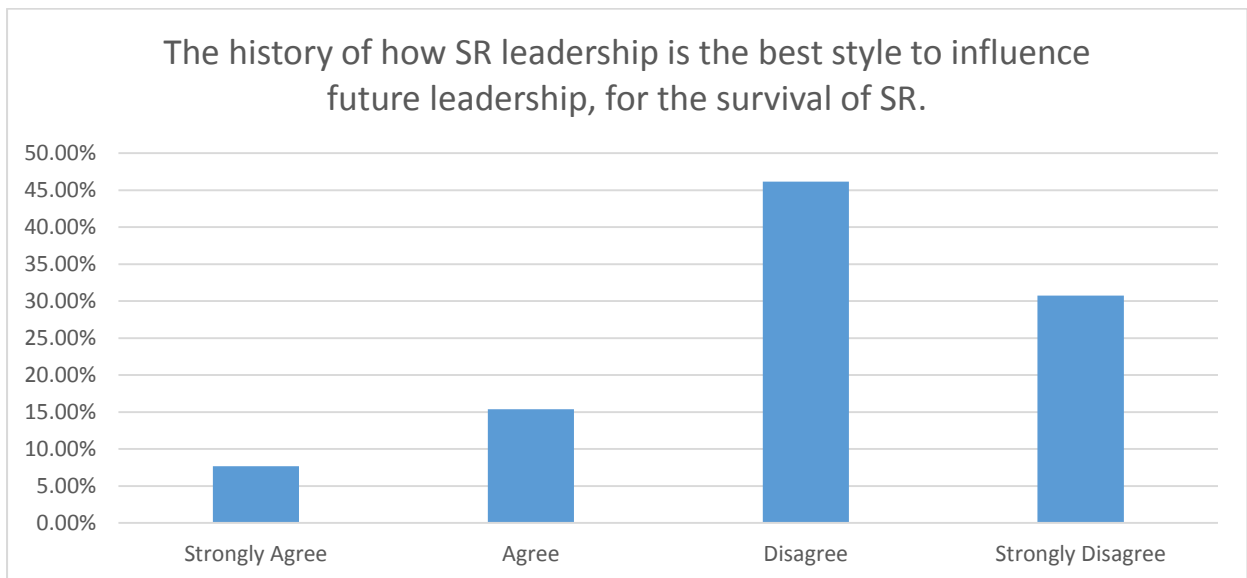
61% of the respondents disagree that lower level employees are allowed to make decisions that influence the leadership of the company.



Analysis of the responses;

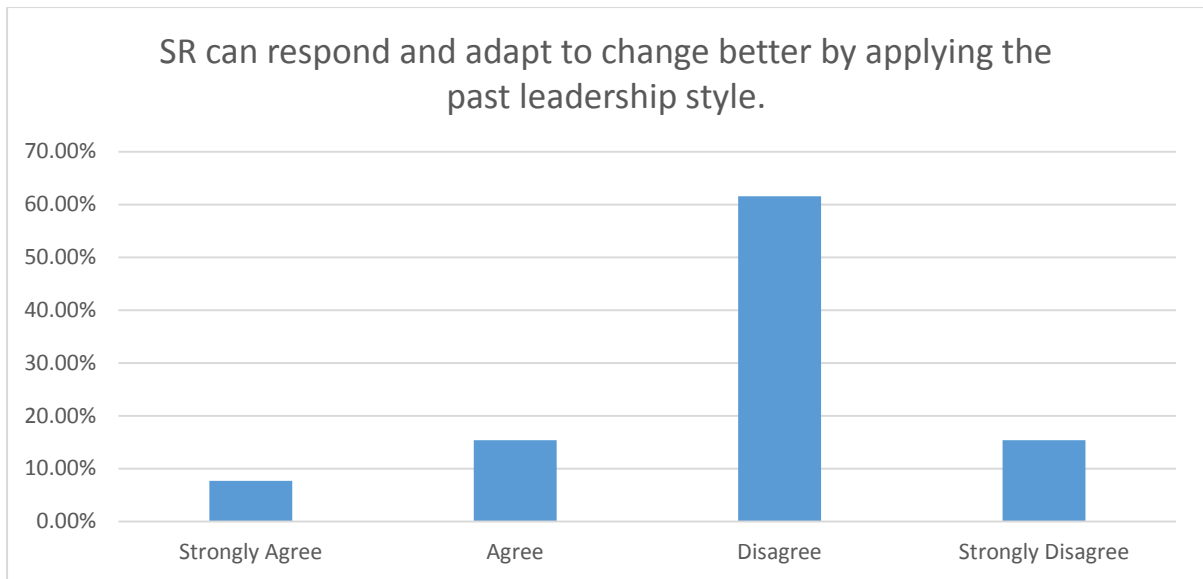
53% of the respondents disagree that SR has survived because of senior managers and EXCO fully understanding of all functions of the company.

(b) History



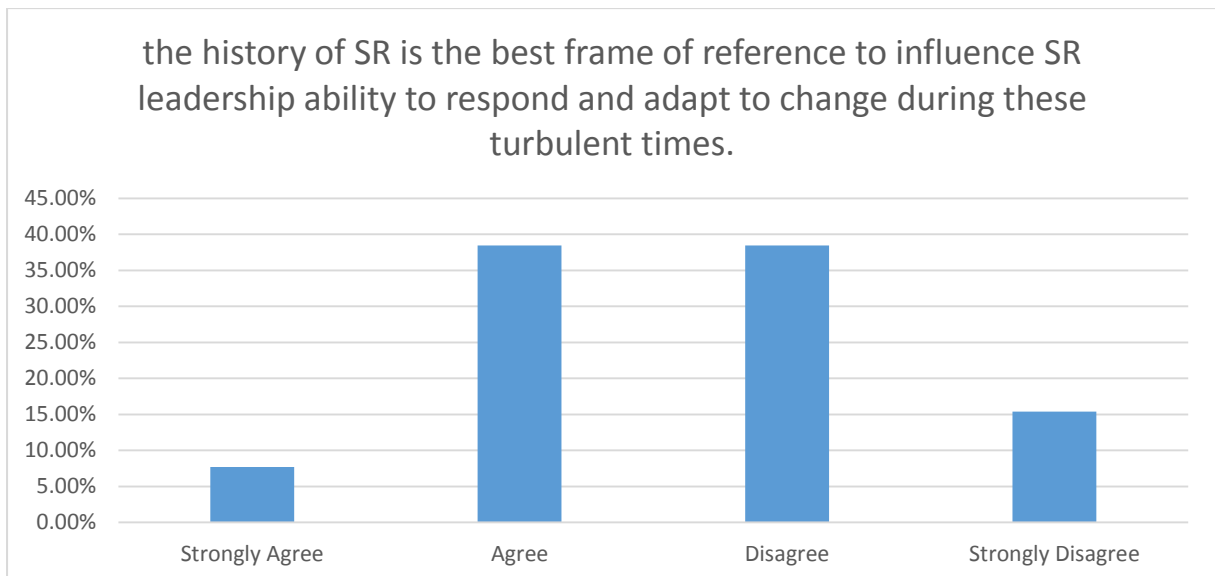
Analysis of the responses;

76% of the respondents disagree that SR leadership is the best style to influence future leadership, for the survival of SR.



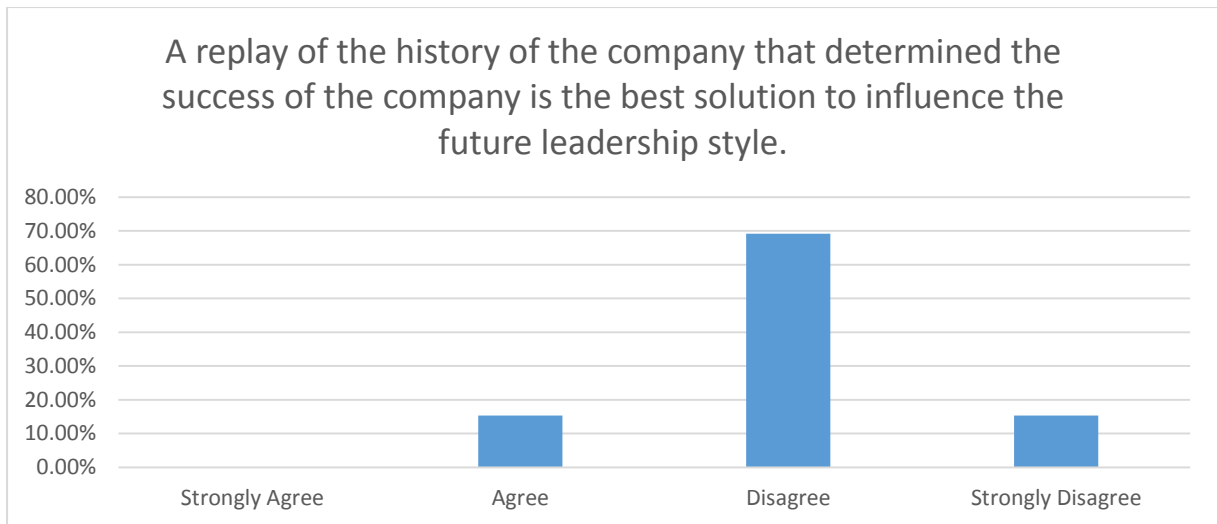
Analysis of the responses;

76% of the respondents disagree that SR can respond and adapt to change better by applying the past leadership style.



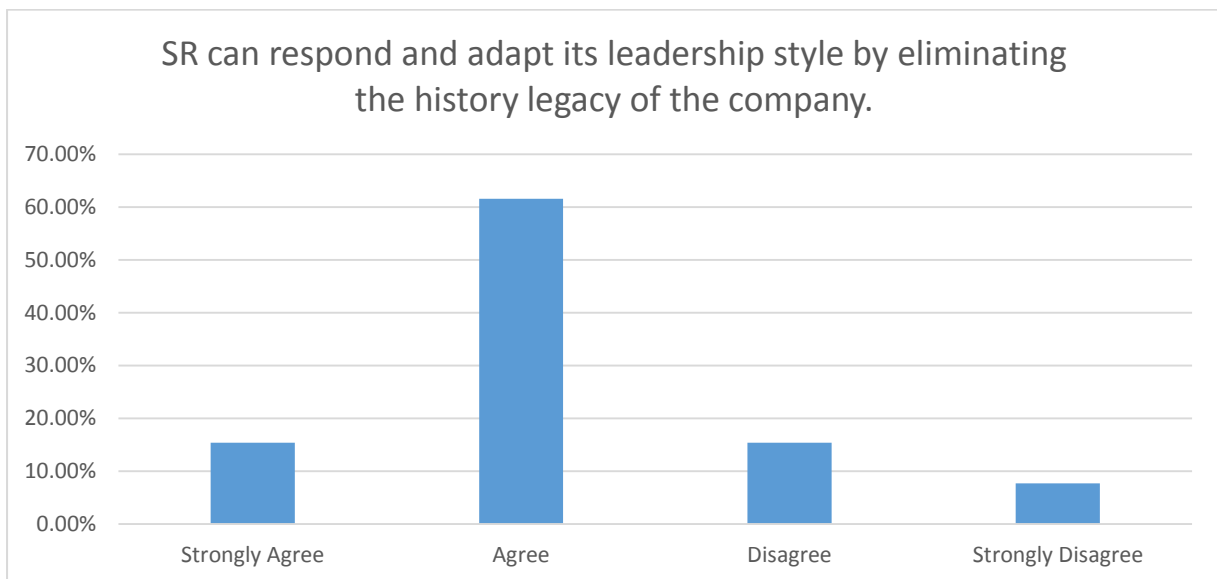
Analysis of the responses;

53% of the respondents disagree that the history of SR is the best frame of reference to influence SR leadership ability to respond and adapt to change during these turbulent times.



Analysis of the responses;

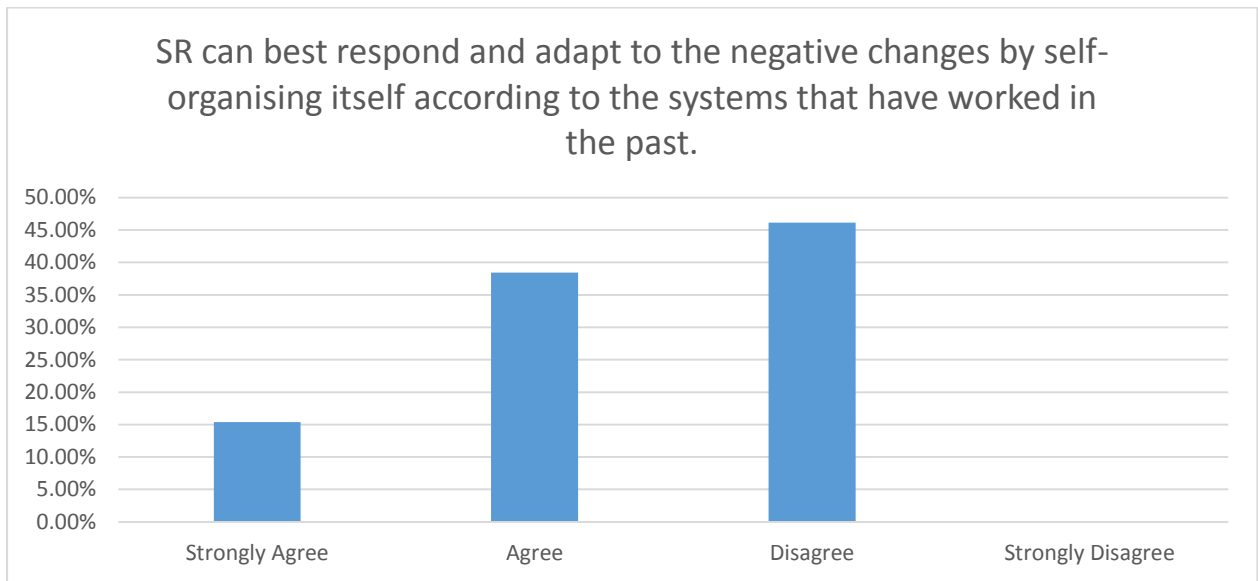
84% of the respondents disagree that a replay of the history of the company that determined the success of the company is the best solution to influence the future leadership style.



Analysis of the responses;

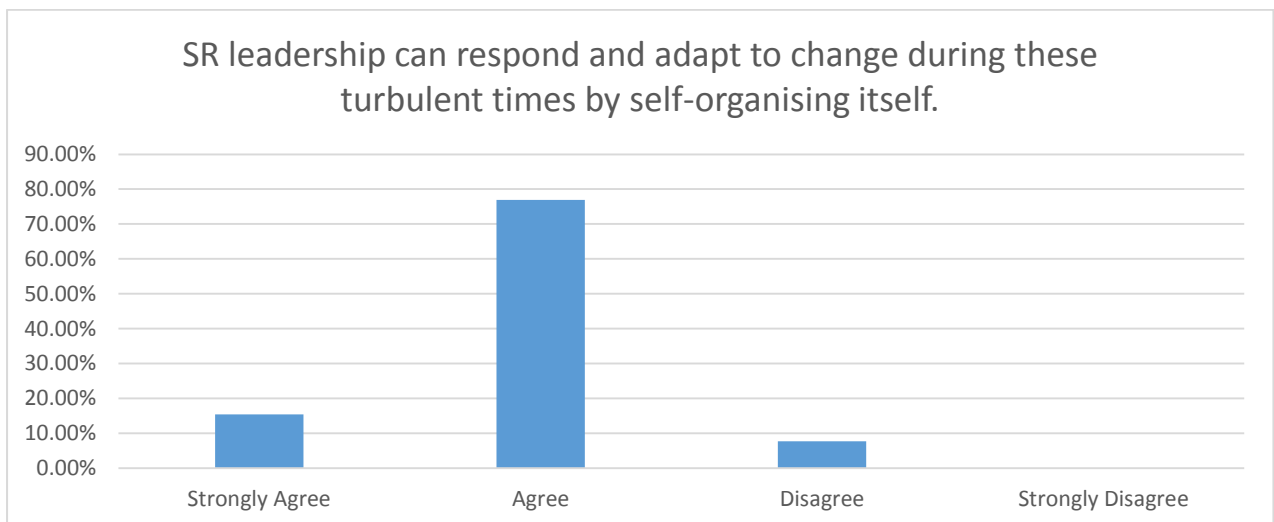
76% of the respondents agree that SR can respond and adapt its leadership style by eliminating the history legacy of the company.

(c) Self organising



Analysis of the responses;

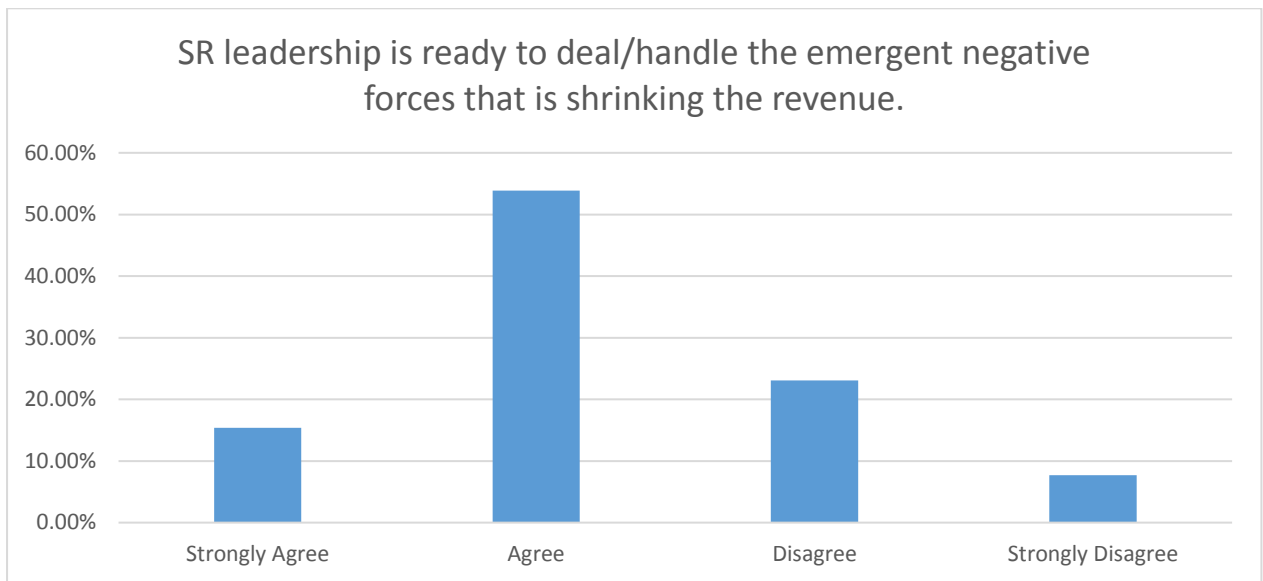
53% of the respondents agree that SR can best respond and adapt to the negative changes by self-organising itself according to the systems that have worked in the past.



Analysis of the responses;

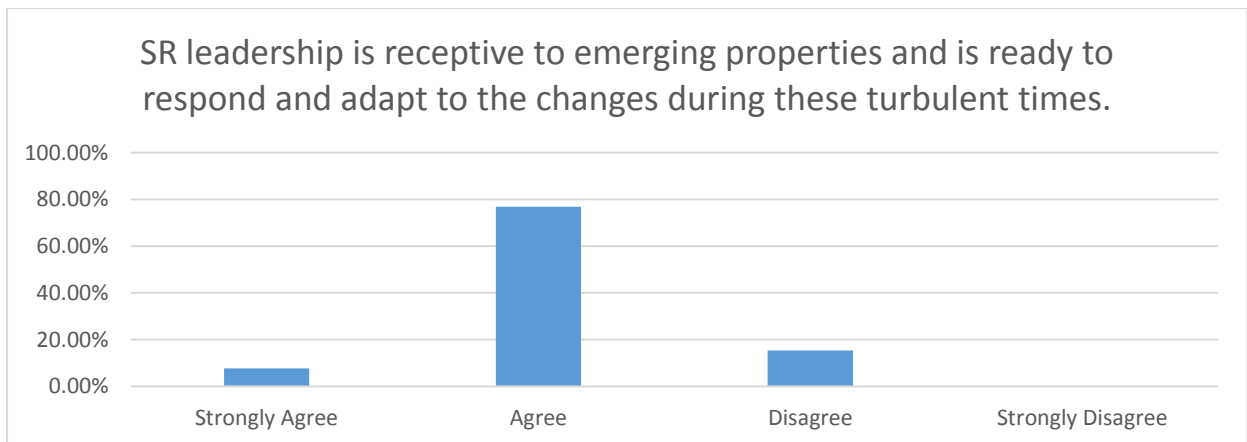
91% of the respondents agree that SR leadership can respond and adapt to change during these turbulent times by self-organising itself.

(d) Emergence



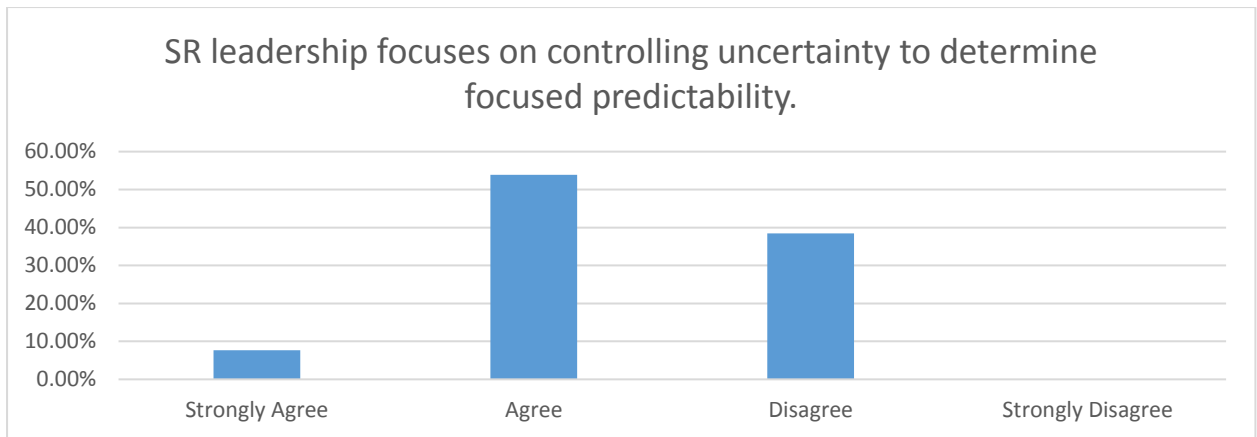
Analysis of the responses;

66% of the respondents agree that SR leadership is ready to deal/handle the emergent negative forces that is shrinking the revenue.



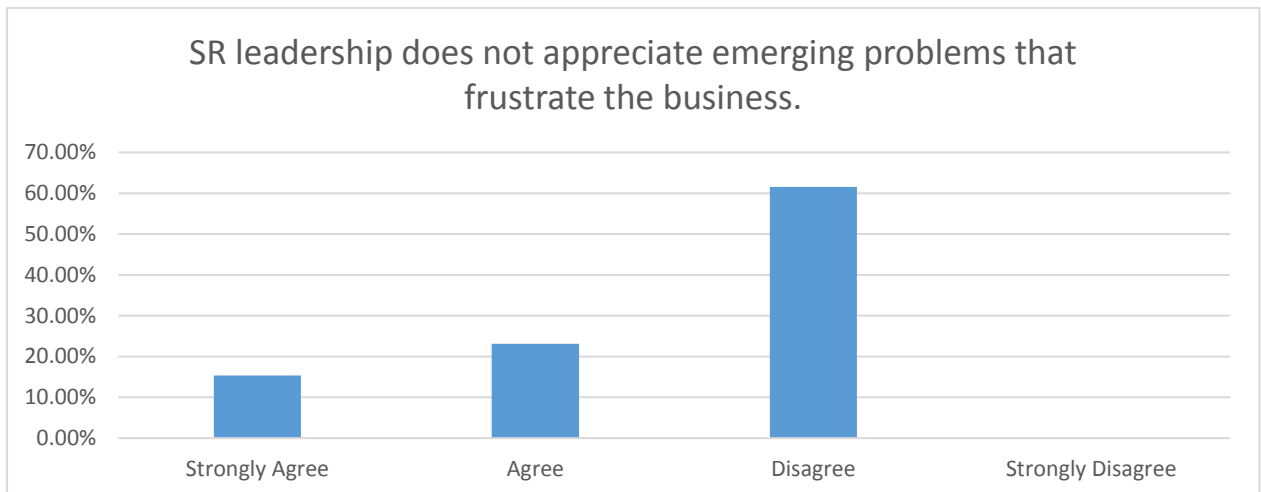
Analysis of the responses;

83% of the respondents agree that SR leadership is receptive to emerging properties and is ready to respond and adapt to the changes during these turbulent times.



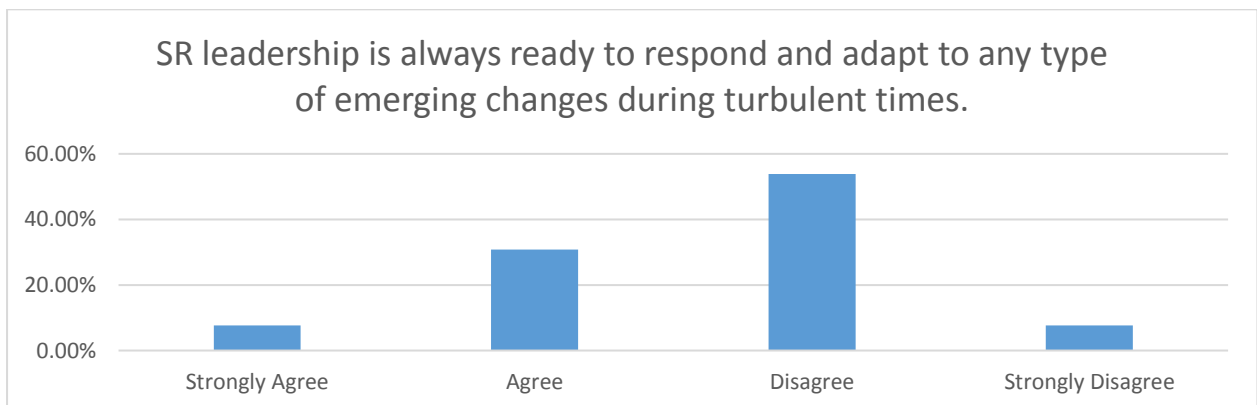
Analysis of the responses;

60% of the respondents agree that SR leadership focuses on controlling uncertainty to determine focused predictability



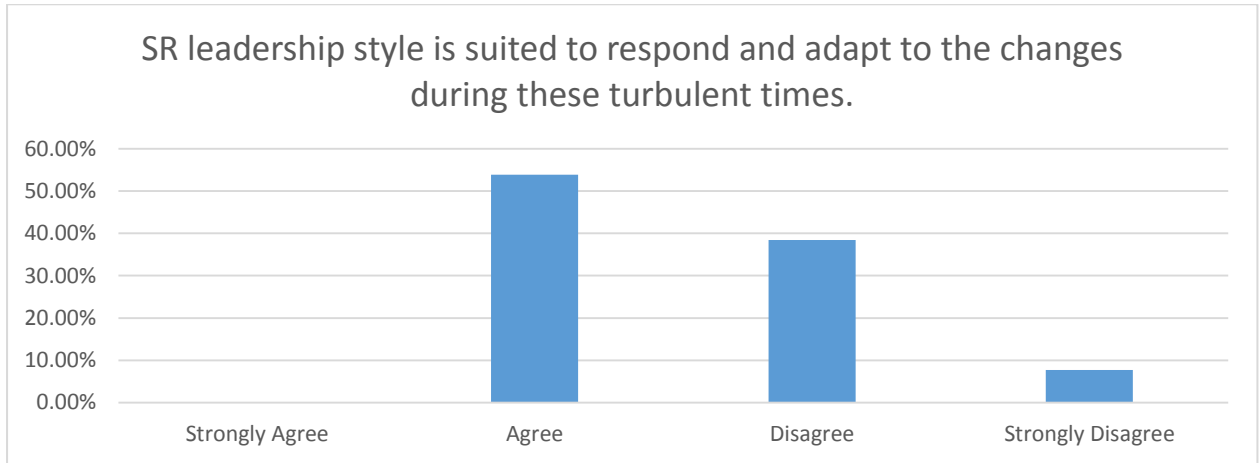
Analysis of the responses;

61% of the respondents disagree that SR leadership does not appreciate emerging problems that frustrate the business.



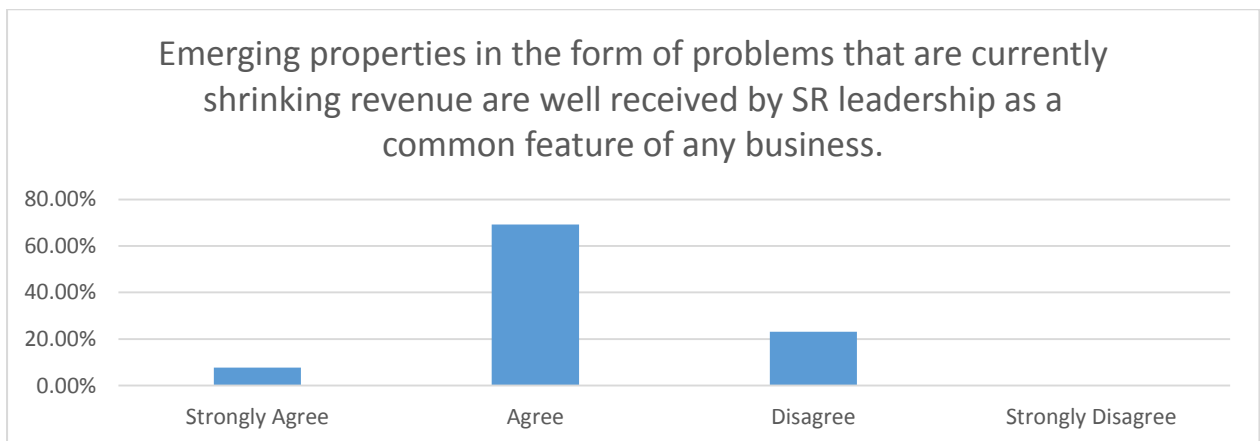
Analysis of the responses;

61% of the respondents disagree that SR leadership is always ready to respond and adapt to any type of emerging changes during turbulent times.



Analysis of the responses;

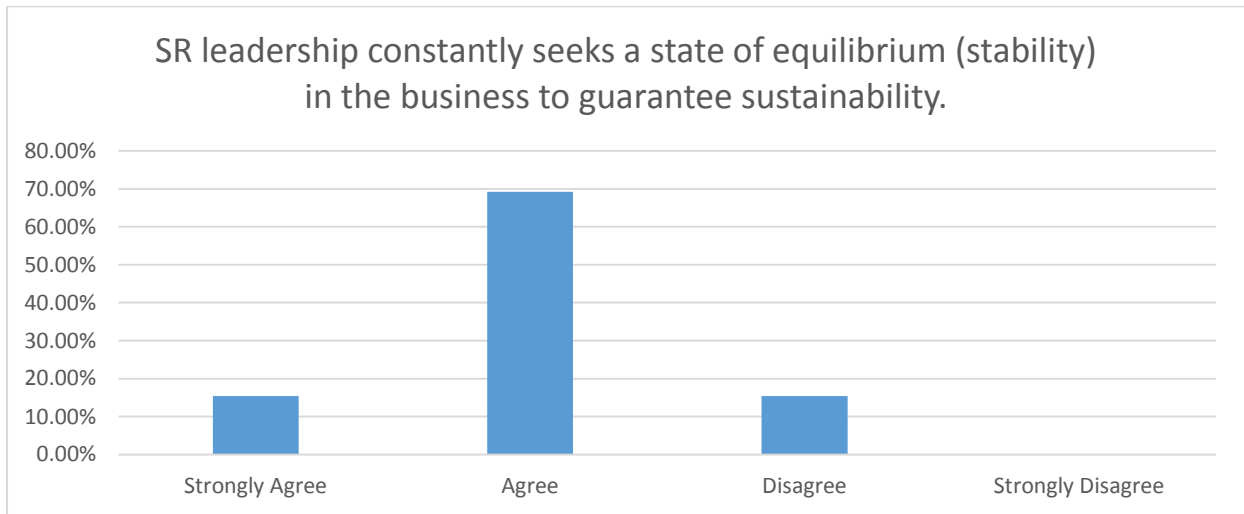
53% of the respondents agree that SR leadership style is suited to respond and adapt to the changes during these turbulent times.



Analysis of the responses;

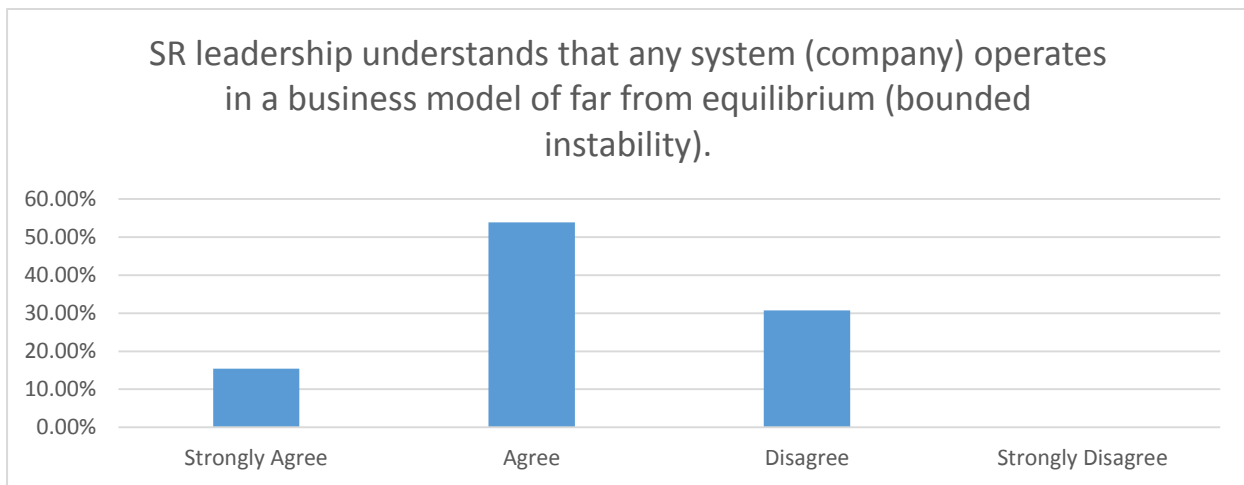
76% of the respondents agree that emerging properties in the form of problems that are currently shrinking revenue are well received by SR leadership as a common feature of any business.

(e) Far from equilibrium



Analysis of the responses;

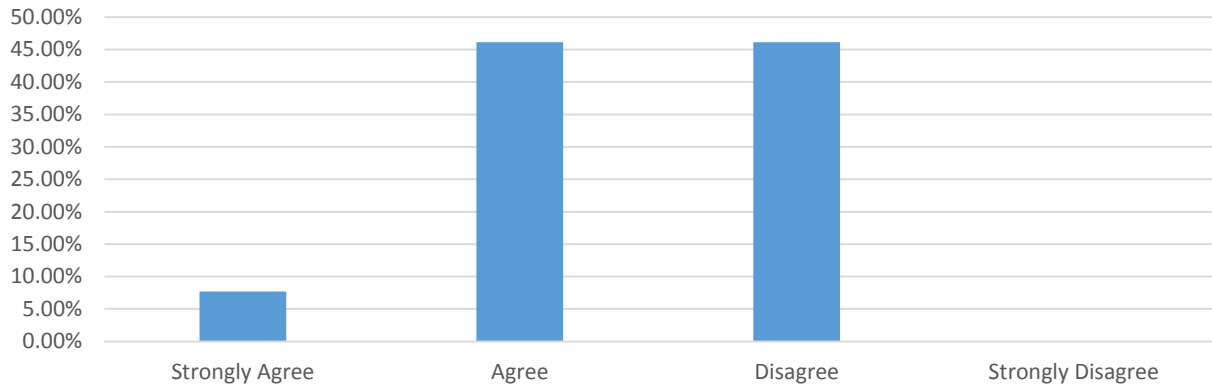
74% of the respondents agree SR leadership constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability



Analysis of the responses;

69% of the respondents agree SR leadership understands that any system (company) operates in a business model of far from equilibrium (bounded instability).

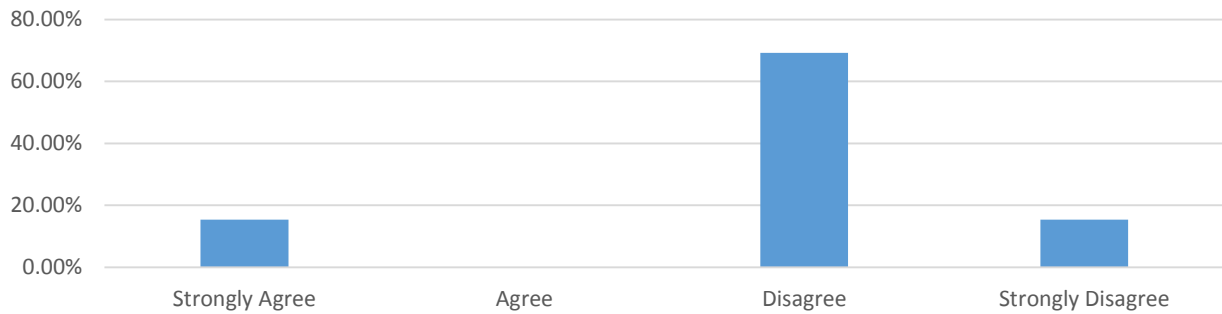
SR leadership is always ready to respond and adapt to change during turbulent times because they understand that the company operates in a far from equilibrium model.



Analysis of the responses;

53% of the respondents agree SR leadership is always ready to respond and adapt to change during turbulent times because they understand that the company operates in a far from equilibrium model.

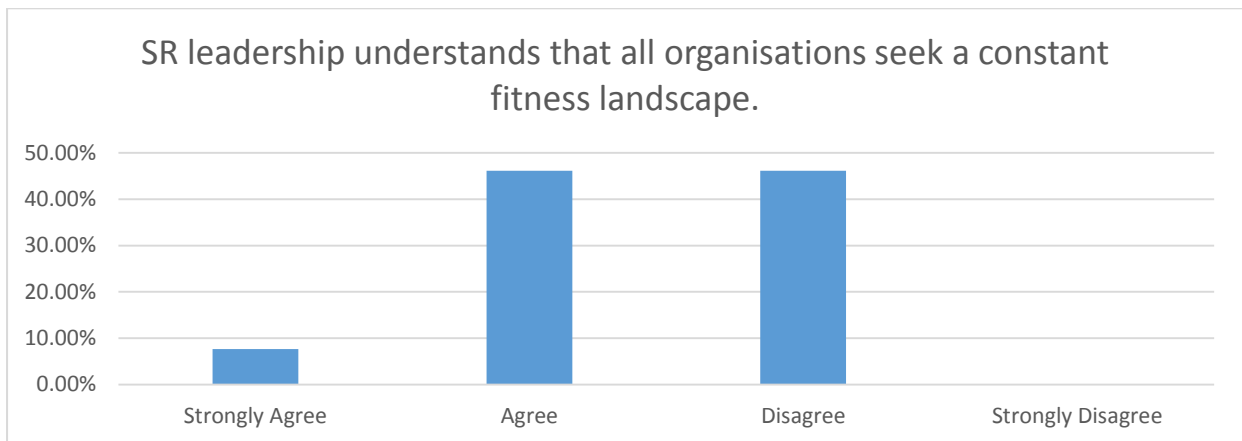
SR is in a equilibrium state and thus SR leadership does not have to respond and adapt to any change.



Analysis of the responses;

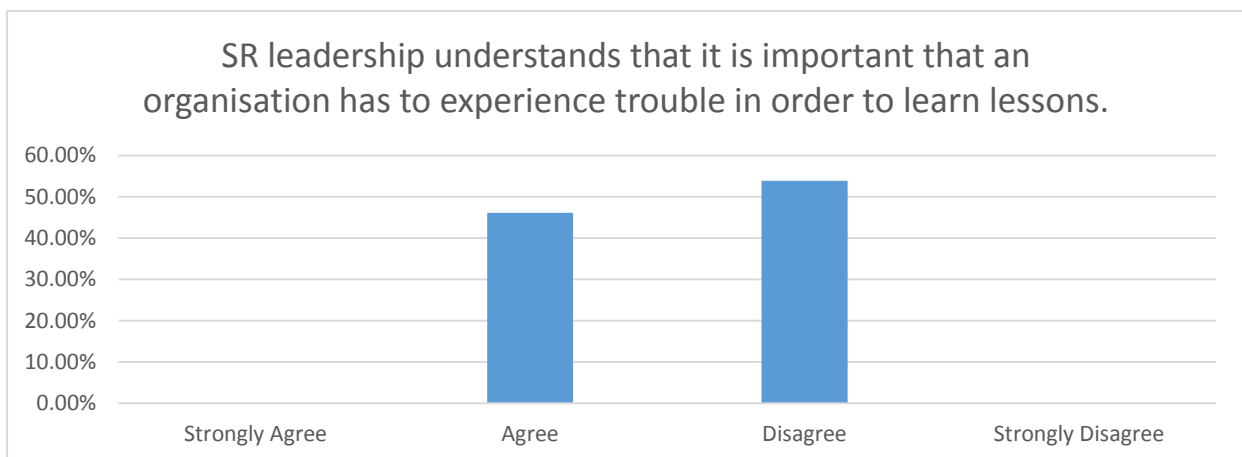
84% of the respondents disagree SR is in an equilibrium state and thus SR leadership does not have to respond and adapt to any change.

(f) Fitness Landscape



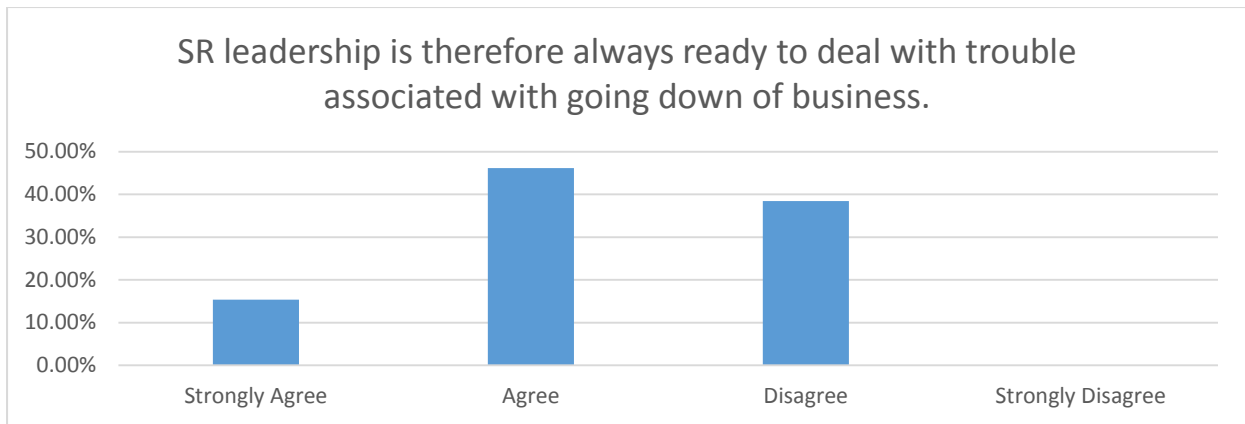
Analysis of the responses;

53% of the respondents agree SR leadership understands that all organisations seek a constant fitness landscape.



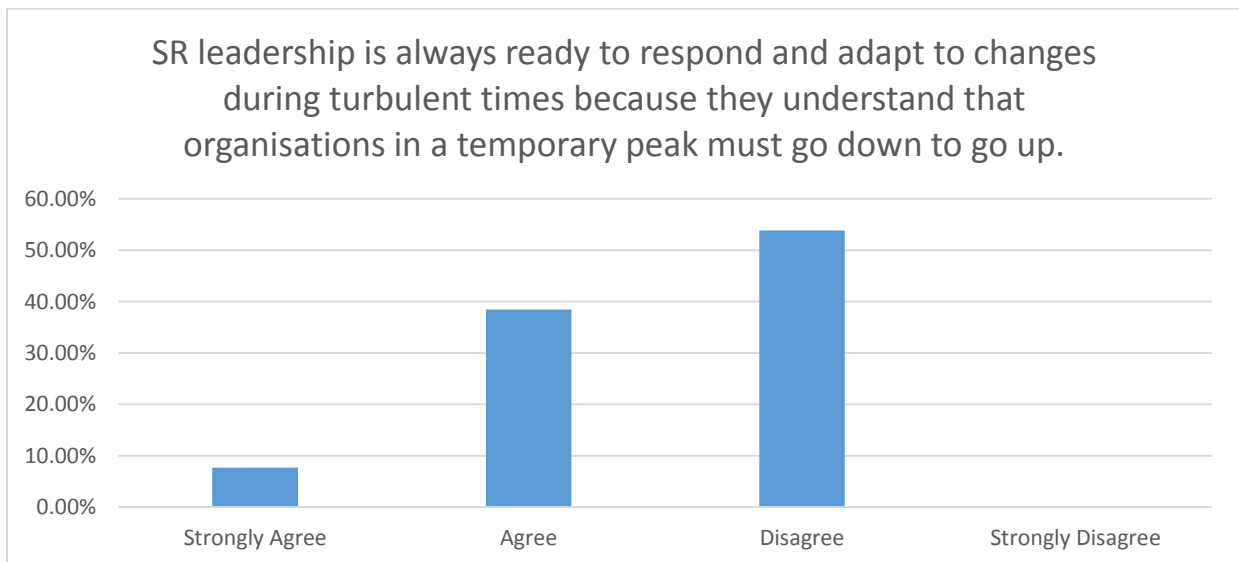
Analysis of the responses;

53% of the respondents disagree SR leadership understands that it is important that an organisation has to experience trouble in order to learn lessons.



Analysis of the responses;

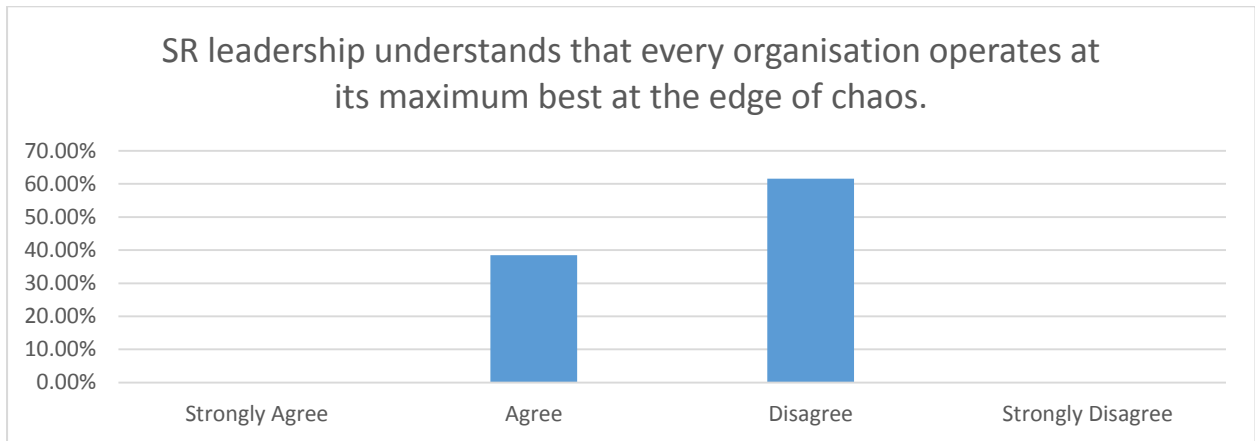
53% of the respondents disagree SR leadership is therefore always ready to deal with trouble associated with going down of business.



Analysis of the responses;

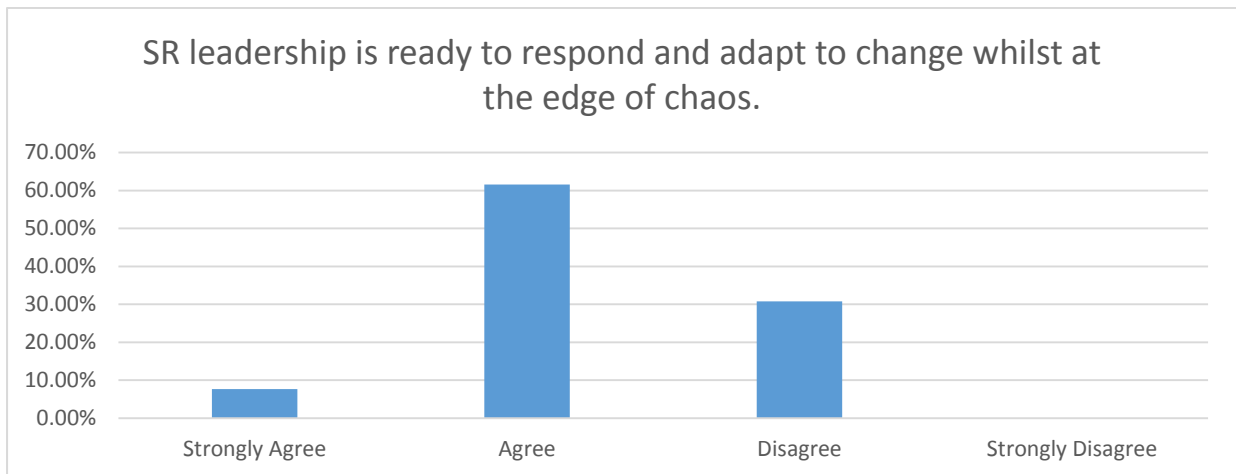
53% of the respondents disagree SR leadership is always ready to respond and adapt to changes during turbulent times because they understand that organisations in a temporary peak must go down to go up.

(g) Edge of chaos



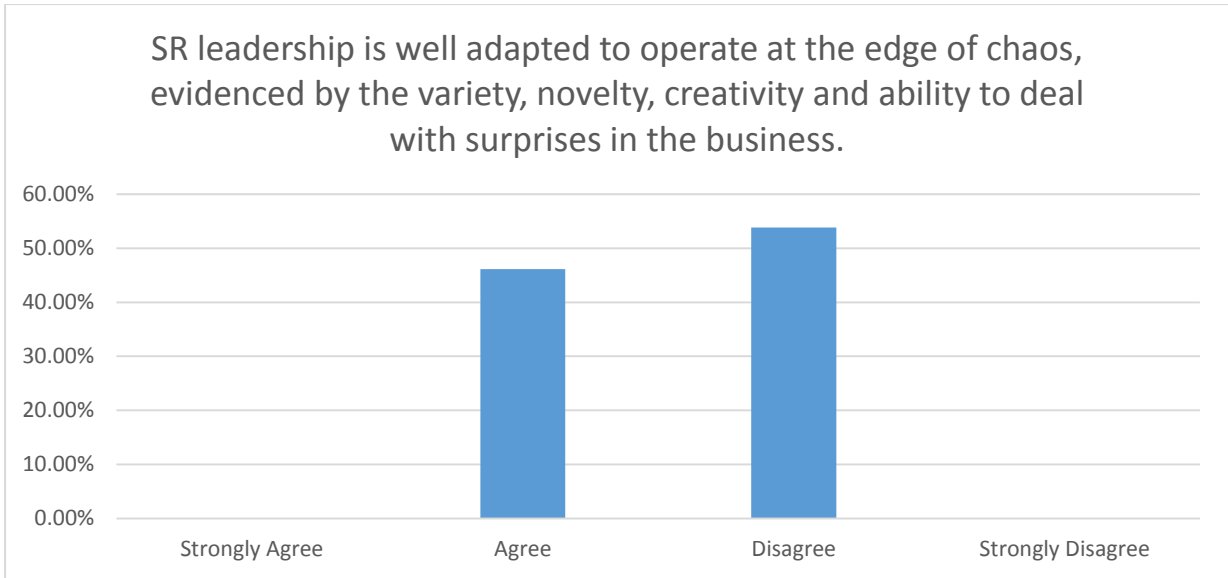
Analysis of the responses;

61% of the respondents disagree SR leadership understands that every organisation operates at its maximum best at the edge of chaos



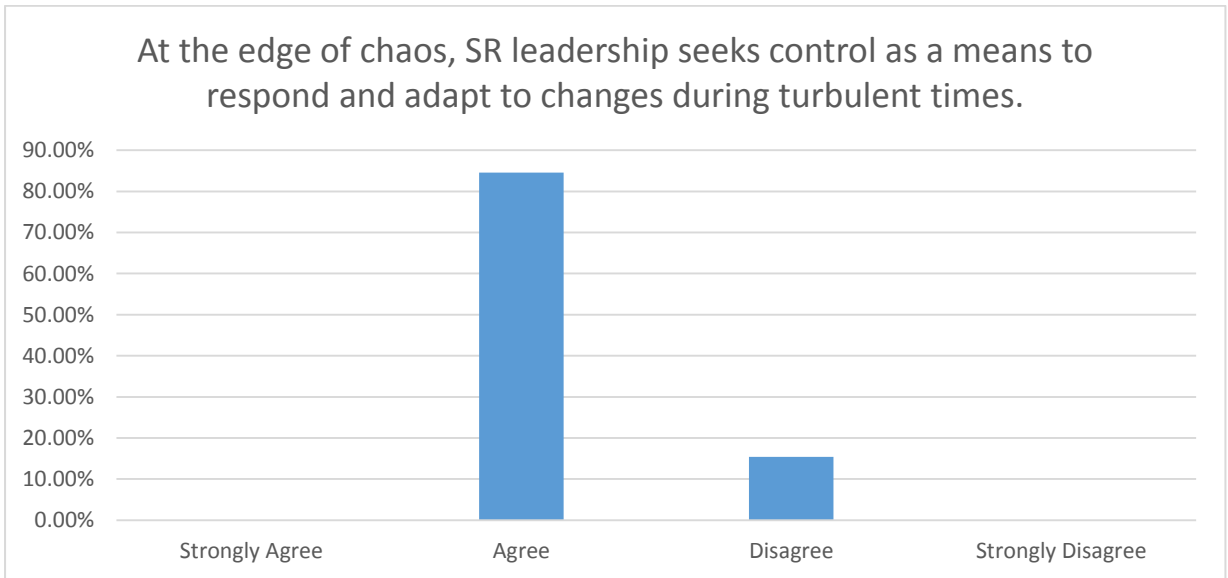
Analysis of the responses;

68% of the respondents agree SR leadership is ready to respond and adapt to change whilst at the edge of chaos.



Analysis of the responses;

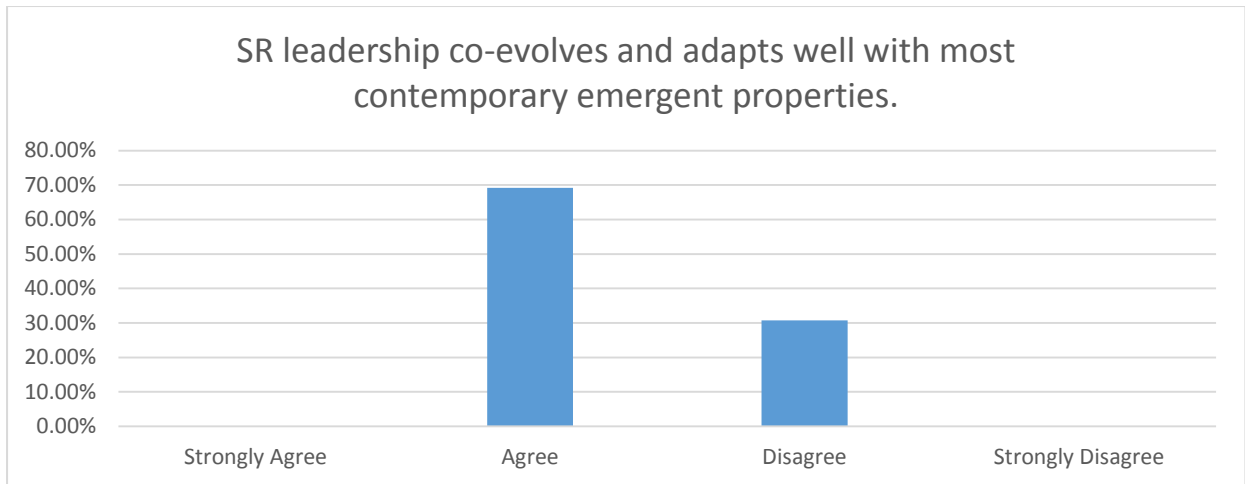
53% of the respondents disagree SR leadership is well adapted to operate at the edge of chaos, evidenced by the variety, novelty, creativity and ability to deal with surprises in the business.



Analysis of the responses;

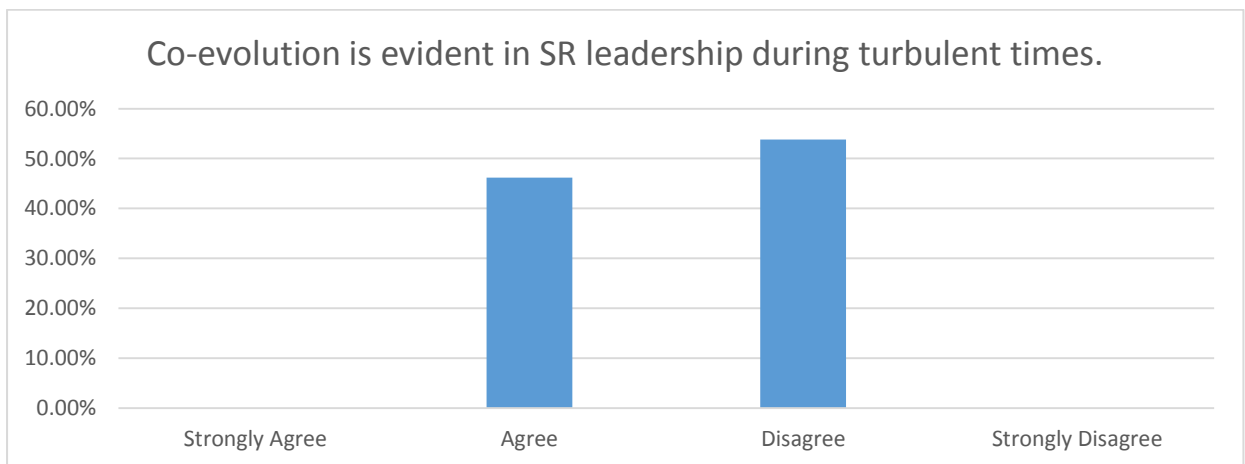
84% of the respondents agree that at the edge of chaos, SR leadership seeks control as a means to respond and adapt to changes during turbulent times.

(h) Co-evolution



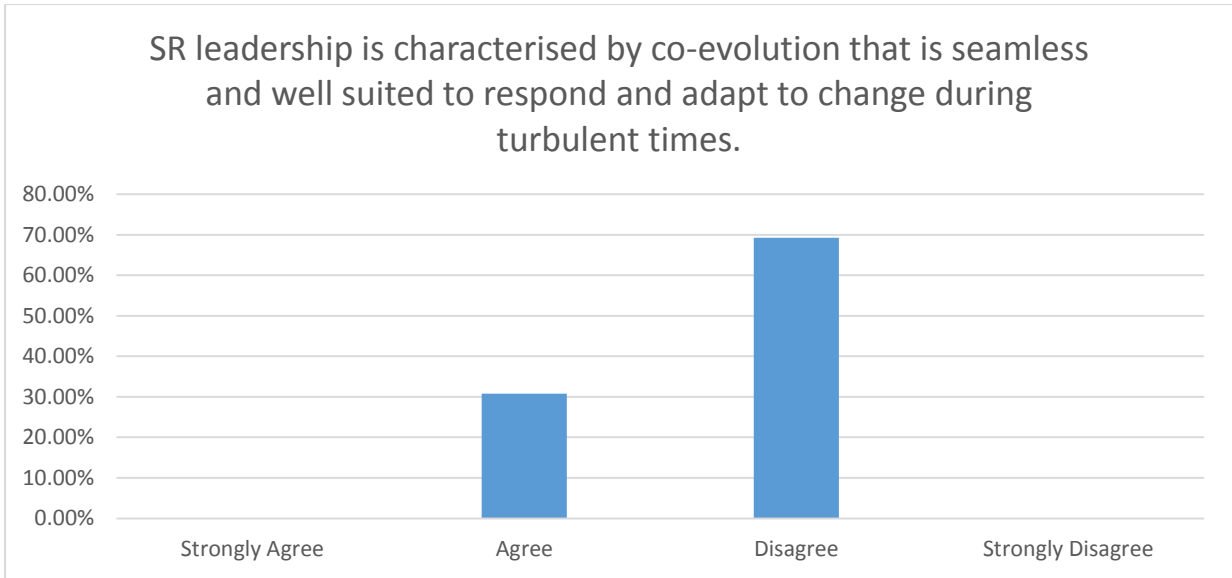
Analysis of the responses;

69% of the respondents agree that SR leadership co-evolves and adapts well with most contemporary emergent properties.



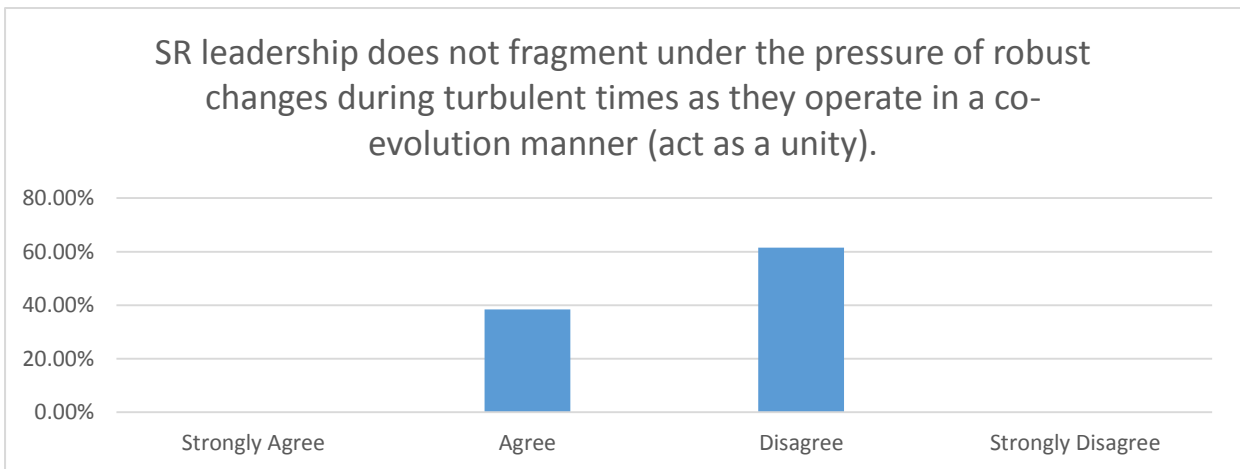
Analysis of the responses;

53% of the respondents disagree that Co-evolution is evident in SR leadership during turbulent times.



Analysis of the responses;

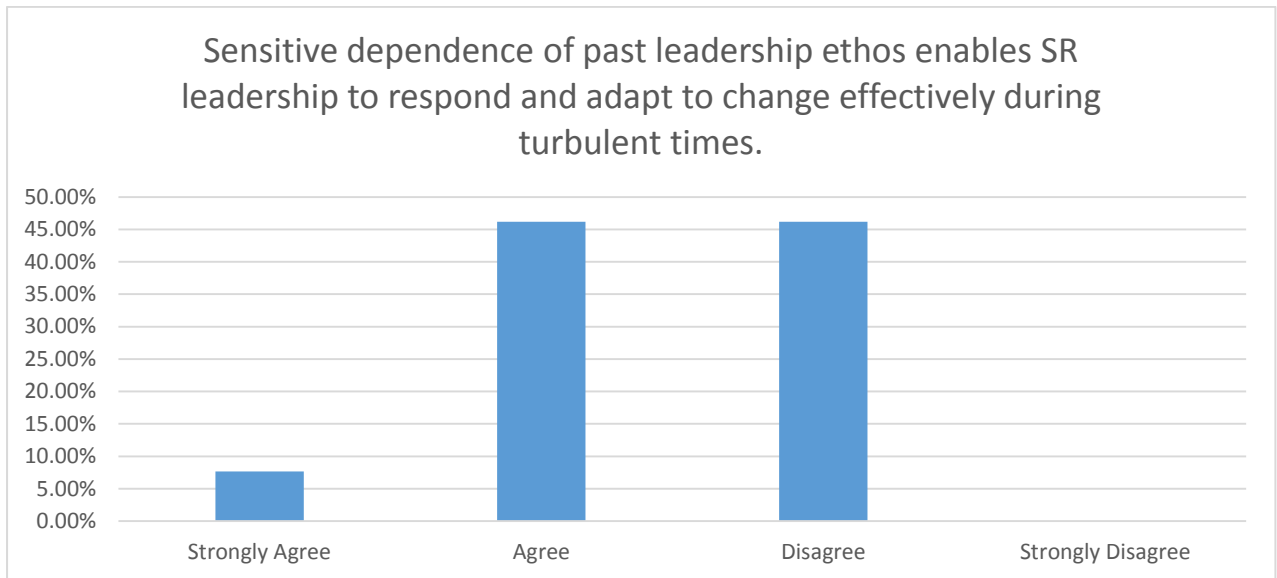
69% of the respondents disagree that SR leadership is characterised by co-evolution that is seamless and well suited to respond and adapt to change during turbulent times.



Analysis of the responses;

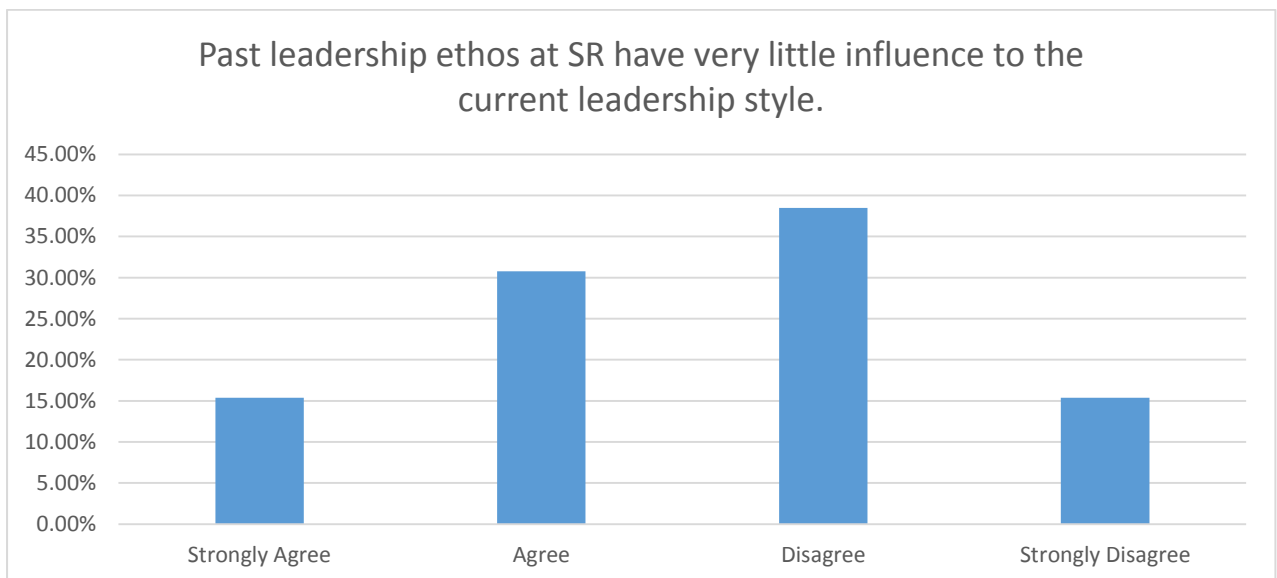
61% of the respondents disagree that SR leadership does not fragment under the pressure of robust changes during turbulent times as they operate in a co-evolution manner (act as a unity).

(i) Sensitive Dependence



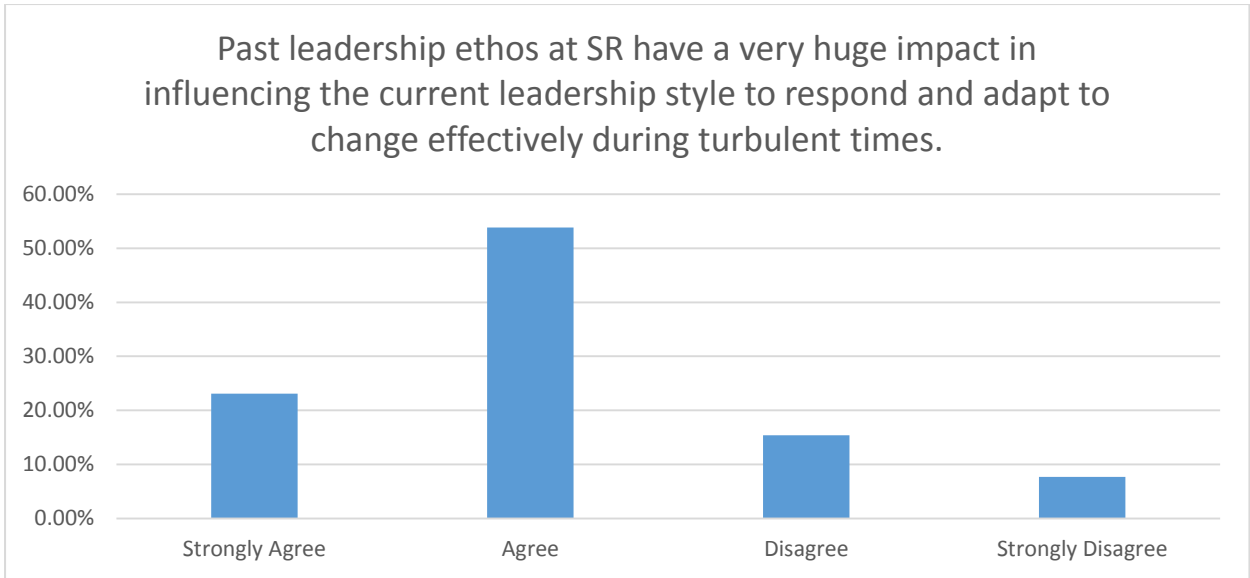
Analysis of the responses;

53% of the respondents agree that SR leadership is sensitively dependence on past leadership ethos, which enables SR leadership to respond and adapt to change effectively during turbulent times.



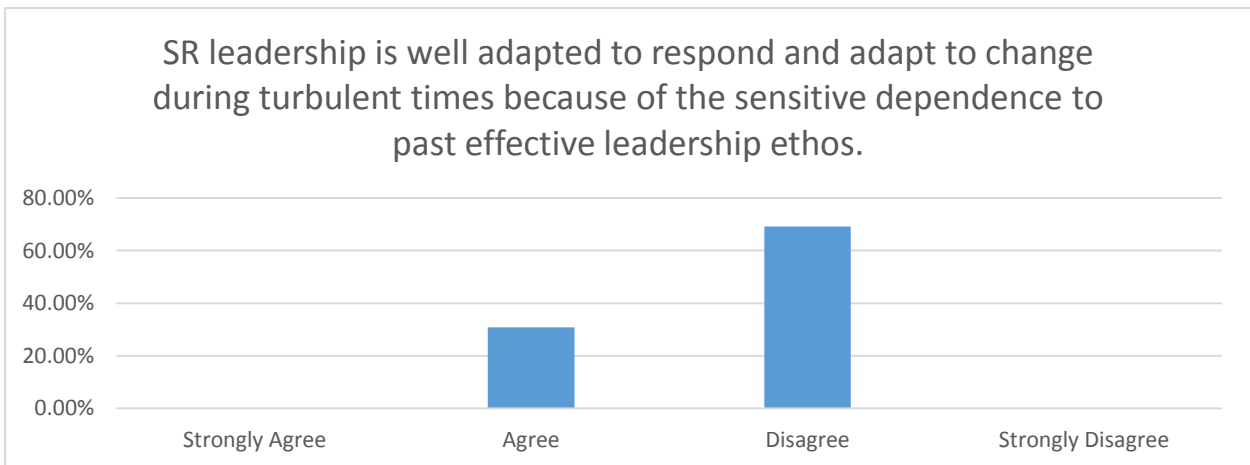
Analysis of the responses;

53% of the respondents disagree that SR past leadership ethos has very little influence to the current leadership style.



Analysis of the responses;

76% of the respondents agree that SR past leadership ethos at SR have a very huge impact in influencing the current leadership style to respond and adapt to change effectively during turbulent times.



Analysis of the responses;

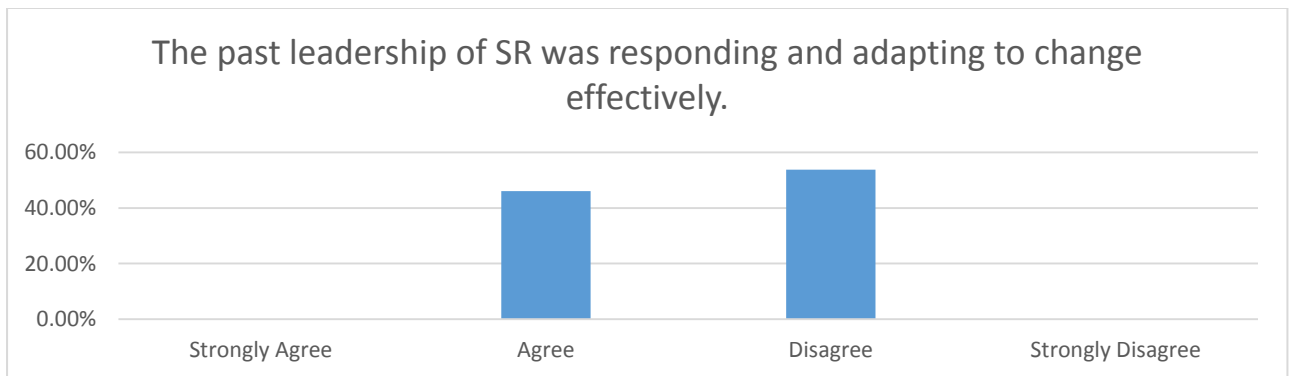
69% of the respondents disagree that SR leadership is well adapted to respond and adapt to change during turbulent times because of the sensitive dependence to past effective leadership ethos.

(j) Path Dependence



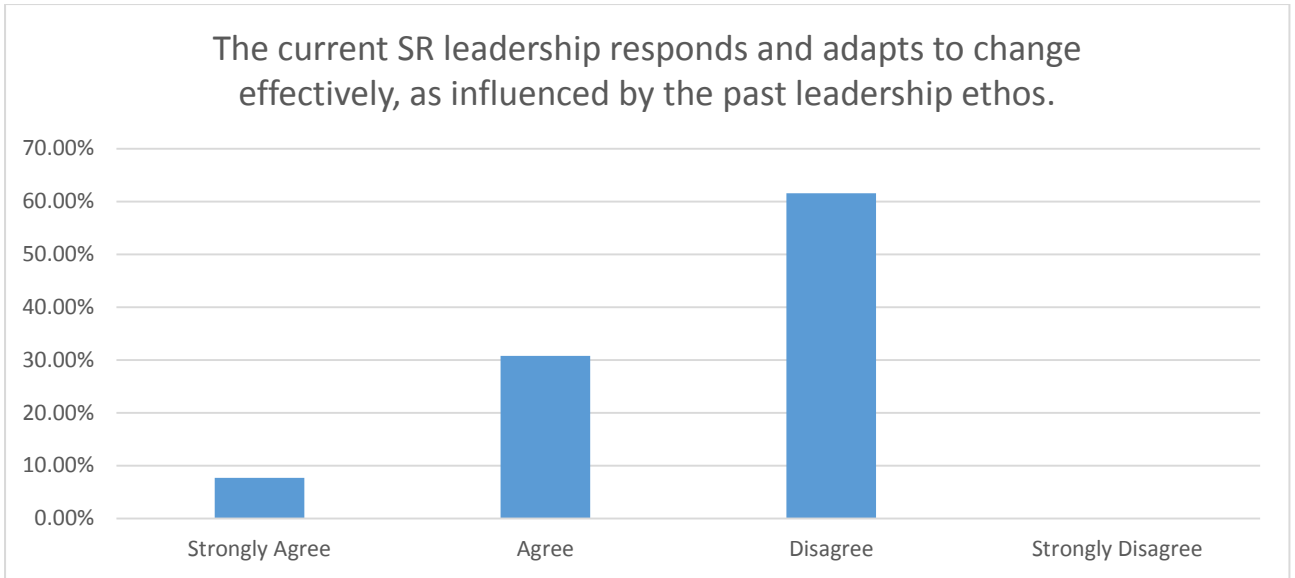
Analysis of the responses;

100% of the respondents agree that philosophies of the past SR leadership still influence the current SR leadership.



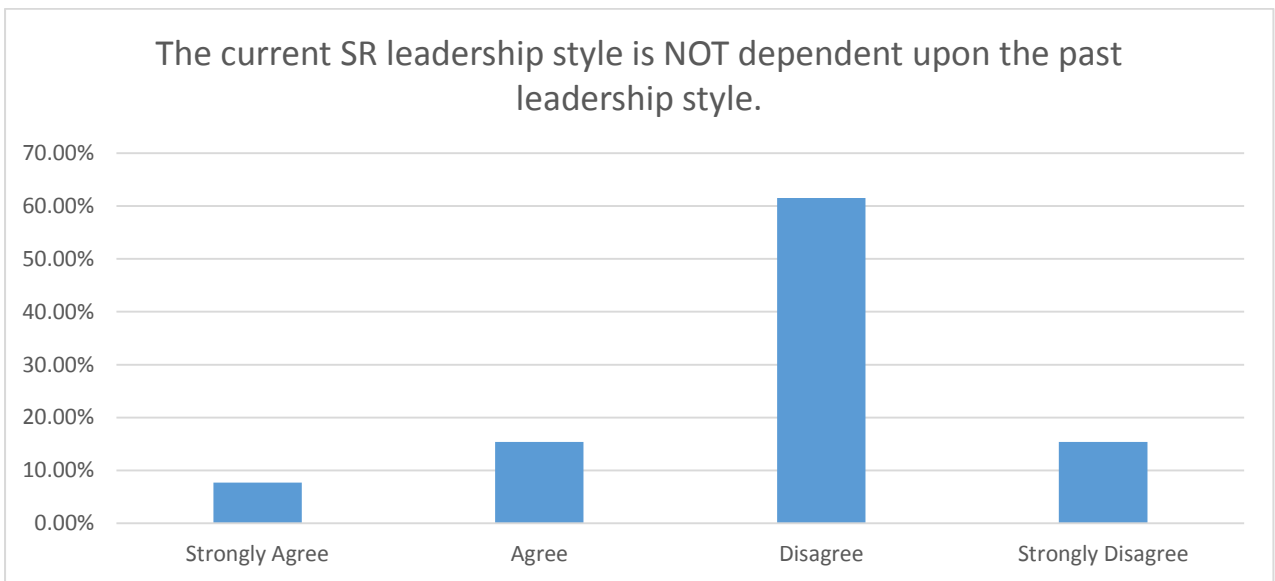
Analysis of the responses;

53% of the respondents disagree that the past leadership of SR was responding and adapting to change effectively.



Analysis of the responses;

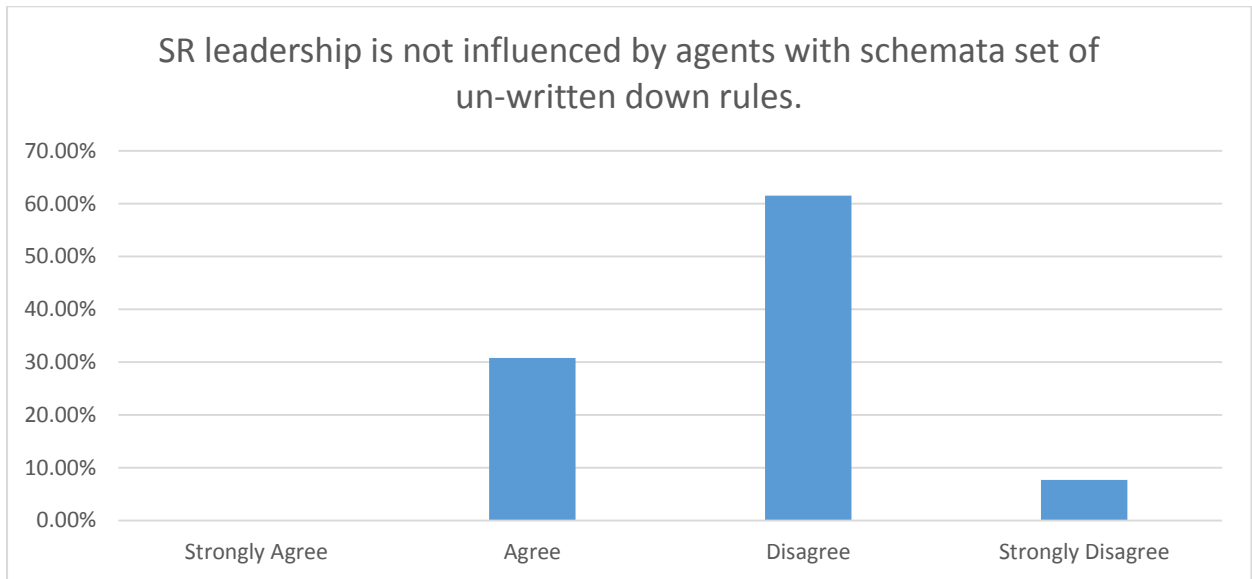
61% of the respondents disagree that the current SR leadership responds and adapts to change effectively, as influenced by the past leadership ethos.



Analysis of the responses;

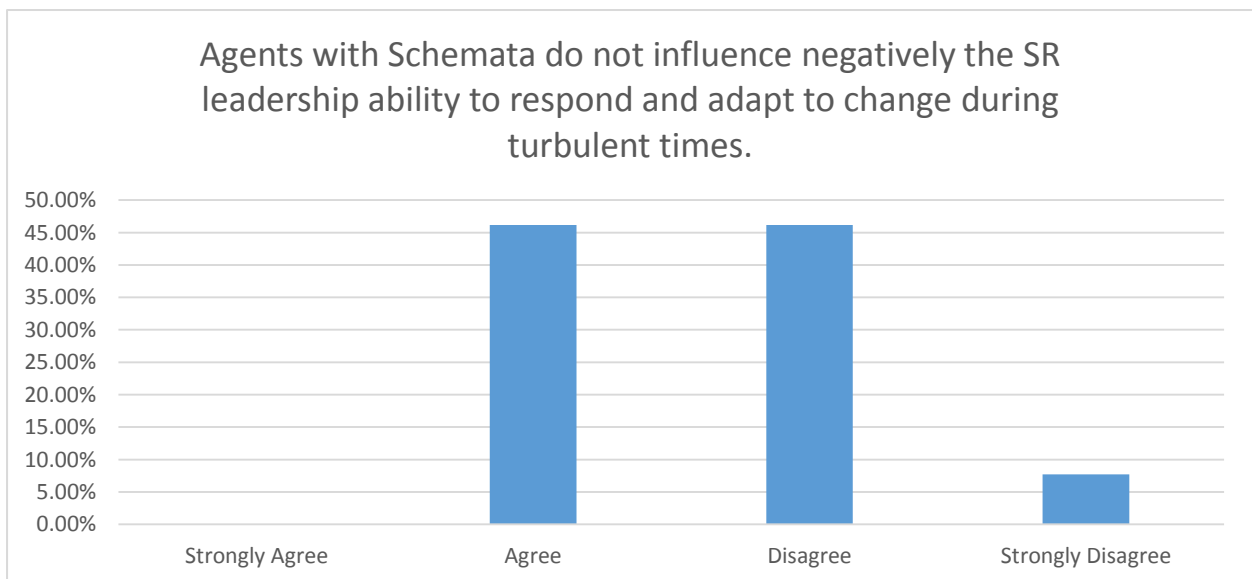
76% of the respondents disagree that the current SR leadership style was NOT dependent upon the past leadership style.

(k) Agents with Schemata



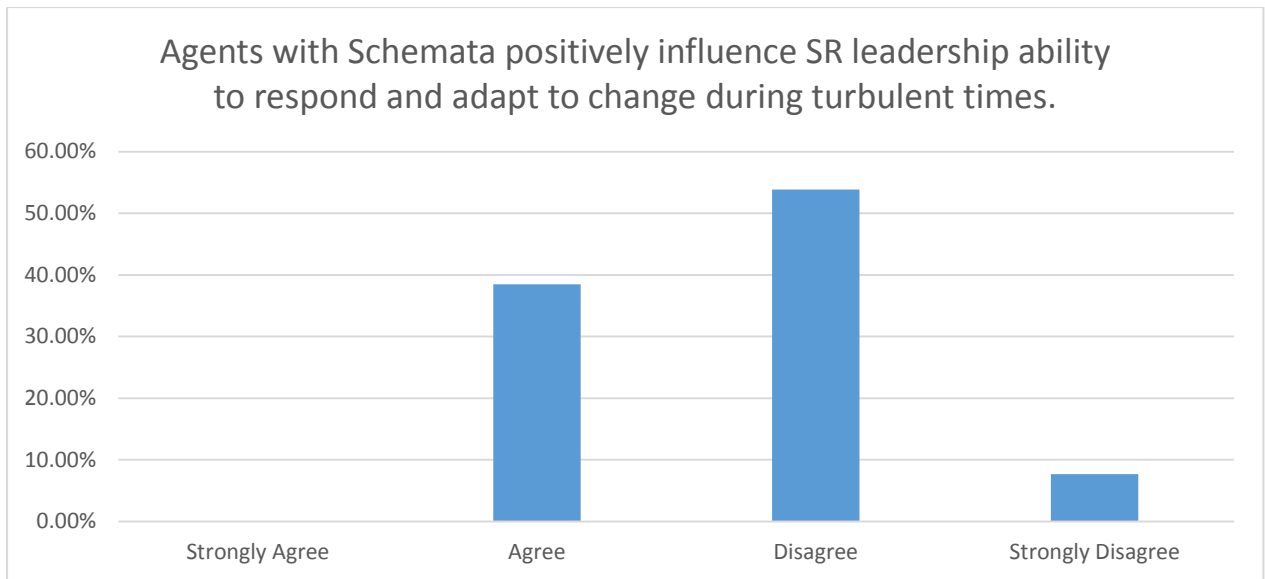
Analysis of the responses;

68% of the respondents disagree that SR leadership was not influenced by agents with schemata set of un-written down rules.



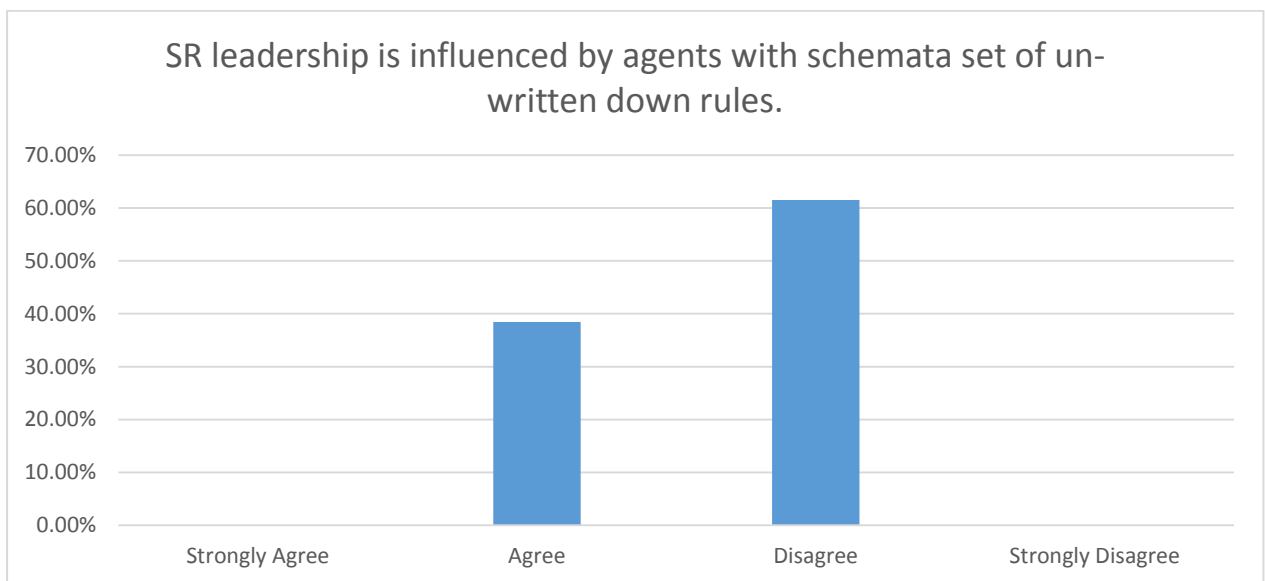
Analysis of the responses;

53% of the respondents disagree that Agents with Schemata do not influence negatively the SR leadership ability to respond and adapt to change during turbulent times.



Analysis of the responses;

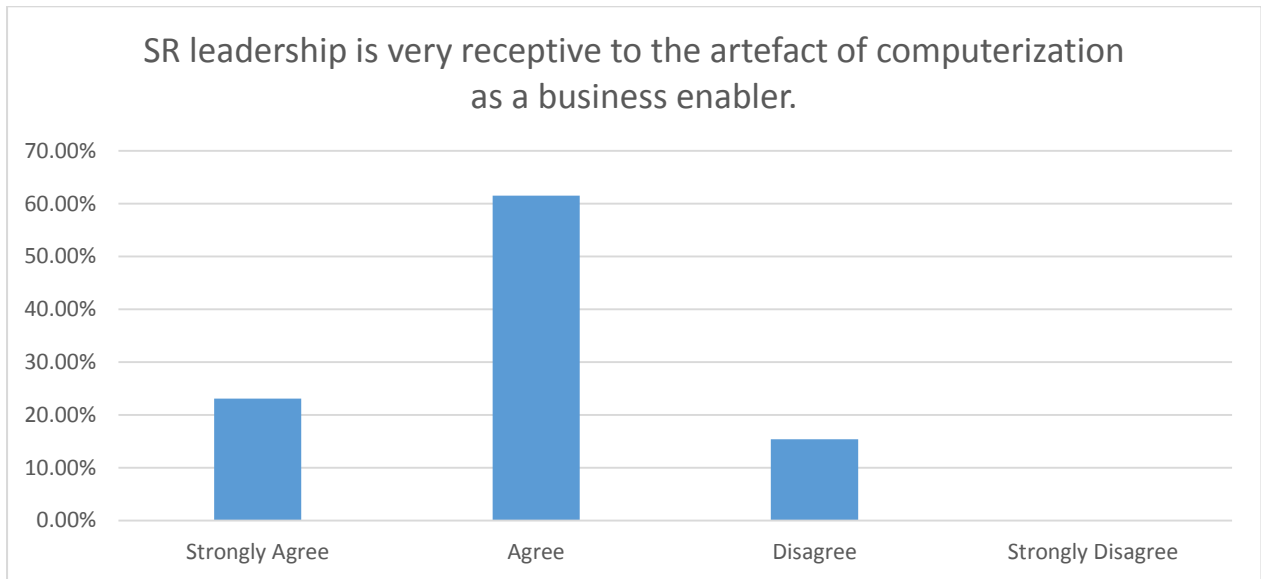
60% of the respondents disagree that Agents with Schemata positively influence SR leadership ability to respond and adapt to change during turbulent times.



Analysis of the responses;

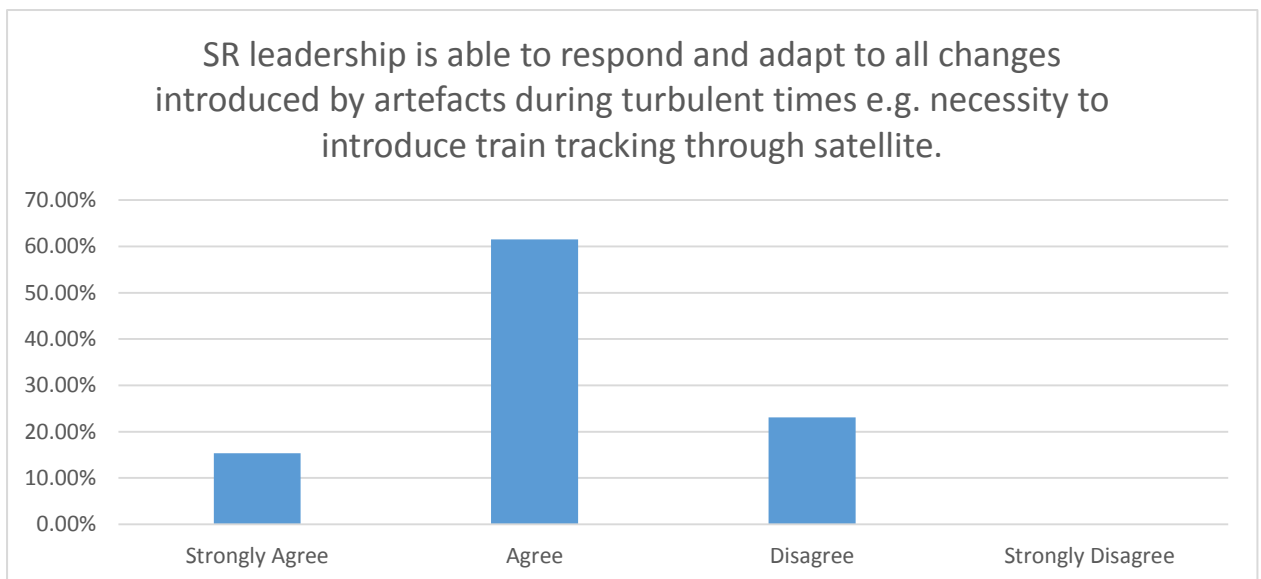
61% of the respondents disagree that SR leadership is influenced by agents with schemata set of un-written down rules.

(I) Artefacts



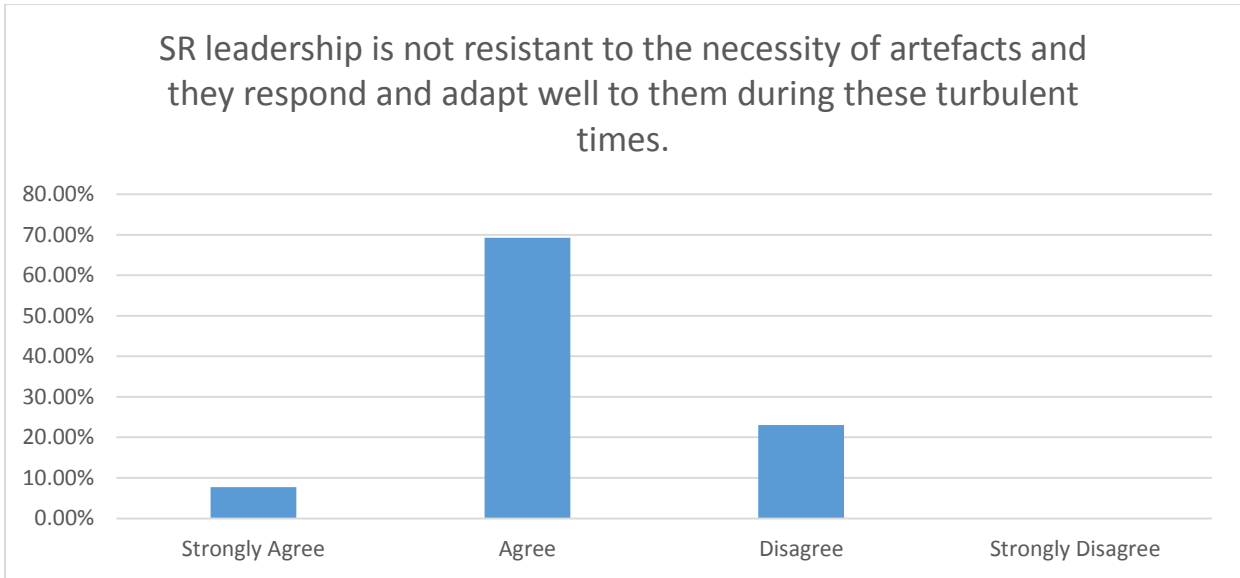
Analysis of the responses;

84% of the respondents agree that SR leadership is very receptive to the artefact of computerization as a business enabler.



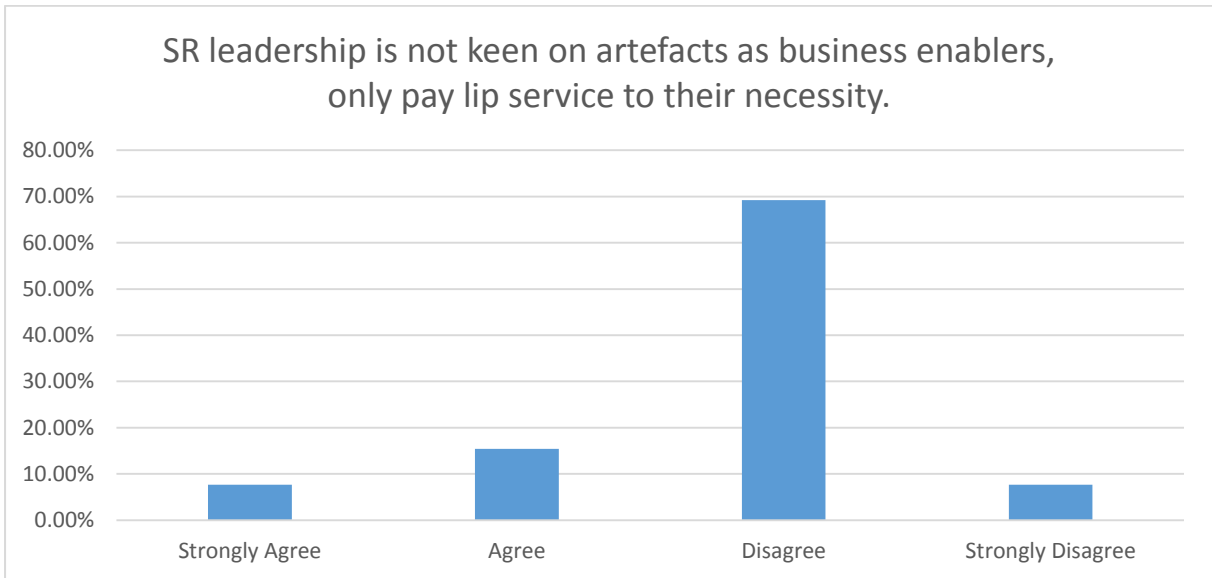
Analysis of the responses;

76% of the respondents agree that SR leadership is able to respond and adapt to all changes introduced by artefacts during turbulent times e.g. necessity to introduce train tracking through satellite.



Analysis of the responses;

76% of the respondents agree that SR leadership is not resistant to the necessity of artefacts and they respond and adapt well to them during these turbulent times.



Analysis of the responses;

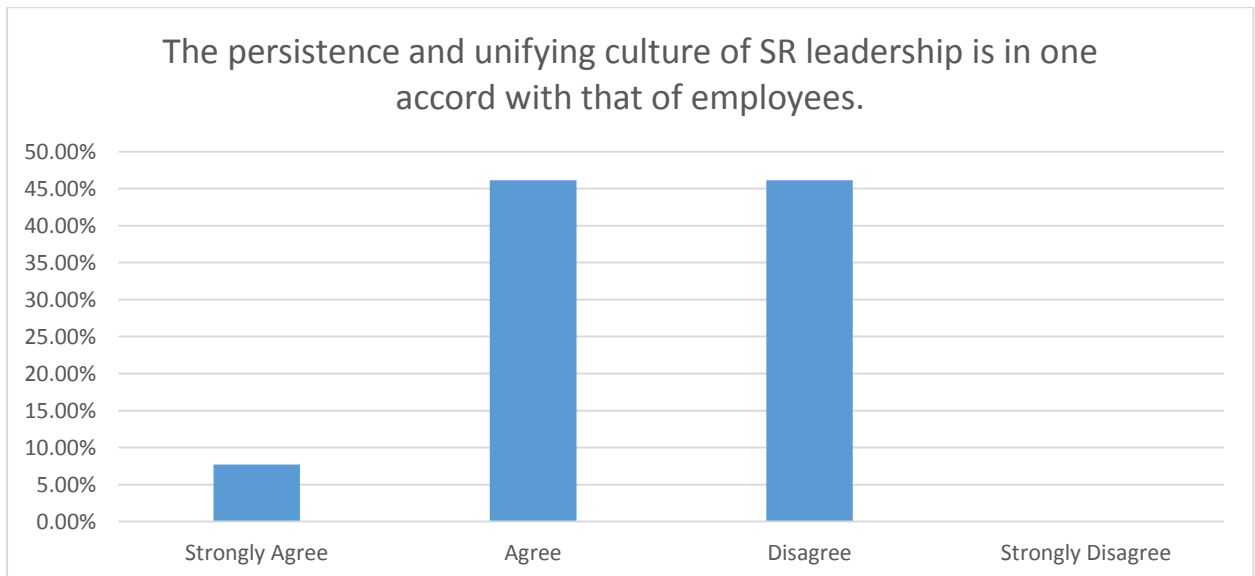
76% of the respondents agree that SR leadership is not keen on artefacts as business enablers, only pay lip service to their necessity.

(m) Persistence



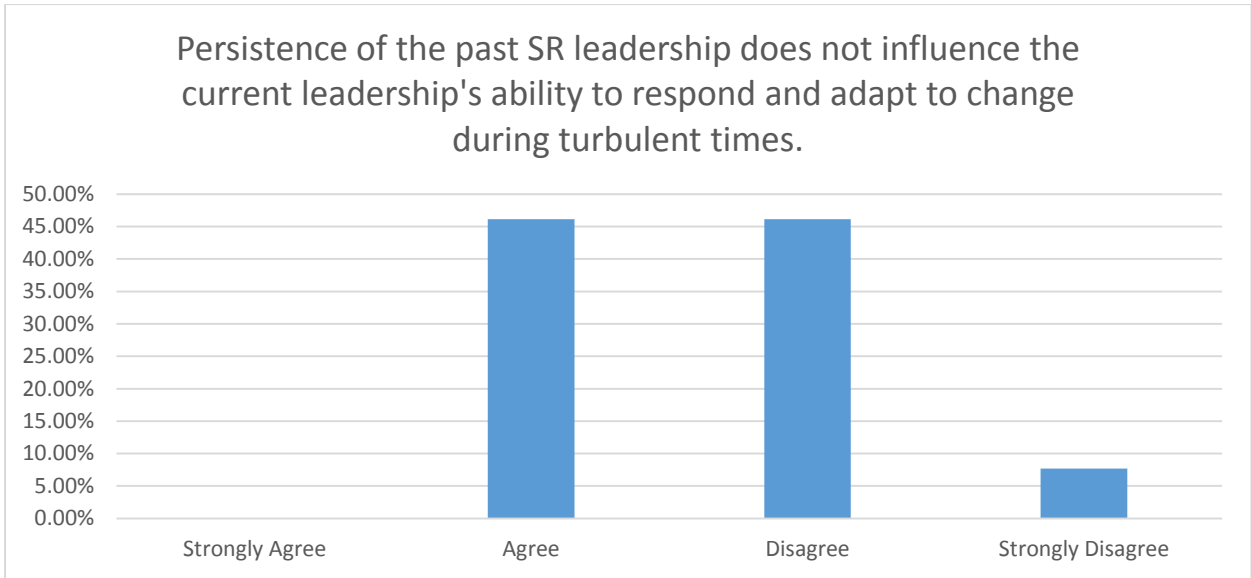
Analysis of the responses;

76% of the respondents agree that the current SR leadership seeks to continue encouraging the past leadership culture.



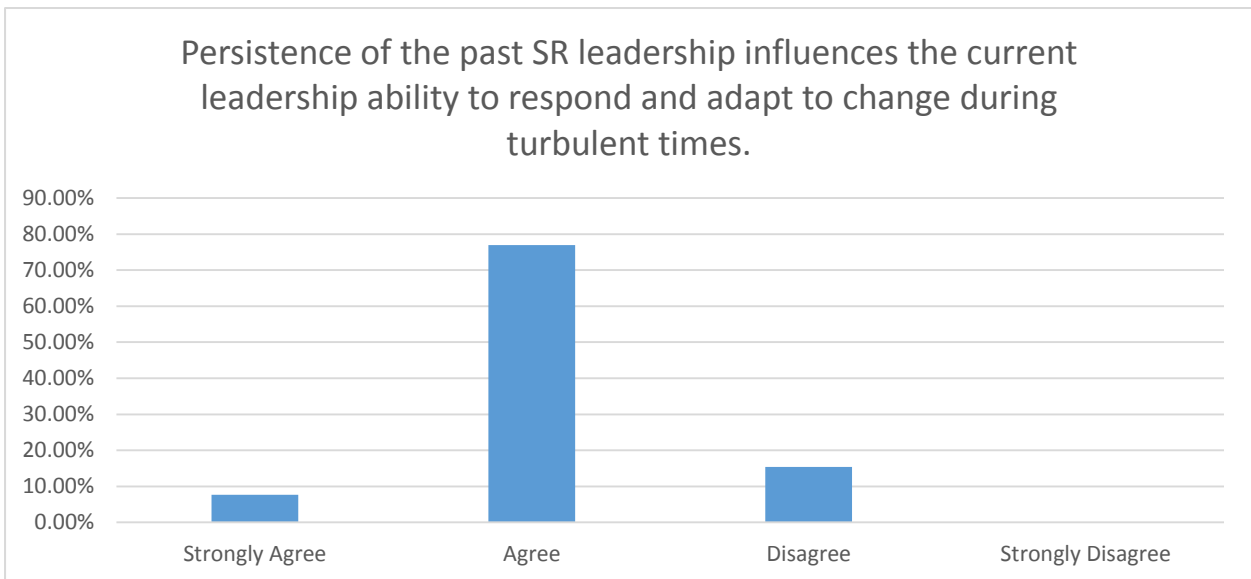
Analysis of the responses;

53% of the respondents agree that the persistence and unifying culture of SR leadership is in one accord with that of employees.



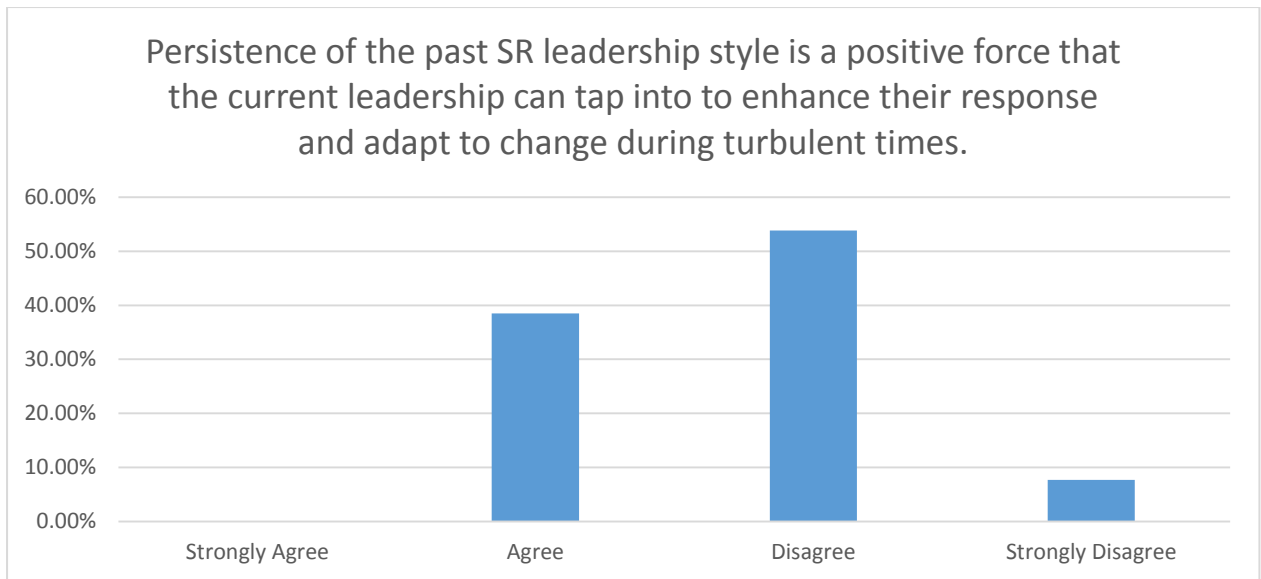
Analysis of the responses;

53% of the respondents disagree that persistence of the past SR leadership does not influence the current leadership's ability to respond and adapt to change during turbulent times.



Analysis of the responses;

83% of the respondents agree that persistence of the past SR leadership influences the current leadership ability to respond and adapt to change during turbulent times.



Analysis of the responses;

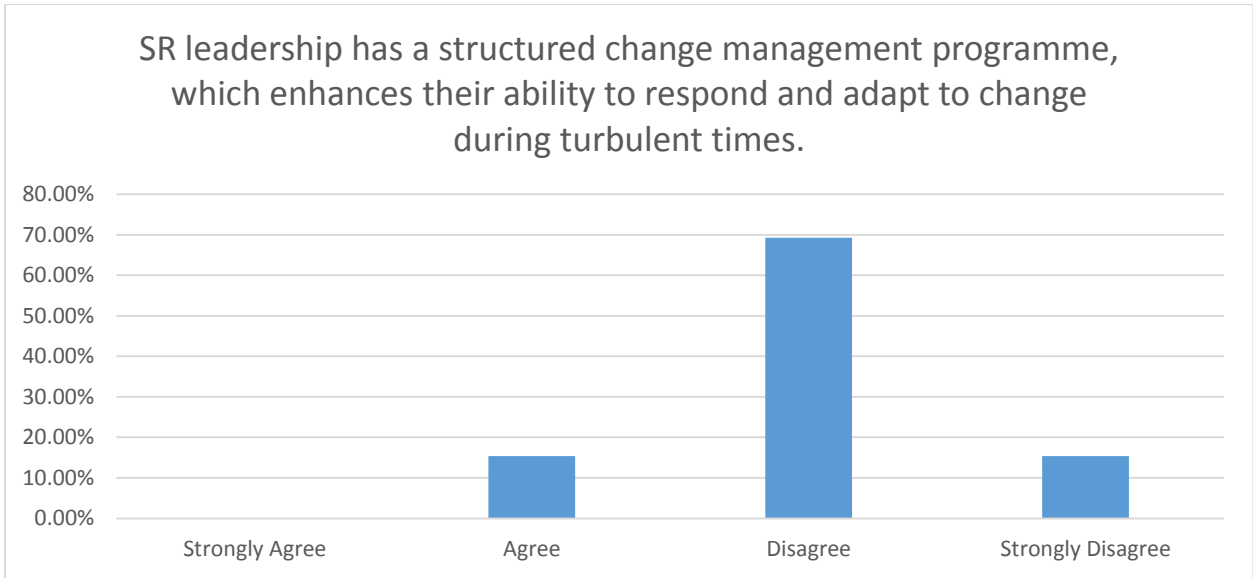
60% of the respondents disagree that persistence of the past SR leadership style is a positive force that the current leadership can tap into to enhance their response and adapt to change during turbulent times.

(n) Change Management



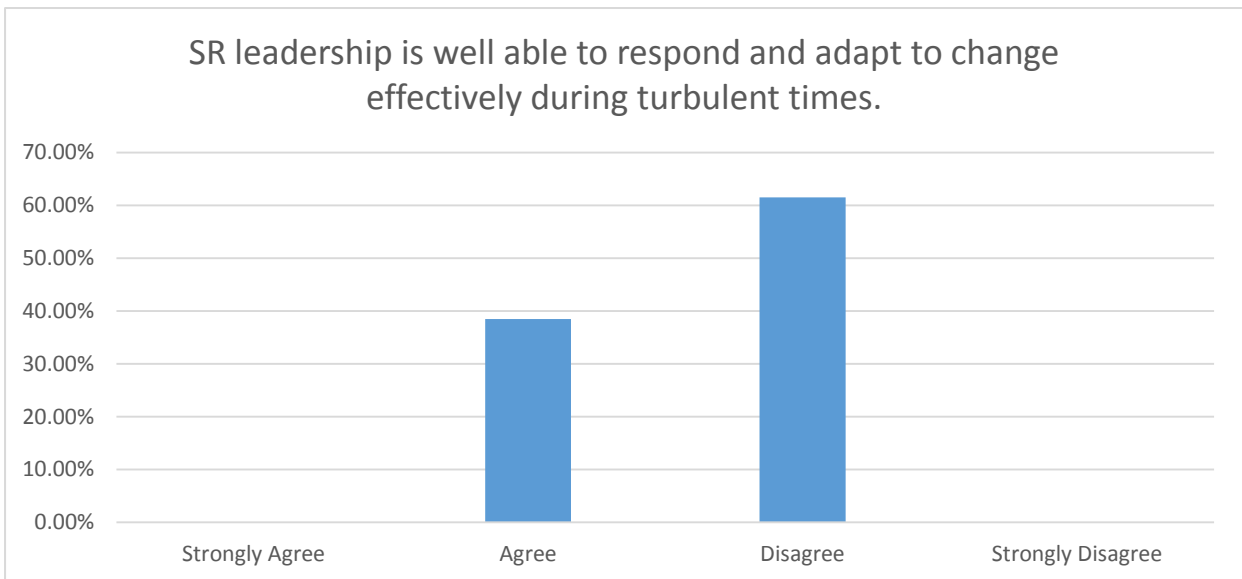
Analysis of the responses;

53% of the respondents disagree that SR leadership is always ready to respond and adapt to any change that happens in the organization.



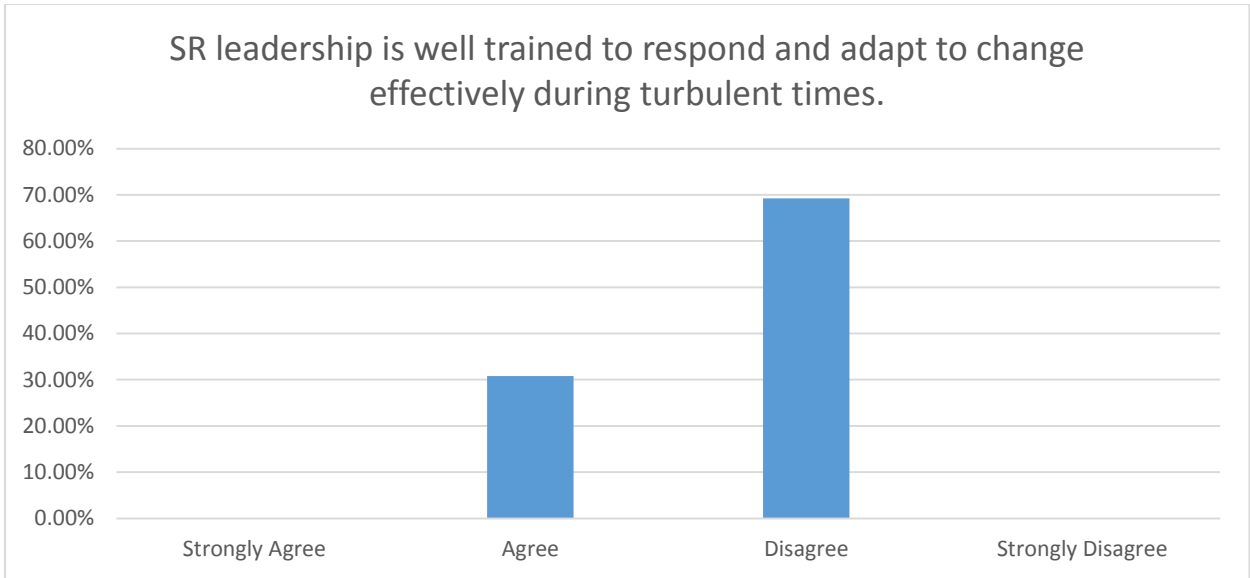
Analysis of the responses;

74% of the respondents disagree that SR has a structured change management programme, which enhances their ability to respond and adapt to change during turbulent times.



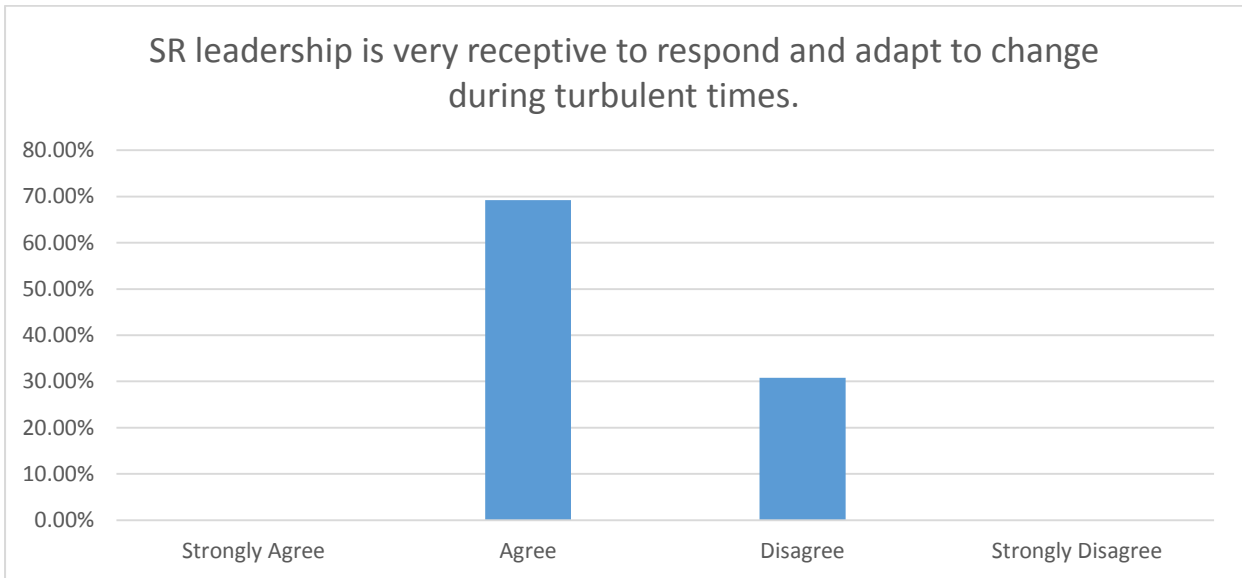
Analysis of the responses;

61% of the respondents disagree that SR leadership is well able to respond and adapt to change effectively during turbulent times.



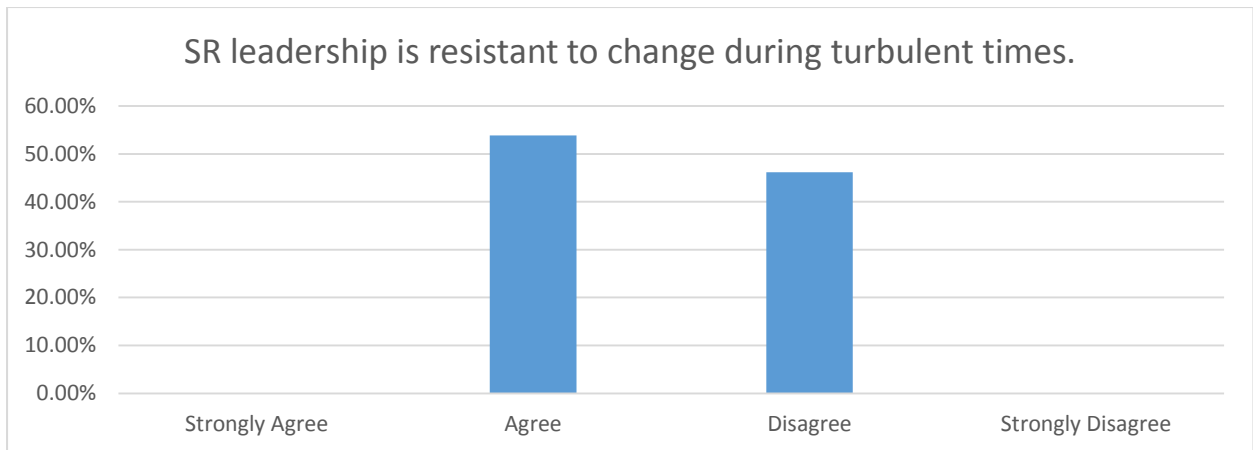
Analysis of the responses;

69% of the respondents disagree that SR leadership is well trained to respond and adapt to change effectively during turbulent times.



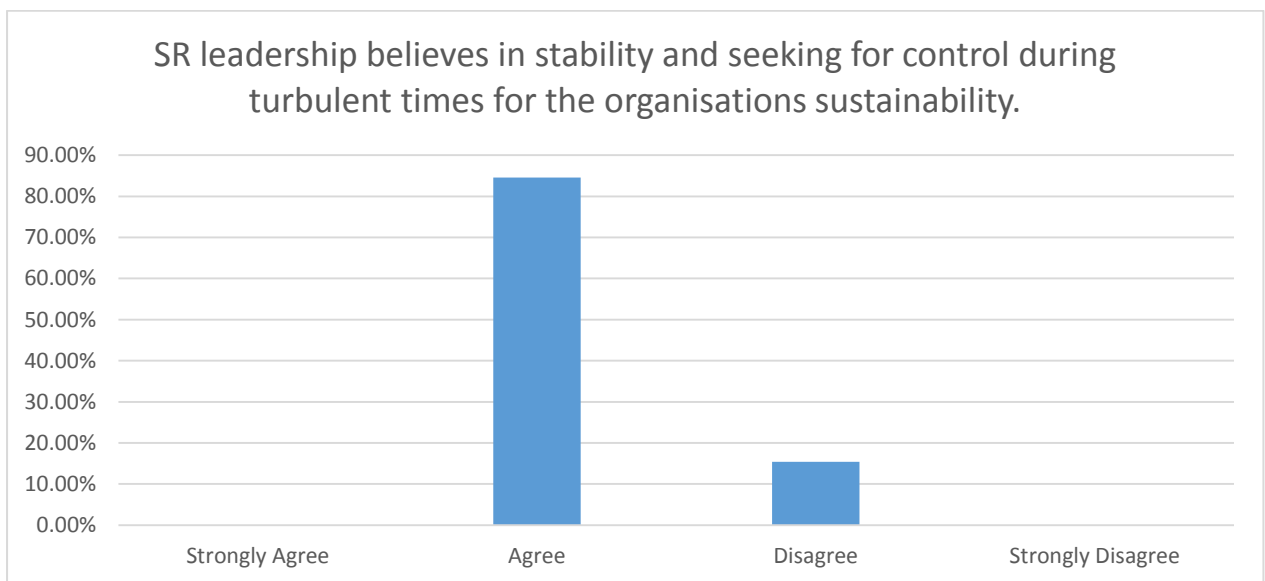
Analysis of the responses;

69% of the respondents agree that SR leadership is very receptive to respond and adapt to change during turbulent times.



Analysis of the responses;

53% of the respondents agree that SR leadership is resistant to change during turbulent times



Analysis of the responses;

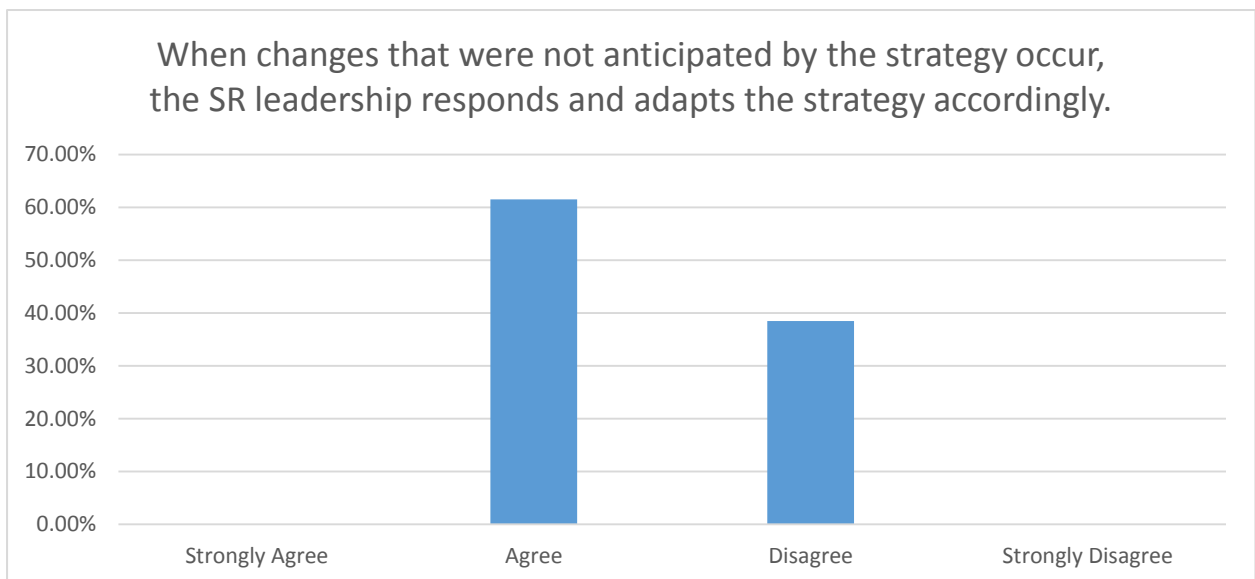
83% of the respondents agree that SR leadership believes in stability and seeking for control during turbulent times for the organisations sustainability.

(o) Strategic objectives



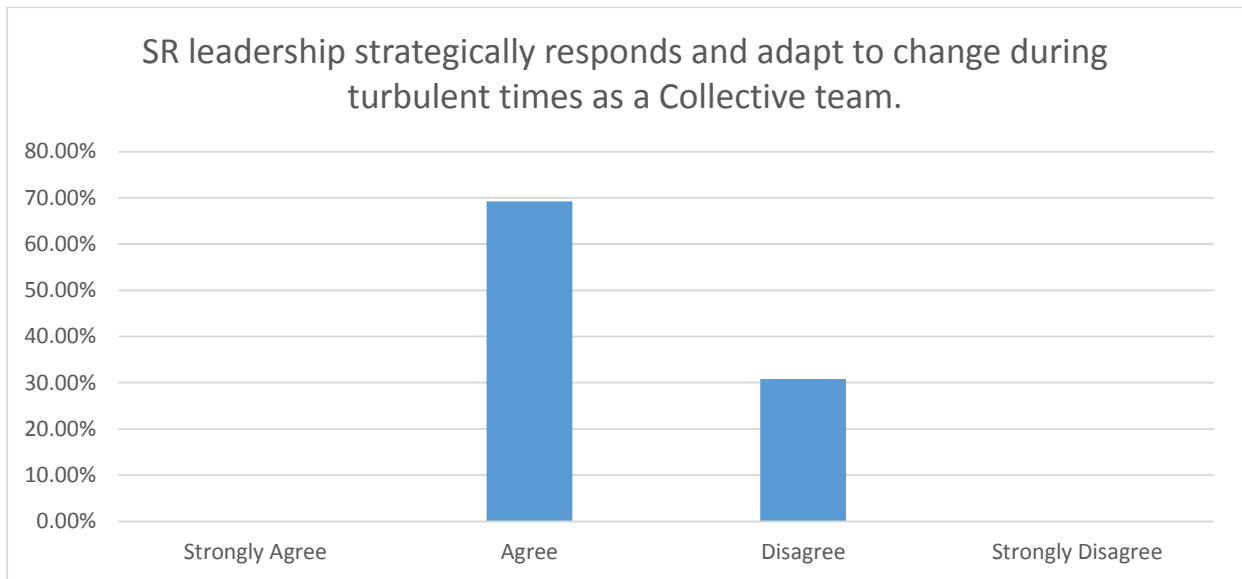
Analysis of the responses;

83% of the respondents agree that the SR strategy guides the SR leadership to enhance the organisation's sustainability.



Analysis of the responses;

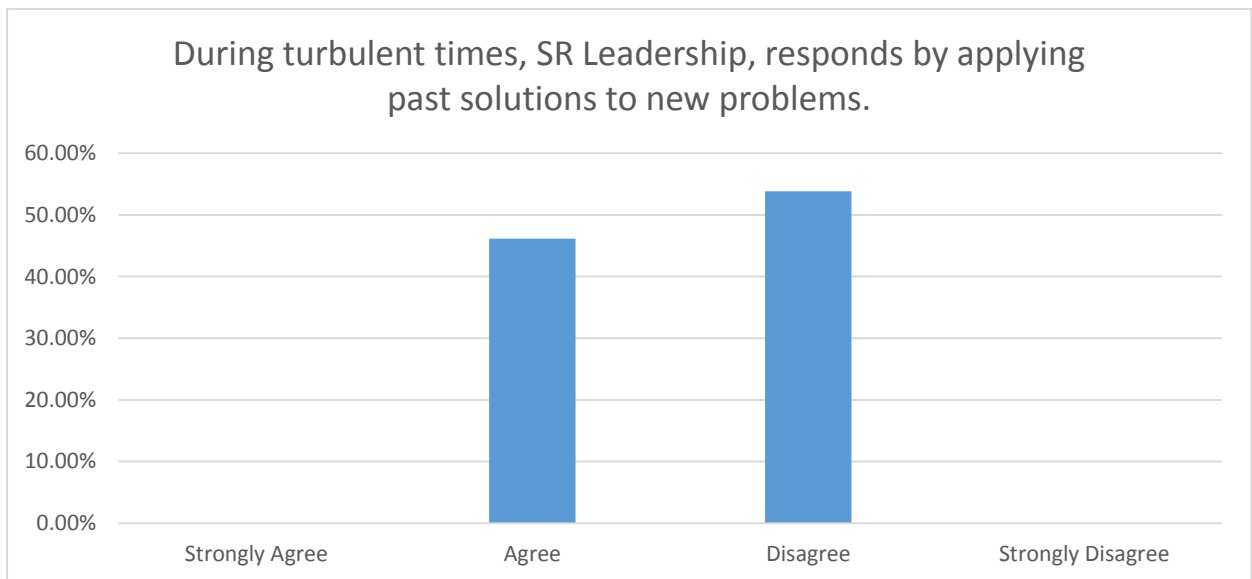
81% of the respondents agree that when changes that were not anticipated by the strategy occur, the SR leadership responds and adapts the strategy accordingly.



Analysis of the responses;

69% of the respondents agree that SR leadership strategically responds and adapt to change during turbulent times as a Collective team.

.



Analysis of the responses;

54% of the respondents disagree that during turbulent times, SR Leadership responds by applying past solutions to new problems.

4.6 Summary analysis of qualitative findings

The overall summary of the quantitative findings was that SR managers believed that the company leadership philosophy was not adequately suited to respond and adapt to change during turbulent times, though the response when that abrupt change occurred, the company reactively responded to it. Implicitly, this meant that the company was compelled to embrace change.

4.7 The demographics of the respondents by gender

The gender distribution of the respondents indicates that out of the 13 respondents in the management cadre, males constituted the largest percentage of 92% and females constituted 8% (Figure 4.1). The main reason that justifies the apparent gender imbalance, even from the sampling stage is that Swaziland Railway overall management demographics currently stands at 86.96% male managers and 13.04% female managers.

Swaziland Railway respondents to questionnaire by gender

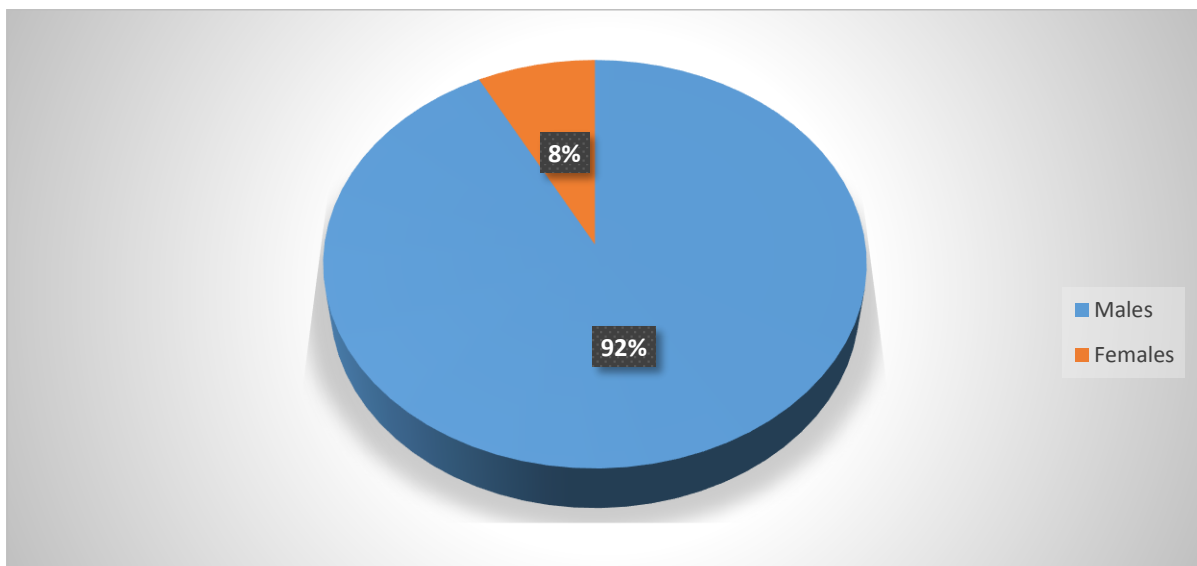


Figure 4.1: Gender distribution of respondents

4.8 The demographics of the respondents by department

Figure 4.1 demonstrates the demographics of the respondents by department. The Operations and Marketing department constituted the largest percentage of respondents due to the fact that out of the total staff complement of 382 employees in the company, 252 are in the Operations and Marketing department, which constitutes 65.97% of the total staff complement.

Swaziland Railway respondents to questionnaire by department

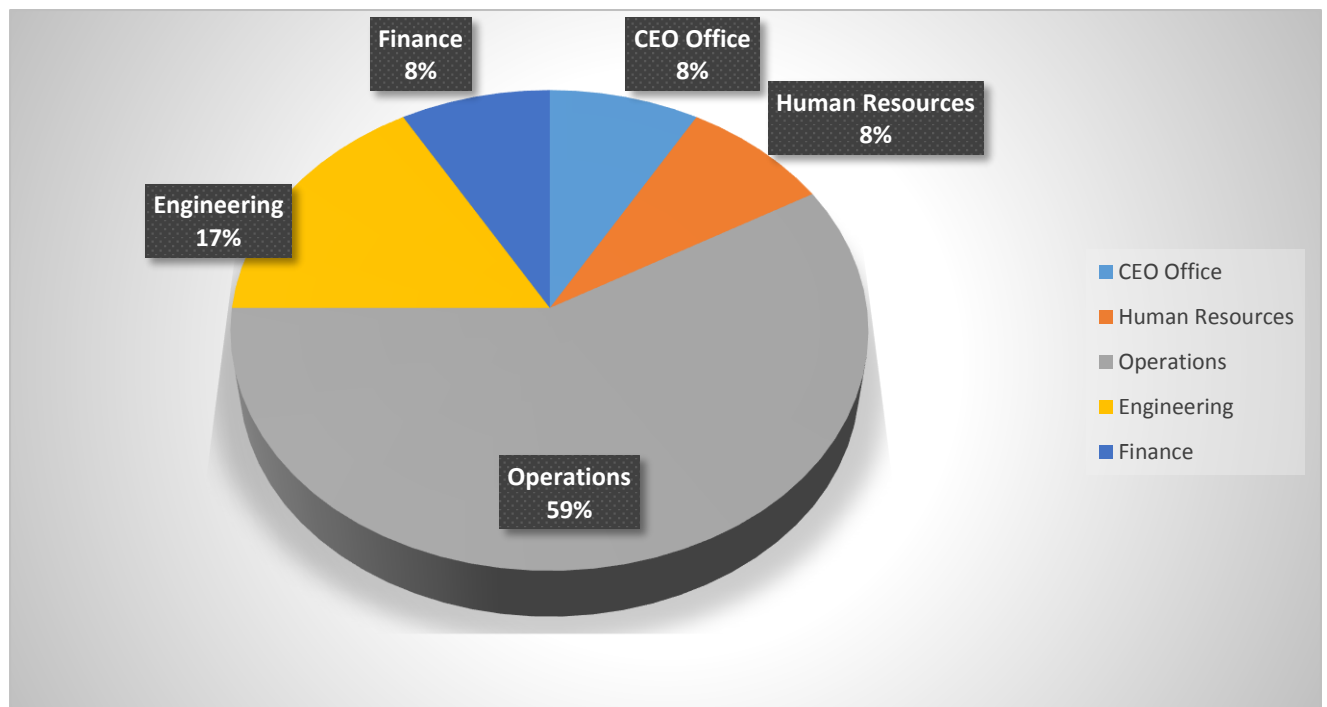


Figure 4.2: Respondents by department

4.9 The number of respondents by years of service

Figure 4.3 indicates the number of respondents by years of service in the company. In order for the data analysis to be informatively meaningful, the sampling of the respondents was based on the length of service fair distribution by having 6 respondents over 10 years of service with the company, 3 respondents with 5 to 10 years of services, 3 respondents with 3 to 5 years of service and 1 respondent with less than 3 years of service with the company.

Swaziland Railway respondents to questionnaire by years of service

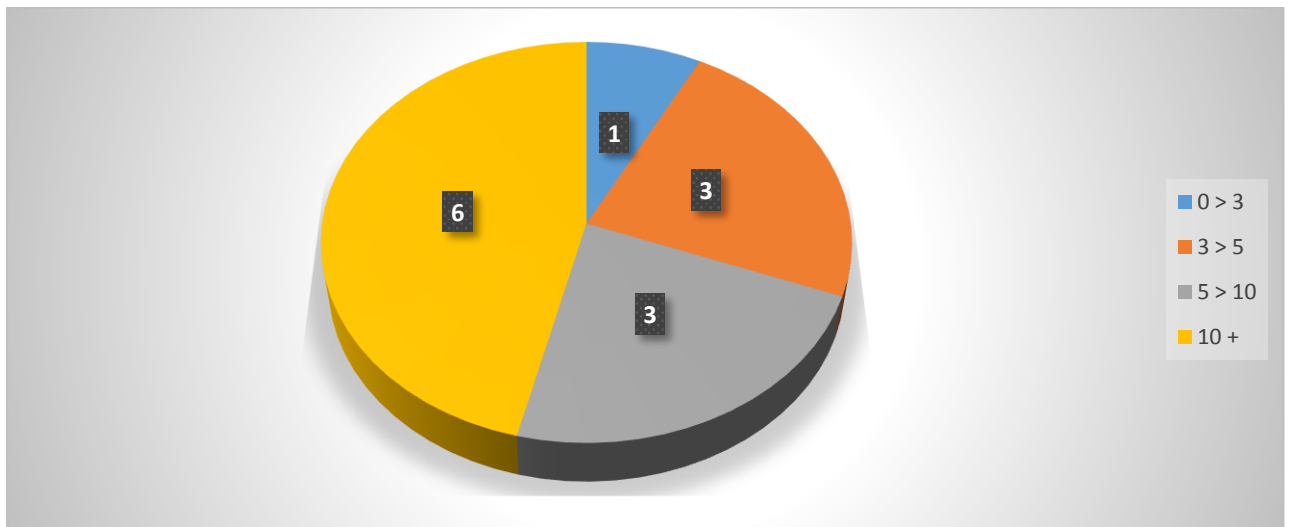


Figure 4.3: Respondents by years of service

4.10 The number of respondents by their age

Figure 4.4 indicates the number of respondents falling within the specified age groups. The figure indicates that there were 3 respondents falling within the age group of 25 years to 35 years. There were 7 respondents falling within the age group of 35 to 45 years. There were 3 respondents falling within the age group of 45 to 55 years and there were no respondents falling within the age group of 55 years and above.

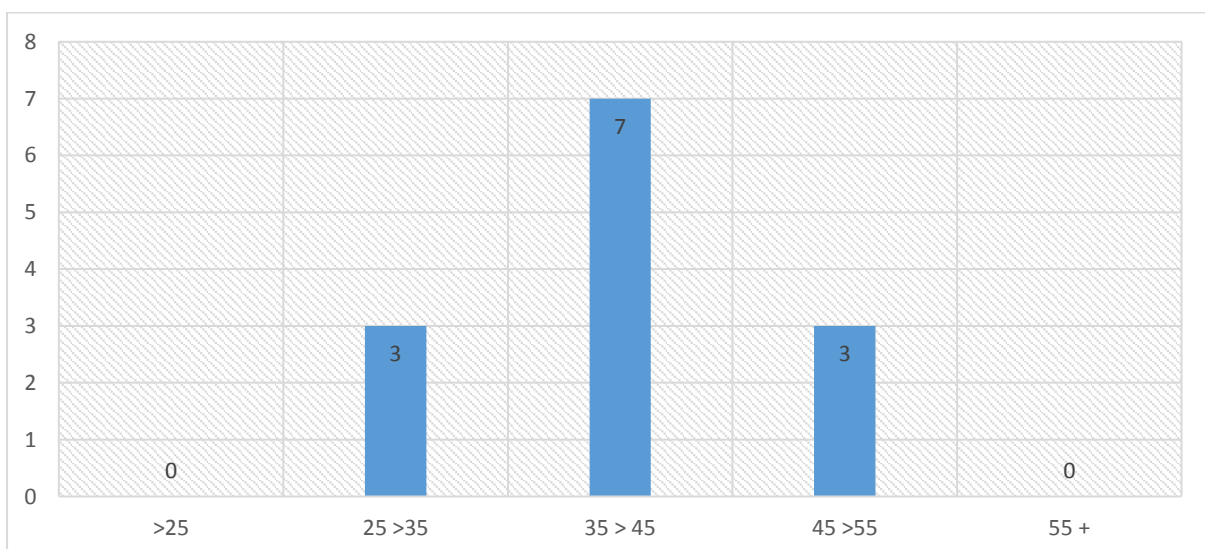


Figure 4.4: Respondents by age

4.11 Respondents by exposure to leadership development in last 5 years

Figure 4.5 indicates the number of respondents who have been exposed to some leadership development training in the last five years. Swaziland Railway currently manages a Training and Development Programme that is informed by Personal Development Plans, agreed to between the Head of Department and the manager. Most of the leadership training that the respondents have been exposed to was as a result of their own initiative and were typically five day workshops.

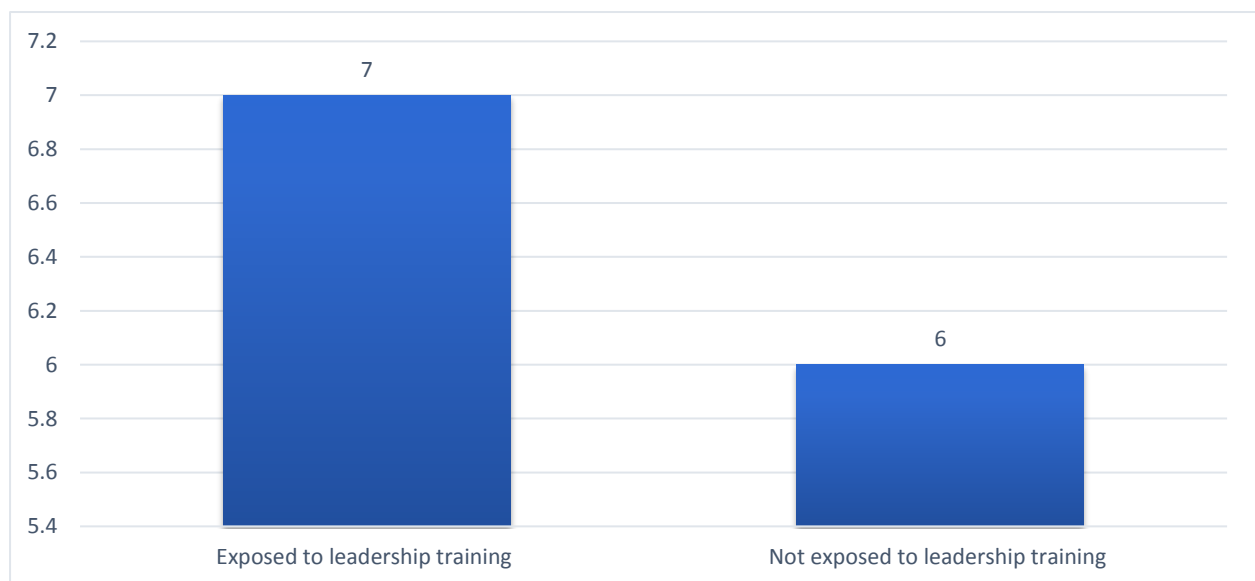


Figure 4.5: Number of respondents exposed to some leadership training in last 5 years

4.12 Additional comments by interviewed Swaziland Railway Managers

The interview requested the managers to indicate any salient points regarding factors that influence Swaziland Railway leadership's ability to respond and adapt to change during turbulent times. The overarching summary of the comments were that Culture change in any organisation is very difficult and Swaziland Railway had a deep culture of *Ubuntu*, thus introducing new and robust leadership style was met with extreme resistance and the mere fact that there was no structured change management programme in the company was an indication that the leadership's ability to respond and adapt to change was generally very low..

4.13 Conclusion

This chapter presented both the qualitative and quantitative unedited findings from the interview and questionnaire respectively.. It also presented the comments from the sampled and interviewed managers about their responses to the Complex Adaptive Systems questions.

Chapter 5 primarily focused on the qualitative and quantitative interpretations of the findings in relation to answering the research objectives.

CHAPTER 5 : DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter primarily focuses on giving meaning to the findings and interpreting the responses in relation to answering the research objective questions and assumptions. The researcher notes that this chapter discusses the data analysis to answer the research questions. Ghauri and Gronhaug (2002) defined data analysis as the process of bringing order, structure and meaning to collected data. According to Witteman and Zikmund-Fisher (2012), data analysis is the process of applying reasoning and making meaning to collected data in order to understand the data (both primary and secondary) that have been gathered or collated.

This chapter presents a discussion of the findings as informed by the responses from the questionnaire. The results are derived from the responses of the sampled managers interviewed at Swaziland Railway and who completed the questionnaire and made additional comments about their views on leadership at Swaziland Railway, insofar as it relates to responding to change. The research sought to establish the factors that influence leadership's ability to respond and adapt to change during turbulent times at Swaziland Railway.

5.2 Purpose of the study

The purpose of the study was to explore the factors that influence leadership ability to respond and adapt to change during turbulent times; a case study of Swaziland Railway.

5.3 Validity and reliability variables

Babbie, Halley and Zaino (2007) define reliability as the quality of the measurement method which suggested that the same results would be reached each time in repeated data collections.

5.3.1 Gender bias

The researcher notes that the gender bias of the sampled managers was skewed to 12 male managers and only one female manager. This imbalance in the sampling was due to the fact that the company is an Engineering and Operations based entity, which is mainly dominated by males in the Swaziland context. This proportion is in keeping with the gender imbalance in Swaziland Railway management demographics overall which currently stands at 86.96% male managers and 13.04% female managers. The researcher therefore notes that the study had a gender bias towards 92% male respondents.

5.3.2 Years of service

The nature of the research warranted sampling and interviewing managers who have had considerable number years of service in the company, who have experienced different leadership styles from the different Chief Executive Officers. The sampling was biased to selecting managers who have experienced different kinds of changes in the company and therefore possess the necessary history of the company to inform the research regarding factors that influence leadership's ability to respond and adapt to change during turbulent times. Furthermore, managers who have long service with the company would have had the experience of how the leadership influenced the growth of the company during the profit making years and therefore could compare that to the different experience of shrinking revenue during turbulent times. The overall ratio of the sampled and interviewed managers six managers with over ten years of service, three managers with over five years to ten years of service, three managers with three to five years of service and one manager with less than three years of service.

5.3.3 Distribution by departments

Most of the sampled and interviewed managers were from the Operations and Marketing department, which also carries the highest number of employees in the company. The total ratio is 252 employees in the Operations and Marketing

department out of 382 employees in the company. The Operations and Marketing department carries the highest number of managers, of which the research selected seven, plus two from the Engineering department, one from the Human Resources department, one from the Finance department and one from the Chief Executive Officer's department.

5.3.4 Distribution by age

Seven respondents were falling between the ages of 35 to 45 years of age. This corresponds with the years of service analysis as most employees in this age bracket normally have been with the company for more than 10 years, if they have been with the same company. Three respondents were between the age bracket of 45 and 55 years and three were between the age brackets of 25 and above years of age.

5.3.5 Research objective 1

The purpose of research objective 1 was to explore factors that influence leadership ability in responding to change, in the context of Swaziland Railway as a case study. The researcher conducted the data analysis from the relevant Complex Adaptive Systems questions that answer research objective 1 from the questionnaire, semi-structured interview and comments from the respondents. The analysis of the respondents indicates the following concepts as key in positively and negatively influencing leadership's ability to respond and adapt to change;

5.3.5.1 History concept from the Complex Adaptive System theory

According to Maxfield (1990), the concept of history refers to the past of an organisation, recorded in the form of tacit or explicit knowledge and/or information that can be tapped into through engagement with individuals or documents. The past has a relationship with the present which contributes to the determination of the future. Between the past and the future is the path shaped by the past. The implication of the concept of history to leadership is that the unique history of an organisation affects decisions the organisation makes to be context specific, which implies that the history

of the organisation influences the decisions made in the future, within the context of the relevance and suitability of that decision to the organisation's specific and unique conditions. Leaders need to understand that history affects and informs the leadership philosophy of a company. Companies hold history records which creates the brand of the company and newly hired employees are inculcated into the culture of the company formed by the history (Maxfield, 1990).

5.3.5.1.1 Relevant question

The relevant question that was put to the respondents in the questionnaire to establish how the history concept influences leadership ability to respond and adapt to change was:

“The history of SR is the best frame of reference to influence SR leadership's ability to respond and adapt to change during these turbulent times.”

5.3.5.1.2 Responses

All the respondents answered or responded to the question in the questionnaire. They further expressed their comments about how the history concept influences leadership ability to respond and adapt to change.

Five respondents agreed that “The history of Swaziland Railway is the best frame of reference to influence the leadership ability to respond and adapt to change during these turbulent times”, and eight disagreed. The respondents commented that Swaziland Railway can respond and adapt its leadership style by eliminating the history legacy of the company and by embracing and learning from history.

5.3.5.1.3 Analysis of findings for research objective 1 (History)

The major thrust of research objective 1 was to explore factors that influence leadership's ability to respond to change, in the context of Swaziland Railway as a case study. Various applicable concepts of the Complex Adaptive Systems that are relevant to the objective and deduce the relevant answers were selected. Regarding

the history concept, the findings are that 38% of the respondents want the historical legacy to be replicated when future decisions are made and do not regard it as a stumbling block to enhancing leadership ability to respond and adapt to change. Conversely, 62% of the respondents believe that the history legacy of the company frustrates leadership's ability to respond adequately to change. The comments note that history is very important to learn from, but not to replicate it when making future decisions for the company.

5.3.5.2 Sensitive Dependence concept from Complex Adaptive System theory

Maxfield (1990) defined sensitive dependence as relating to minor changes in the starting conditions that can have massive effects later on and small incremental actions that can lead to complex outcomes over time. This implies that small or minute actions in an organisation that are either positive or negative if left unchecked can ripple effect to cause catastrophe in the future or good spin-offs for the company. An example could be gossip that the company is going to retrench staff and if management takes too long to clarify the true position this could lead to an illegal work stoppage. The implication of this concept to leadership is that leaders need to understand that some occurrences, resolutions or schematic un-written down rules advocated for in the past have a bearing on future decisions and they are sensitively dependent on the initial conditions.

5.3.5.2.1 Relevant question

The relevant question that was put to the respondents in the questionnaire to establish how the sensitive dependence concept influences leadership ability to respond and adapt to change was:

“SR leadership is well adapted to respond and adapt to change during turbulent times because of the sensitive dependence to past effective leadership ethos.”

Responses

All the respondents answered or responded to the question in the questionnaire. Four of the respondents agreed that the company makes future decisions that are

sensitively dependent on the past leadership ethos. Nine of the respondents disagreed that the company leadership is well adapted to respond and adapt to change because of its sensitive dependence on the past leadership ethos. The respondents commented that “The organisation is going through a legacy changing phase as they are introspection over the first half century of existence and letting go of the legacy is very difficult”.

5.3.5.2.2 Analysis of findings for research objective 1 (Sensitive Dependence)

The qualitative analysis of the sensitive dependence concept indicates that 69% of the respondents disagree that decision making is influenced by sensitive dependence to the past and 31% agree. In answering the research objective 1, which explores factors that influence leadership ability to respond to change during turbulent times, the researcher concludes that decisions made for the future in the company are not sensitively dependent on the past initial conditions.

The comments note that sensitive dependence should not affect the future of the organisation or implicitly and that the past leadership ethos does not influence leadership ability to respond and adapt to change.

5.3.5.3 Path Dependence concept from Complex Adaptive System theory

The concept of path dependence, as defined by Choi, Dooley and Rungtusanatham (2001), states that although the nature of a Complex Adaptive System prevents exact prediction of future actions and outcomes, distinct patterns of past behaviour exist underneath and tend to be replicated, and apparent randomness allows examination and general predictive ability. Small changes may lead to drastically different future paths; however, the same characteristic pattern of behaviour emerges despite the change (Choi *et al.*, 2001).

This concept is relevant to the study in that, as stated by Choi *et al.* (2001), distinct patterns of past behaviour exist underneath and tend to be replicated, and apparent randomness allows examination and general predictive ability. In other words, past

leadership ethos forms patterns of past behaviour that exist in the back ground and those patterns tend to be replicated in the future, which becomes a leadership culture of the organisation. The leadership culture then tends to persist within the organisation, which can conflict with or challenge the introduction of new or contemporary leadership ethos. The implication of this concept to leadership is that leaders need to understand that operating in a complex and turbulent environment needs consideration of the past leadership behaviour and determination of whether adopting the same path that was used by the past leaders positively or negatively influences the leadership ability to respond and adapt to change in the present. The researcher developed relevant questions for the questionnaire that would establish how the path dependence concept influences leadership ability to respond and adapt to change.

5.3.5.3.1 Relevant question

The relevant question that was put to the respondents in the questionnaire to establish how the path dependence concept influences leadership ability to respond and adapt to change was:

“The current Swaziland Railway leadership responds and adapts to change effectively, as influenced by the past leadership ethos.”

5.3.5.3.2 Responses

All the respondents answered or responded to the question in the questionnaire. Five of the respondents agreed that the leadership ability to respond and adapt to change is influenced by the past leadership ethos. Eight of the respondents disagreed that the company leadership is well adapted to respond and adapt to change because of the past effectively leadership ethos.

The respondents commented that “We are still dwelling on the past, which negatively affects Swaziland Railway leadership to adequately respond and adapt to change during turbulent times”.

5.3.5.3.3 Analysis of findings for research objective one (Path Dependence)

The qualitative analysis of the path dependence concept indicates that 38% of the respondents agree that the leadership of the company is influenced by the path dependence concept in leading the organisation. Sixty two percent of the respondents disagree that path dependence influences leadership ability to adequately respond to change based on the past leadership ethos. In answering the research objective 1, which explores factors that influence leadership ability to respond to change during turbulent times, the researcher concludes that the path dependence concept does not affect the company leadership in terms of adequately responding to change. In simpler terms, the past leadership ethos has little influence on shaping how the current leadership leads the organisation.

5.3.5.4 Summary analysis of objective 1

In answering research objective 1, the researcher conducted a qualitative analysis of the responses. The research objective was to explore factors that influence leadership ability in responding to change, in the context of Swaziland Railway as a case study. There were three relevant Complex Adaptive Systems concepts to be explored in determining those factors that highly influence leadership ability to respond to change, namely, history, sensitive dependence and path dependence.

The findings of the research indicate that the history legacy of the company frustrates leadership ability to adequately respond to change, as the long serving managers get inclined to replicate the history to solve contemporary problems that are complex. Regarding sensitive dependence, the researcher concludes that decisions made for the future of the company are not sensitively dependent to the past initial conditions. The researcher notes that the comments from the respondents indicate that sensitive dependence should not affect the future of the organisation or implicitly, the past leadership ethos does not influence leadership ability to respond and adapt to change. In relation to path dependence, the researcher concludes that this concept does not frustrate the company leadership's ability to adequately respond to change. This

means that the past leadership ethos has little influence on shaping how the current leadership leads the organisation.

5.3.6 Research objective 2

The research sought to determine or to examine how Swaziland Railway Leadership responds and adapts to change during turbulent times. The purpose of research objective 2 was to examine how Swaziland Railway leadership responds and adapts to change during turbulent times. The researcher identified two relevant concepts that answer research objective 2.

Based on the questionnaire (appendix A), the research featured the concept of change management and artefacts, which are highly relevant to answering research objective 2. All the respondents answered the questions on change management and on artefacts.

5.3.6.1 Change management

The researcher featured questions about the management of change in the organisation in relation to responding adequately to emerging issues. Aladwani (2001) states that when introducing a new system that seeks to enhance the business efficiency, top management commonly faces an attitude of resistance to change. This common attitude of resisting change has implications for leadership regarding how they deal with it.

5.3.6.1.1 Relevant question

The relevant question that was asked to the respondents in the questionnaire to establish how the leadership responds to change during turbulent times was: “Swaziland Railway leadership is well able to respond and adapt to change effectively during turbulent times.”

5.3.6.1.2 Responses

All the respondents answered the question in the questionnaire. Five of the respondents agreed that the leadership is able to respond and adapt to change effectively during turbulent times. Eight of the respondents disagreed that the company leadership is able to adapt to and respond to change during turbulent times.

The respondents commented that “Swaziland Railway leadership does not have full control of factors affecting the organisation, there is need for a structured change management programme”.

5.3.6.1.3 Analysis of findings for research objective 2 (Change Management)

The analysis of the change management concept indicates that 38% of the respondents agree that the leadership of the company is able and ready to deal with un-anticipated change and 62% of the respondents disagree that the leadership is able to manage emerging change in the organisation. In relation to the change management concept, the research findings indicate that the leadership is not able to effectively deal with change, as the company does not have a structured change management programme.

5.3.6.2 Artefacts concept from Complex Adaptive System theory

The concept of artefacts in leadership implies that any tangible or intangible creation or construction that transforms human lives to the point that life gets revolutionised can lead to total dependence on the artefact. A good example is the invention of electronic communication mediums like electronic mail system, video conferencing and scanned documents. Organisations in the world have been revolutionised by these electronic systems. Maxfield (1998) observes that our artefacts co-evolve with human agents and actually shape our organisations. This means that artefacts are constantly being introduced in organisations and have become a common feature that leadership must embrace as a business enabler. The implication of the artefacts concept to leadership is that leaders have to understand and embrace artefacts as

business enablers and effective leadership enablers, if the companies they lead are to remain competitive.

5.3.6.2.1 Relevant question

The relevant question that was in the questionnaire to establish how the leadership responds to the introduction of artefacts during turbulent times was:

“Swaziland Railway leadership is not resistant to the necessity of artefacts and they respond and adapt well to them during these turbulent times.”

5.3.6.2.2 Responses

The responses to the question were an overwhelmingly ten respondents who agreed that the leadership is not resistant to the necessity of artefacts and they embrace the introduction of artefacts. Three respondents stated that the leadership is resistant to the introduction of artefacts.

5.3.6.2.3 Analysis of findings for research objective two (Artefacts)

The analysis of the artefacts concept indicates that 77% of the respondents agree that the leadership of the company is able and ready to embrace the introduction of artefacts and only 23% of the respondents disagree that the leadership embraces the introduction of artefacts. The researcher concludes that the Swaziland Railway leadership embraces the introduction of artefacts very well.

5.3.6.3 Emergence concept from Complex Adaptive System theory

The concept of emergence in leadership means that tangible and intangible phenomena emerge in the operation of organisations and those emergent properties transform the life of an organisation e.g. computers (Maxfield, 1998).

This concept means that no leader can easily predict what is going to happen next. In an organisation, the way people are interacting appears to be random and new

phenomena appear from the interactions. Patterns tend to emerge from the interactions and those patterns tend to inform the behavior of the system. The implication of this concept for leadership is that leaders need to appreciate that seeking predictability, stability and control is a fallacy as anything can emerge to either stabilise or de-stabilise the system.

The researcher used the concept of emergence to examine how the Swaziland Railway leadership responds to change during turbulent times.

5.3.6.3.1 Relevant question

The researcher featured a question in the questionnaire to examine how the leadership responds to change and the question was:

“SR leadership is always ready to respond and adapt to any type of emerging changes during turbulent times.”

5.3.6.3.2 Responses

All 13 respondents answered the question. Four respondents agreed that the Swaziland Railway leadership is always ready to respond and adapt to any type of emerging changes during turbulent times. Nine respondents disagreed that the leadership is always ready to respond and adapt to any type of emerging changes during turbulent times.

5.3.6.3.3 Analysis of findings for research objective two (Artefacts)

The analysis of the emergence concept indicates that 30% of the respondents agree that the leadership of the company is always ready to respond and adapt to any type of emerging changes during turbulent times. Seventy percent of the respondents disagree that the leadership is always ready to respond and adapt to any type of emerging changes during turbulent times.

The findings indicate that in terms of the emergence concept of Complex Adaptive Systems, managers believe that the company is not always ready to handle emerging changes.

5.3.6.4 Far from Equilibrium concept from Complex Adaptive System theory

According to Simon (1996), any system can go from stable to total disequilibrium very quickly. A commonly cited example is that of the threatened dog that either suddenly moves to attack or panics and flees (Simon, 1996). The concept of far from equilibrium means that seeking an internal state of equilibrium in a system makes it weak and vulnerable to resist or be resilient to external forces as it models itself around the conditions of the internal elements seeking equilibrium. When the external forces impose themselves on the system, the system fails drastically as it has no defense mechanism, since it has not been taking negative feedback because it has been regarded as an undesirable element, whilst the system has been in pursuit of seeking internal equilibrium. Pascale (1999) stated that “Stable equilibrium equals death”. He asserted that for any system to survive, it must cultivate variety in its internal controls; if it fails to do so, it will fail to cope with variety successfully when it comes from external sources.

The implication of this concept for leadership is that leadership research of the past focused on seeking internal equilibrium, stability and control and that when the organisation gets challenged by unforeseen external sources and factors, it usually fails to adapt to the changes as it has not developed internal defense mechanism or adaptation strategies. Leaders need to understand that seeking equilibrium for their organisations is a fallacy as complexity can throw wicked problems that can destroy the organisation due to un-preparedness.

5.3.6.4.1 Relevant question

The researcher featured a question in the questionnaire to examine how the leadership responds to change in relation to seeking stability and developing adaptation mechanisms to cope. The question was:

“SR leadership constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability.”

5.3.6.4.2 Responses

An overwhelmingly eleven of the respondents agreed that Swaziland Railway leadership constantly seeks a state of equilibrium whenever it is faced with situations that de-stabilise the system. Two of the respondents disagreed that the leadership of the company seeks a state of equilibrium whenever the company is threatened with dis-equilibrium. The respondents commented that “Swaziland Railway has been in stable equilibrium for too long and comfortable zone, now is moving away from state of equilibrium”.

5.3.6.4.3 Analysis of findings for research objective 2 (Far from Equilibrium)

The analysis of the far from equilibrium concept indicates that 84% of the respondents agree that the leadership of the company constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability. Sixteen (16%) of the respondents disagree that the company constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability.

The findings indicate that in accordance with the far from equilibrium concept of Complex Adaptive Systems, the organisation fails to respond and adapt to changes adequately as it constantly seeks a state of equilibrium. Simon (1996) argues that an organisation, by seeking an internal state of equilibrium, makes itself weak and vulnerable to resist or be resilient to external forces as it models itself around the conditions of the internal elements seeking equilibrium. When the external forces impose themselves on the system, the system fails drastically as it has no defense mechanism, since it has not been taking negative feedback regarded it as an undesirable element, whilst the system has been in pursuit of seeking internal equilibrium (Simon, 1996).

The analysis indicates that Swaziland Railway leadership is weak to deal with changes as it has no developed mechanisms to deal with change because it is constantly seeking a state of internal equilibrium.

5.3.6.5 Edge of Chaos concept from Complex Adaptive System theory

Complexity in the study of systems denotes that systems subjected to complexity can exist or vacillate between any of three states – stable, chaotic, and one in between (Lewin, 1992). The middle state of any system has been labelled by many complexity researchers as the “edge of chaos” (Lewin, 1992; Kauffman, 1991) where creativity, growth, and useful self-organisation are at their optimal (Frederick, 1998). Follman, Petzinger and Kinne (1990) stated that the essence of the concept of an organisation being poised at “the edge of chaos” is that realistically, based on research and observations, living systems operate at their best and most efficient level in the narrow space between stability and disorder, which is basically when poised at the edge of chaos. The implication of this concept for leaders is that leaders should understand that complexity is certain in organisations and therefore they should focus their attention on maximising novelty, creativity and innovation when the organisation is poised at the edge of chaos.

5.3.6.5.1 Relevant question

The relevant question in the questionnaire was:

“Swaziland Railway leadership is well adapted to operate at the edge of chaos, evidenced by the variety, novelty, creativity and ability to deal with surprises in the business.”

5.3.6.5.2 Responses

Six of the respondents agreed that the leadership responds to change by displaying variety, novelty, creativity and ability to deal with surprises in the business, when the organisation is poised at the edge of chaos. Seven of the respondents disagreed that the organisation responds to change by displaying variety, novelty, creativity and

ability to deal with surprises in the business, when the organisation is poised at the edge of chaos. One respondent commented that “Swaziland Railway leadership is not ready to respond to turbulent times”.

5.3.6.5.3 Analysis of findings for research objective 2 (Edge of Chaos)

The analysis of the findings indicate clearly that the leadership lacks variety, novelty, creativity and ability to deal with surprises when the organisation is poised at the edge of chaos.

5.3.7 Research objective 3

The purpose of research objective 3 was to ascertain the role of the strategic plan and its influence on leadership, in the context of Swaziland Railway as a case study.

The researcher featured questions seeking to ascertain whether Swaziland railway responds to change by either adjusting the strategy to cater for the emerging change or despite any emerging change, holds onto the five year strategy as the panacea for dealing with change.

5.3.7.1 Relevant question

The researcher developed a question that would deduce how the company implements changes that emerge and are outside of the strategy initiatives. The question that was asked was:

“When changes that were not anticipated by the strategy occur, the SR leadership responds and adapts the strategy accordingly.”

5.3.7.2 Responses

Eight respondents agreed that when changes that were not anticipated by the strategy occur, the leadership responds and adapts the strategy accordingly. Five of the respondents disagreed that the leadership adjusts the strategy accordingly to adequately respond to the change.

5.3.7.2.1 Analysis of findings for research objective 3 (strategy)

The findings point out that the Swaziland Railway leadership responds adequately to changes by adjusting the strategy to be aligned to the emerging changes.

5.3.8 Research objective 4

The purpose for this research objective was to ascertain the current leadership ethos of Swaziland Railway. This was purposely featured in the study to serve as a benchmark of the key leadership style of the organisation. The study primarily considered the prominent key leadership style so that a qualitative analysis and benchmark of the current leadership style could be made against the Complex Adaptive Systems concepts. The study revealed that out of all the CAS concepts, the egalitarianism and persistence concepts were prevalent throughout the organisation.

5.3.8.1 Egalitarianism

Pascale (1999) stated that “Today, if you’re going to have a successful company, you have to recognize that the top can’t possibly have all the answers. The leaders provide the vision and are the context setters. But the actual solutions about how best to meet the challenges of the moment, those thousands of strategic challenges encountered every day have to be made by the people closest to the action.”

This concept implies that there is not one single agent who fully understands the entire system and how it operates, such that that agent can make meaningful decisions for all and each and every level of the organisation (Pascale, 1999).

This concept argues that there is not one single agent who fully understands the entire system (organisation) and how it operates, such that that agent can make meaningful decisions for all and each and every level of the organisation. The concept advocates to leadership that leaders have to allow each and every level of the organisation to

make functional decisions, as the converse of egalitarianism creates bureaucracy, which stifles decision making and negates effective leadership

5.3.8.1.1 Relevant question

The research featured a question that would determine how the leadership team perceives egalitarianism and what is the key leadership philosophy when it comes to hierarchical ranking, respect for authority and who is in the rightful position to make decisions for all levels. The question or statement that was featured in the questionnaire was:

“It is only senior and EXCO members who fully understand the business and can make good leadership decisions for the company during turbulent times.”

5.3.8.1.2 Responses

Out of the 13 respondents, only three agreed that it is only senior and EXCO members who fully understand the business and can make good leadership decisions for the company during turbulent times. Ten of the respondents disagreed that it is only senior and EXCO members who fully understand the business and can make good leadership decisions for the company during turbulent times.

5.3.8.1.3 Analysis of findings for research objective three

Ten respondents disagreed that it is only senior and EXCO members who fully understand the business and can make good leadership decisions for the company during turbulent times. This means that 76% of the respondents believe that for effective leadership to exist in the organisation, there should be decentralised decision making from all levels, and not be confined to senior leadership only. One respondent commented that “Swaziland Railway has survived by God’s grace and change needs to be accepted by allowing all levels of management to make decisions”.

5.3.8.2 Persistence

The other key leadership element that featured as being strongly prevalent in Swaziland Railway as a leadership philosophy was the concept of persistence. The concept of persistence in leadership implies that a certain phenomenon tends to persist through history and poises itself as the culture of the organisation. Culture in an organisation tends to persist through co-evolution. At times, some philosophical framework in an organisation persists throughout the history of the organisation. In as much as a Complex Adaptive System is able to adjust itself to the ever-changing nature of the environment around itself, there would those challenges that persist despite the environment displaying characteristics of constant change. The implication of this concept for leadership is that a certain phenomenon tends to persist through history and positions itself as the culture of the organisation. Culture in an organisation tends to persist through co-evolution.

5.3.8.2.1 Relevant questions

In the case of Swaziland Railway, the relevant questions or statements that were asked were:

“The current Swaziland Railway leadership seeks to continue encouraging the past leadership culture.” and;

“Persistence of the past Swaziland Railway leadership style influences the current leadership’s ability to respond and adapt to change during turbulent times.”

5.3.8.2.2 Responses

Out of the 13 respondents, only 10 agreed that the current Swaziland Railway leadership seeks to continue encouraging the past leadership culture. Three (3) of the respondents disagreed that the current Swaziland Railway leadership seeks to continue encouraging the past leadership culture.

On the second question, 11 of the respondents agreed that persistence of the past Swaziland Railway leadership style influences the current leadership ability to respond

and adapt to change during turbulent times. Two of the respondents disagreed that persistence of the past Swaziland Railway leadership style influences the current leadership ability to respond and adapt to change during turbulent times. A comment from one of the respondents was “Swaziland Railway leadership ability to respond and adapt to change is too dependent on the past culture which persists and this negatively affects our response to change”.

5.3.8.2.3 Analysis of findings for research objective 3

The researcher concludes that based on the 10 respondents who agreed that the current Swaziland Railway leadership seeks to continue encouraging the past leadership culture, it is clear that this element limits the organisations ability to respond and adapt to change adequately.

5.4 Conclusion

This chapter highlighted the findings of the research, based on the response of the respondents for each Complex Adaptive Systems concept. Each question or statement that the respondents answered was analysed based on the quantitative aspect of the number agreeing versus those disagreeing. The larger number of the respondents formed the basis of informing the appropriate finding and evidence to conclude empirically the meaning of the concept as being a factor that influences leadership’s ability to respond and adapt to change during turbulent times.

Chapter 6 summarised the research, and made recommendations for the most suitable leadership style to adopt during turbulent times.

CHAPTER 6 : CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter concluded the analysis and findings of the research and answer in a simple manner all the objectives of the study. The researcher further made recommendations of the most suitable leadership style that Swaziland Railway had to adopt during turbulent times.

The objectives of the study were as follows:

1. To explore leadership's ability to respond to change.
2. To determine how leadership adapts to change during turbulent times.
3. To ascertain the role of the strategic plan and its influence on leadership.
4. To ascertain the current leadership ethos of Swaziland Railway.
5. To recommend leadership styles that can be applied during turbulent times.

6.2 Conclusion of findings

This research study used a questionnaire, and Swaziland Railway journals for data collection. The questionnaire was based on Complex Adaptive Systems concepts with statements and or questions that the respondents had to respond to. The responses were analysed to make scholastic interpretations of what they mean in relation to answering the research study topic. The researcher makes conclusions as informed by the findings from each Complex Adaptive Systems question and particularly the responses of the respondents. Below are the conclusions for each research objective.

6.3 Research objective 1

Research objective 1 was to explore factors that influence leadership ability in responding to change.

The researcher concludes that the history legacy of the company, which is held in high regard, frustrates leadership's ability to respond adequately to change. Sixty two percent of the respondents noted that the history legacy is tacitly enforced in decision making, hence responding to change in contemporary ways gets frustrated.

Regarding the sensitive dependence concept, the researcher concludes that decisions made for the future in the company are not sensitively dependent to the past initial conditions. In simple terms, sensitive dependence in decision making at Swaziland Railway is not fundamentally a key factor.

In terms of the path dependence, 62% of the respondents disagree that path dependence influences leadership ability to adequately respond to change based on the past leadership ethos. The past leadership ethos has little influence on shaping how the current leadership leads the organisation.

In terms of how change management influences leadership's ability to respond and adapt to change, 62% of the respondents disagree that the leadership is able to manage emerging change in the organisation. In relation to the change management concept, the research findings indicate that the leadership is not able to effectively deal with change, as the company does not have a structured change management programme.

6.4 Research objective 2

Research objective 2 was to examine how leadership adapts to change during turbulent times.

The researcher concludes that based on the 77% of respondents' agreement that Swaziland Railway embraces artefacts well as business enablers, the leadership of the company is able and ready to adopt change, in relation to artefacts.

In relation to the emergence concept, 70% of respondents disagree that the leadership is always ready to respond and adapt to any type of emerging changes during turbulent

times. The findings indicate that in relation to the emergence concept of Complex Adaptive Systems, managers believe that the company is not always ready to handle emerging changes.

In terms of the far from equilibrium concept, the findings indicate that 84% of the respondents agree that the leadership of the company constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability. This meant that the organisation would be unable to respond and adapt to changes adequately as it constantly sought a state of internal equilibrium, when changes emerged.

The findings of the research indicate clearly that the leadership lacks variety, novelty, creativity and ability to deal with surprises when the organisation is poised at the edge of chaos. This is substantiated by the 53% of the respondents who disagreed that the leadership responds and adapts to change when the organisation is poised at the edge of chaos.

6.5 Research objective 3

Research objective 3 was to ascertain the role of the strategic plan and its influence on leadership.

The researcher sought to establish how the leadership responds to changes that are not catered for in the five year strategy and what actions are taken by the leadership in response to the changes. The findings of the research indicate that Swaziland Railway leadership responds adequately to changes by adjusting the strategy to be aligned to the emerging changes.

6.6 Research objective 4

Research objective 4 was to ascertain the current leadership ethos of Swaziland Railway.

The findings of the study indicate that the most prominent leadership style at Swaziland Railway is autocratic style. Robbins and Coulter (cited in Bodla & Nawaz, 2010: 209) define the autocratic leader as “a leader who tends to centralise authority, dictate work methods, make unilateral decisions, and limit employee participation”.

Evidently, 10 respondents out of 13 from the sample confirm this assertion that the leadership of the company is autocratic by disagreeing with the statement that it is only senior and EXCO members who fully understand the business and can make good leadership decisions. This implicitly means that currently, the leadership style of Swaziland Railway is autocratic.

Further, in terms of the egalitarianism concept, 76% of respondents noted that for good effective leadership to exist in the organisation, there should be decentralised decision making on all levels, and not decision making to be confined to senior leadership only. This was in response to the question of how the leadership style relates to the egalitarianism concept, which advocates that all agents are equal in a system, and that therefore decisions have to be made in all levels.

6.7 Recommendations for effective leadership styles applicable during turbulent times at Swaziland Railway

The recommendations are deduced from the analysis of the responses and interpretations of the questionnaire,(appendix A) based on the leadership ability to respond and adapt to change in relation to each Complex Adaptive Systems concept. The recommendations are solely related to the factors that influence the Swaziland Railway leadership to respond and adapt to change during turbulent times. Notably, the recommendations are the researchers own understanding of the outcomes from the responses and the findings of this study.

First and foremost, Swaziland Railway needs to continue enhancing and leveraging the introduction of artefacts as business enablers during turbulent times. This would enhance leadership efficiency by doing more with less through maximizing technological innovations for some functions.

6.7.1 History concept

The historical legacy of the company is the pride of the old managers with long service, who have built a certain culture around the history. The researcher concludes that the history legacy impedes the overall leadership ability to respond and adapt to change during turbulent times, as it creates a tendency to resist change. The short serving managers are more receptive to change than the long serving ones, who uphold the history legacy as providing good lessons that can be replicated to solve current problems.

The employees believe that the history legacy should be kept, but not that it should influence the current leadership as the terrain of operation has changed and replication of the past leadership style is perceived as a stumbling block to responding and adapting to change.

The overall interpretation is that Swaziland Railway managers believe that history of the company is not necessarily the best frame of reference to influence the leadership ability to respond and adapt to change during turbulent times. Conversely, this means that Swaziland Railway managers want change to happen and not be influenced by the history legacy.

Summarily, it can be concluded that historical legacy is a factor that impedes leadership ability to respond and adapt to change during turbulent times. Particularly long serving employees become more resistant to responding and adapting to change during turbulent times than short serving employees.

6.7.2 Change Management

The conclusion is that change management is not properly managed nor have structures been put in place to cater for change management. The researcher concludes that change is highly resisted by old managers and it impedes the overall leadership ability to respond and adapt to change during turbulent times. Young

managers who have joined the company are more receptive to change and this factor enables the leadership ability to respond and adapt to change during turbulent times.

6.7.3 Recommendations for suitable leadership at Swaziland Railway

The rationale for establishing an enterprise to make profit requires application of effective leadership principles. The application of effective leadership clearly requires leaders who understand that organisations operate in complex environments and one of their key success factors is to position the organisation and all stakeholders to be flexible to respond and adapt to change during turbulent times, so that the organisation can sustain its competitiveness.

The research has indicated that some concepts of the Complex Adaptive Systems theory impede leadership ability to respond and adapt to change and based on the research findings, the researcher makes the recommendations which follow.

6.7.3.1 History

Organisations that have a mix of different generations with vastly different values, but are duty bound to synchronize their ethos in the same work environment, should consider introducing customised reward and recognition programmes targeted to meet the respective values of the different generations. In the case of Swaziland Railway, the long serving managers clearly value the history of the past leadership style and safeguard it with their life so that it does not get eroded by the introduction of new leadership philosophies of the younger generation of managers. An introduction of a recognition program for long service that would honor the history legacy would mitigate the resistance to change by the long serving leaders.

6.7.3.2 Mentoring programmes

The researcher recommends that while introduction of change is highly welcome and is mostly advocated for by the young leaders, the long serving leaders tend to resent the change when they feel that their long service is disregarded as irrelevant in the

advent of robust change. It is recommended that to enhance the leadership ability to respond and adapt to change, the long service leaders should be made subject matter experts to mentor the young leaders. This would mitigate the high resistance to change as it is exacerbated by the different generations with different values, which conflict at work.

6.7.3.3 Teamwork

Great organisations are created through teamwork and teambuilding interventions which transcends through the different values, cultures, races and genders. Such interventions create a seamless leadership team that is adequately prepared to respond and adapt to change during turbulent times.

6.7.3.4 Change management

Organisations the world over face various changes both in the macro and micro environment. Complex Adaptive Systems concepts, mainly those that both positively and negatively influence leadership ability to respond and adapt to change during turbulent times like the edge of chaos, far from equilibrium and path dependence amongst others should be incorporated in structured change management programmes. The researcher recommends that introducing structured change management programmes in order to enhance the leadership's ability to respond and adapt to change during turbulent times.

6.7.3.5 Culture

The researcher recommends that the culture of the company should be defined and articulated to all stakeholders. The definition should focus on detailing the modalities of living the culture to all internal stakeholders so that the company brand is conspicuous. The research has highlighted that emergence challenges an organisation that has no clear defined culture and which is mired by generational gap differences with history legacies so is it is likely to fail to adequately respond and adapt to change during turbulent times. The defining of the company culture would create a

seamless and coherent organisational behavior that enhances the leadership ability to respond and adapt to change adequately.

6.7.3.6 Leadership development programmes

The researcher recommends that a structured leadership development programme that focuses on using the Complex Adaptive Systems concepts to apply effective leadership should be introduced in organisations that face sporadic changes. This would introduce a common understanding of how to adequately respond and adapt to change by using the commonly understood Complex Adaptive systems concepts.

The foregoing recommendations would selectively, according to Complex Adaptive Systems concepts, enhance leadership's ability to respond and adapt to change during turbulent times.

6.8 Suggestions for future research

The researcher notes that most organisations operate in complex environments and they are typically compelled to adapt and respond to change. The Complex Adaptive Systems concepts are contemporary rudders for enhancing leadership's ability to maneuver through turbulent situations. Notwithstanding the significance of the concepts and the importance of every leader to understand and apply them in difficult situations, the challenge of personality clashes, different value systems, different genders, races still remains and challenges the most efficiently designed and crafted leadership ability as would be informed by the knowledge and understanding of Complex Adaptive systems concepts.

The researcher suggests that research on Soft Systems Thinking and leadership ability in the context of Swaziland Railway should be conducted.

This suggestion is premised on the pre-supposition that knowledge and application of Complex Adaptive Systems concepts to enhance leadership ability to respond and adapt to change would not necessarily be a panacea to organisational efficiency, in

the sense that despite the hiring of the most learned and knowledgeable people in one organisation, change management mostly remains a challenge in most organisations due to poor diversity management. The researcher notes that in the South African context, the eradication of the apartheid era compelled people of different races, values, beliefs and educational backgrounds to work together and Soft Systems Thinking concepts knowingly or unknowingly warranted organisations to clearly define problems that were affecting efficient productivity and this led to the birth and introduction of the diversity management practices to enhance organisational efficiencies.

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Appendix A

Questionnaire

FACTORS INFLUENCING LEADERSHIP ABILITY TO RESPOND AND ADAPT TO CHANGE DURING TURBULENT TIMES: A CASE STUDY OF SWAZILAND RAILWAY				
Managerial position				
Gender	FEMALE:		Male	
Length of Service	0 > 3	3 > 5	5 > 10	10 +
Age	> 25	25 > 35	35 > 45	35 > 45
	45 > 55	55 +		
	YES	NO		
Have you been exposed to a structured leadership development Programme/course in the last 5 years				

COMPLEX ADAPTIVE SYSTEM CONCEPTS

EGALITARIANISM

All agents are equal in that they don't fully understand the entire system (there are some areas which operate & function to the total oblivion of other agents)	Strongly Agree	Disagree	Agree	Strongly Disagree
The Executive Leaders of the company fully understand what is happening in the organisation				
The Senior Leaders of the company fully understand the company such that they can make the correct decision for all functional levels (Finance, HR, Engineering, CEO & Operations decisions)				
During these turbulent times, it is only the senior managers and EXCO who can best respond and adapt to change as they fully understand everything and all the levels of the business				
it is only senior and EXCO members who fully understand the business and can make good leadership decisions for the company				
All sound decisions in the company can be best made by the Executive and senior managers				
lower level employees are allowed to make decisions that influence the leadership of the company				
SR has survived because of senior managers and EXCO fully understanding of all functions of the company				
Comments				
HISTORY				

The history of an organisation co-determines its nature, the history of an organisation is contained in all the individual little interactions that take place all the time, distributed throughout the system.	Strongly Agree	Disagree	Agree	Strongly Disagree
The history of how SR leadership is the best style to influence future leadership, for the survival of SR				
SR can respond and adapt to change better by applying the past leadership style				
the history of SR is the best frame of reference to influence SR leadership ability to respond and adapt to change during these turbulent times				
A replay of the history of the company that determined the success of the company is the best solution to influence the future leadership style				
SR can respond and adapt its leadership style by eliminating the history legacy of the company				
Comments				
SELF ORGANISING				
A system self-organises itself to flow or re modify any wicked problem (organisation science for 50 years has focused on controlling uncertainty, the last 20 years has been self-organising to re modify wicked problems	Strongly Agree	Disagree	Agree	Strongly Disagree
SR can best respond and adapt to the negative changes by self-organising itself according to the systems that have worked in the past				
SR leadership can respond and adapt to change during these turbulent times by self-organising itself				
Comments				
EMERGENCE	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership is ready to deal/handle the emergent negative forces that is shrinking the revenue				
SR leadership is receptive to emerging properties and is ready to respond and adapt to the changes during these turbulent times				
SR leadership focuses on controlling uncertainty to determine focused predictability				
SR leadership does not appreciate emerging problems that frustrate the business				
SE leadership is always ready to respond and adapt to any type of emerging changes during turbulent times				
SR leadership style is suited to respond and adapt to the changes during these turbulent times				
emerging properties in the form of problems that are currently shrinking revenue are well received by SR leadership as a common feature of any business				
Comments				

FAR FROM EQUILIBRIUM				
Stable equilibrium equals death, For any system to survive, it must cultivate variety in its internal controls, if it fails to do so, it will fail to cope with variety successfully when it comes from external source's – this qualifies the rationale for bounded instability.	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability - SR leadership constantly thrive for predictability and stability to guarantee sustainability				
SR leadership understands that any system (company) operates in a business model of far from equilibrium (bounded instability)				
SR leadership is always ready to respond and adapt to change during turbulent times because they understand that the company operates in a far from equilibrium model				
SR is in a equilibrium state and thus SR leadership does not have to respond and adapt to any change				
Comments				
FITNESS LANDSCAPE				
A system changes over time, such that the higher you are on the landscape, the more fit you are. Complex systems move in fitness landscape and its constantly moving and changing. Once having reached a temporary peak in the fitness landscape, it must then go down to go up	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership understands that all organisations seek a constant fitness landscape				
SR leadership understands that it is important that an organisation has to experience trouble in order to learn lessons				
SR leadership is therefore always ready to deal with trouble associated with going down of business				
SR leadership is always ready to respond and adapt to changes during turbulent times because they understand that organisations in a temporary peak must go down to go up				
Comments				
EDGE OF CHAOS				
At the edge of chaos, systems are capable of endless variety, novelty, surprises, in short creativity. Pure order means the organisation is dead, pure disorder means nothing gets done. The right mix of order and disorder translates into effective interaction with an environment together with a reservoir of possibilities to draw on when that environment changes	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership understands that every organisation operates at its maximum best at the edge of chaos				
SR leadership is ready to respond and adapt to change whilst at the edge of chaos				
SR leadership is well adapted to operate at the edge of chaos, evidenced by the variety, novelty, creativity and ability to deal with surprises in the business				

At the edge of chaos, SR leadership seeks control as a means to respond and adapt to changes during turbulent times				
Comments				
CO-EVOLUTION				
Agents co-evolve with one another- meaning they transform together, they adapt to its environment to increase their payoff or fitness function overtime, depending on the choices that other agents make and the agents landscape mapping is constantly shifting. Such co-evolution is dynamic, not static.	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership co-evolves and adapts well with most contemporary emergent properties				
SR leadership co-evolves and operates in unity to responds and adapt to changes during turbulent times				
SR leadership is characterised by co-evolution that is seamless and well suited to respond and adapt to change during turbulent times				
SR leadership does not fragment under the pressure of robust changes during turbulent times as they operate in a co-evolution manner (act as a unity)				
Comments				
SENSITIVE DEPENDENCE				
Ripple effect scenario, sensitive dependence on initial conditions “a butterfly in amazon jungle flapping can cause a storm in Indonesia”	Strongly Agree	Disagree	Agree	Strongly Disagree
Sensitive dependence of past leadership ethos enables SR leadership to respond and adapt to change effectively during turbulent times				
Past leadership ethos at SR have very little influence to the current leadership style.				
Past leadership ethos at SR have a very huge impact in influencing the current leadership style to respond and adapt to change effectively during turbulent times.				
SR leadership is well adapted to respond and adapt to change during turbulent times because of the sensitive dependence to past effective leadership ethos				
Comments				
PATH DEPENDENCE				
What happened in the past gets replicated by agents within the same path (Unique final states may be reached due to sensitivity to initial conditions	Strongly Agree	Disagree	Agree	Strongly Disagree
The current leadership style of SR is dependent upon the initial conditions or influenced by the past leadership				
The past leadership of SR was responding and adapting to change effectively				
The current SR leadership responds and adapts to change effectively, as influenced by the past leadership ethos				

The current SR leadership style is NOT dependent upon the past leadership style				
Comments				
AGENTS WITH SCHEMATA				
In a model of an organisation, agents might be individuals, groups, or coalitions of groups. Agents with Schemata is a cognitive structure that determines what action the agents take at a specific time, as modelled by the set of rules	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership is not influenced by agents with schemata set of un-written down rules				
Agents with Schemata do not influence negatively the SR leadership ability to respond and adapt to change during turbulent times				
Agents with Schemata positively influence SR leadership ability to respond and adapt to change during turbulent times				
SR leadership is influenced by agents with schemata set of un-written down rules				
Comments				
ARTEFACTS				
Any tangible or intangible creation or construction that transforms Human lives and find that they can't function without it e.g. ATMs have revolutionised the lives of people	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership is very receptive to the artefact of computerization as a business enabler				
SR leadership is able to respond and adapt to all changes introduced by artefacts during turbulent times e.g. necessity to introduce train tracking through satellite				
SR leadership is not resistant to the necessity of artefacts and they respond and adapt well to them during these turbulent times				
SR leadership is not enthusiastic or resistant to artefacts as business enablers, only pay lip service to their necessity				
Comments				
PERSISTENCE				
Culture in an organisation tends to persist through co-evolution	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership is a unity that seeks to persist in inculcating the past leadership culture				
SR leadership has a common culture that unites the leadership and employees and the culture persists in a consensus format				
Persistence of the past SR leadership does not influence the current leadership ability o respond and adapt to change during turbulent times				
Persistence of the past SR leadership influences the current leadership ability to respond and adapt to change during turbulent times				

Persistence of the past SR leadership style is a positive force to reckon with in enhancing the current leadership to respond and adapt to change during turbulent times				
Comments				
CHANGE MANAGEMENT	Strongly Agree	Disagree	Agree	Strongly Disagree
SR leadership is always ready to respond and adapt to any change that happens in the organisation				
SR leadership has a structured change management programme, which enhances their ability to respond and adapt to change during turbulent times				
SR leadership is well able to respond and adapt to change effectively during turbulent times				
SR leadership is well trained to respond and adapt to change effectively during turbulent times				
SR leadership is very receptive to respond and adapt to change during turbulent times				
SR leadership is resistant to change during turbulent times				
SR leadership believes in stability and seeking for control during turbulent times for the organisations sustainability				
Comments				
STRATEGIC OBJECTIVES	Strongly Agree	Disagree	Agree	Strongly Disagree
The SR strategy guides the SR leadership to enhance the organisations sustainability				
When changes that were not anticipated by the strategy occur, the SR leadership responds and adapts the strategy accordingly				
SR leadership strategically responds and adapt to change during turbulent times as a Collective team				
SR leadership responds and adapts to change by replicating past solutions to new problems during turbulent times				
Comments				

(Appendix B)

Interview questions

Qualitative interview questions based on the Complex Adaptive Systems and SR Leadership ability to respond and adapt to change during turbulent times.

Concept	Questions
Egalitarianism	1. Can you explain your view on the notion that it is only EXCO and senior managers who fully understand the business?
History	2. What is your view to the belief that the history of SR is the best frame of reference to influence SR leadership ability to respond and adapt to change during these turbulent times?
Self-organizing	3. Can you elaborate your perception on the assumption that Swaziland Railway is able to self-organize itself to adapt and respond to abrupt change during turbulent times.
emergence	4. How do you believe SR leadership readiness to respond and adapt to change has fared in response to the emerging turbulent times and how do you perceive the SR leadership style is suited to respond adequately to emerging difficult times.
Far from equilibrium	5. How do you believe that the SR leadership has been adequately prepared to adapt and respond to change by embracing it in avoidance of falling back to old solutions that have worked in the past, which means that constantly seeking a state of equilibrium (stability) in the business to guarantee sustainability?
Fitness landscape	How do you believe SR leadership has responded to the understanding that the organization must at times face difficulty (go down) in order to poise itself to seek and deal with success
Edge of chaos	Give examples of how SR leadership has adapted to operate at the edge of chaos, evidenced by the variety, novelty, creativity and ability to deal with surprises in the business and how do you think the company has fared in operating at the edge of chaos.
Co-evolution	Can you give an analysis of how SR leadership has co-evolved, transformed together to adequately adapt to its environment to increase the payoff or fitness function overtime and give your perception of how the company is suited to adapt and respond to turbulent times through co-evolution.
Sensitive dependence	What do you believe SR leadership is sensitively dependent and well adapted to respond and adapt to change during turbulent times by referring to past effective leadership ethos.
Path dependence	What influence do you think the past leadership ethos has to the current SR leadership ability to respond and adapt to change during turbulent times.
Agents with Schemata	How do you believe Agents with Schemata influence the SR leadership ability to respond and adapt to change during turbulent times?
Persistence	Do you believe that the past leadership ethos have persisted at all in either positively or negatively influencing the SR leadership ability to respond and adapt to change.
Artefacts	How do you believe SR leadership has responded to the advent of artefacts as business enablers that assist the organization to respond and adapt to change during turbulent times?
Change management	SR leadership is well able to respond and adapt to change effectively during turbulent times.

Strategic objectives	Explain how the SR leadership has responded and adapted to change when turbulent times that were not anticipated by the strategy occur.
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APPENDIX C

Presentation of questionnaire results (Quantitative)

Table 3.1 presents all the questionnaire results in one table.

Table 3.1 Table of questionnaire results

EGALITARIANISM				
All agents are equal in that they don't fully understand the entire system (there are some areas which operate & function to the total oblivion of other agents).	Strongly Agree	Agree	Disagree	Strongly Disagree
The Executive Leaders of the company fully understand what is happening in the organisation.	3	7	2	1
The Senior Leaders of the company fully understand the company such that they can make the correct decision for all functional levels (Finance, HR, Engineering, CEO & Operations decisions).	1	7	4	1
During these turbulent times, it is only the senior managers and EXCO who can best respond and adapt to change as they fully understand everything and all the levels of the business.	2	4	6	1
it is only senior and EXCO members who fully understand the business and can make good leadership decisions for the company.	1	3	7	2
All sound decisions in the company can be best made by the Executive and senior managers.	1	2	8	2
lower level employees are allowed to make decisions that influence the leadership of the company.	0	5	6	2
SR has survived because of senior managers and EXCO fully understanding of all functions of the company.	0	6	6	1
HISTORY				
The history of an organisation co-determines its nature, the history of an organisation is contained in all the individual little interactions that take place all the time, distributed throughout the system.	Strongly Agree	Agree	Disagree	Strongly Disagree

The history of how SR leadership is the best style to influence future leadership, for the survival of SR.	1	2	6	4
SR can respond and adapt to change better by applying the past leadership style.	1	2	8	2
the history of SR is the best frame of reference to influence SR leadership ability to respond and adapt to change during these turbulent times.	1	5	5	2
A replay of the history of the company that determined the success of the company is the best solution to influence the future leadership style.	0	2	9	2
SR can respond and adapt its leadership style by eliminating the history legacy of the company.	2	8	2	1
SELF ORGANISING				
A system self-organises itself to flow or re-modify any wicked problem (organisation science for 50 years has focused on controlling uncertainty, the last 20 years has been self-organising to re-modify wicked problems.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR can best respond and adapt to the negative changes by self-organising itself according to the systems that have worked in the past.	2	5	6	0
SR leadership can respond and adapt to change during these turbulent times by self-organising itself.	2	10	1	0
EMERGENCE				
	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership is ready to deal/handle the emergent negative forces that is shrinking the revenue.	2	7	3	1
SR leadership is receptive to emerging properties and is ready to respond and adapt to the changes during these turbulent times.	1	10	2	0
SR leadership focuses on controlling uncertainty to determine focused predictability.	1	7	5	0
SR leadership does not appreciate emerging problems that frustrate the business.	2	3	8	0
SE leadership is always ready to respond and adapt to any type of emerging changes during turbulent times.	1	4	7	1
SR leadership style is suited to respond and adapt to the changes during these turbulent times.	0	7	5	1
Emerging properties in the form of problems that are currently shrinking revenue are well received by SR leadership as a common feature of any business.	1	9	3	0
FAR FROM EQUILIBRIUM				

Stable equilibrium equals death. For any system to survive, it must cultivate variety in its internal controls, if it fails to do so, it will fail to cope with variety successfully when it comes from external source's – this qualifies the rationale for bounded instability.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership constantly seeks a state of equilibrium (stability) in the business to guarantee sustainability.	2	9	2	0
SR leadership understands that any system (company) operates in a business model of far from equilibrium (bounded instability).	2	7	4	0
SR leadership is always ready to respond and adapt to change during turbulent times because they understand that the company operates in a far from equilibrium model.	1	6	6	0
SR is in a equilibrium state and thus SR leadership does not have to respond and adapt to any change.	2	0	9	2
FITNESS LANDSCAPE				
A system changes over time, such that the higher you are on the landscape, the more fit you are. Complex systems move in fitness landscape and its constantly moving and changing. Once having reached a temporary peak in the fitness landscape, it must then go down to go up.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership understands that all organisations seek a constant fitness landscape.	1	6	6	0
SR leadership understands that it is important that an organisation has to experience trouble in order to learn lessons.	0	6	7	0
SR leadership is therefore always ready to deal with trouble associated with going down of business.	2	6	5	0
SR leadership is always ready to respond and adapt to changes during turbulent times because they understand that organisations in a temporary peak must go down to go up.	1	5	7	0
EDGE OF CHAOS				
At the edge of chaos, systems are capable of endless variety, novelty, surprises, in short creativity. Pure order means the organisation is dead, pure disorder means nothing gets done. The right mix of order and disorder translates into effective interaction with an environment together with a reservoir of possibilities to draw on when that environment changes.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership understands that every organisation operates at its maximum best at the edge of chaos.	0	5	8	0
SR leadership is ready to respond and adapt to change whilst at the edge of chaos.	1	8	4	0
SR leadership is well adapted to operate at the edge of chaos, evidenced by the variety, novelty,	0	6	7	0

creativity and ability to deal with surprises in the business.				
At the edge of chaos, SR leadership seeks control as a means to respond and adapt to changes during turbulent times.	0	11	2	0
CO-EVOLUTION				
Agents co-evolve with one another- meaning they transform together, they adapt to its environment to increase their payoff or fitness function overtime, depending on the choices that other agents make and the agents landscape mapping is constantly shifting. Such co-evolution is dynamic, not static.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership co-evolves and adapts well with most contemporary emergent properties.	0	9	4	0
Co-evolution is evident in SR leadership during turbulent times.	0	6	7	0
SR leadership is characterised by co-evolution that is seamless and well suited to respond and adapt to change during turbulent times.	0	4	9	0
SR leadership does not fragment under the pressure of robust changes during turbulent times as they operate in a co-evolution manner (act as a unity).	0	5	8	0
SENSITIVE DEPENDENCE				
Ripple effect scenario, sensitive dependence on initial conditions “a butterfly in Amazon jungle flapping can cause a storm in Indonesia”.	Strongly Agree	Agree	Disagree	Strongly Disagree
Sensitive dependence of past leadership ethos enables SR leadership to respond and adapt to change effectively during turbulent times.	1	6	6	0
Past leadership ethos at SR have very little influence to the current leadership style.	2	4	5	2
Past leadership ethos at SR have a very huge impact in influencing the current leadership style to respond and adapt to change effectively during turbulent times.	3	7	2	1
SR leadership is well adapted to respond and adapt to change during turbulent times because of the sensitive dependence to past effective leadership ethos.	0	4	9	0
PATH DEPENDENCE				
What happened in the past gets replicated by agents within the same path (Unique final states may be reached due to sensitivity to initial conditions.	Strongly Agree	Agree	Disagree	Strongly Disagree
Philosophies of the past SR leadership still influence the current SR leadership.	4	9	0	0
The past leadership of SR was responding and adapting to change effectively.	0	6	7	0

The current SR leadership responds and adapts to change effectively, as influenced by the past leadership ethos.	1	4	8	0
The current SR leadership style is NOT dependent upon the past leadership style.	1	2	8	2
AGENTS WITH SCHEMATA				
In a model of an organisation, agents might be individuals, groups, or coalitions of groups. Agents with Schemata is a cognitive structure that determines what action the agents take at a specific time, as modelled by the set of rules.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership is not influenced by agents with schemata set of un-written down rules.	0	4	8	1
Agents with Schemata do not influence negatively the SR leadership ability to respond and adapt to change during turbulent times.	0	6	6	1
Agents with Schemata positively influence SR leadership ability to respond and adapt to change during turbulent times.	0	5	7	1
SR leadership is influenced by agents with schemata set of un-written down rules.	0	5	8	0
ARTEFACTS				
Any tangible or intangible creation or construction that transforms Human lives and find that they can't function without it e.g. ATMs have revolutionised the lives of people.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership is very receptive to the artefact of computerization as a business enabler.	3	8	2	0
SR leadership is able to respond and adapt to all changes introduced by artefacts during turbulent times e.g. necessity to introduce train tracking through satellite.	2	8	3	0
SR leadership is not resistant to the necessity of artefacts and they respond and adapt well to them during these turbulent times.	1	9	3	0
SR leadership is not keen on artefacts as business enablers, only pay lip service to their necessity.	1	2	9	1
PERSISTENCE				
Culture in an organisation tends to persist through co-evolution.	Strongly Agree	Agree	Disagree	Strongly Disagree
The current SR leadership seeks to continue encouraging the past leadership culture.	2	8	3	0
The persistence and unifying culture of SR leadership is in one accord with that of employees.	1	6	6	0
Persistence of the past SR leadership does not influence the current leadership's ability to respond and adapt to change during turbulent times.	0	6	6	1
Persistence of the past SR leadership influences the current leadership ability to respond and adapt to change during turbulent times.	1	10	2	0

Persistence of the past SR leadership style is a positive force that the current leadership can tap into to enhance their response and adapt to change during turbulent times.	0	5	7	1
CHANGE MANAGEMENT				
SR leadership is well able to respond and adapt to change effectively during turbulent times.	Strongly Agree	Agree	Disagree	Strongly Disagree
SR leadership is always ready to respond and adapt to any change that happens in the organisation.	1	5	7	0
SR leadership has a structured change management programme, which enhances their ability to respond and adapt to change during turbulent times.	0	2	9	2
SR leadership is well able to respond and adapt to change effectively during turbulent times.	0	5	8	0
SR leadership is well trained to respond and adapt to change effectively during turbulent times.	0	4	9	0
SR leadership is very receptive to respond and adapt to change during turbulent times.	0	9	4	0
SR leadership is resistant to change during turbulent times.	0	7	6	0
SR leadership believes in stability and seeking for control during turbulent times for the organisations sustainability.	0	11	2	0
STRATEGIC OBJECTIVES				
When changes that were not anticipated by the strategy occur, the SR leadership responds and adapts the strategy accordingly.	Strongly Agree	Agree	Disagree	Strongly Disagree
The SR strategy guides the SR leadership to enhance the organisation's sustainability.	1	10	2	0
When changes that were not anticipated by the strategy occur, the SR leadership responds and adapts the strategy accordingly.	0	8	5	0
SR leadership strategically responds and adapt to change during turbulent times as a Collective team.	0	9	4	0
During turbulent times, SR Leadership, responds by applying past solutions to new problems.	0	6	7	0



26 November 2015

Mr BS Nsingwane 214578678
Graduate School of Business and Leadership
Westville Campus

Dear Mr Nsingwane

Protocol reference number: HSS/1587/015M

Project title: Factors influencing leadership ability to respond and adapt to change during turbulent times: A case study of Swaziland Railway

Full Approval – Expedited Application

In response to your application received on 28 October 2015, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully


.....
Dr Shenuka Singh (Chair)

/ms

Supervisor: Dr Rosemary Sibanda
Academic Leader Research: Dr M Hoque
School Administrator: Ms Zarina Bullyraj

Humanities & Social Sciences Research Ethics Committee

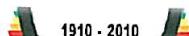
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