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The evidence of organisational cognitive neuroscience propositions in the lived experience of change leaders

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ABSTRACT

Change leadership is challenging as leaders don't know enough about drivers of employee's behaviour. Organisational cognitive neuroscience offers an opportunity in understanding employee's behaviour and reactions in the workplace (Cameron & Green, 2015). This study aims to verify whether neuroscience propositions, particularly Rock's (2008, 2009) SCARF principle, indeed prevent organisational dysfunction associated with change. Insights are gained into the neuroscience of employee behaviour in the context of change management. This study also offers change leadership guidance to ensure optimal productivity and the prevention of organisational dysfunction by exploring organisational health.

Exploratory qualitative research using in-depth interviews of 20 Executives from large organisations with recent change experience was utilised. The insights from these interviews formed the basis of the data that was analysed through content and thematic analysis to reveal the research findings of this study.

Three major findings are presented. First, there is evidence for neuroscience propositions amongst change leaders. Secondly, it was found that SCARF was not sufficient and that MIC-SCARF which is Meaning making, Inclusion, Communication, Significance, Certainty, Autonomy, Relatedness and Fairness offers additional guidance to change leadership by embedding such neuroscience propositions as a culture within the organisation. Thirdly, embedding a culture of neuroscience assists change leaders to prevent organisational dysfunction and create organisational health. The concept of *sustainable organisational health* is what practitioners should be working towards. The findings are integrated into a neuroscience framework for change leaders to obtain sustainable organisational health.

KEYWORDS

Organisational cognitive neuroscience, change leadership, organisational health, organisational dysfunction

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It is not been submitted before for any degree or examination in another University. I further declare that I have obtained the necessary authorization and consent to carry out this research.

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CHAPTER 1: INTRODUCTION TO RESEARCH PROBLEM

1.1. Description of problem and background

Social psychology has been completely embroiled in organisation studies, and cognitive neuroscience still has to do so (Lee, Senior and Butler, 2012). The importance of this is that Yeats and Yeats (2007) and Healey and Hodgkinson (2014) state it would be negligent of the organisational practitioner to not utilise cognitive neuroscience research to better understand the association between the brain and the mind, and furthermore, by ignoring neurophysiological materiality is to disconnect organisations from the lower-tier boundary conditions that shape their reality. According to Lee et al. (2012) the use of neuroscience to management is a new field yet one that guarantees to advance our basic comprehension about our working lives. The brain operates using the reward and threat response mechanism (Chorn, 2015; Rock, 2008; Rock, 2009; Rock & Cox, 2012). This has serious implications for how the current knowledge worker is able to deal with an ever changing environment, the need to innovate, and to think outside of the box. Yeats and Yeats (2007) assert that by applying a cognitive neuroscience methodology to deal with organisational change, it is conceivable to merge on a more prominent comprehension of the neural substrates of everyday social behaviour.

In a world set apart with increasing interconnectedness and continuous change, there is a developing need to enhance the way individuals cooperate and adjust to change in organisations (Ernst and Young, 2011; Heerwagen, 2010). The effectiveness of change management is low as leaders do not take cognisant of the complexity of change, they concentrate on tools, strategy and structures as opposed to focusing on how individuals change by shaping characters through relating (Karp and Helgo, 2008). Understanding the genuine drivers of human social behaviour is turning out to be perpetually critical in this environment (Rock, 2008). This positions the gap in the literature, understanding the drivers for behaviour in the context of the changing environment. Neuroscience may offer some guidance in understanding how employees cope with change in order to better inform how organisations can deal with change more effectively.

Rock (2008, 2009) developed the SCARF principle which is based on neuroscience principles and is said to prevent organisational dysfunction. The difficulty with this however is that popular theory is often used in practice within organisations as an ‘accepted truth’ which has limited empirical value due to much of the practitioner work

being case study-based, anecdotal, and not thorough in its methodology (Todnem, Hughes & Ford, 2016). An example of such a phenomenon is 'Level 5 leadership' that is widely used in understanding leadership but lacks sound academic research (Liccardo, 2007; Rosenzweig, 2014). The converse is also true, where such popular theory may have merit in an organisational setting but it is not given the credit it deserves due to the lack of academic evidence. Thus there is a tradition of such theories existing in a parallel state, reinforcing the silos due to a lack of rigorous research. If researchers want to have the sort of difference in theory and practice that is sort after, it requires researchers to look all the more thoroughly at their reasoning and their exploration especially in the field of change leadership (Davies, 2012). Along these lines, there is a commitment to challenge assumptions and myths as opposed to be taken in by them and regarding them as acknowledged truths (Todnem et al., 2016).

This research study bridges the divide between the practitioner and scholar's worlds by contributing to the academic rigour of a popular Strategy+Business article, which is a practitioner based management magazine for decision makers in organisations, on a neuroscience proposition called the SCARF principle (Rock, 2009; Rock & Cox, 2012). Rock (2008; 2009) explains using this principle may prevent organisational dysfunction, without explaining the concept of organisational dysfunction in his study, by creating an environment that affords employees Status, Certainty, Autonomy, Relatedness and Fairness. Whilst some of these elements have merit individually through other research studies, the SCARF principle needs credibility building if it indeed prevents organisational dysfunction particularly in the context of organisations that need to build change as a core competency. Furthermore, in a review of the SCARF principle in 2012 by Rock and Cox (2012), they suggest that the SCARF model also enhances individuals' ability to comprehend and eventually change their own behaviour in social settings, to thus be more flexible and versatile. It ought to be proven then whether oversimplification of the management of organisational dysfunction associated with change, change leadership and improved employee adaptability has brought about questionable management theory and impractical evaluation tools or not (Healey & Hodgkinson, 2014). Furthermore, Todnem et al. (2016) state that in Kotter's (2016) terminology a 'sense of urgency' needs to be initiated to change how we study, theorise and teach change leadership.

The ability of leaders to prevent organisational dysfunction and enable effective adaptation to change within their organisation is imperative for the survival of the

organisation (Anderson & Brown, 2010). Even though we do understand how leaders influence organisational change, Todnem et al. (2016) suggest that we may be confined to a mythological change leadership narrative which in suggesting that we are almost there, minimises the chance of reflecting on issues impacting on change leadership. Furthermore, Alvesson & Sveningsson (2016) express that a rethinking of change is needed within the organisational context, where change is considered a continuous process rather than episodic. Organisations and change leaders in specific need to prepare their employees for change being a constant now and into the future. However, a future that looks different to the current reality presents a possible threat to people and this negatively impacts on their ability to see any logical benefits of change (Chorn, 2015). This is the space of neuroscience.

Organisations must develop the ability to change as a core competency (Cummings & Worley, 2014). Luecke (2003) suggests that the ideal change methodology would be a situation where organisations and their people are continuously vigilant and responsive to cues in the external and internal environment in an incremental fashion. However, it is understood that change is experienced by individuals as difficult (Carter, 2012; Fishbane, 2015). What we have learnt from change management failures in organisations is that it is not more or different theory that is needed in the management of change, rather a robust appreciation of what individuals are doing on a daily basis would prove valuable (Karp & Helgo, 2008). Neuroscience offers guidance on why change is experienced as difficult which is important to understand if leaders are to better deal with change in their organisations and create more change ready organisations. If the impact of change is minimised for employees they are able to be more productive and creative in problem solving which would be in the interest of the business.

1.2. Purpose of the study

As organisational change is such an important process, the management thereof is highly stressed as a required management skill (Senior, 2002). Of all change initiatives implemented, Balogun and Hailey (2004) report a failure rate of around 70%, while IBM (2004) suggests it is higher, up to 90%. Whilst the presence of a high change failure rate is recognised, Hughes (2011) and Lawrence (2015) contend that there exists no proof to support this claim. It may be suggested, however, that failed change initiatives may point to a fundamental need to understand the tools available to change leaders to best impact

change, and in this case the neuroscience propositions that may possibly impact individuals behaviour to deal with change at an organisational level.

Todnem (2005) suggested the change process becomes reliant on leadership, who do not understand the impact and consequences of their actions most of the time. The SCARF principle presents a simple methodology that suggests if practiced will prevent organisational dysfunction (Rock, 2009), however, it does not give details as to how this can be achieved and organisational dysfunction in the context of change is not explained in Rock's (2009) work either. Since the introduction of the SCARF principle in 2008, it has become a popular model for practitioners. This includes being named as one of the "Best Ideas of 15 Years" by Strategy+Business magazine (Rock & Cox, 2012). This research study aims to verify whether these neuroscientific propositions indeed prevent organisational dysfunction in the experience of change leaders.

In a review of leadership articles published in the *Journal of Change Management* by Todnem et al. (2016), the most frequent theme has been developing the competency and ability of change leaders. Todnem (2005) says more research is needed on the nature of change management from an empirical perspective and additional exploratory studies need to be conducted in order to enhance the understanding of organisational change management. Ford and Ford (2012) add there is simply not enough empirical research that specifically addresses change leadership to provide recommendations and strategies of what works. Todnem et al. (2016) found that the available research is vague and inadequate regarding what effective leadership is and the effect of change leaders approaches, behaviors, and activities on the outcome of any kind of change. Hence the need to look more deeply into what change leaders can do, approaches to follow, and issues to bear in mind to effect positive change in organisations, with positive spin offs for employee behaviour and performance.

From a theoretical perspective, Todnem (2005) suggests, after reviewing a number of change management models, there is a number of opposing and unclear theories and approaches; most of which there is a lack of practical evidence based on unopposed hypotheses regarding the characteristics of current organisational change management. A difficulty for researchers is to attempt to make notional connections between brain activity and explicit leadership behaviour and abilities (Waldman, Balthazard & Peterson, 2011). In this particular study the challenge lies between understanding the connection

and effectiveness of the brain activity and organisational change within the experience of change leadership.

Organisational cognitive neuroscience may also give indicators to employee's behaviours and reactions in the workplace. This becomes a valuable field of study then in organisations as Cameron and Green (2015) state that the expectations of employees and management in the workplace are changing dramatically in order to better deal with the rapidly changing environment. Changes of expectations are experienced as changes in and of themselves. Steigenberger (2015) found that managing the emotions of others involved in change processes might be a field that is not adequately accounted for in change management and that active emotion management might offer a solution to guide change processes in a positive way for all role players. This suggests the involvement of the change leader and the idea of creating a more change competent organisation. Van den Heuval, Schalk, Freese, & Timmerman (2016) build on this notion and suggest from their study a grounded theory approach by means of interviewing, as an initial step toward better understanding of the development of employees' affective, behavioural and cognitive responses to organisational change.

Lindebaum (2016) argues that we should not be blinded by neuroscience even though the advocacy of applying neuroscientific theories and methods is sharply increasing as demonstrated by the increasing number of publications in top North-American management journals. Lindebaum (2016) further suggests that it is imperative to ensure that the new theories we plausibly seek to generate should be based upon valid and strong data in order to prevent any negative ramifications for management theory and practice. Tillott, Walsh & Moxham (2013) suggest that it is sensible to use the SCARF model as a framework to reflect on individuals' characteristics, create a positive workplace culture, and enhance understanding of the factors that either engage or disengage staff to increase employee retention. The gap in the research of Tillott et al. (2013) discusses possible implementation of SCARF in the workplace; however, they conducted no further investigation into the validation of the principle in being able to create a positive workplace culture and improving staff retention in their context.

Yeats and Yeats (2007) suggest that although there are many examples of the relevance of cognitive neuroscientific studies of social and emotional processes, the contribution of cognitive neuroscience to organisations is not apparent. This study attempts to fill that gap

by empirically testing the existence of the SCARF principle (as a neuroscience proposition) in preventing organisational dysfunction associated with. Rock and Cox (2012) admit that more research is needed on using SCARF in the workplace before, during and after an event (from descriptive to regulative to prognostic).

1.3. Research objective

As change leaders are in need of assistance in dealing with the challenges presented by continuous organisational change, neuroscience could provide some of the answers. The overarching objective that this study serves to address is whether there is a neuroscience framework that can possibly guide change leaders. Organisations struggle to obtain sustained organisational health, reason being their inability to deal with change. In order to better deal with change we need to understand people and their reactions better, and one way to better understand and influence this is from an organisational cognitive neuroscience perspective.

Whilst this study focuses on neuroscience propositions, it does not focus on following the neurological processes of the brain to understand the resultant behaviours of individuals in organisations. Furthermore this study is positioned from the angle of change leaders and not the employees undergoing the change experiences. The value of focusing on the change leader is to expose the tangible impact of neuroscience propositions in action within the workplace, thereby providing guidance to change leaders in better managing organisational change.

The literature review presented in the following section focuses on the key issues, themes and prevailing thoughts around neuroscience propositions and the role this may play in managing change in the workplace. It highlights the value of a neuroscience framework that provides guidance to change leaders linking both the theory of neuroscience and change management and the practical aspects of creating sustainable organisational health.

CHAPTER 2: THEORY AND LITERATURE REVIEW

2.1. Introduction

The literature review comprises six main sections. The first three sections cover a review of the broad field of organisational cognitive neuroscience honing specifically into the reward and threat mechanism in the brain onto which the SCARF principle (neuroscience proposition) is built. The SCARF principle is then explored together with academic work on neuroscience propositions that either support the SCARF principle or adds additional views. The next section delves into a discussion of organisational dysfunction in the context of change which is followed by the link between neuroscience and leadership and its possibility of creating organisational health. Once this context is covered the literature review will evaluate the implications of the above on change leadership in the workplace.

Each topic and section has been explored in sufficient detail to provide the researcher with ample information to conduct the in-depth qualitative interviews. The existing academic literature around organisational cognitive neuroscience is relatively recent in terms of publication but reveals that there has been insufficient research in terms of practical application of these propositions within organisations and particularly within the context of change leadership. The literature presents various definitions, frameworks and explanations, each reinforcing the other and building on the past research yet lacking an integrated view on how such concepts interplay and how their synergies can together form a framework that provides guidance to change leaders.

2.2. Organisational Cognitive Neuroscience

The relatively new field of organisational cognitive neuroscience is defined by Butler and Senior (2007) as the study and understanding of human behaviour within the daily setting of organisations by applying neuroscientific methods. It is important to first explain the distinction between organisational neuroscience (ON) and organisational cognitive neuroscience (OCN). ON as presented in Becker, Cropanzano and Sanfey (2011), is theorized as a discrete level of analysis and relates to the understanding of the neural components behind organisational practices and behaviours, and thus seems to concentrate on the procedure at a cellular/physiological level. OCN, on the other hand, is theorised as a point of view that joins various levels of analysis; it is intrigued not only in the structures and frameworks inside the brain of importance to organisational conduct, but also the interaction between those organic frameworks and cognition itself (Senior,

Lee & Butler, 2011). Organisational cognitive neuroscience pulls together every one of the fields of business and management, with a specific end goal to incorporate comprehension about human conduct in organisations and, as a result, to more completely comprehend social behaviour (Butler, O'Broin, Lee & Senior, 2015).

However, there is a split academic opinion in the field of management and organisation studies (MOS) regarding the potential outcomes and drawbacks of neuroscience as a reason for improving its science and application (Healey & Hodgkinson, 2014). On one hand, activists such as Becker et al. (2011); Lee et al. (2012); and Butler (2014) are calling for a new, biologically rooted, subfield that plans to outline neural components and systems as the primary reasons of organisational behaviour. On the other hand, academics are warning that applying neuroscience to MOS is a risky diversion (Lindebaum, 2013; McLagan, 2013). Lindebaum and Zundel (2013) explain that the issues characteristic in minimising details of complex social marvels to the neurological level make it "impossible to logically and consistently correlate" (p.862) what is measured in neuroscience to organisational phenomena such as leadership. The 'reverse inference' approach which is the measure of stimulated cortical activation to construe that a specific region of the brain is involved in a specific task, can be utilized to recognize areas that are characterized by increasing rates of mental complexity, for example, regions of the prefrontal cortex (Christoff & Gabrielli, 2000; Lee et al., 2012). However, Lee et al. (2012) suggest that insinuation cannot be made that these are the only regions involved in behaviours such as effective leadership. Levine (2007) suggests that it is a gamble how the knowledge of neural plasticity as it impacts behaviour will shape the human ambition, determination and motivation in the organisational setting.

In the context of functional neuroimaging, Lee et al. (2012) refer to 'forward inference as an systematic approach that – instead of looking for activation in a specific region of the brain – that patterns of brain activation are used to differentiate between opposing cognitive theories. They further believe that this approach positions OCN with a distinctive opportunity to provide essential insights about human cognition.

There is value in understanding the neuroscience of employees as it provides key information for leadership to manage change within their organisations. Neuroscience propositions also facilitate a more creative and innovative culture within the organisation. Having said this, it is important to note that there are also some limitations associated with

organisational cognitive neuroscience research. Butler and Senior (2007) state that the limitation of organisational cognitive neuroscience relate to the practicality of doing research on the brain and its influence within social sciences. Lieberman (2010) argues that the key limitation is that fMRI scans are based in a laboratory which complexifies the ability of a researcher to isolate actual behaviour especially in social settings. Furthermore, as the subject is lying down in a long, narrow tube while having their brain scan there is no face-to-face interaction. In addition, numerous snapshots are taken and then averaged together, which means that experiments are repetitive before adequate data can be mined from the scans, this removes any act of impulsiveness from the task.

The science behind organisational neuroscience is not as precise as currently advocated. This is mainly due to low statistical power of some neuroimaging studies with the added lack of ability to locate mental phenomena accurately in the brain (Lindebaum and Jordan, 2014). Azar (2002) suggests that the key drawback is that some researchers (such as Healey & Hodgkinson, 2014) worry that organisational cognitive neuroscience suggests biological reductionism. Pinker (2003) is more direct and describes his fear of organisational cognitive neuroscience to relate to the following:

- If people are inherently different, oppression and discrimination would be justified.
- If people are intrinsically immoral, optimism to improve the human condition would be pointless.
- If people are products of biology, life would have no higher meaning and purpose.
- If people are outcomes of biology, free will would be a parable and we could no longer hold people accountable for their actions.

Despite these limitations, there is still increasing attention given to the field of cognitive neuroscience as a fresh research trend, and its contribution and application within the organisational context (Azar, 2002; Butler & Senior, 2007; Lieberman, 2010). Becker et al. (2011) assert that the value of neuroscience is that it provides an alternative explanation into organisational analysis, that is, from a neurological level, that enables researchers to better understand the ‘primal causes of behaviour’. Cognitive neuroscience has made some significant contributions to understanding decision making in the field of organisational behaviour (Healey & Hodgkinson, 2014; Neale, Tenbrunsel, Galvin & Bazerman, 2006). Humans have primeval, affective parts to our brains that have influential effects on the decisions we make. This is reinforced by neuroscience evidence that plots the risk–reward mechanisms in the brain, which determines our finest and

poorest decision making (Morse, 2006). This research study however, focuses on the application of the risk-reward system in a broader context of preventing organisational dysfunction particularly in building an organisation that is able to manage change more effectively. This mechanism of the brain is discussed in more detail in the next section as it forms the basis of the neuroscience proposition studied in this research.

2.3. The Reward and Threat Response

The human brain is a social organ (Cozolino, 2014; Rock, 2008). When your brain is resting, majority of the background operations is preoccupied about other people and yourself (Eisenberger & Lieberman, 2009). The brain's primary organising principle is to minimise danger and maximise reward, which is a neurological mechanism that influences human behaviour (Chorn, 2015; Rock, 2010). The explanation that follows is based largely on the work of Rock (2009) as this sets the basis of the SCARF principle (Rock, 2008; Rock, 2009; Rock & Cox; 2012) which is covered in the next section. Interestingly, and part of the research problem in this study, is that a review of literature on the reward and threat response in the organisational context, are mostly blogs, reputable websites and even books that quote Rock's (2009) work, such as Bedoya (2015); Bosman (2012); Ertel and Solomon (2014); Saint (2009); and Satterwhite, (2013) to name a few. This suggests once more, that populous theory is widely used by practitioners and taken as the 'accepted truth' (Todnem et al., 2016).

Rock (2009) and Bedoya (2015) explains that information collected through brain activity suggests that the neural responses that provides us with the fight or flight response are the same as the ones activated by our opinion of the way other people treat us. Eisenberger and Lieberman (2009) suggest that Abraham Maslow's "hierarchy of needs" theory may have not been correct in this regard; as Maslow suggested that humans are inclined to meet their needs in order, starting with the ability to survive physically and moving towards self-actualisation with social needs in the middle. Rock (2009) and Cozolino (2014) assert that the brain associates social needs with survival.

Chorn (2015) explains the impact of the threat and reward response in the brain; the cerebrum responds to potential threat by initiating its avoidance system. This creates the "fight or flight" circumstance in which logical thinking is impeded and individuals get to be

withdrawn. The reward and self-control system is initiated by the likelihood of reward. This advances concentration, positive thinking and elevated levels of innovation (Chorn, 2015).

Rock (2009) supports Chorn's (2015) explanation and adds that the reason why the threat response has a negative impact on an individual's productivity is because it utilises oxygen and glucose from the blood, which could have been used in alternate parts of the brain such as the working memory function, which processes new information and ideas. In other words just when the brain needs the ability to think, solve problems, or generate new solutions or ideas, it struggles to as the oxygen and glucose is diverted to the threat response. This explains the decrease in productivity for the individual. This has serious implications for organisations where leaders trigger the threat responses of employees; the impact is that they struggle to be productive. However, when leaders make their employees feel worthy, it prompts the reward response. This can be seen by leaders who clearly convey their expectations, give workers scope to decide, bolster individuals' endeavours to build great connections and networks, and treat everyone fairly in the organisation (Rock, 2009). The orbitofrontal cortex seems to connect the reward mechanism with information from the external world, as this is where links between sensory stimuli and the value produced by the reward seem to take place (McClure, York & Montague, 2004). The reward response allows employees in the organisation to be more effective, more creative, and more able to solve problems (Rock, 2009). The impact from a change leader perspective is then clear; effective leaders have to encourage and inspire people to want to perform according to what is required (Gill, 2002), triggering the reward mechanism to activate the desired response.

Whilst this mechanism is useful to understand from a workplace perspective, Chorn (2015) warns that it is important to balance these responses to achieve the desired performance. He explains that if there is too much focus on trying to trigger a reward response then this will result in an increased secretion of dopamine, this in turn can lead to risky behaviour and overconfidence. On the other hand, excessive triggering of the threat response will result in defensive behaviour due to the increased secretion of cortisol. Trying to obtain this balance then becomes a challenge for managers. However, merely having an understanding of the threat and reward response in the brain can help leaders who are attempting to roll out changes within an organisation. The reputation of fizzled endeavours to generate high performance has driven numerous leaders to presume that human instinct and behaviour is basically unbendable, yet neuroscience

refutes that with the finding that the human brain is highly plastic (Rock, 2009; Waldman et al., 2011). Neural pathways can be renewed, new behaviours can be learned, and even the most engrained behaviours can be amended at any age. This suggests that neuroscience may offer some guidance to leaders in order to improve workplace performance in general, but more specifically with change endeavours. In order to activate some of these shifts the brain needs to practice 'mindfulness' which is a state of thinking that is related to the awareness of one's own mental processes (or, in organisations, being observant of the way in which a conversation is taking place) (Lebois et al., 2015). Mindfulness requires both calmness and focus; when people feel threatened they are more likely to present as "mindless", they focus on the threat and they struggle to move to self-discovery (Rock, 2009).

Based on the above basic understanding of the threat and reward response and how it works in the brain, the next section covers neuroscience propositions and more specifically the SCARF principle by Rock (2009). It is proposed that practicing the elements of the SCARF principle triggers the reward response in the brain. As the reward response triggers higher performance, more creativity and the ability to be more open to ideas it is thus implicit that employees have the qualities that are important to better deal with change. This reiterates that neuroscience may offer some suggestions on how employees can better deal with change which is imperative in today's world of work.

2.4. Neuroscience propositions

This section covers neuroscience propositions that are based on the triggering of the reward response in the brain. The work of David Rock (2008, 2009) and Rock and Cox (2012) is discussed, and the next section looks at what other scholars have researched in the area of neuroscience propositions which may either support Rock's work or be in addition to. This is important not only from a review of literature but to ensure that leaders are equipped with as many tools as possible to positively influence employee behaviour especially within the context of change in order to create organisational health.

2.4.1. The SCARF principle: A neuroscience proposition

Rock (2008, 2009) asserts that there are five specific qualities that allow employees and executives to minimise the threat response and ideally trigger the reward response. These

are known as SCARF: Status, Certainty, Autonomy, Relatedness, and Fairness. These social qualities are what organisations should do to prevent exposure to dysfunction.

An overview of the SCARF principle according to Rock (2008) and Rock (2009) follows: **Status** embodies the sense of importance an individual feels compared to other people (e.g., colleagues and managers). Organisational practices can likewise blend counterproductive threat responses among workers, for instance, individuals being performance managed frequently feel this process encroaches on their status. Status is not simply granted to representatives by means of advancement in the organisation; it can be expanded by offering acclaim and recognition. **Certainty** alludes to an individual's requirement for clarity and the capacity to make exact expectations about what's to come. At the point when an individual experiences a well-known circumstance, his or her brain saves its own energy: it depends on established neural associations or neural pathways in the basal ganglia and motor cortex that have, as a result, hardwired this circumstance and the individual's reaction to it. This enables people to do what they are accustomed to doing, and what makes it troublesome for people to manage change as it is not natural and neural associations have not been framed to manage another method for doing things. Uncertainty enlists as a blunder, hole, or pressure: something that must be redressed before one can feel good once more. It is the impression of an excessive amount of instability or uncertainty that debilitates focus and execution which drives individuals to frenzy and settle on poor choices. This is the reason it is essential to feel soundness, sureness, and certainty, especially within the organisational context. **Autonomy** is attached to a feeling of control over the occasions throughout an individual’s life and the discernment that one's conduct affects the result of a circumstance. In organisations, individuals need to feel like they can make their own decisions without much micromanagement, to hold stress under control. **Relatedness** concerns one's feeling of association with and security with someone else. At the point when an individual meets another individual who is seen as different, this message goes along neural pathways in the brain that are connected with uncomfortable emotions. Once the social association becomes stronger, the brain discharges oxytocin (chemical substance connected to affection) in each other's presence, which nullifies the threat reaction and empowers the neural systems that are recognizable to us. Lastly, **Fairness** alludes to just and impartial interchange between individuals (e.g., recognition of one's endeavours, comparable pay for proportionate work, and so forth). Rock and Cox (2012) explain that expanding the impression of fairness and diminishing injustice will advance employee

fulfilment and prosperity, particularly in social circumstances in which sensitivity to interpersonal balance and imbalance is elevated.

Rock and Cox (2012) build on Rock's (2008, 2009) earlier work to find more noticeable associations between the Status and Relatedness elements, and the Certainty and Relatedness elements. They find that different people find different elements more essential than others depending on their context and environment; however, 46% of respondents of a survey they conducted felt the most vital element is Certainty followed by Relatedness with 26%. Various theorists may provide supporting or additional viewpoints on the same elements described in SCARF above which are discussed in more detail below.

2.4.2. Support for neuroscience propositions in organisations

This section covers the work of other authors, besides David Rock, in the area of neuroscience propositions. Takahashi et al. (2009) found that at the point when individuals acknowledge they may contrast unfavourably with another person, the threat response is triggered, discharging cortisol and different stress-related hormones, they found that sentiments of low status incite increased levels of cortisol. From this work, it also suggests that the perception of increased levels of status triggers the reward response. Marmot (2004) supports this finding and found that high status is positively associated with human life span and wellbeing, status supports our survival.

Status may also be referred to in literature as recognition, acknowledgement and encouragement. Kouzes and Posner (2012) share that celebration is a method of giving status and a standout amongst the many ways that a leader can announce regard and appreciation, reintroduce a feeling of harmony, and bring out shared values and conventions. Kouzes and Posner (2012) include that these celebrations ought to be founded on key values and noteworthy breakthroughs to fortify the vision, focus and objective. Building on this, in a study by Woods (2016), it was found that celebrations are significantly more important when in the process of organisational change, and it is the duty of the leader to demonstrate this acknowledgment and recognition freely and individually. This technique for acknowledgment and commending those capacities in both forefront staff and authority brought about positive organisational change in his study. This

supports the neuroscience proposition of the positive effect of Status in the workplace and the necessity of this element in managing change.

Looking at Certainty as a neuroscience proposition, having certainty all of the time in the organisation is near impossible merely from the environment and world of work. In fact research shows that having a certain degree of uncertainty is preferred. Willis (2006) asserts that new, extraordinary and testing circumstances produces a mild threat response, expanding levels of adrenaline and dopamine sufficiently only to create interest and stimulate individuals to tackle issues. This attests to the constructive outcomes of having a specific measure of uncertainty in the workplace. When applying this to the context of change, this may explain the initial step of Kotter's (1995) change model where he proposes that the beginning stage in a fruitful change process is connecting a sense of urgency and significance to change, in this manner making the new and testing circumstance that triggers the mild threat response. Kotter (1995) states it is important to create disappointment with existing conditions and a comprehension of the need to change.

In support of the Autonomy element, individuals are considerably more slanted to bolster what they create; and they oppose what is enforced on them (Myers, 1993). This is the reason why change is experienced as troublesome (Carter, 2012; Fishbane, 2015) as choices are frequently made outside of the individual's control. Micromanagement is another case of perceived absence of independence inside the work environment in this manner conjuring the threat response. Where people have less control in the working environment to do their work, the more reliant they are on their manager (Semmer, 2000). This can deplete resources for the leader and within the organisation. Gill (2002) asserts that essential parts of engaging and empowering employees are activating individuals' intellects and creative ability, specifically their inventiveness in the process of change, chance taking and trust which essentially means tapping into their reward responses. Engaging individuals for activity to some extent involves disposing of hindrances to change, abandoning or changing frameworks or structures that undercut the vision and boosts risk taking, new thoughts and creative exercises (Kotter, 1995). Spreitzer (1995) alludes to the term psychological empowerment which is an apparent situation where the occupation is significant, skill and competence is acknowledged, there is more noteworthy flexibility for decision making and to have the capacity to answer to challenges in an

individualistic route, with the support of colleagues. This term encapsulates a few of the SCARF principles such as recognition (Status), Autonomy, and Relatedness.

With regards to Relatedness, De Vignemont and Singer (2006) indicate evidence using neuroimaging procedures that expose functional overlay in brain regions that are stimulated when members experience similar emotional conditions themselves that they observed others being exposed to. Similarly, Butler and Senior (2007); Cacioppo and Patrick (2008) and Rock (2009) affirm that the feeling of being excluded (feeling unrecognized and unacknowledged in the work environment) incited similar kind of response in the brain that physical pain may bring about. The threat response is triggered when individuals feel excluded from social cooperation, for example, feeling alone, separation and seclusion (Cacioppo and Patrick, 2008; Heatherton, 2011; Rock, 2009). Shirom, Toker, Alkaly, Jacobson and Balicer (2011) found that large amounts of social support at work particularly diminish the danger of individual mortality. Research done by Kanai, Bahrami, Roylance and Rees (2012) demonstrated an expansion in the size of the amygdala and temporal cortex in the cerebrum of individuals that have more companions on Facebook. Rock and Cox (2012) later extend their reasoning of relatedness to incorporate the prominence of online networking as the expansion in grey matter volume in the cerebrum as suggested, is vital for handling social data.

This has implications for leaders dealing with diverse teams, trust needs to be developed in such teams in order to minimise the threat response so that the brain can ultimately recognise past strangers as friends; this needs time and recurrent social engagement (Joseph, n.d.). Furthermore, Levine (2007) and Fuchs and Prouska (2014) suggest collaboration and teamwork gives an emotionally supportive network where discussion and critical thinking are encouraged, along these lines permitting the person to better handle and lessen work related stress. This in turn can decrease the threat response which is activated by adverse working environment rivalry and competition, where additional time and mental vitality is spent on individual failures. Fuchs and Prouska (2014) include that collegian support as a component of the change process is of genuine hands-on value when trying to achieve increased future change intervention success.

Human behaviour is not exclusively determined by material result; fairness and equity matter too (Amin, 2015; Tabibnia and Lieberman, 2007). In a study by Tabibnia and Lieberman (2007) and Tabibnia, Satpute and Lieberman (2008), fair offers prompted

higher happiness evaluations and increased activation of a few reward areas of the brain contrasted with unfair offers of equivalent financial value. In a study by Guroglu, van lair Bos, Rombouts and Crone (2010), brain activity of underlying rejection versus acceptance of unfair offers seemed majorly dependent on deliberateness. The experience of fairness produces reward responses in the brain (Tabibnia et al., 2008). In organisations, the view of unfairness produces a situation of doubt where resistance may brew. This has implications and considerations for change leaders who have to be mindful of whether the change is perceived as fair or not.

The above shows support for the SCARF elements, however, in addition to the elements that make up the SCARF principle as a neuroscience proposition, Yeats and Yeats (2007) talk about additional elements from a cognitive neuroscience perspective that provide a conducive environment that allows employees to be creative. These include empathy, forgiveness, love (genuine value), curiosity and its subsequent exploratory behaviour within an organisation. Understanding the role these elements play within the organisation according to Yeats and Yeats (2007) can help one change the organisational behaviour of employees to make it more beneficial in the team. This is further supported by the work of Lee et al. (2012) who talks about friendliness, social interaction and emotion-based decision making as elements that should be supported in the workplace to enable a more authentic way of managing and working for effective change management. Leroy, Anseel, Gardner and Sels (2015) also suggest that the elements of competence, relatedness and autonomy (within the context of self-determination theory) are considered to be rudimentary and valuable for every human being for optimal functioning and the extent to which individuals can adapt to changes in the workplace.

Neuroscience propositions also offers guidance to the process of decision making; this is relevant in this context as it can offer insight into how we process the intentions and actions of others, how we attribute meaning to this and how we assess the meaning from other's behaviours (Sanfey, 2007). Singer (2004) cautions that we cannot forget that an area that is prominent with regards to humanistic concern is how individuals search for meaning and spiritual depth in life, which is a focal area for the evolving area of neuroscience, as the content and quality of thought cannot be distilled solely into mechanical processes. Another neuroscience proposition includes the role of communication in the organisation as Elving (2005) explains that communication can prevent the resistance to change experienced in organisations. The framework in this

study includes feeling part of a community and feelings of uncertainty as aspects of communication that can influence the opposition to change. These aspects have a direct impact on creating readiness to change and addressing uncertainty and thus are also useful neuroscience propositions within the context of change.

Thus there are various scholars that support elements of the SCARF principle and provide additional neuroscience constructs. They also advocate the necessity of such elements in creating a more conducive environment and perhaps an environment that is 'change ready' in some respects. However, the SCARF principle itself has no theoretical support and thus warrants further investigation (Rock & Cox, 2012) to provide academic rigour to neuroscience propositions that may or may not have practical value in the workplace in preventing organisational dysfunction in the context of change leadership. Preventing organisational dysfunction and what this might mean is covered in the next section as Rock (2009) alludes to SCARF preventing organisational health, however does not provide any further context as to what this may mean.

2.5. Preventing organisational dysfunction

Organisational dysfunction can be seen as the opposite of organisational health (Pope & Burnes, 2013). However both these terms are not clearly defined in the literature. In McHugh and Brotherton's study (2000) they find that even though researchers have been focused on the area of the healthy organisation in the last ten years or more, the concept remains a challenge to define. Nonetheless, there seems to be a basic acceptance that health is a desirable state, and is one which is likely to facilitate the organisation to cope more effectively with the difficulties in their context (McHugh & Brotherton, 2000). Thereby, being more adaptable to change which is the context of this study.

Looking at the concept of organisational dysfunction however, Pope and Burnes (2013) identified some characteristics of organisational dysfunction to include: "centralised decision making/authoritarian leadership; suggestions for improvements not received well/active resistance to upward feedback; managers choosing to remain uninformed; important issues/problems are avoided/deflected; organisations refuse to acknowledge/deny problems; not admitting responsibility for errors; pretence that things are fine when they are not/lack of honest self-assessment; people who raise concerns are marginalised/intimidated; organisation acutely sensitive to outside interest by the

press/other interested parties or staff talking to the press; staff access to non-executives strongly controlled/restricted; customer complaints are deflected; and the presence of fear" (p. 691). The characteristics that lead specifically to negative behaviour include "a denial that such negative behaviour exists in the organisation; extreme reluctance to class/label any behaviour as "bullying"; and staff/managers who intimidate people can be protected or promoted" (p. 691).

Eppler (2012) adds that poor corporate communication is often the result of organisational dysfunction, and thus positions poor communication as an outcome rather than a cause. Earlier work by Cameron (1994) identified 12 dysfunctional attributes of organisations that transpire into organisational decline. Organisational decline was referred to the unintentional loss of staff, turnover, resources, or market share in this study. These attributes are referred to as the "dirty dozen' and are explained in more detail in Appendix A. Pope and Burnes (2013) study shows quite similar outcomes in their definition of organisational dysfunction to this important piece of work by Cameron (1994), except for a few issues which may highlight the role of context and terminology in unpacking organisational dysfunction.

Bringing this specifically into the change management space, Beer, Voelpel, Leibold and Tekie (2005) explain that one of the obstacles to strategic implementation can be understood through the viewpoint of change resistance where both leader and follower often adopt defensive patterns that guard their behaviour and performance and prevent them from looking at things differently. They further explain that a lack of 'managerial interpersonal competence' makes the problem worse and is an obstacle for creating environment where difficulties can be raised in the open. This creates an 'organisational silence' as employees decide to keep quiet regarding negative feelings and this challenges organisational decisions and change processes (resulting in organisational dysfunction) as it prevents leaders from learning the root causes to the hurdles in their organisation, in so doing they obstruct 'double-loop learning' (Beer et al., 2005; Morrison & Milliken, 2000; Pope & Burnes 2013; Zerubal, 2006). Organisational silence is dangerous for organisational process. The 'managerial interpersonal competence' mentioned suggests that managerial EQ and consistent communication and perhaps even empathy may be necessary elements of organisational health from this perspective.

Leaders have to be very aware of their own behaviour and the implications of such in being successful change architects. Beer et al. (2005) assert that implementing quick, shallow change programmes leaders proficiently evade becoming aware of the reality of the inadequate coordination across important activities within the business dynamics, such as culture and leadership that are blocking organisational effectiveness and creating organisational dysfunction. Seeking feedback and learning then also become pertinent issues to grapple with in avoiding organisational dysfunction.

Another element that may prevent organisational dysfunction is from the perspective of organisational alignment. The former chairman of ICI, Sir John Harvey-Jones (1988), takes a far-reaching view of alignment and suggests "organisations will need to adjust to the needs of the individual in the future instead of expecting individuals to adjust to the needs of the organisation". This attests to the importance of understanding individuals and their behaviour, with neuroscience presenting one possible angle of attaining such knowledge. Leaders that understand this dynamic (how the brain works) can effectively employ the abilities of their employees, encourage teamwork, and build an environment that nurtures fruitful change (Rock, 2009) and encourages organisational health.

From the above it is evident that organisational dysfunction seems to be characterised by its symptoms and that thus there is value in better understanding organisational health as this may give valuable input on how to prevent organisational dysfunction. Looking at organisational health then, Caldwell (2014) found what is prominent to employees is not an *organisational change* but rather a *changing organisation*, which has numerous, concurrent adaptive demands on them from many forces within the organisation, many of which are not intentional. This may point to an element for creating a healthier organisation, using individuals' ability to adapt to create a 'change ready' organisation. MacKenzie, Garavan & Carbery (2011) state one of the ways to prevent organisational dysfunctional behaviour on an individual level, is to develop employee awareness and skills. This highlights the role of the leader in assisting the employee to develop this awareness and furthermore the importance of understanding individual behaviour within the context of organisational behaviour, conceivably through organisational cognitive neuroscience.

In the absence of having an adequate definition of organisational health (or the prevention of organisational dysfunction), the closest term that might be linked to this is that of

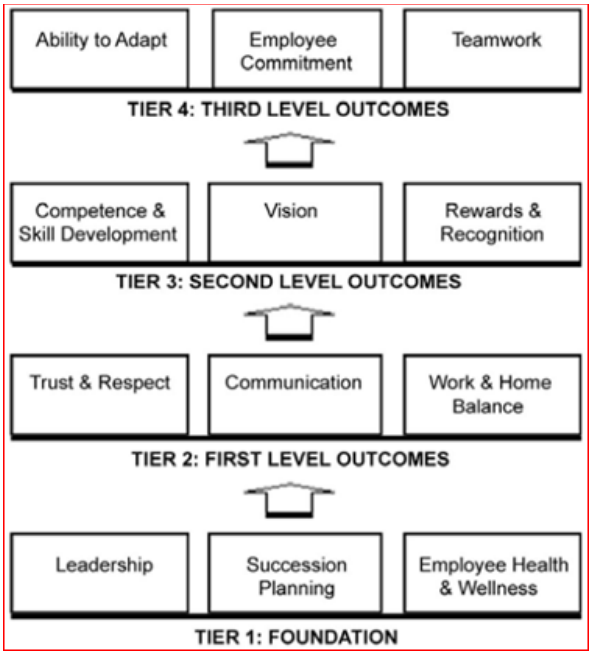
organisational effectiveness or organisational performance. Whilst it is not being suggested that they are one in the same, the idea is to ascertain what literature covers as some of the elements that may point in the direction of organisational health. The following are a few of the key considerations and attributes that literature provides as components of organisational effectiveness and organisational performance. Pinho, Rodrigues and Dibb (2014) found that organisational culture influences organisational performance and the practical implications of this is that even though practitioners agree that organisational culture can set the direction for organisational performance, very little attention is given to this. McKinnon, Harrison, Chow and Wu (2003) explain that the fundamental role of organisational culture within the organisational and management literature is a result of the understanding that this social characteristic can be a major contributing factor of organisational, group, and individual behaviour (Hartnell, Ou, & Kimicki, 2011). With that in mind managers need to be aware of type of culture which exists in their organisations and, as a consequence they need to strengthen their specific characteristics to increase the power of the role of other organisational dimensions (Rahid, Sambasivan & Johari, 2003) to achieve organisational effectiveness. Shahzad, Luqman, Khan and Shabbir (2012) found that organisational factors susch as organisational culture and organisational commitment are stronger correlates of job performance amongst employees than psychological factors such as work motivation and self-esteem. This suggests that leaders need to pay attention to organisational factors to ensure performance.

Vihari and Rao (2014) found in their study that the variability in the latent construct of organisational effectiveness can be explained by organisational ambidexterity and organisational change for sustainability. Darwish, Singh, and Mohamed (2013).explain that organisational performance remains an inaccurate and loosely defined construct and that after reviewing much literature on organisational effectiveness, it is a topic which we know very little about. In a study by Olkers and du Plessis (2012) they found that organisational effectiveness can be positively influenced by the existence of psychological ownership among employees within the South African work environment; this concept includes self-efficacy, self-identity, accountability, belongingness, autonomy and responsibility. It is put forward in this study that these elements if present in an organisation will improve the employee's perception of the workplace and enable consistent performance, particularly in uncertain economic times. These dimensions can also be found in the neuroscience space and thus shows that there may be a stronger link than suggested between the use of neuroscience propositions in the workplace and the

impact this has on organisational performance, effectiveness and health. It would thus be interesting to see the alignment of this concept and neuroscience propositions as an outcome of this study as they both propose to improve organisational effectiveness within the context of a changing environment. Theoretically, they are not a perfect match, however there seems to a link between belongingness and relatedness, and autonomy exists in both propositions.

Fischer (2009) put a model together based on her own research and practical experience, called the 12-Factor, 4-tier Organisational Health Model which is explained in Figure 1. She argues that the foundation of organisational health is leadership, succession planning and employee health and wellness. This results in the next three tiers of outcomes including trust and respect, communication, work and home balance, competence and skill development, vision, rewards and recognition, ability to adapt, employee commitment and teamwork. These outcomes are based within the culture of the organisation.

Figure 1: 12-Factor, 4-tier Organisational Health Model (Fischer, 2009)



Fisher (2009) goes on to say that poor levels of organisational health will affect the productivity and effectiveness of the organisation and the opposite is also true where high levels of organisational health results in a resilient system that exceeds the limitations of their structure. This is important within the context of dealing with complexity, the rate of change together with other workplace pressures and environmental and social challenges. Schabracq, Winnubst and Cooper (2003) explain that the human being was not adapted

for these kinds of stresses, which amplifies the necessity of looking at organisational health. The contribution of this literature to the current study is twofold. One, it is evident that organisational health results in the level of organisational effectiveness, however organisational health is still not unpacked in any detail. Secondly, since part of attaining organisational health is to ensure a 'healthy workforce' and since we are not adapted to the environment we are expected to perform in, neuroscience principles become very important to understand and utilise in getting the most productivity of employees and preparing them for change.

From the above it is evident that there is no a succinct definition of organisational dysfunction or organisational health. Since there are some ideas around such concepts which will need to be unpacked better, there seems to be a general idea that organisational health is a desirable state that will assists organisations to manage change better, and in fact leads to organisational effectiveness. The next section covers the role neuroscience and leadership may possibly play in creating organisational health and essentially pulling together the concepts discussed so far in the literature review.

2.6. Neuroscience and leadership: Creating organisational health?

This section of the literature review covers the role of a leader in applying neuroscience propositions to assist in creating organisational health which is essential in establishing a change ready environment. As a leader, each move that is made affects the employee's reward or threat responses; it either bolsters or undermines the apparent levels of the neuroscience constructs evident within the organisation (Rock and Schwartz, 2006). This explains why it can be hard to be a leader. This suggests that being aware of these neuroscience implications within the workplace can create an environment that is better able to manage change. Rock (2009) recommends that leaders ought to work hard to minimize the employee's threat response at work as when they are on high alert, people can't think innovatively, cooperate with other people, adjust to change, or settle on educated choices. Thereby creating a more functional, competent and healthy organisation.

Leaders need to create an impression of certainty and transparency within the workplace. This can be done, for example, by explaining the reasons for change so as to enable confident and dedicated teams that perform optimally and create inclusive work

environments (Tillott et al., 2013). Workers who feel rejected and excluded may restrain their dedication and engagement in the organisation and turn out to be simply transactional employees who are hesitant to give of themselves in the workplace, in light of the fact that the social setting stands in their way (Rock, 2009; Heatherton, 2011). The environment of uncertainty and social exclusion has a negative impact in that employees are not giving off their best and may not be productive, innovation is not encouraged, retention becomes a challenge, and it becomes difficult to obtain and maintain a competitive advantage (Tillott et al., 2013). Leaders can also influence the reduction in stimulation of the threat response by managing the impression of unfairness. This can be done by creating transparency, sharing and communicating information in a timeous fashion, and explaining the reasons for change which will keep employees engaged and motivated (Amin, 2015; Rock, 2009; Tillott et al., 2013).

In a study by Waldman et al. (2011) it is demonstrated how neuroscience and neurofeedback technology is being utilized to create inspirational leadership traits. They could specifically address the neural pathways connected with inspirational leadership behaviours; be that as it may, they felt it was too soon to anticipate or predict their potential ability to effectively utilize this confirmation to develop more effective leaders as a whole. This suggests that neuroscience may not only provide guidelines to leaders in practicing a leadership style that enhances the ability and output of their employees, but that neuroscience may be used to develop the desired characteristics of a leader.

Practising neuroscience within the workplace from a leadership perspective can also be related to leaders that use ‘Choice Theory’. Here their management style is based on internal control psychology meaning that they tend to use caring habits such as listening, supporting, encouraging, negotiating, respecting, accepting and trusting, as opposed to, negative habits such as accusing, reprimanding, griping, undermining, rebuffing, pestering, and rewarding to control (Schoo, 2008). Leaders and their teams that utilize the internal control techniques to satisfy their requirements are more likely to perceive the needs of others more accurately, have a win-win strategy for managing issues, explore the nature of problems more thoroughly, cultivate trust and confidence in others, recognise the contribution of others, acknowledge others for who and what they are, live for the now while looking ahead, ask as opposed to demand, convey and rely upon participation, don't use others yet are worried with them, and don't accuse others but get on with the job (Morgeson, DeRue and Karam, 2010; Schoo, 2008).

A mindful leader gives others the sentiment of security even in times of uncertainty by adjusting their behaviour to reduce the stress (Maccoby, 2004). This makes it simpler for employees to concentrate on their work, which prompts enhanced execution and productivity. Emotional intelligence (EQ) predicts the capacity to screen and control one's own and other's sentiments, and to deal with these emotional states in order to activate teamwork (Malik et al., 2014). Maccoby (2004) and Rock (2009) attest that numerous leaders attempt to quell their feelings with a specific end goal to improve leadership presence; however this confounds individuals and undermines morale. Authentic leadership is portrayed by a leader's mindfulness (self-awareness), openness, and clarity practices (Leroy et al., 2015). Authentic leaders are open to the opinions around them, share information for optimal decision-making and uncover their own qualities, intentions, and opinions (Wang, Sui, Luthan, Wang, and Wu, 2014). Such attributes empower followers to precisely survey the skill and morality of their bona fide leader's activities (Walumbwa, Wang, Wang, Schaubroeck and Avolio, 2010). In a study by Oshsner and Gross (2005), it was found that when somebody tries to stow away what he or she is feeling to others, it might bring about the other party encountering the threat response. This highlights the significance of authentic leadership styles in managing organisations, and especially in driving change inside an organisation. Besides, in the study by Wang et al. (2014) it was found that authentic leadership positively affects employee performance, however not all followers enjoy an authentic leadership style and the relationship created as an outcome to a similar degree as far as job performance is concerned. Their research found that it is far more beneficial for such leaders to spend more time on working with followers who have less positive psychological capital since they could accomplish a mutual congruence which in turn prompts enhanced productivity.

Notwithstanding the above, emotional intelligence is one of the demonstrated best indicators of leadership success (Malik et al., 2014; Rosete and Ciarrochi, 2005). The accelerated level of mindfulness connected with higher EQ empowers one to show fearlessness, the ability to adjust, inspiration, idealism and in this way inspire others in a significant way (Ashkanasy and Dasborough, 2003). Sax and Gewertz, (2015) attest that emotional advantages were noted twice as often in superior workers and were a vastly improved predicator of accomplishment than intellectual predominance.

The elements discussed above are all suggestive of the qualities necessary of the leader and the leader’s role in creating organisational health using neuroscience propositions

within the context of creating a 'change ready' organisation. Self-awareness seems to be critical as a leadership skill before being able to promote organisational health in the organisations and increased employee productivity. The next section hones in specifically on qualities of change leadership in the workplace within the context of change models where appropriate.

2.7. Change leadership in the workplace

Organisational change is seen as an ongoing process evolving in relations where sense making constitutes a pivotal dimension (Alvesson & Sveningsson, 2011). This involves experiences, feelings and sense making of those mobilised in change processes which is something that is not always reflected in the literature on change. This section discusses the role of neuroscience specifically in the context of change leadership.

The good change leader develops high levels of commitment and resolve, is versatile, and has an obligation to make conditions for optimal employee performance; all of which is critical, however ultimate success relies on upon discipline and the correct implementation framework to steer change effectively (Miller, 2001). Miller (2001) states leadership change convictions are essential; a good leader needs to understand their own behaviour in order to achieve project success, the roll-out process should be systematic and relentless, and the cost of failure is an issue that is addressed by the change leader. Karp (2006) expands on this notion and implies that the internal condition that change leaders display, their ability to read signals relating to change, and being able to set out a few basic principles will influence their success of leadership intervention amid change. This may suggest that there exist a few fundamental rules that change leaders could utilize to anticipate organisational dysfunction and energize the working of change as a core competency within the organisation.

The leader plays a pivotal role in bridging the ideas around preventing organisational dysfunction perhaps from a neuroscientific perspective and creating change as a core competency in order to create organisational health. On the one hand Gill (2002) argues poor management, inadequate planning and evaluation, insufficient competence and resources, and conflicting policies and practices are reasons for why change programmes often fail. On the other hand Karp and Helgo (2008) suggest that the reason why change initiatives are not successful is not because of a lack of vision or design: they fail because

leaders do not understand the complexities they are facing. Due the changing nature of the world of work today, leading people is a challenge as there is constant uncertainty and complexity (Liebhart & Lorenzo, 2010). This leadership challenge has more to do with understanding people, their instinctive reaction to change and those leading change than it has to do with structures and strategies (Diefenbach, 2007; Karp & Helgo, 2008). The solution, according to Karp and Helgo (2008) is retraining of the mindset, affect and beliefs. This falls in the space of neuroscience as it involves creating new neurological pathways to feel more equipped to deal with change and uncertainty. Balogun and Johnson (2004) adds that organisational change efforts usually fail as organisational culture, in which the employees mindset, values, emotions and assumptions are embedded within, is not taken into account (Balogun and Johnson, 2004). Heracleous and Langham (1996) confirm that change becomes challenging due to the cultural assumptions held in the organisation. The culture of the organisation can make change efforts superficial and not lasting and thus it is important to take note of and understand the culture in bringing in any change (Alvesson & Sveningsson, 2016). Furthermore, making people change their behaviour makes all the difference in making real change possible, cultural change will follow from this (Alvesson & Sveningsson, 2016). This certainly has implications for the change leader in developing organisational health using neuroscience principles.

Karp and Helgo (2008) assert that employees that find themselves in changing environments need to know what behaviours to aspire to, which can be understood through what is rewarded in the organisation. Saunders (2005) share that 20% of an organisation's employees will support a change from implementation, 50% have a 'wait and see' approach and 30% will resist the change. Karp and Helgo (2008) suggest that leadership efforts should be directed towards the supporters and the resisters to manage the ambiguity, conflict and diversity of opinions. Formal and informal rewards which come in different forms will create and support the desired behaviour.

Most current change processes have some similar notions, such as various levels in the organisation recognising the need for change, communicating the change, advocating for buy-in for the change across levels in the organisation, encouraging open discussion and debate across levels, and highlighting the necessity of leadership in driving and implementing change (Hailey & Balogun, 2002; Miller, Wilson & Hickson, 2004). Even though the intention is there, most organisations remain challenged in successfully

implementing strategic change (Cummings & Worley, 2014; Todnem, 2005). All kinds of organisations have their unique constitution made up of industry, size and complexity. Change processes thus need to be flexible as they cannot be applied universally to meet all organisations' needs, if performance is to escalate during times of uncertainty (Beer et al., 2005; Darragh & Campbell, 2001; Todnem, 2005).

As the environment is ever-changing this stresses the need for organisations to build change as a core competence irrespective of the process it uses to be flexible (Michel, Todnem & Burnes, 2013). Karp and Helgo (2008) recommend that leaders can change organisations successfully by influencing the forms of human interaction by increasing *meme*, which is a form of spreading important change ideas as it sparks conversations which contain seeds of change without micro-managing the discussion, increasing participation, whilst using symbols and forms (e.g. storytelling). This forms part of the conclusion from their work including the fact that people should change the way they talk to one another in organisations. This suggests that there may need to be a culture of change embedded in the organisation which is essentially driven by the change leader.

In a study by Michel et al. (2013) it was found that the level of change resistance can be managed by the environment and the way in which change has been dealt with in the organisation. Thus it is in the leader's interests to strategically approach change after assessing the organisation's readiness for change and the level of resistance it might expect to meet (Michel et al., 2013). This suggests possible links to the benefit for change leaders to understanding the reward and threat response in the workplace to encourage commitment and openness to change employing neuroscience propositions and preventing organisational dysfunction. Chorn (2015) suggests that neuroscience principles may be very useful in implementing change practices in the organisation and dealing with resistance. For example, by visiting and experiencing an organisation that has made a transition to a new and different future, people can visualise how this has been done. This experience allows for new pathways to be developed and this improves the semantic memory, which enables people to see and understand a different future. This exemplifies the usefulness of applying neuroscience principles in preparing employees adequately for change. Since there is not always the luxury of time in planning for change it thus makes sense to practice these behaviours in the organisation on a more continuous basis to create a 'change ready' organisation.

There are many change models that provide frameworks for managing change within the workplace. Todnem (2005) says the planned change does into take into account crises situation where employee involvement may be restricted, making it somewhat irrelevant. The consequence is the employees feeling autonomy is minimised (Burnes, 2004). Bamford and Forrester (2003) and Burnes (2004) argue that the planned approach to change assumes that all employees are willing and interested parties and that conflict and politics can be easily resolved. However, the neuroscience propositions discussed above, particularly utilising the mechanism of the reward and threat response manifesting in the SCARF principle suggests that an organisation can be more change ready (developing change as a core competency for the organisation) which may present yet another angle of embedding a positive approach to change.

With the presumption that change can be controlled it is implicit that change processes are seen as predictable and prone to planning (Alvesson and Sveningsson, 2016). This approach may explain the popularity of models which do not mimic how changes emerge in real-life organisational settings and the personal interpretations of change (Balogun & Johnson, 2005).

Even though the SCARF principle seems to be a more top down approach of creating such a culture in the workplace, elements of this may be applied to the emergent approach to organisational change where change can be pushed from the lower levels up (Bamford & Forrester, 2003). As change is so quick using lower levels in the organisation supports leadership to respond appropriately to change (Kanter, Stein & Jick, 1992). The accountability for change in organisations needs to become decentralized (Wilson, 1992) leading to creating a ‘change ready’ organisation across levels in the organisation. This may suggest that the SCARF principle be applied across levels within the organisation as a change management model and that all levels are held accountable to these principles.

Todnem (2005) suggests that the emergent approach to change focuses on creating change readiness as opposed to planned steps for change. Despite all the frameworks available change management approaches still fail (Balogun and Johnson, 2004; Karp & Helgo, 2008). Although it is evident that change management is not a universal approach, step wise models to managing change exist which may be abstract in nature and difficult to apply (Burnes, 2004). This may also suggest why some change processes fail. Todnem (2005) suggests that some models exist that intend on providing practitioner’s

guidance such as Kanter, Stein and Jick, (1992), Kotter (1996) and Luecke (2003), however these models still indicate a deliberate process to manage change rather than creating change as a core competency within organisations in order to prevent organisational dysfunction. In a context where many change leaders struggle to manage change, Lawrence (2015) suggest that many leaders tend to rely on their lived experience as they are somewhat aware of the limitations of change models. Kotter's (1996) account of change leadership and his eight steps of change will prove influential for the foreseeable future; however Todnem et al. (2016) assert that we need to consider new interpretations of change leadership in order for academic teachings to remain relevant to the speed of change faced by most organisations today.

Fuchs and Prouska (2014) show that employees who have had negative experiences of change before, will most likely resist new changes, which is a key factor for change failure. This further contributes to an employee's view of poor change management. Alvesson and Sveningsson (2016) assert that many studies commonly focus on the before and after of change projects, the outcomes, however, there is insufficient research that look at the micro-processes of change in action. The employee's perception of poor change management and a lack of focus on the micro-processes of change at work emphasizes the need to consider that neuroscientific principles are at play here in terms of the threat response and the neural pathways that have already been built to create expectations and perceptions. Thus paying attention to the influence of neuroscience propositions may have an impact on the management of change and considerations for change leadership in the workplace.

Whilst most of the literature talks about how to manage change better in organisations and how to develop change leadership, change is not always positive for the organisation. It is of relevance to also bear in mind that change efforts may also cause a worsening of circumstances since they often entail significant time and resource consumption that could have negative consequences for other organisational processes, and in general cause disruptions and other disturbances in work (Alvesson & Sveningsson, 2016).

2.8. Conclusion

This literature review is embedded within the context of components that are necessary in dealing with complexity, the rate of change together with other workplace pressures, and

environmental and social challenges. The focus is specifically looking at what value neuroscience can offer in assisting change leaders enable their organisations and employees to adapt to such an environment.

The literature highlights the benefits of organisational cognitive neuroscience constructs in enabling employees to be more creative, productive and engaging in the workplace. However, the gap is identified of this not being effectively brought into organisations despite the limitations of being able to accurately measure brain activity in social settings. Utilising neuroscience propositions in organisations, especially in change leadership may provide enormous value in providing certainty in uncertain times. Understanding mechanisms such as the reward and threat response empowers leaders to work towards obtaining desired behaviours in the workplace inadvertently creating the desired culture in the workplace which needs to be one that is adaptable and 'change ready'.

The practical application of the SCARF principle in particular is noted in blogs, etc and confirms that the popular theory is widely used by practitioners and taken as the 'accepted truth', however it is evident that there is insufficient academic research in the application of such neuroscience propositions in real-life organisational settings which this study addresses. There is scholarship that supports the neuroscience propositions of SCARF, however, there are some additions that are excluded or not articulated clearly enough from SCARF. The literature points to the significance of leaders understanding neuroscientific principles to create a more conducive work environment and being able to develop employees to not only survive the context of uncertainty, change and complexity but to thrive in such an environment.

What is demonstrated in the existing literature and synthesized in this review is that leaders don't know enough about what influences human behaviour in the workplace, and it is their responsibility to equip themselves with such levers to enhance employee engagement and productivity. Neuroscience propositions offer one such perspective and allows for practical application within the workplace.

Preventing organisational dysfunction as a concept is said to be the outcome of applying the SCARF principle but is not explained adequately. Organisational health as a concept is reviewed to understand these components better and its relationship with both

neuroscience and change leadership. Even though organisational health is poorly defined in literature there is consensus that it is an ideal state, and is likely to facilitate an environment in which organisations can cope with difficulties. Organisational health ensures a 'healthy workforce' and since we are not adapted to the environment we are expected to perform in, neuroscience principles become very important to understand and utilise in achieving optimal productivity of employees and preparing them for change. The literature also emphasises the importance of the leader's role in preventing organisational dysfunction and creating organisational health by specifically understanding and being aware of their own behaviour and how to activate the reward response and minimize the threat response for employees.

The key thoughts that arise in the literature review point to the complexity in managing change from a planned framework. Thus whilst there may be a dearth of literature on change models they mostly lack the practical application. It is evident that change is not a lever that can be pulled in an organisation, and instead it needs to be built as an organisational competency. This validates the importance of linking organisational health and change, as a healthy organisation should be able to continuously manage change. The literature points to creating a more change ready environment that can deal with crisis and uncertainty as it arises which may lead to creating organisational health. Scholars discuss the influence of organisational culture on overall performance. However, not enough focus is given to the role of the change leader in creating a desirable organisational culture which will positively affect performance.

Even though not explicitly mentioned in the research on organisational health, and change leadership in specific, neuroscience principles are implicit and can be applied in all of this theory. The impact of having an understanding of neuroscience propositions in the workplace as a change leadership technique is not effectively utilized and understood, and is thus addressed in this research. The purpose of this study is to investigate the evidence of neuroscience propositions in the lived experience of change leaders. These findings are then mapped back to the research on neuroscience. The intention is to then create a framework of what works from a neuroscience perspective to ensure organisational health as defined by the results in the study.

CHAPTER 3: RESEARCH QUESTIONS

The research questions provide a clear link to the relevant literature with the aim of obtaining fresh insights into the chosen topic (Saunders & Lewis, 2012). The attraction to organisational cognitive neuroscience is that it lies between discovering answers to issues and exploring obscurities (Pinker, 1999). Research studies aim to solve issues, and research questions are positioned to fill gaps and contribute to a body of knowledge. In organisational cognitive neuroscience, researchers are also exploring the enigmatic mind works, especially in organisational settings.

Based on the literature reviewed and the limitations of current studies, the researcher investigates whether neuroscience propositions are practised in the lived experience of change leaders and explore the relationship of this with preventing organisational dysfunction associated with change. The purpose of this study is to answer the questions below and translate the findings into a meaningful contribution that will demystify the role of neuroscience in organisations and more specifically as a tool in the lived experiences of change leaders. This chapter draws on the issues discussed in the literature review presented in Chapter Two, together with the concepts and the purpose of the research detailed in Chapter One.

The overarching objective that this study serves to address is whether there is a neuroscience framework that can possibly guide change leaders. In order to meet this broad objective the following research questions will be explored during this exploratory study:

3.1. Research question 1

Is there evidence of SCARF, a neuroscience proposition, in the lived experience of change leaders?

The first question is formulated to ensure there is evidence of the SCARF principle in the lived experience of change leaders as Todnem et al. (2016) suggests that popular theory is widely used by practitioners and taken as the ‘accepted truth’. The validity of the SCARF principle needs to be tested.

3.2. Research question 2

Is SCARF sufficient to offer guidance to change leaders in the workplace?

Once it has been ascertained whether there is evidence of the SCARF principle in the lived experience of change leaders, this research question aimed to unpack whether the SCARF principle is sufficient to offer guidance to change leaders of whether there are other neuroscience propositions that are evident in organisations.

3.3. Research question 3

What are the most pertinent elements of organisational health in the lived experience of change leaders?

This question aims to understand the impact of neuroscience propositions from above questions on organisational health and the components thereof. Rock (2009) suggests that utilising the social qualities of the SCARF principle is what organisations should do to prevent exposure to organisational dysfunction. The context and meaning of this is not explained in his work. In order to understand and test the value of these neuroscience propositions it was imperative to understand what organisational health and organisational dysfunction meant. This research question sought to determine a more detailed representation of the components of organisational health as perceived by change leaders by also understanding whether this is the polar opposite to organisational dysfunction.

3.4. Research question 4

Based on the above findings can a neuroscientifically based intervention be designed to develop change leadership within an organisation?

This research question sought to pull together the findings of this study and interconnectedness, whether assumed or real, thereof to explore the process of identifying and developing a neuroscience framework for change leaders that enables organisational health. This was of particular importance given the context of the rapidly changing environment of work. This framework will assist in enabling change leaders to consciously prepare for and create sustainable organisational success in such an environment.

CHAPTER 4: RESEARCH METHODOLOGY AND DESIGN

4.1. Introduction

With clear research questions in place, the researcher was able to make more informed decisions regarding the study design, along with the relevant sample population, and what data was required to facilitate the study (Farrugia, Petrisor, Farrokhyar & Bhandari, 2010). The research questions assist in contributing to the body of knowledge in the field of organisational cognitive neuroscience. This contribution was realised through the development and execution of the research methodology delineated in this chapter. According to Yin (2013), the research methodology is the plan of the study, addressing four research areas: the questions that need to be studied, the data that is applicable, the data that should be gathered and how the results need to be analysed. The key purpose of the research methodology is to make certain the evidence addresses the research problem. In this study, the literature review forms the theoretical basis for the interview schedule which was then explored, tested and validated using in-depth qualitative interviews. The design of the study was qualitative and exploratory in nature. A model was then formulated based on the findings from the data collection and analysis stages of this research.

4.2. Research method and design

This study is qualitative and made use of an exploratory design which was appropriate as the researcher wanted to gain insight into the applicability of neuroscience propositions in preventing organisational dysfunction, in the experience of change leadership within organisations. Exploratory research is done to clarify uncertainty in situations and is not anticipated to provide irrefutable data in order to make decisions (Zikmund, Babin, Carr & Griffin, 2010). This approach is appropriate in being able to better understand the nature and the relationship between the concepts of neuroscience propositions, change, change leadership and organisational health.

The qualitative method was employed given that the objective of the research was to examine the constructs and principles pertaining to neuroscience propositions, change and organisational health as presented in the literature. Denzin and Lincoln (2000) describes qualitative research as the most suitable method when attempting to

understand the components and features of a phenomenon before trying to theorise around it. Anderson (2010) suggests that the advantage of using qualitative methods is that they generate rich, detailed data that allows the participants' perspectives to remain intact and provides several contexts for understanding the phenomenon under study. Another benefit of qualitative data is that it helps the researcher understand the context in which decisions take place (Myers, 2013). This study made use of external, primary data.

Inductive and deductive research approaches were employed in this study. According to Saunders and Lewis (2012), deductive approaches use research strategy to test a theoretical proposition. This was relevant in this study as the SCARF principle was tested for existence in the lived experience of change leaders. Inductive analysis on the other hand involves thorough engagement in the details and specifics of the findings to reveal vital patterns, themes, and inter-relationships (Denzin & Lincoln, 2000). This was appropriately applied in exploring elements of organisational health and working towards creating a definition for organisational health, and further by creating a framework of neuroscience principles for change leaders based on the findings.

4.2.1. Population

The population is a complete set of group members that shares some common features (Zikmund et al., 2010). The target population for the study was Executive leaders who have been involved in managing change within their organisations within the last 2 years. The population was restricted to organisations of 500 employees or more. These criteria ensured that the leaders interviewed have a major impact and a cascading influence within their large corporations. In addition, changes made by this leadership tier may affect the lives of many thereby certifying the change leaders' deep understanding of possible neuroscientific elements and the intricacies and interplay of these dynamics in the workplace. This leadership tier was identified as the population from which the sample group is extracted for the face-to-face, in-depth interviews. This process allowed for ease of validation and testing of the findings that arose from the literature review.

4.2.2. Unit of analysis

Determining the unit of analysis is a critical step in the research design as it identifies the focus and foundation upon which to collect data. The unit of observation was individual change leaders within the Executive leadership tier. The unit of analysis for this study was

the opinions and perceptions of Executives, based on their accumulated experience, on their change leadership required to prevent organisational dysfunction from an organisational cognitive neuroscience perspective. This contributed to creating a framework of sustainable organisational health.

4.2.3. Sample

The sampling method that was employed involved the researcher requesting people within their networks, involved in the above mentioned changes in their organisation to be interviewed to better understand change leadership perspectives within the organisation. Thus the following non-probability (non-random) sampling methods were used in this study: purposive, judgement and quota sampling. Twenty in-depth interviews including the pilot interviews were completed as shown in Table 1. The interviewees came from across industry. The researcher is aware of the possible bias of this sampling method as the sample was not completely representative of their target population. However, according to Wegner (2014) non-probability sampling methods are valuable in exploratory research to provide early insights into and profiles of random variables under study, which is the purpose of this study.

The respondents interviewed had at least 5 years' experience in senior leadership and currently work in organisations of at least 500 people. These components make the Executives highly interview-able for the wealth of practical knowledge they are able to share and their valuable insights on this topic. Most of the interviews were held in person at the Executive's premises, and three interviews were held on Skype as the Executives were based internationally and work with South African companies. One of the interviews held was a group interview of three HR Executives, it was recorded in this research study as three separate responses as each of them responded to each question asked and shared their own views and experiences in the field. The findings of one interview was not used at all (interview 21), as it was discovered during the interview that the interviewee was leading a business of less than 500 employees and thus did not meet the sample criteria. The target of 20 interviewees was still obtained and these were analysed thoroughly. The average interview was one hour long with a range of approximately 40 minutes to 1.5 hours depending on the engagement of the interviewee on the topic discussed.

4.3. Research instrument

The data collection method that was employed was in-depth qualitative interviews. According to Saunders and Lewis (2012), the most common way of conducting exploratory research is to analyse the academic literature and interview experts on the subject.

4.3.1. Design

Semi-structured interviews were conducted. Myers (2013) explains that semi-structured interviews give the researcher some structure and allows for improvisation, and also allows the interviewees the opportunity to give important insights as they arise during the course of the interviews. Struwig and Stead (2001) clarify that this technique enables you to obtain a variety of responses based on the interviewee's viewpoints on the topic at hand to the set questions and allows for detailed responses to be provided on these viewpoints to ensure greater understanding of the dynamics at play. This method also allowed for quality inputs that are not directed in any specific way so that the researcher is not completely suggestive thereby skewing the results. This will enable the confirmation of the utility of the SCARF principle in specific or whether there are other themes that are deemed more important in preventing organisational dysfunction or creating organisational health in the context of change leadership.

The in-depth interview was put together in a way that encouraged a conversation converging a number of themes with the intention of solving an intellectual dilemma (Mason, 2002) and in this instance, a dilemma of the applicability and value of neuroscience propositions in the workplace from a change leadership perspective. The questionnaire was designed to firstly confirm whether the interviewee matched the sample criteria. It was then broken in three parts. The first part of the semi-structured questionnaire focused on open ended broad questions on the management of change in the organisation and from the experience of the change leader. The first part of the questionnaire aimed to identify how change leaders were managing change in the organisation, to identify what worked and what could be improved and allow themes to emerge without being suggestive. This was the mapped against existing neuroscience propositions. The second part of the interview schedule was more structured and directive around Rock's (2009) SCARF principle where each question asked specifically around the function of each element of the SCARF principle in order to better understand the context,

evidence and utility for neuroscience propositions in the lived experience of change leaders. The third part of the interview was open-ended as it sought perspectives from the interviewee on the elements that make up organisational health and organisational dysfunction. The interview schedule is detailed in Appendix B. All the interviews were recorded in order to assist with the analysis phase.

4.3.2. Reliability and Validity

It is crucial for data to be reliable and accurate in order for leaders to make relevant decisions from the analysed data. Reliability essentially involves the accuracy and consistency of the research methodology (Mason, 2002). To ensure that reliability was attained, the interview schedules were consistent across the 20 interviews held. Research tools and data analysis techniques were assessed by another research scholar in the field of qualitative research, prior to implementation in the in-depth interviews. Pilot testing was also conducted. These steps allowed for greater reliability of the analysis and aggregation process as it was validated on a second and a third tier. In addition, a level of consistency was maintained during the data analysis process.

Validity in qualitative research is described by Struwig and Stead (2001) as the trustworthiness or credibility of the process. Given the nature of this research, the potential for researcher bias did exist, hence the need for interpretative validity (Struwig & Stead, 2001) where the researcher had to pay particular attention to the perspectives and language of the Executives during the interview instead of the researcher's interpretation of the Executives' comments. Revisiting the recordings of the interviews assisted with this process to ensure the researcher was using the data accurately. To minimise this bias, a third party and research scholar assessed and validated the approach to coding and analysis, with some of the interpretations of the codes also being verified by the third party.

4.3.3. Pilot testing

Pilot testing is used as a "dress rehearsal" testing the survey and is implemented to determine whether there are any issues that need to be dealt with before the questionnaire is officially used for data collection (Rothgeb, 2008). Once the interview schedule was developed from themes based on the literature review and cross-checked to ensure that the objectives of the research questions could be answered from such

questions asked, the interview schedule was tested on a third party and fellow researcher to ensure austerity of the interview schedule before it was used.

Thereafter, two pilot interviews were conducted with two Executives who met the sample criteria. The intention of the pilot interviews were to provide the opportunity to assess whether changes needed to be made to the interview style and the way in which questions are asked. The outcome of these pilot interviews were that the interviews flowed well, there was sufficient understanding of the vocabulary used, and the initial themes that emerged for the interview were easily translatable with the themes discussed in the literature review. Thus there was no need to adjust the interview schedule and it was not amended for further interviews. As a result, the two pilot interviews conducted were also incorporated into the findings of this study.

4.4. Data analysis

Darke, Shanks and Broadbent (1998) suggests that in order to allow for some flexibility in the process and to be open to new ideas in the event of new content emerging, data collection and data analysis should have some overlap. The 20 research interviews which formed part of the data collection process took place over the time period June to September 2016. By this time repeated patterns had begun to emerge which confirmed the rigour in which the data was collected and led the researcher to believe that data saturation and coding saturation had been reached. Data saturation occurs when additional collection will provide few, if any, insights into the research objective (Saunders & Lewis, 2012). Coding saturation relates to rate at which new codes where being generated as the analysis progressed (Fusch & Ness, 2015). This was evident as the coding completed on later interviews confirmed and added to existing codes as opposed to the creation of new codes.

Once interviews were complete the researcher mapped the responses on Microsoft Excel. Comprehensive interview notes were taken in the interview and interviews were also recorded. These responses were then translated into an Excel document which served as the framework for data analysis. The recordings were listened to several times to ensure accurate mapping of the responses on the Excel document to enable more reliable data analysis.

Prior to embarking on the data analysis phase of the research, it was essential to refine the interpretations of the interviews held by coding the data. Coding is a systematic process and allowed the researcher to firmly understand the essence of what was trying to be conveyed and represented by organising and sorting the data. The coding process was achieved by assigning meaningful labels to the groups of data that emerged. This allowed for patterns and consistencies in the data to emerge (Saldana, 2009).

Thematic analysis was selected as the chosen methodology for this study as it involves identifying, analysing and reporting trends within data that is rich yet complex (Braun & Clarke, 2006). Thematic analysis was conducted using content analysis of the interview data and observations. Content analysis is a technique that is used extensively in qualitative research (Hsieh & Shannon, 2005). Another reason that this analysis was appropriate for this study was due to the flexibility in being used across a range of theoretical and epistemological approaches (Braun & Clarke, 2006). This output was analysed and matched against the theoretical proposition (SCARF principle) using the Microsoft package Excel. Descriptive statistics were also used to describe the sample, analyse the results and draw conclusions based on the data at hand.

A deductive method of thematic analysis was employed to test for evidence of Rock's (2009) SCARF principle in the lived experience of change leaders. For each question asked about the SCARF elements, responses were recorded on an Excel document and analysed further for whether the responses reflected an everyday way of doing things, or once off interventions. The findings of this deductive analysis are discussed further in Chapter five.

An inductive method of thematic analysis was also used, whereby the researcher mined themes from the interviewee responses that were associated to the data themselves (Braun & Clarke, 2006), without trying to match the themes into the researcher's pre-existing interests or analytical presumptions. The researcher mapped all the responses per question onto an Excel spreadsheet and began to categorise information based on the theme it represented. This process enabled the researcher to become accustomed with the data collected, reading and re-reading the content and coding groups of the data and interesting features of the data. In reducing responses into codes this was also tested and verified with a third party and fellow researcher to ensure consistency, reliability and validity of the concepts gathered. From the initial codes, the researcher further clustered

the findings into themes incorporating clusters of codes and reducing the number of themes where possible whilst still ensuring the value of the data is not lost. The themes were then revised by constantly re-examining the actual responses and initial codes produced, ensuring that the themes were still a truthful reflection of the data as the themes developed. This process was completed for the open ended sections of the interview on neuroscience propositions other than SCARF and for exploring elements of organisational health and organisational dysfunction. This process was appropriate as the researcher was immersed in the details of the data in order to discover important patterns, themes and inter-relationships (Denzin & Lincoln, 2000). This process formed the basis upon which the findings in Chapter five are discussed and the platform upon which the data was analysed against the literature review.

4.5. Ethical considerations

The interviewees of various portfolio's in Executive leadership teams all signed a consent form (see Appendix C for the consent form utilised) before partaking in the interview to confirm that it was a voluntary participation and that their responses will be kept confidential. They all agreed for their names and companies to be disclosed in order to identify and uphold the calibre of the research findings; however their responses in the discussion of the results and analysis were kept confidential.

4.6. Research limitations

While this study has offered valuable insights into the applicability and validity of neuroscience propositions in the experience of change leaders within organisations and the resulting implications thereof, there are certain limitations in the research methodology that hinders the generalizability of the findings. These limitations include:

- The time frame within which the data is collected is limited and provides a once-off opinion or snapshot of daily experiences. This could result in biased information as it is dependent on change leaders' perceptions at that point in time. The researcher may also have their own biases based on own perceptions, assumptions and interpretations. This limitation could be overcome through future research framed over a longer period of time.
- The use of Executive change leaders as the universe in this study may result in limited variability in responses from participants. Again, this limitation could be

overcome through research over a longer period, which would allow the researcher additional time to extend the universe.

- The outcome of the research is highly dependent on the quality of the information provided by the Executives during the in-depth interviews. This limitation can be mitigated through consistent quality and thoroughness of the interview questions, the process, and ensuring sufficient time is spent with the Executive.
- The interviewees may not easily recognise or articulate the various components of neuroscience propositions, change, and organisational health that they may have accomplished in their working experience. This made it necessary to ensure sufficient and effective probing to achieve the necessary insights.
- The research focused on the neuroscience propositions evident in obtaining organisational health, this may be a restriction as it does not include an analysis of other factors that may impact or promote sustainable organisational health. This would require a much more in-depth study into the factors of organisational success and sustainability which was not the focus of this study.

Despite the identified limitations, this study provides valuable initial insights to neuroscientific propositions in the experience of change leaders. Furthermore, it provides a neuroscience framework to support organisations to better prepare for change, and provide tools for organisations to build change as a core competency in order to achieve sustainable organisational health.

4.7. Conclusion

This chapter outlines the research methodology to address this study. The research design and methodology selected were intended to meet the requirements and objectives established at the commencement of this research report. Decisions regarding the choice of semi-structured interviews, the unit of analysis and data collection and analysis were substantiated. Research limitations were discussed in order to provide a view on potential biases and errors. The findings achieved from this research methodology are discussed in the following chapter.

CHAPTER 5: RESULTS

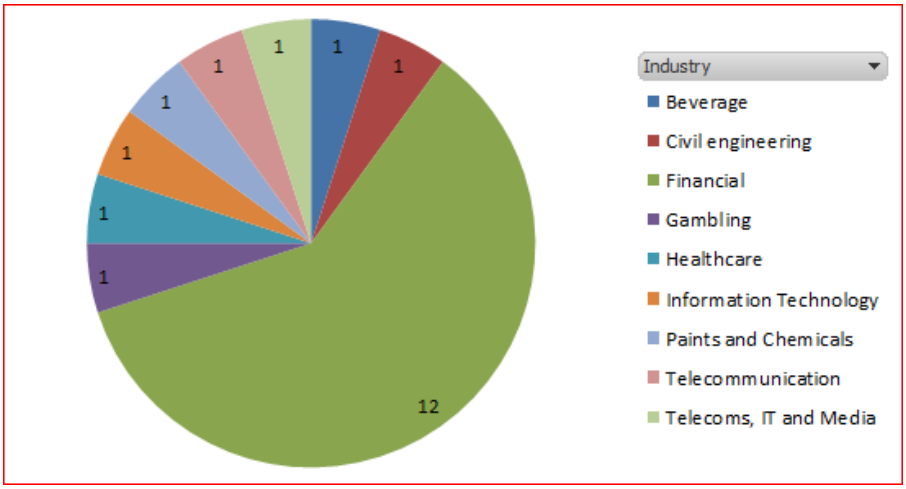
This section explains the results of the research conducted, under the initial research questions raised. The sample consisted of 20 interviewees on the Executive tier of organisations that employ more than 500 employees. The tenure for the Executives in their current position ranged from eight months to ten years, with more than two years' experience in leadership, which meet the sample criteria. Most of the interviewees worked in different positions within their organisations before moving into their current positions. Table 1 below shows details of the Executives interviewed in alphabetical order.

Table 1: List of Executives interviewed (listed with their permission)

Name	Organisation	Position	Gender	Tenure in current position	Organi-sation size	Industry
Alan Singh	Plascon	Group Head of HR	Male	3.5years	2700	Paints and Chemicals
Blair Mackenzie	Ericsson	Head: HR SubSaharan Africa	Male	4 years	3500	Telecoms, IT & Media
Chantal Latchigadu	Old Mutual	HR Business Partner	Female	2.5 years	21000	Financial
Charles Wright	Stefanutti Stocks	Enterprise Development Director	Male	6 years	10000	Civil engineering
Colin Kgari	Nedbank	Head of Sales: Personal Loans	Male	2 years	29000	Financial
David Buenfil	Old Mutual (Latin America & Asia)	Chief Executive Officer	Male	4 years	3000	Financial
David Visser	Coca-cola	IT Director	Male	4.5 years	22000	Beverage
Ellenise Pedro	Old Mutual	HR Executive	Female	2.5 years	21000	Financial
Gary Gatter	Vodacom	Managing Exec: CEO's office and Managing Exec:BI	Male	8 years	7500	Telecoms
James Wambugu	UAP-group (Kenya): JV with Old Mutual	Group MD: UAP-Africa	Male	1 year	500	Financial
Karabo Morule	Old Mutual	MD: Personal Finance	Female	8 months	4000	Financial
Khaya Ntozini	Old Mutual	MD: Mass Foundation Cluster	Male	9 months	6500	Financial
Lerato Makoropo	Tsogo Sun: Montecasino	Head of HR	Female	2 years	1300	Gambling
Lesley Ann Gatter	Investec	Head of HR	Female	8 weeks	4000	Financial
Lettie Phume	Old Mutual	HR Business Partner	Female	2 years	21000	Financial
Michael Goemans	Old Mutual	Chief Financial Officer	Male	1 year	25000	Financial
Murlidhar Gangadharan	Kotak (India): JV with Old Mutual	Chief Executive Officer	Male	5 years	6000	Financial
Peter Warrener	Netcare	HR Director	Male	10 years	20400	Healthcare
Werner Kapp	Dimension Data	Chief Operating Officer	Male	9 months	3500	Information Technology
Werner Terblanche	Nedbank	Managing Executive for Personal Loans	Male	2 years	29000	Financial

The interviews held with the six females and fourteen males took place between June 2016 and September 2016. Even though there was a mix of industries included, as seen in Figure 2 below, all industries were described as operating within a competitive context. There was an unintentional majority representation of the financial industry by more than half of the respondents.

Figure 2: List of industries represented



The study was performed using a combination of deduction and induction to collect data on the evidence of neuroscience propositions in the lived experience of change leaders, self-reported by the leaders interviewed, and then analysed for their relationship with organisational health and change leadership within an organisation. The data coding and analysis procedure allowed for the aggregation and refinement of the data, providing understanding into the evidence for SCARF principle in practice, the relationship to organisational health and the implications neuroscience propositions have to guide change leaders.

All data was transcribed onto Excel and then further categorised in themes per question. The method used to analyse the relevant data was mainly content analysis which meant that the data was coded and grouped in themes which were then sued to appropriately answer the relevant research questions. The process and findings is described in more detail under each of the research questions covered in the sections below.

5.1. Is there evidence of SCARF, a neuroscience proposition in the lived experience of change leaders?

This research question focused on whether there was evidence for the SCARF principle in the everyday experiences of the sample group interviewed. Data for this question was collected from the interviews, with a specific focus on answers to question 9 to question 15. Whilst some themes may have naturally been uncovered in the first part of the interview based on how organisations were dealing with change, these specific questions (question 9-15) were targeted at eliciting a direct response around what organisations are doing with respect to providing status, certainty, autonomy, relatedness and fairness within the organisation.

Table 2 provides a summary of Executive's feedback around whether the SCARF principle is evident in their organisation or not. If an element was not practiced in an organisation it was marked with an 'X'. In unpacking these interview findings it was evident that many Executives tried to bolster the SCARF elements and increase their visibility and practice than may be in reality, some could attest to there being evidence of the SCARF elements but that improvements could be made in this regard, whilst few were honest to say it did not exist in their organisation at all. Furthermore it was also evident that some Executives in trying to confirm that such behaviours existed (as it seemed like the obvious behaviour to have in an organisation), they struggled to find examples, or could only describe certain circumstances under which such elements are evident as opposed to it being a standard practice in the organisation.

The Executives in the Table 2 are not listed in alphabetical order to maintain confidentiality; they are listed in order of the interview dates. The data shows firstly that there is evidence of the SCARF principle in organisations and where such elements exist there is a high likelihood that it exists in the reverse. In other words, the Fairness element of the SCARF principle is most evident across organisations (16 organisations), followed by Relatedness (15 organisations), then Autonomy (13 organisations), Certainty (10 organisations) and lastly Status (7 organisations). In terms of analysing each of the principles and recording whether it existed in the organisation or not in the above table was discerned by whether it was consistently practiced, and not where it was a once off intervention or occurrence. Each element together with the relevant findings will be described in detail.

Table 2: The evidence of the SCARF principle in change leadership

Executive	S (Status)	C (Certainty)	A (Autonomy)	R (Relatedness)	F (Fairness)
1	X	X	X	✓	✓
2	X	X	X	✓	✓
3	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓
5	✓	✓	✓	✓	✓
6	X	X	✓	✓	X
7	X	X	X	X	X
8	X	✓	✓	X	✓
9	X	X	X	✓	✓
10	X	X	✓	✓	✓
11	✓	✓	X	X	✓
12	X	X	X	✓	✓
13	X	X	X	X	X
14	X	✓	✓	✓	✓
15	✓	X	X	X	✓
16	X	X	✓	✓	✓
17	✓	✓	✓	✓	✓
18	✓	✓	✓	✓	✓
19	✓	✓	✓	✓	✓
20	X	X	✓	✓	✓
TOTAL	**8**	**9**	**12**	**15**	**17**

5.1.1. Status

Lack of status in an organisation was defined as if recognition was awarded only once a year and not on a continuous basis. If there were multiple ways of giving employees recognition consistently both formally and informally, this was assumed to be sufficient evidence for Status is an organisation.

Eight of the organisations exhibited the practice of giving employees status and recognition in their organisations. The Executives of such organisations described how Status is being practiced in their organisations in the following ways: Executive 3 explained that “recognition is part of the culture”. Executive 4 spent more time discussing how important employees are and that it is an attitude that needs to be practiced daily, they “need to be taken seriously as they have feelings as well, they need to be appreciated, recognised, and encouraged. People want to be acknowledged and we need to do it every day”. The same Executive has worked very hard to change the culture of

their own business unit and felt vehemently that “mental toughness and mental management needs to be engrained through affirmation”. Executive 5 who is in HR explained that their culture is one of a high feedback environment, where instant positive and negative feedback is given in order to achieve a high performance environment. Executive 11 and 17 had similar views on how recognition is built into their environments where their many recognition programmes is aligned to the behaviour that they want to advocate in the organisation and forms the platform for effecting change within the organisation and built into their understanding of how to reward employees in the organisation. Executive 18 explained that “leaders need to understand their employee and what drives them” because “different employees require different recognition”. An apt example brought up by an HR Executive is that employees like exposure, and that it was evident that “some employees appreciated earning a slot on the MANCO meeting agenda to present to MANCO more than a weekend away or a monetary reward”. The examples described above show a more sustainable practice of giving recognition and Status to employees as opposed to once off events, and thus were marked as evidenced in their relevant organisations.

Where Status was marked as non-evident, Executives described the practice of Status in the following ways which concluded that it is not practiced consistently. Executive 1 said “we don’t do it [recognition] enough, and it could be done better”. This same Executive acknowledged that recognition does empower people but that their organisation does not always remember to do it. The other Executives that were assessed to not have Status practiced in their organisation said things along a similar vein, that they don’t reward enough, that recognition is not linked to change management processes, and that it is not that they don’t want to recognise people it is because they don’t have time to do it, etc. Executive 6 who often works with change and transformation in their organisation gave an interesting point of view and explained that “there is a negative side of Status…when you live off the Status of one project and it doesn’t result in any culture change”. This was interesting from the point of view that there was recognition that Status should result in a culture change which will be analysed further in Chapter 6. Another challenge experienced by Executive 13 was that even though there was recognition that Status plays a big role in an organisation and that people like to be recognised, their environment was one of high levels of internal competition which prevented people from recognising each other, thus people would rather put the next person down for self-promotion purposes, then to recognise the efforts of another. This also alluded to culture as the platform to enable Status to be present in an environment or not.

5.1.2. Certainty

In considering whether an organisation tried to create certainty for their employees the following methodology was used: If an Executive described practises that were intended to constantly keep the employee informed regarding processes, etc. gave a sense of the employer trying to provide certainty for the employee. However if the Executive described once off interventions that were put in place to address ambiguous situations this was not documented as the organisation having certainty in place for employees as it was seen more as a reactive process as opposed to a proactive process. Executive 4 voiced the approach to certainty in the environment quite aptly: “Even though the environment is VUCA [volatility, uncertainty, complexity, and ambiguity], you still need to try and create certainty internally”.

Nine Executives described environments in which they try and provide certainty to their employees, despite uncertain circumstances and unpredictable industries. In instances where Executives described having certainty in their organisations, executives spoke about having a culture of transparency, support, openness, of asking questions, communication, knowing what is expected, visualising the change, learning, training, and coaching (Executive 3, 4, 8, 11). Executive 4 explained that it is important to “give people certainty by making them feel valued…that they make a difference”, which is similar to Executives 7, 8, 10, 11, 12, 16 and 19 that stated that “explaining the ‘why’, when, how and what” should all be incorporated to create certainty, but especially the “why”. Executive 3 and 16 built onto this and explained that this can be achieved by “involving employees early into the process”. The issue of creating meaning was discussed by a few Executives as seen from the above quotes. Executive 18 linked this with creating that kind of culture too, “create a meaningful employee experience, create a cultural experience…employees own their career, but we have to provide the environment for them to flourish”.

Where executives explained the processes or methods used to create the environment of certainty, this included weekly check ins, project meets, frequent one on ones, multiple conversations all the time, developing manuals, roadshows, webinars, newsletters, team meetings, “culture coffee conversations” (Executive 17) – all of these tools creates an authentic environment where people can discuss issues that they are unclear about.

Executive 20 articulated what other executives were expressing in similar words; “I learnt that you have to repeat everything always, the message doesn’t always translate…broken telephone is a reality that makes it difficult especially in large organisations…repetition helps to get the message across [and create certainty]”. Executive 11 built on this idea by extending that when “things are continuously being clarified…it may lead to a culture change”.

Those that didn’t have certainty in the workplace described that the lack of certainty came from process related issues such as the number of changes being rolled out at once and how it was done (Executive 2), whilst some recognised that they didn’t take much cognisance of creating an environment of certainty before, and realised that this left employees feeling very anxious. Certainty can’t be created in formal performance management meetings only, as highlighted by Executive 10 who said formal performance management doesn’t work, and that employees were calling out for more frequent communication and more frequent feedback, as a result of this need the organisation decided to change processes for performance management to manage the certainty aspect next year. This also validates that certainty cannot be created in once off settings, for example annual or bi-annual performance management meetings. Executive 12 saw creating Certainty purely from a content and process perspective (“it takes a lot of preparation”, “creating manuals”), and this seems to lack the people aspect of it, and how they would deal with people that are uncertain about what it required from them. This could also highlight that leader’s interpretation of creating certainty may not actually meet employee’s needs.

A handful of Executives (such as Executive’s 4, 5 and 8) that had Certainty in their organisations also expressed that they wanted people who could deal with the uncertainty, people who could exist in the grey to fit into their organisational culture (one that has to deal with constant change). This suggests that even though some organisations try to create certainty for employees they would still want their employees to be able to deal with a fair amount of uncertainty without feeling disabled by it.

5.1.3. Autonomy

Whilst 12 of the organisations gave employees autonomy, often it resided in higher levels of the organisation, although subordinates were empowered to do their work. Referring to

having autonomy, Executive 2, 8 and 16 referred to this being leader-led and empowering your team accordingly. Executive 8 explained that “business has to own the change but then let go and give autonomy to the people”. Executive 10 said that with their focus on the customer of recent, it has resulted in a much more autonomous environment which in turn has also changed the culture in the business. “Empower employees to come up with the change and drive it”, according to Executive 10.

Executives 2 and 17 felt differently in that autonomy is only felt, and one’s voice only heard depending on the level in the organisation. However, a few Executives, particularly 9, 12, 13 and 20 indicated that the decrease in autonomy felt was as a direct result of changes made. Executive 20 said, “New bosses want to be in control…which means your autonomy gets washed away”. Other changes include an increase in collaborative efforts, or a change in organisation structures.

A few Executives grappled with the idea of collaboration and how this affects autonomy. Executive 4 felt that “No individual is greater than the business or the sum of its parts - ego and status does not exist in this format, encourage healthy conversation and debate not individual decision making”. They went further to explain “you can see the successes when autonomy is given in decision making…people need to see the role they play in strategy…you must be able to debate when there is a disagreement”. Conversely, Executive 9 explained that collaboration is rewarded in their organisation and this has reduced autonomy over time, which has resulted in it not being easy for people to be independent in decision making within the organisation. Whilst Executives that led autonomous environments talked about empowerment, Executive 12 talked about working in a constrained environment (because of increased centralisation) said “it isn’t about autonomy, it’s about locus of control”. This suggests that even in an environment where there may be reduced levels of Autonomy, it can still be felt if you had an internal locus of control and didn’t blame others for the circumstances. Executive 13, from an organisation that lacks autonomy said, “you can’t be autonomous, it’s about a two way dialogue”, and that you have to be “collaborative to prevent silos”. Executive 20 explained that the ideal is to create an environment where employees are engaged, feel part of a community, and where they have meaning because, “if you treat the business as your own you going to do the right thing”.

5.1.4. Relatedness

Relatedness in the organisation was analysed through the culture of teamwork and trust within the organisation. The data revealed that 15 organisations showed a culture of teamwork and trust.

Many of the Executives explained that focusing on teamwork was a priority and “on the agenda” of recent in their organisation, this is aligned to the results which showed that either most organisations needed and expressed teamwork to achieve their goals, or that they were working on creating a more team like culture, as an ongoing focus. This was opposed to having a culture of self-interest which led to organisational dysfunction. Where Relatedness was evident in organisations teamwork is encouraged, recognised, promoted, rewarded and sometimes even forced in order to deliver.

Executive 9 mentions in this regard that “teamwork is a strong focus, not individual contribution”. Whilst Executive 17 recognises the nuances and interplay of individual and teamwork in an organisation and explained that “there is a risk in the nature of the work [performance scores] for employees to focus on their own deliverables, that is why we have to work hard to bring teams together”. This organisation as well as others mention that in order to focus on the customer it is necessary to work in teams, and that this should exist outside of the change management process. Creative activities ensure the development and maintenance of teamwork in an organisation, Executive 4 said that “it is the practical things, like getting everyone’s signatures to commit”, and that “sometimes you have to have difficult conversations to get there [to obtain teamwork]”. It is eloquently put by Executive 5 that the “currency of an organisation is relationships…whilst people are responsible for themselves they cannot deliver without a team”. Executive 12 built on this, you “have to collaborate in order to be agile” as an organisation. Executive 20 summarises this by indicating that “no organisation that is healthy will work without teamwork”, however this Executive also introduces the challenge that the increase of work from home compromises the ability to work as a team.

In the five organisations that did not show Relatedness, these Executives mainly spoke about the existence of silos that needed to be broken down, a change of culture that is needed, and an internal competition that prevented teamwork from happening. Even though Teamwork was a company value for some of these organisations they were

struggling to achieve a culture of more Relatedness. Executive 8 as an example mentioned that they were trying to force cross functional alignment and teamwork by enforcing performance measures and targets in this regard. All of these Executives (7, 8, 11 and 14) emphasised the need to work on improving the teamwork in the organisation, Executive 13 talked about silos that "causes old thinking" and detracts from being able to change and move forward as an organisation. Whilst teamwork did exist in these organisations, they existed in pockets across the organisation and in some on executive level only. All organisations that were recorded as not having Relatedness in their organisation mentioned that a culture change was needed in this regard.

5.1.5. Fairness

Fairness was only measured by the level of priority it took Fairness took in an organisation and whether it was practised consistently or not. Majority of the organisations (17) indicated that Fairness was of utmost importance in building a credible organisation and promoting a happy workforce.

Fairness was evident in organisations where policies, practices codes, ethical procedures and grievance procedures were in place to permeate the message. Some tools utilised included a grievance line straight to the CEO, 360 degree assessments that are taken very seriously in terms of favouritism, etc. Executive 10 believed that it "goes back to integrity – you can't be collaborative and successful if you are not fair". Similarly, Executive 19 explained the importance of positioning fairness as part of the culture, "we transformed the customer experience, but you need to do this for employees first". Executive 9 related it to the national culture of their home company's country, whilst Executive 5 practiced a culture of meritocracy in their organisation.

Executives from three organisations that did not show Fairness agreed that it needs more attention and that it could be and should be better. Executive 6 asked if the question on fairness had to be answered as it is one of the biggest ongoing frustrations in the organisations which the executive labelled as "a subconscious part of the culture". It was felt that the lack of fairness due to HR requirements being bypassed, unfair recruiting practices, and biased rewards and recognition. Executive 6 indicated that they felt that their EXCO denies this to be a problem. In the case of Executive 13, they felt that the intention to be fair was being there, but the experience was very different.

5.1.6. Conclusion

Based on research question 1 findings, it is evident that SCARF exists in the lived experience of change leaders. It is also evident that change leaders want to develop some of these elements further in the organisation showing that they do understand the value in these principles even though they are not always practised. The data shows that most organisations had Fairness as an element (16 organisations), followed by Relatedness (15 organisations), then Autonomy (13 organisations), Certainty (10 organisations) and lastly Status (7 organisations). This highlights those Executives that showed evidence of these elements embedded them within the culture of the organisation for greater success. In instances where these elements were not evident, Executives talked about the importance of focusing more on them and the benefit thereof.

5.2. Is SCARF sufficient to offer guidance to change leaders in the workplace?

Outside of the SCARF principle, the findings offer evidence of three other neuroscience propositions that offer guidance to change leaders, such as, meaning making, inclusion, and communication. These themes came out from the first part of the interview schedule. These were open-ended questions that allowed the Executive to explain how change is managed, with particular attention to context, what is working well and what could be done better. These themes were collated using content analysis. It became evident that the three themes meaning making, inclusion, and communication were not sufficiently represented in the SCARF principle. These propositions had affirmative implications from a neuroscience perspective on employees and thus provide additional guidance to change leadership in the workplace.

5.2.1. Meaning making

It is important for employees to make meaning of the work they do in order to better contribute to the organisation, a sentiment felt by almost every Executive. Two Executives described the importance of this articulately: “Employees are engaged when they bring all of themselves to work…this can only happen if they understand the ‘why’ [the role they play in the bigger picture]”. All Executives reiterated the importance of employees to understand the ‘why’ and how it is going to affect them personally. Thus whilst the business case is important (mentioned by a few Executives), the case made to the

employee becomes more important in rolling out a change in the organisation. A few Executives talked about how this gets the employee's heart and mind, essential for employee contribution during change implementations.

Part of making meaning is to consider how employees are being treated during the change process some executives warn, as they are most important in the process. Based on previous experience employees felt "they didn't think about me", one Executive reiterated that the employee needs to be considered in the bigger scheme of things, in that, "the employee's personal value to the organisation must be felt". "Caring is an attitude" expresses Executive 4, whilst another explains that employees cannot be a "burden of sentiment", they all come with their own problems and "when you care about them the client focus happens naturally". One Executive articulated that it is the leader's responsibility to pull everyone along as part of managing change; you can't disregard employees' feelings, "previous EXCO said the employees don't know what they are doing [openly], this then left emotional scars on employees, and they didn't have time to heal. The organisation had to work hard to bring the heart, caring, back into the organisation". This also speaks to creating a more meaningful work environment by aligning employee's personal and organisational values.

Executive 17 had a contrasting attitude to this however, and expressed that the culture in their organisation is that the "what's in it for me" attitude is outdated and needs to be revisited. There was a sense from this Executive that the employees of this organisation is "more mature than that", and that building change as a capability within the organisation meant that employees are involved in such discussions and processes from the beginning and thus 'buy-in' into the organisational need for change. Upon closer analysis of this however, these employees are provided with the meaning that they seek by being involved in the processes from early on, their voice is valued and thus it doesn't then become an issue to explain the effect on employee's and 'what's in it for them', and the need is essentially addressed upfront.

Thus meaning making considers employees making meaning of their work, the organisation giving employees meaning to their work (from a sense making perspective not a recognition perspective), and making employees meaningful to the organisation. This may be linked to the Status elements but it expands the thinking in a way that is not inclusive in the Status definition.

5.2.2. Inclusion

Inclusion is considered a neuroscience proposition as it generates the feeling of belonging which triggers the reward response in the brain. Executives across the industries interviewed explained that employees want to be heard, everyone wants to feel valued. Executive 1 and 4 said “this gives people certainty”, suggesting that it is a precursor to certainty. Most Executives explained the importance of involving employees early on in the change process, and even though this is not practiced in all organisations. . It is very clear from the interviews that Inclusion helps organisations to better manage change.

Inclusion also includes the idea of collaborating to involve employees. As Executives 1, 3, 5 and 19 explained in similar words “employees need to experience change for buy-in…make them part of the journey, they want to feel that they have a part to play and that their opinions are valued”. This suggests a much deeper meaning than the Relatedness element of the SCARF principle. One Executive explained that this would make an employee’s experience of change more positive, as “it would not be experienced as forced-upon”. Inclusion thus covers collaborating in order to involve employees from the start of a process or change and keeping them involved throughout.

5.2.3. Communication

Communication is a neuroscience proposition as it helps employees to visualise the process and the outcome (building neurological pathways). Every Executive mentioned the importance of communication, and most restated the importance of communicating the same message repeatedly. Even though many organisations place considerable effort in communicating, most Executives say more should be done to communicate better. Many Executives explained that it is worth their while to spend a longer time discussing change with employees so that they can visualise the process for smoother implementation. In fact, Executive 9 stated quite clearly that “quick roll outs [of change] with no communication does not work”. Organisations are often guilty of making an assumption that everyone is on board with a change, Executive 1 explained that this assumption is “often a result of not taking the time to communicate…this brings distrust”. If there is no trust then employees operate from a threat response which may result in anxiety, etc. Another danger of a lack of communication as positioned by Executive 11 is an “underestimation of the ability of the grapevine” and how this may break down change

processes. Addressing the uncertainty with communication alleviates the fear which is a precursor to creating certainty and triggering the reward response.

Some Executives highlighted some essential characteristics of communication. These include, “keep the message simple”, “repetition is key”, “be consistent in your communication”, “use common language”, “be honest”, these elements ensure a successful strategic communication, bring people to one common goal and direction and creates transparency and trust. As Executive 1 described, “how you explaining changes to the receptionist is more important than how the MD says it must be done”.

One interesting thought posed by Executive 1 was to consider the industry and the context, traditional occupations, have the attitude of ‘this is how it has always been done’, and thus communication plays a critical role in assisting in the change process and the reasons for change. Furthermore Executive 8 builds on this idea and includes the need to engage and communicate with different levels, “include all stakeholders…repeat information in different ways…people hear it differently…reinforcement of the vision”.

Employees should realise the importance of upward communication as well and that this should be promoted in organisations as a feedback loop. Executive 2 warned however that even though most organisations endeaveour to improve communication in order to create understanding with staff and give them the necessary rationales, it is also “a reality that some people’s cognitive frames don’t shift…not everyone will buy in” even with the best communication plan and the best intentions. This consideration, does not suggest however, that communication within an organisation should not be improved as there are far more positives that outweigh the negative or the lack of ability to shift some people.

5.2.4. Conclusion

Neuroscience propositions can offer guidance to change leadership within the workplace as many Executives provide examples of how using certain propositions ease the management of change in the workplace. Neuroscience propositions such as meaning making, inclusion, and communication proves important for change leaders. Thus the acronym MIC-SCARF becomes more relevant and inclusive in providing guidance to change leadership in the workplace. Meaning making, Inclusion and Communication are

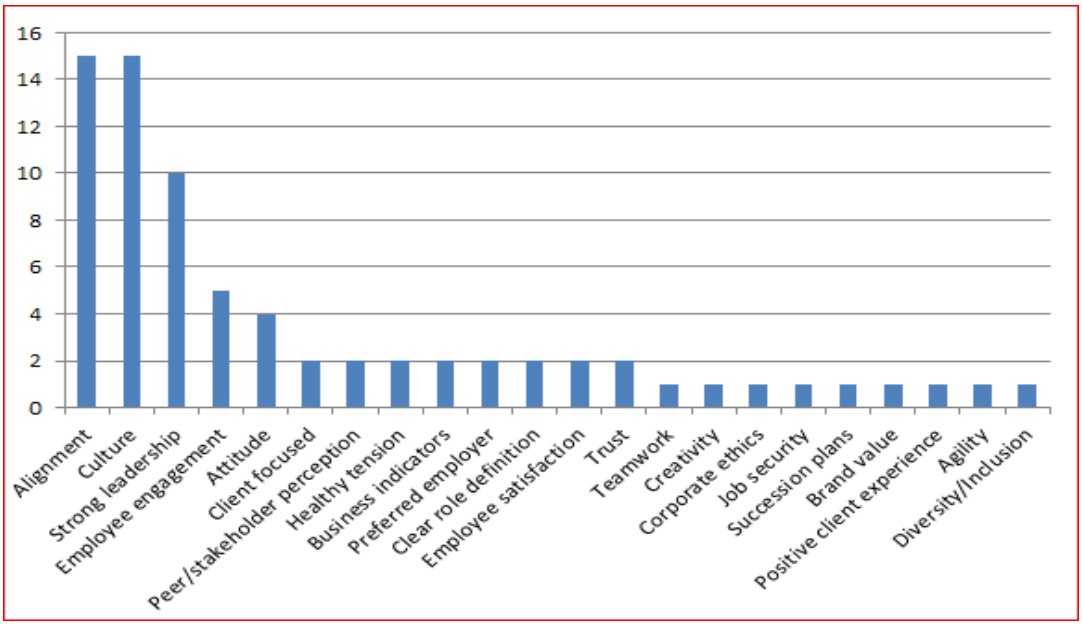
essential to consider in the organisational environment before Status, Certainty, Autonomy, Relatedness and Fairness can be provided.

5.3. What are the most pertinent elements of organisational health in the lived experience of change leaders?

Based on the earlier findings relating to research question 1 and 2, research question 3 aims to understand what elements impact organisational health. Questions 17 and 18 of the interview schedule focused on organisational health.

Figure 3 describes all the main themes that were coded and uncovered in describing the most pertinent elements of organisational health. Most interviewees were reminded about their internal employee surveys and the areas that those cover as elements and measurements of organisational health. The first iteration of the thematic analysis resulted in 31 unique themes that were used to describe components of organisational health (see Appendix D for the initial 31 themes). This was then further refined by joining categories that may have alluded to the same issue, for example, joining 'positive client experience' and 'client focused' into a 'client focus' category. Figure 3 shows the final iteration of the 22 main themes that were uncovered from the interviews relating to organisational health and the number of times it came up across all the interviews.

Figure 3: Most pertinent elements of organisational health



The top five elements, Alignment, Culture, Strong Leadership, Employee Engagement and Attitude are described in more detail below as the most pertinent elements of organisational health in the lived experience of change leaders.

5.3.1. Culture

Culture was highlighted being one of the most important components of organisational health. Ability to deal with change, being able to operate outside the comfort zones and inviting challenges within the context of work, working towards a common purpose, the ability to make decisions, and a culture of communication, certainty and teamwork were identified by Executives as cultural factors.

Executive 5 suggested that not only does the organisation have to deal with constant change, the employees also have to be "able to operate at the edge of chaos all of the time [in the context of the changing environment]". Another Executive built on this idea further by expressing that "When employees are okay with change then the business indicators [e.g. profitability] flow from this". These ideas provide a sense of the environment that needs to be created for employees to deal with change and that it is an active culture. Executive 3 referred to the culture of an organisation as "the smell of the place", whilst Executive 12 refers more to the activity of culture where "Organisational health [for me] is the extent to which people are pulling in the same direction". Executive 17 explained the importance of the activity on working on the culture of the organisation, "MANCO is spending the whole day next week talking about culture in order to stay healthy" and goes on to say, "This is our main agenda this year is to focus on the culture".

Executive 9 and 16 expressed how they worry that whilst they may have organisational health now, they don't have the right culture in place now to take them into the future. Executive 16 said "I am concerned about certain aspects of the future of culture… [the future culture] is driven by the magnitude of change and the ability to respond…we are lagging behind…we can do better to remain sustainable [in the future]".

5.3.2. Alignment

The issue of alignment came up across 15 interviews as an important indicator of organisational health. It referred to the alignment of the intended culture and the actual

culture, alignment across the levels in the organisation, alignment to the business strategy, alignment of personal and organisational values, and lastly alignment of rewards to strategy. Many organisations talked about having an organisational fit which also fitted into the broader theme of alignment that came out of the responses that were not specific to the questions on organisational health. For example, Executive 17 explained that "misfits [hired into the organisation] can be seen quickly, the system works them out, or very quickly they see that they don't belong". Alignment was then seen as a critical component of organisational health as it was seen as the people of the organisation all pulling towards a common goal or purpose or as Executive 12 puts it "it is the extent to which everyone in the organisation is pulling in one direction", "a psychological fitness", and the "attitude" of the organisation.

5.3.3. Strong leadership

Issues around strong leadership were brought up in 10 interviews and was the third most popular element making up organisational health. Strong leadership consisted of having a clear vision, a clear strategy and that this is communicated well so that everyone is working towards a common purpose. The context of this was provided in a way that linked the first two themes discussed together; leadership is where alignment is created, crafted and stems from, and leaders create a culture of working together to achieve common goals as a result of their clear vision, strategy, communication, etc. Another aspect of strong leadership mentioned by Executive 10 was the fact that employees needed to be satisfied with their leadership as well in order for organisational health to exist.

5.3.4. Employee engagement

Employee engagement was raised by five Executives. Executive 6 believes that an engaged employees is about, "the employee's view of the culture, whether the employee takes pride in their organisation, how well the organisation takes care of employees, how organisations motivate employees, how employees are developed, and how everyone gets treated". Executive 8 contextualises the importance of employee engagement by adding that "a company is nothing without its people", and thus employees need to be engaged, there needs to be diversity and inclusion. Executive 20 said that part of employee engagement meant that the "work has to have meaning for the employee…it's like being part of a community".

5.3.5. Attitude

Attitude referred specifically towards the employees purposeful intentions towards the workplace such as what they do to motivate themselves in the workplace, the role they play in contributing to the team/company culture, and how committed they are to the organisation by making efforts to understand the vision, etc. Attitude was linked to employee engagement as it was one of the elements that could result in the employee being engaged or not.

5.3.6. Organisational dysfunction

Only four interviewees ventured into what organisational dysfunction meant to them. Executives 13 and 20 expressed that organisational dysfunction happens when “there is too much internal competition”, “the focus is not on the customer”, “people are looking after their own interests” and when people are “working in silos”. Executive 18 and 19 mentioned that organisational dysfunction consisted of a “lack of communication, breakdown of trust, disrespect, lack of commitment, idle time, and no alignment to strategy”.

These were interesting responses from the perspective of the opposite being alluded to being organisational health such as working towards a common purpose (which was mentioned by at least two others as a component of culture), working together (which was not mentioned by other interviewees), a client focus which was mentioned by at least two others as an element of organisational health, and alignment which came out strongly as well. The elements of communication and trust were mentioned many times in the importance of managing change and not really exclusively as an element of organisational health. This suggests that the lack of communication and trust are hygiene factors rather than motivation factors.

5.3.7. Mapping organisational health to SCARF

Even though most of the Executives spoke about organisational health, it was important to position both concepts as leaders described where they fit on this scale in their own organisation. It was interesting to see that some interviewees working in the same company managing different business units had very different responses in what they thought the elements of organisational health is, and others who work in the same

company had very similar ideas. This highlights the fact that organisational health is leader-led, it is the perception of the interviewee and is diagnosed based on the interviewee's perceptions of how these elements play out in the organisation.

Table 3 lists all Executives interviewed and provides evidence of the SCARF principle in organisations mapped against the leader's views of whether the same organisation is indeed one of health or dysfunction.

Table 3: Evidence of SCARF principle with Executive's perspective on organisational health

Executive	S (Status)	C (Certainty)	A (Autonomy)	R (Relatedness)	F (Fairness)	Organisational health: Executive's perspective
1	X	X	X	✓	✓	Stressed but healthy
2	X	X	X	✓	✓	Partially dysfunctional
3	✓	✓	✓	✓	✓	Health
4	✓	✓	✓	✓	✓	Moving to health
5	✓	✓	✓	✓	✓	Health
6	X	X	✓	✓	X	Moving to health
7	X	X	X	X	X	Not healthy
8	X	✓	✓	X	✓	Health
9	X	X	X	✓	✓	Moving to health
10	X	X	✓	✓	✓	Health
11	✓	✓	X	X	✓	Moving to health
12	X	X	X	✓	✓	Health
13	X	X	X	X	X	Not healthy
14	X	✓	✓	✓	✓	Health
15	✓	X	X	X	✓	Health
16	X	X	✓	✓	✓	Health
17	✓	✓	✓	✓	✓	Health
18	✓	✓	✓	✓	✓	Health
19	✓	✓	✓	✓	✓	Health
20	X	X	✓	✓	✓	Health
TOTAL	**8**	**9**	**12**	**15**	**17**	

What is evident from Table 3 is that irrespective of the SCARF elements being apparent or not in organisations, this does not have an obvious implication for organisational health according to the interviewees, however there does seem to be a relationship. In most organisations where all the SCARF elements were present the Executives described their organisation to be one of organisational health, or moving towards health. However, in some organisations even though the SCARF elements were not all evident, leaders still

described their organisation as one of health according to their own perceptions. Executives 7 and 13 described their organisations as not healthy, and in both organisations it was also evident that none of the SCARF principles were apparent. One Executive described their organisation as partially dysfunctional and had only two of the SCARF elements in place, relatedness and fairness.

5.3.8. Conclusion

The most pertinent elements of organisational health in the lived experience of change leaders include culture, alignment, strong leadership, employee engagement and attitude. Organisational health is leader-led and is based on the perceptions of the person analysing organisational health. There seems to be some consistency in how leaders perceive their organisations from a health and dysfunction perspective and whether there are SCARF elements that are evident or not.

5.4. Based on the above findings can a neuroscientifically based intervention be designed to develop change leadership within an organisation?

Based on the above findings Executives have shared much information that can assist in designing a neuroscientifically based intervention to develop change leadership within an organisation. Themes emerged largely from Questions 1 to 8 in the interview schedule. Three main areas were identified in designing an intervention, the leadership, the process and the culture.

5.4.1. Leadership

Executives across industries aligned themselves to change being leader-led and furthermore that the leader needs to take full responsibility and accountability for building such competencies in the organisation. Most of the Executives had similar responses to that of Executive 10 who said that "…have to be the change yourself, and drive it, to create buy-in…half the battle is won when leadership drive change, employees follow". However, Executive 17 cautioned that "employees will question the plan, so you have to stick to your plan, you have to believe in yourself", as advice to developing change leadership.

There were also contrasting views of whose responsibility it is to lead the change, Executives 8, 9 and 12 said it is HR's responsibility to drive the change, however the other Executives felt it was a broader leadership function. They felt that if it is left to HR this is negative as HR does not always have the broader view of the business. Worse than this is that everybody does not take ownership and this detracts from building change as a competency in an organisation. Executive 4 said its "most successful when EXCO owns the change…it is seen in doing the talking and in their everyday behaviour". Some organisations like the use of task committees (champions) to facilitate change, while a few others feel it is the responsibility of leadership. Majority of interviewees felt it was the use of the combination of a leader-led environment and the use of formal task teams to facilitate change.

Co-ordination is required from a leadership perspective, where the "leader has to act in the interest of the employees and the business…if leaders are acting in their own interests then change fails" (Executive 5). Executive 6 revealed that there is often a "disconnect between top management and lower levels, the top management team says get on with it, which is often a knee jerk reaction and have a negative impact on lower levels…however the lower levels wants to go slower, and leadership needs to know when to go slower". Thus the aspect of leadership is also infused in the below two sections of process and culture and these too are leader-led.

5.4.2. Process

The process needs to be owned internally. A few Executives mentioned that the use of external consultants are not useful as the architect or the implementers of change, as this detracts from the objective of involving their people and the benefits posed from employing this neuroscience proposition (inclusion). In addition these Executives felt the work done by external parties is often not done in collaboration with employees and leaders in the organisation, and thus it is doomed to fail. Some organisations used consultants in the past and said they will not use them again in the future, however one organisation still uses them even though they are fully aware of the outcome and how it detracts from obtaining buy-in, etc.

One interpretation of preparing employees for change from a change leadership perspective was described aptly by one Executive "Need to help employees to unfreeze -

spend time with them so they can thaw out, and let them choose how to settle before refreezing". In addition to this, one intervention that should certainly be considered in developing change leadership is scenario planning, as Executive 1 describes "no scenario planning when preparing for change is dangerous as unintended consequences are not explored". These unintended consequences can thus be prevented, resulting in a smoother change process.

In the process of preparing for and rolling out changes a few Executives explain the significance of going slow as it takes time to obtain buy-in and to build consensus. Some Executives wish the process could be faster and that changes shouldn't be dragged out. However they indicated that the success of the change depends on the buy-in of individuals. Executive 2 that had undergone a sequence of changes in the business suggested that it is much better to "cut deep, cut once, as continuous change causes tiredness, uncertainty, distrust, destabilisation and confusion…[thereafter] clean up, build for stability and prepare for growth".

A few Executives spoke about the importance of building a business case for change (which was not more important than explaining to employees what the change means to them). Most companies look at change with a project management approach (building task teams, etc.), and in fact a few Executives agreed that "change is often underestimated…and requires formal processes and possibly specialists". In contrast, however, it was also evident that in at least three organisations they were using a project management approach to build capabilities where a change ready culture already existed. These same three organisations also showed evidence of all elements of the SCARF principle and were also described as organisationally healthy.

Despite the actual approach there was consensus that a critical part of the process is to "create hype, show enthusiasm and infuse energy into the process". Executive 11 specifically made reference to "needing energy and EQ to manage the change process…one way to do this is to meet people one on one". This not only creates more energy between people and for people, it provides more meaning in the process, and an opportunity to clarify anything that is uncertain. This also provides the opportunity for leaders to "implement feedback quickly so employees can see, I am being asked for feedback and something happens with it". This develops change leadership in an organisation as it builds trust in the process.

Another important part of the process is to “evaluate the change after the dust settles”, one executive says it’s a mistake that is often made to omit the evaluation. Similarly, the Executives said that benchmarking the change is critical to measure progress. Thus these steps need to be built into the process in developing change leadership. Executive 10 explained that employees often engage in self-fulfilling prophecies, thus “leadership has to review fast, otherwise employees see failure and performance decreases…show progress to employees…once employees see early successes that are more open to change”. At least three other Executives supported this statement in mentioning the fact that change is not immune from glitches and they need to be dealt with quickly. Some Executives spoke about putting support in place for employees, but all Executives spoke about “sharing good news stories as it builds credibility in the process”.

5.4.3. Culture

The idea of culture emerged from the context of most organisations are facing ongoing change, yet people and organisations deal with this differently. Some people and organisations see the possibility and opportunities the change brings whilst others are “tired of changes”, some companies spoke about having a culture of change which makes it easier whilst others are more complacent about leading change which further causes shockwaves and anxiety with their employees when confronted with a change.

Many executives alluded to culture being a key ingredient, however Executive 5 explained that in the longer term you “need to create a culture of change in order to manage change better”, while a handful of Executives were concerned that they did not have the current culture to meet the future needs of the organisation, and that you need to “plan now for the culture of tomorrow”, and that “culture needs to change for future to look different”. In assessing past failures Executive 16 realised that “changes that have failed in the organisation are those that were not aligned to culture…culture is a limiting factor to change.” Conversely the Executive admits to a lack of agility and innovation, “creativity is lost when you become big”.

In one organisation that showed all of the SCARF principles in their organisation, Executive 5 said that “change can’t be managed, that’s why change management fails…it’s about progress and building, the movement should feel positive for engaged employees…they [the organisation] have a culture that keeps employees engaged, then

change happens naturally". In this organisation it was evident that change as a competency is embedded in the culture of the organisation, in fact the Executive stated that "culture is the strategy". Another Executive that felt similarly added that "you retain people in an environment where they are excited about the culture and the values". Executive 18 suggested that in order to achieve the culture you wish to have that can deal with change there needs to be "an alignment between performance management schemes and the intended culture". Executive 16 alluded to developing a culture that you wish to have "when you trying to grow an organisation, in constant change, you need a different type of leader and employee. You need people that are comfortable with uncertainty".

5.4.4. Conclusion

Based on the research questions above it is evident that neuroscience propositions have a role to play in change leadership in the organisation, and furthermore have a positive impact on organisational health. It is thus apparent that a neuroscientifically based intervention can be designed to develop change leadership within an organisation. The data reveals that there are three main areas that need to be considered in developing change leadership, that is, the leadership itself, the processes around change, and the culture of the organisation. These can be likened to three levers that can be pulled in the organisation to improve change leadership from a neuroscience perspective. The behaviours and concepts described speak to triggering the reward response in the brain, and developing visualisation processes. Thereby making it easier to build neurological pathways, easier to cope with and adapt to change, and create inclusion so as to avoid triggering the threat response or the feeling of physical pain. An important finding is that the value of utilising neuroscience propositions from a change leadership perspective is felt when these elements are built into the DNA of the organisation, and becomes the culture of the organisation.

CHAPTER 6: DISCUSSION OF RESULTS

Whilst the elements of neuroscience propositions and change leadership are not an entirely elusive concepts, the research results discussed in this chapter contribute to an enhanced understanding against that which has been published to date in the field of neuroscience, change leadership and organisational behaviour. Chapter 6 will focus on linking the results from chapter 5 with the literature from chapter 2. The structure of this chapter will follow the research questions as laid out in Chapter 3.

6.1. Is there evidence of SCARF, a neuroscience proposition, in the lived experience of change leaders?

The first research question sought to confirm whether there is indeed evidence of neuroscience propositions in the lived experience of change leader. Each element of the SCARF principle is looked at in isolation and positioned against the literature in terms of whether the evidence of such an element contributes to a more 'change ready' organisation, and one of organisational health. The results from the in-depth interviews, data coding and analysis phase of the research showed the following results.

6.1.1. Status

It is ostensible from the findings that Status has to be embedded in the culture of an organisation. This supports Wood's (2016) findings that using encouragement and celebrating achievements were tools for motivation to effect organisational and culture change. Majority of the Executives were aware of the importance of giving recognition and awarding importance in their environment, whether they practiced it or not. Grant (2013) says that genuine compliments allow employees to recognise their achievements, build self-confidence, and label attributes that they can access to achieve future goals. Whilst Executives understood this, it appears that Executive 1, 9, 10, 13, 18 and 19, did not practice it or do enough of it. Kouzes and Posner (2003) assert that encouragement strengthens the trust between leaders and followers, a relationship that is absolutely critical to getting extraordinary things done in organisations. Wood (2016) adds on that encouragement is a requirement to promote large scale organisational change. This suggests that creating trust by applying Status regularly in an organisation develops self-confidence and the belief that employees can achieve future goals, sets them up to better deal with change.

Status is the least evident element of the SCARF principle across organisations interviewed. Most organisations had some form of formal recognition, rewards and bonus system in place; however they also revealed that these formal events did not always reward behaviour that was important, the methodology was sometimes biased, and many were not aligned to any change processes within the organisation.

Executives 9 and 12, understood Status as employee rank in the business even when the interviewer clarified that it refers to recognition as well, this perhaps illustrated how far from mind recognition was in their everyday practices. The findings exposed that it is the sustainable practice of giving recognition and Status to employees that was aligned to what the organisation wants to achieve and where it is going, as opposed to once off events, that were effective in creating a culture of employees feeling valued and as a result giving off their best.

It appears that there are negative findings relating to Status which are not discussed directly in Rock (2009). Such as the creation of hubris and where Status is not continuously done which in turn does not result in a positive culture change for the organisation. This also suggests the importance of Status (negative and positive feedback) being embedded as a culture as opposed to a once off event to ensure reality-checking. Another difficulty is that Status can fuel a high internal competition environment. This suggests that the elements are best utilised when practiced together, for example, relatedness is very important in the context of Status for it to be optimally effective, as per Rock and Cox (2012).

Upon further analysis it appears there was a misalignment by Executives claiming that Status is very important in the organisation, but then not elevating the importance of the employee in change management processes, i.e. only involving them during implementation. The same Executives also spoke about the resistance and the long time it takes to obtain buy-in as a consequence of such actions, whilst those that involved employees early into the process said buy-in was not difficult as the ownership was amongst the people from the beginning already. Executive 18 captured the importance of knowing the employees as “different employees require different recognition”. This reveals a view of the organisation adapting to the individual in order to optimise the individuals productivity in the workplace.

Perhaps the word ‘Status’ is not the correct word as it does not encompass the action that needs to happen and is often misunderstood, as experienced in the interviews, to mean rank. Perhaps ‘Significance’ is more encompassing of this element of the neuroscience proposition meaning the significance that is given to employees, the significance that is given to an individual in the form of title, rank, recognition, innovation, and change. It highlights the attention that is given to something and someone in order to trigger the reward response.

6.1.2. Certainty

Certainty refers to one’s need for lucidity and the ability to make accurate forecasts about the future (Rock, 2008). Certainty was embedded in an environment that allowed for questioning and where much assurance and support is given to employees on a regular basis in only less than half of the organisations interviewed (9 out of 20). It seems the role of a leader, based on the findings, is the ability to operate in uncertain times, as indicated by Executive 4 who made reference to VUCA.

Even though research suggests that a certain measure of uncertainty is necessary (Kotter, 1995; Willis, 2006), change leaders prefer creating more certainty in the work context and attest to the disruption that uncertainty causes. The opposite was found from responses by Executives 7 and 9, who indicated that no attention was paid to creating certainty, which would therefore leave employees felling very anxious. In order to ensure that employees reward is triggered as opposed to threat response, leaders should assume uncertainty and therefore attempt to create certainty in the environment. Even though leadership suggested wanting people who could work with uncertainty, it seems this is related to dealing with uncertain environments, than creating the perception that they don’t need to work on creating certainty.

Chorn (2015) suggests that one way to assist with change practices and create certainty in the workplace is to visualise different outcomes. This point is similar to a point raised by Executive 13. It allows for new pathways to be developed and therefore creates certainty (Chorn, 2015). Based on the findings, leaders can and should provide more certainty and work with employees, to enhance levels of employee engagement, as per Executive 4, making employees feel valued. The feeling of being valued will therefore trigger the

reward response and thereby increase productivity and adaptation to the change process, which is in fact a neuroscience field.

The act of repetition as mentioned by Executive 20 also aligns with the neuroscience field as it is about building stronger neurological pathways in creating certainty. Rock (2009) positions it as building the neural connection and hardwiring the situation.

6.1.3. Autonomy

Over half of the organisations interviewed expressed having Autonomy, although some of them indicated that it is decreasing due to structural changes, or due to an increase in the demand for collaboration and consultation within the organisation. Many Executives felt autonomy was the opposite of having a collaborative approach and that autonomy encourages silos. This should not be seen as a trade-off as it is possible to have both a collaborative and autonomous culture within an organisation.

In instances where individuals feel they have no impact to alter a change that has been implemented, highlights the importance of providing a culture of Autonomy. This once again speaks to creating a culture of involvement therefore allowing for a collaborative and autonomous culture.

However this contradicts Gardner and Valentine (2015), who suggested that senior professionals will not attempt to be collaborative and give up the benefits of autonomy. In addition they found that some professionals have figured out how to use “instrumental collaboration” to shift the balance in their favour (Gardner & Valentine, 2015). Gardner and Valentine (2014) asserted that organisations are advantageous when their professional knowledge workers collaborate. However, these knowledge workers are recruited, socialized, trained, and rewarded based on individual achievement, and they consequently may not recognize a personal benefit from collaborating. This was reiterated by Executive 17 who said that their people are qualified and high performers that work towards their individual KPA’s that is why as leadership they have to work so hard at creating a culture of teamwork. Gardner and Valentine’s (2014) study found that professionals who collaborated achieved better individual performance as they were in a position to then charge a premium for cross-discipline work, and because they established a reputation that resulted in many referrals from new and old collaborators. It is from this

study that the term instrumental collaboration came about and provided an explanation for why individuals who are autonomous and place greatest value on individual achievement work collaboratively with peers and why they benefit from so-doing. Perhaps this is the interplay sought after in embedding a culture of autonomy and collaboration and thus explains that balancing the two put the individual and as a result the organisation in a more advantageous position.

The findings also reveal a culture of empowerment to be closely linked to employees feeling autonomous. It appears to prepare an organisation to be more change ready with change being driven by employees, as indicated by one Executive. Some Executives felt that Autonomy also depended on the level you were in the organisation. The higher your rank the more Autonomy you had. A few Executives also said that Autonomy is leader-led and that an empowering environment should be created by leadership.

In analysing the findings it seems that the locus of control needs to be considered above Autonomy. In light of autonomy and collaboration, it appears that 'locus of control' may be a better term to explain the neuroscience proposition of Autonomy, as indicated by Executive 12. Aubé, Rousseau and Morin (2007) found that there is evidence in support of managerial interventions intended at improving perceived control. The key in this is the perception of control which triggers the reward response. However, it cannot be completely superficial as there is also a need for "people need to see the role they play in strategy" as Executive 4 shared.

Each employee should be able to understand the control they have in influencing decisions, over how decisions are implemented, and their personal reactions to decisions and changes, based on their decision making capabilities in the organisation. Bearing in mind that individuals may have either a predominant internal or external locus of control. Chiu, Lin, Tsai and Hsiao (2005) define individuals with an external locus of control to be more vulnerable to the guidance provided by the organisation as they feel this has an influence over what happens to them. Hence the gratitude and commitment shown towards the employer. Those with an internal locus of control, according to Chiu et al. (2005), are less affected by organisational support as they felt they are able to control their gains and losses, and look to their own actions for answers. This reiterates the importance of knowing your employee and adapting to your employees needs in order to get optimal productivity from employees which was also mentioned in the findings.

The organisational support that is needed for someone with an external locus of control or encouraging someone with an internal locus of control that success is within their control will trigger the reward response and minimise the threat response. This may be a more manageable way of providing different people with their different needs to feel autonomous. A study by Li, Wei, Ren and Di (2015) refer to psychological empowerment and emphasize managerial interventions should be aimed at motivating employees who differ on locus of control.

In summary, the findings of this research indicate that the lived experience of Autonomy is perceived to be reducing for individuals and their experience in their organisation, and is instead at play with the idea of collaboration. It is important and possible to balance Autonomy and collaboration, where possibly trying to focus on the locus of control may produce more manageable and personalised results with regards to a perceived culture of control. This may also improve the limitations of the perception (and perhaps even the experience) of Autonomy being reserved for the top levels of the organisation. This provides more opportunity for the employee to feel valued in the organisation indicated by Executive 4 “No individual is greater than the business or the sum of its parts - ego and status does not exist in this format, encourage healthy conversation and debate not individual decision making”.

6.1.4. Relatedness

Rock (2009) defines that the presence of being with people we feel comfortable with, thus creating an environment of teamwork, neutralises the threat response. Teamwork in an organisation triggers the reward response which further enables employees to utilise the prefrontal cortex (thinking part of the brain) more effectively. The findings revealed that majority of the organisations value teamwork and work on creating a culture of trust. Executives that mostly came from ‘organisationally healthy’ firms also described the importance of relationships more than teamwork. This supports the neuroscience proposition that states that employees need to be exposed to one another’s emotional states and strengthen social connections because of it, thereby triggering the reward response in such an environment. Relatedness was also found to be an important element in the Rock and Cox (2012) study.

The findings show that whilst there is an increasing focus on teamwork in organisations it is not always easy to achieve and requires focus from the leader and the organisation.

The fact that employees tend to focus on their own deliverables and work hard to bring teams together was mentioned by Executive 17. A similar argument mentioned within the Autonomy proposition.

The data also revealed that although people in the organisation were very diverse, there was a similarity in terms of personal values, working towards a common purpose and occasionally ambition, passion and personality. This corroborates that in order to create a culture of relatedness; individuals are often recruited for and then further developed through teamwork in order to benefit from diverse thinking. This enables the reward response which is triggered from having a culture of Relatedness. In Executive 18's organisation they have created a common language, supporting the notion that in order to achieve Relatedness, it has to be embedded in culture, a process which happens over a period of time, and not once off. Furthermore working towards creating such relationships in the workplace creates an environment of trust.

Schalk and Curseu (2010) highlight that internal competition for resources leads to an emphasis on short-term gains, overlooking the long-term gains of cooperation. This was seen in the findings where internal competition was an obstacle in creating a culture of teamwork and Relatedness. This validates the importance of embedding Relatedness within an organisation to ensure cooperation for longer term organisational gain and organisational health. Schalk and Curseu (2010) confirm that if there is a high level of teamwork then the organisation's goals will be better served.

Fuchs and Prouska (2014) talked about collegial support as being useful as an element of the change process when seeking to increase future change intervention success. This was not found in the findings as none of the Executives spoke of using teamwork culture to facilitate pending changes, other than broadly mentioning that teamwork is used to assist the organisation to reach a common goal. This may highlight that most of the Executives answered in a short term, current, day-to-day focused way and were not thinking specifically about how there elements would work in their favour in the future except for recognizing that they should either be doing more of one element, or that a culture change is needed for the future.

Relatedness can also be likened to collaboration discussed earlier, which is the opposite of working in silos. It is evident that working in silos is spoken about with a negative connotation from the Executives interviewed. However Palethorpe (2014) introduces the idea that we all work in silos and that it is the source of our professional expertise despite all the negative attention working in silo's has received of late. Furthermore he expresses the importance of balancing both to achieve a productive environment and that relationship management should be a strategic priority in managing change in difficult circumstances. Although the findings of this study contradict Paelthorpe (2014) it may also suggest and support that a balance is needed between autonomy and Relatedness. This would challenge some of the mainstream thinking of the Executives interviewed, who believe that there should be a culture of teamwork at the cost of individual decision making (Autonomy) and working individually (working in silos).

6.1.5. Fairness

Fairness in the SCARF principle consists of the non-judgmental and non-bias exchange between people and creating an environment of such in order to promote satisfaction, wellbeing and ultimately organisational health (Rock and Cox, 2012). It appears that Fairness was prevalent across all organisations in terms of it being a foundational value. Fairness appeared to not be a critical element in change processes, as evidence of it was only provided when asked directly. A few Executives responded that the "intention is there, but the experience is different" in terms of the environment of fairness. As Tabibnia et al. (2008) asserts that the perception of fairness creates reward responses in the brain, and the perception of unfairness creates an environment of distrust. It appears based on the findings, that nothing can be achieved without fairness as a foundation, whilst others in unfair environments experience resistance to change and internal competition.

Even though Rock and Cox (2012) found in their study that the most important domain was Certainty (46% of respondents), in this study 85% of organisations showed pervasive evidence of fairness within their organisations, and that it was considered a high priority. Those organisations that lacked fairness expressed their concern and highlighted that the environment needed to change.

In looking toward developing a culture of fairness Long (2016) highlights that fairness and controls are used together to maintain position of authority. Furthermore the study found

that managers work to promote fairly distributing rewards and responsibilities and accurately and consistently implementing organisational procedures when they experience conflicts with their subordinates on applying social controls (Long, 2016). This would need to be considered in better understanding the drive for fairness and embedding a culture of fairness.

6.1.6. Conclusion

Even though all the SCARF elements are evident in the lived experience of change leaders, they existed in different proportions depending on the leader and what has been embedded as a culture. Some organisations are using these principles optimally to create organisational health and prevent organisational dysfunction as per Rock (2009). The findings however indicate that the principles are used effectively when embedded within the culture of the organisation. Many organisations discussed their organisation in the context of the here and now, even when discussing change. It appears that the few organisations that had a future orientated approach either showed evidence of all the SCARF principle elements or a more change ready organisation that was preparing for future fitness.

Rock and Cox (2012) found Certainty to be the most important SCARF element, however the study shows Fairness to be most evident followed by Relatedness. Autonomy brought up some debate in that the findings of this research showed that interviewees felt this was not possible in the context of collaboration. Literature however positions that it is necessary to find a balance between both, whilst this study suggests that perhaps locus of control (perceived culture of control) is a more management element to control and provide in the organisational environment. Relatedness was also seen to be embedded in culture as it was the strength of the connection that develops over time. Literature purports that the organisation needs to seek a balance between working in silos or working autonomously versus working and benefitting from teamwork and the diversity and support that it brings. Fairness was most evident in this study as it was seen to form the basis of any organisational success.

Based on the findings here are implications in practice for the value of the SCARF principle and embedding it as a culture. One element that was not covered by SCARF from a change perspective is the element of dealing with job loss in the organisational context. It is a real threat that perhaps evades the relevance of SCARF being embedded

as a culture or not (this was evident in Executive 2's context where the entire organisations destabilised because of this, despite prior stability). The evidence of SCARF is then questionable from the perspective of highly disruptive events that change the course of an individual's life and may require further research as it was not the focus of this study.

6.2. Is SCARF sufficient to offer guidance to change leaders in the workplace?

The SCARF principle by Rock (2009) offers prodigious value to change leaders in embedding a culture of a more 'change ready' organisation. However the findings exposed that the SCARF principle perhaps does not completely cover critical neuroscience elements such as providing meaning, inclusion, and communication. These offer guidance to change leaders. These themes were the outcome of aggregating the data from the interviews in analysing how change leaders are currently dealing with change and what they feel helps the change process currently and what would be helpful to manage change going forward. While these three elements may be alluded to and linked to some of the elements in the SCARF principle, they are not given sufficient attention, given the implications they have from a neuroscience perspective and the importance they play in creating a 'change ready' organisation.

6.2.1. Meaning making

Singer (2004) cautions that it cannot be forgotten that an area that is prominent with regards to humanistic concern is how individuals search for meaning and spiritual depth in life, , which is a focal area for the evolving area of neuroscience, as the content and quality of thought cannot be distilled solely into mechanical processes. Employees need to make sense of the world they are in and this includes the organisation. This was apparent in the findings that organisations need to make employees meaningful to the organisation and provide them the platform to attribute meaning to their work. This sends a clear message to employees about whether their worth is felt or not. Employee value can be likened to the Status element of the SCARF principle however it adds the element of sense-making for the employee that Status does not include.

Berg, Dutton and Wrzesniewski (2013) describe meaningfulness as the degree of significance that employees place on their work based on what they believe it possesses. The findings suggest that appealing to an employee's deeper sense of meaning, builds trust in the environment. This highlights the importance of providing a platform and culture of meaning making in the organisation as a change leader to ensure positive outcomes. Steger, Dik & Duffy (2012) assert that people who say their work is meaningful experience improved psychological adjustment, and also possess qualities that are desirable to organisations such as longer retention, great commitment to organisation, and greater involvement in organisational citizenship behaviours. This may also suggest that they would be champions for change initiatives.

Executive 18 expressed that change leaders have to "create a meaningful experience, they need to create a cultural experience", and this will create meaning within the organisation. This is an essential aspect of managing employees in order to get the most out of them.

It appears from the findings that people need to talk to one another and understand the impact that each of them have on the other parts of the organisation. From a systems thinking perspective however, the organisation is viewed as consisting of various interconnected sub-systems that together makes up the whole organisation. It is postulated by Alvesson & Sveningsson (2016) that in a well-functioning organisation there is synchronization between these various sub-systems. This also highlights the importance of seeing the organisation as a whole rather than simply groups within that system with change in one area affecting the whole organisation. The findings of this study revealed that getting into the employee's heart and mind is essential in having employees contribute and implement changes in the workplace.

Results showed that employees present with a mixed bag of emotions, some resisting change. Initial reactions usually involve resistance and anxiety and then depending on how engaged an employee is, how open they are to changes, these emotions can be shifted more positively. In accordance with a study by Steigenberger (2015) who found that active emotion management might assist in productively moving change processes along. However in environments where all SCARF elements are palpable as part of the organisational culture, employee's reactions seem to be more consistently open and engaged with change. This suggests that Steigenberger's (2015) ideas concerning active

emotion management and meaning making may be useful in embedding a culture of change. Furthermore, this also suggests that creating a 'burning platform for change' according to Kotter (1995) may not be necessary from a neuroscience perspective if a culture for continuous change exists. This questions whether there is indeed a need to create the dissatisfaction with the status quo that Kotter (1995) suggests is necessary for change. Whilst triggering a mild threat response in this process energises people to solve problems (Willis, 2006), there is more value in triggering the reward responses as seen in the findings of this study.

6.2.2. Inclusion

The findings show that involving employees from the start of a change process or change and keeping them involved throughout is important. As described by Executive 1 and 4, inclusion provides people with certainty. It also provides an avenue for the employee to feel valued thereby allowing the employee to place significance on the work that they do. Tillott et al. (2013) explain that it is the leaders' responsibility to create a perception of certainty and transparency. This can be done by sharing grounds for change, in order to create confident and dedicated teams that perform to their optimal potential by creating inclusive work environments.

Inclusion is considered a neuroscience proposition as it spawns the feeling of belonging which in turn triggers the reward response in the brain. In fact social exclusion is felt in the same part of the brain as physical pain (Cacioppo & Patrick, 2008; Rock, 2009). Rock (2009) and Heatherton (2011), talked about the negative impact of employees feeling excluded; that it limits their commitment and engagement in the organisation which this study has established as elements of organisational health. Exclusion results in employees being purely transactional employees, despondent to give of themselves and therefore not attributing any meaning to their work either.

Whilst inclusion may be linked to Relatedness in the SCARF principle it is not adequately covered. Inclusion is separate to Relatedness as the latter focuses more on the relationships whilst inclusion concerns being involved in processes, feeling like their opinion is valued and sought after. It is thus important that it is highlighted as an element to guide change leaders as every Executive across the 20 interviews expressed the

importance of including and involving employees particularly in the change management processes.

The findings from the interviews confirmed the importance of the neuroscience proposition of inclusion, stressing the prominence of including and involving employees particularly early on in the change management processes. The findings reveal that being involved late in the process causes disruption. Saunders (2005) findings are therefore questionable; where an average of 20% of an organisation's employees tends to support a change from the start, 50% are undecided, and 30% are resistant. The findings of this study suggest that these figures may improve, if there is employee involvement and ownership of the change process. It also reasons that a culture of change does not breed a high resistance to change.

On a positive note however, the interviewees expressed that when feedback is given by employees that it is mostly taken seriously. This is not in the case of where there is a 'broedebond' (unofficial power) present however. The danger in giving power to a few and not creating an inclusive environment leads to employees having unofficial power. Employees should be encouraged to share their opinions and also understand the different views being presented to them. Communal problem solving is an effective and creative way of addressing difficulties due to the brain's dominant preference for social connection and collaboration (Chorn, 2015). This is evidenced by Executives explaining the need to create a community in the organisation to build organisational health. However, one sample criteria for this study was that Executives had to be leading in an organisation that had more than 500 employees. Due to the sizes of the organisations, it is assumed that it is impractical to include everyone in change design, yet it is imperative to include everyone and create a culture of change. The difficulty of being involved in execution of strategy only and not the design, according to Raina (2015), specialist consultant in strategy, is that design and execution cannot be separated. (R. Raina, personal communication, August 25, 2016).

Inclusion offers vital guidance to change leaders as it is an important part of the change process. According to Chorn (2015) it is important to let employees know that their opinions are valued. If employees are prepared for change it alerts the brain to the need for 'slow thinking' (as opposite to 'fast thinking' and automatic responses), which then allows them to think clearly and boosts their self-esteem. A method of including

employees is to aid them in visualising the change, similar findings to that of Chorn (2015).

Woods (2016) suggests that everyone should be viewed as accountable and considered the experts in moving the organisation toward sustained culture change. In Wood's (2016) study, inclusion was high on the priority list to ensure progress towards culture change and employee engagement. The findings of this study support this view, in that employees who have a vested interest in the organisation, buy-in to change processes and are often the employees that drive the change.

6.2.3. Communication

Amin (2015), Rock (2009), and Tillott et al. (2013) agree that leaders can keep employees engaged by minimising the threat response in the brain by ensuring transparency and timeously sharing information. There was general consensus on the importance of communication in the change process across all the Executives interviewed. It appears that consistency is important, as it manages expectations and it creates more certainty. Repetition was emphasized as an important consideration, in line with Chorn (2015) in terms of building new neurological pathways in order to cope with uncertainty.

The majority of the Executives felt that they could do more in terms of improving communication in their organisations. The findings show that as a neuroscience proposition, communication helps employees to visualise the process and the outcome (building neurological pathways) which result in smoother implementation.

Based on the findings it appears that change leaders should build feedback loops and enable upward communication from their employees. Woods (2016) emphasised that effective collaboration begins and ends with operative communication. One of the best ways to engage employees is to listen to them and to create transparency, this leads to creating an environment of trust. Not showing transparency creates an environment of distrust and change resistance, evident in the findings.

To alleviate fear of change, the change leader could use silence and pause to illicit information and feedback in order to create a culture of collaboration, ownership and

engagement which will eventually affect the culture of the organisation positively (Wood, 2016). However, Kriss, Blume and Weber (2016) warn that using communication in itself is inefficient due to the costs of communication. Resources such as time and technology are expended despite the use of modern technology to communicate and it is better to obtain a degree of efficient coordination of actions to support communication (Kriss et al. 2016). As expressed by Executive 11, change has monetary costs, despite having a smooth process.

Despite the Executives best efforts to communicate effectively despite the costs, some employees “cognitive frames don’t shift”. It appears that it is then important to understand the blockages for accepting communication is from a neuroscience perspective, and once more remembering that each employee needs to be treated in a different way. Janssen, Tyson and Lee (2014) found in their study that despite the cost of communication the performance of groups still improves with communication. Despite blockages such as monetary costs or cognitive frames, it appears that communication should always be a priority.

6.2.4. Conclusion

The SCARF elements are not sufficient to guide change in the workplace. Neuroscience propositions can offer guidance to change leadership within the workplace as the findings corroborate with literature in such elements easing the management of change in the workplace and creating more engaged employees. Providing meaning, Inclusion and Communication, are interlinked and are significant in creating an environment of trust and the platform for driving change. Scholars in this area support the value of these neuroscience propositions in building a conducive environment for change. These elements are an extension over and above, and perhaps even precursors to the SCARF principle. Thus the acronym MIC-SCARF is more inclusive of the elements found in this study to guide change leaders in creating a more productive and change ready culture.

6.3. What are the most pertinent elements of organisational health in the lived experience of change leaders?

The five most pertinent elements of organisational health that arose from the findings were Culture, Alignment, Strong Leadership, Employee Engagement and Attitude. Most

responses relating to this research question were based on the annual employee survey results. Barnett (2015) suggested that once a year annual surveys are insufficient to obtain the pulse of the employees in a real-time basis. Furthermore the timing of the surveys and the questions they ask may not be the right kind of information that is required to get a sense of organisational health.

The findings revealed that there were a few Executives who believed such results were subjective as it was conveniently timed after a bonus pay out. Nevertheless, not all Executives answered using the survey framework as a backdrop, others used personal experience to provide an opinion on what is necessary for a healthy organisation.

Effective change programmes need to be embedded in the culture of the organisation to ensure success, and this is intricately linked to existing business practises such as organisational health. It appears that employing quick, superficial change programmes, leaders avoid the reality of issues that are blocking organisational effectiveness and creating organisational dysfunction (Beer et al., 2005). Findings from this study clarified that there were some Executives that felt formal programmes led by HR needed to be in place. However, some leaders felt that everyone in the value chain needed to buy into the process in order for the change to be successful, including top management team. Such leaders are then better able to engage their employees, thus employing neuroscience propositions, in order to better utilise their talents, build collaborative teams, and create a ‘change ready’ culture (Rock, 2009) which all lead to organisational health. The findings expose that all of the top five elements, culture, alignment, strong leadership, employee engagement and attitude are interlinked and flow from one another.

6.3.1. Culture

The culture of an organisation was one of the most agreed upon themes as an indicator of organisational health, aligning with Shazad et al. (2012) that organisational culture has a substantial influence over the variety of organisational process, employees and organisational performance. In this study the Executives referred to particular aspects within the culture that amounted to organisational health such as the ability to deal with change, being able to operate outside the comfort zones and inviting challenges within the context of work, working towards a common purpose, the ability to make decisions, and a culture of communication, certainty and teamwork. Some of these elements have been

discussed separately in this research and thus it is suggestive that even though these elements are important in their own right they need to be embedded as the organisational culture for it to be effective in sustaining organisational health, as opposed to being an intervention on its own. However, there is a place for interventions too.

The findings show that organisations attempt to shift the locus of control when employees are blaming others for failures (because their threat response has been triggered). It is therefore better to have a culture that is able to deal with changes and prevent the threat response from being triggered, (solutions are harder to produce as glucose evades the prefrontal cortex) (Rock, 2009).

The question that emerges from the findings is whether culture can be changed or how to embed a culture in an organisation. Parmelli et al. (2011) says that high quality evidence of strategies to change organisational culture are lacking. Woods (2016) however, found that the basic concepts of coaching can be used to positively influence the culture of an organisation. It appears, the leader implemented sustained organisational change, re-engaged frontline staff, and affected culture in a positive manner. Based on the findings decision making that lead to culture change must be inclusive, everybody needs to feel a part of it, and failure to do this will result in employees feeling disengaged.

In addition to embedding the 'right culture', the findings are more specific around embedding a culture of change in order to be a 'change ready' organisation. Executives shared their concerns that even though they feel they may have organisational health presently, they don't have the right culture currently in place to take them into the future. There is thus an awareness that the culture would need to change in order to prepare for a more sustainable future. Beer, Voelpel, Leibold and Tekie (2005) explain that one of the obstacles to strategic implementation can be understood through the viewpoint of change resistance where both leaders and followers take on defensive patterns that guard their current way of operation and prevents consideration of a different perspective. The data reveals that Executives concurred that most employees are happy to continue doing what they know how to do, and when change is introduced there is often a resistance, however this was not the case in organisations where the SCARF principle was embedded as these organisations has been working to build change as a capability in the organisation and were more open to constant changes as part of being sustainable. This is what classified them as being organisationally healthy as well. Caldwell (2014) found what is

prominent to individual employees is not an *organisational change* but rather a *changing organisation*, which places several, concurrent demands on them from various places in the organisation, which are mostly not intentional. This thus corroborates with the findings of this study where employees were better able to adapt to changes if they were in a more 'change ready environment (culture), and that the individuals need to be a part of this process in order to deal with the changes.

6.3.2. Alignment

From the literature review Sir John Harvey-Jones (1988), took a drastic view of alignment: "In the future the organisation will have to adjust to the needs of the individual, rather than expecting the individual to adjust to the needs of the organisation". This is not as radical as it would seem. Alignment was one of the most important indicators of organisational health. Upon further analysis, it seems that the process of alignment would require a movement and matching of the employees of the organisation to the more desired state. The alignment uncovered in the findings referred to how far the individual of the organisation feels from the culture, the business strategy, the organisational values, and whether they were rewarded for being aligned to the strategy. This would support what was thought of as a radical view in 1988 to the current view of preparing an environment for your employees to get the best out of them, thus adapting to the individual's needs which is varied across employees.

It can thus be surmised that an individual has to feel an alignment to the organisation, commonly referred to as 'organisational fit'. However it appears leaders have to present ways to engage different employees to provide the opportunity for alignment to reach a common purpose. Keeping a firm attitude that the organisation has its own impermeable structure may be perceived as rigid and works against creating alignment with employees. Engaging with employees in order to create alignment would lead to organisational health from the perspective of growing the organisation into the future and getting the best productivity out of your human capital in order to do so. This adaptation and matching of the minds (organisational and individual) would perhaps align to what one Executive referred to as "a psychological fitness" that would prepare the organisation to have a more 'change ready' culture. Once again this affirms the need to analyse and apply neuroscience propositions in the organisational space.

6.3.3. Strong leadership

In Fischer's (2009) 12-Factor, 4-tier Organisational Health Model leadership was a core element and formed the foundation for organisational health. The findings supported this as strong leadership was the third most popular element making up organisational health. In this study, strong leadership mainly consisted of having a clear vision, a clear strategy and that this is communicated well so that everyone is working towards a common purpose. Strong leadership therefore has a direct bearing on the health of the organisation. Rock (2009) suggests that leaders should work to minimise the threat response. Creating this kind of environment will lead to a healthy environment as employees are able to perform better and work towards the common purpose.

A leader who therefore utilises 'Choice Theory' (Schoo, 2008) and tends to use more caring habits as opposed to negative habits is practising the power of harnessing the reward response over the threat response. The findings of this study supports Morgeson, DeRue & Karam (2010) and Schoo's (2008) assertions that leaders that use internal control methods to fulfil their team's needs are likely to recognize the needs of others, have a win-win method of dealing with problems amongst other advantages. The findings highlight leaders are aware of how to treat their employees using neuroscience principles (without being aware that they are using them). This study supports Rock and Schwartz (2006) assertion that as a leader, every action that is taken impacts on an employee's reward or threat responses; it either supports or undermines the perceived levels of status, certainty, autonomy, relatedness, and fairness within the organisation. In general the findings suggest that leaders who practised these neuroscience propositions had healthier organisations and created an environment that was better able to deal with change.

Beer et al. (2005) discussed that the lack of 'managerial interpersonal competence' can create an 'organisational silence' as employees decide to minimise voicing negative feelings and this ultimately undermines organisational decisions and change processes. The findings support this once more by reiterating the importance of strong leadership, having leaders with emotional intelligence and being able to read their employee's needs, in order to create organisational health.

6.3.4. Employee engagement and attitude

Employee engagement and attitude are discussed together as they both form part of individual behaviour in the workplace. Fischer's (2009) 12-Factor, 4-tier Organisational Health Model discusses employee commitment as an outcome of setting the foundation of leadership, succession planning, employee health and wellbeing, and as an element of organisational health. The findings revealed employee engagement to include issues relating to how much of themselves do employees bring to work. The meaning that employees attribute to their work and organisation, their fit to culture, their pride in the organisation, their commitment and how they motivate themselves are all elements of 'how' they bring themselves to work. The findings further suggest that the environment does have to be one that prioritises their people, in order to encourage employee engagement. Attitude was linked to employee engagement and the findings suggested that it involved what they do to motivate themselves in the workplace, the role they play in contributing to the team/company culture, and how committed they are to the organisation by making efforts to understand the vision.

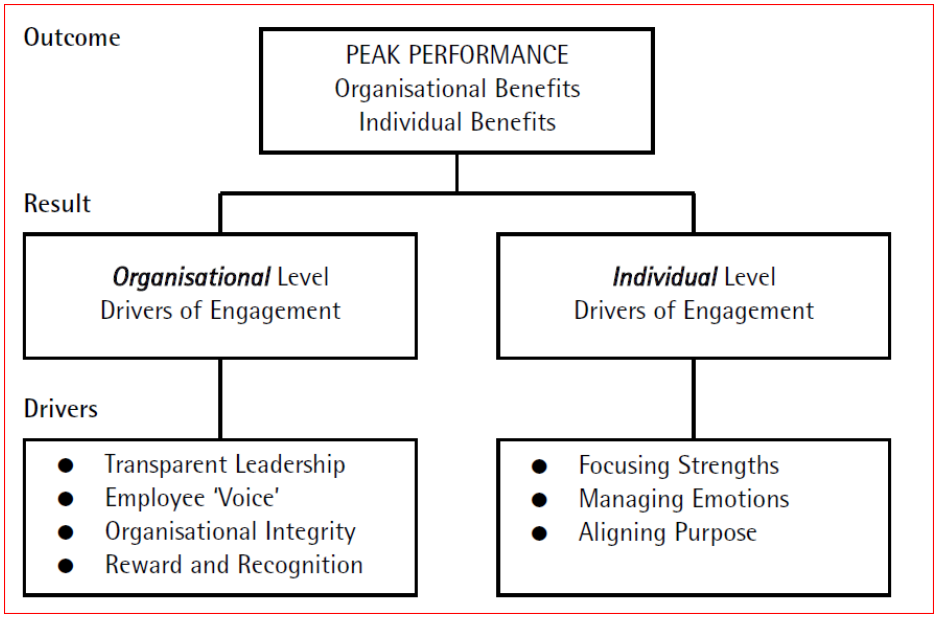
As MacKenzie, Garavan & Carbery (2011) found that one of the ways to prevent organisational dysfunctional behaviour on an individual level, is to develop employee awareness and skills. Hence employee engagement and attitude are considered to be a pertinent element of organisational health. Understanding what makes employees tick becomes ever more important, as "they are different and all require different things", as Executive 13 and 18 said, and as another corroborated that "millennials think differently...how we keep them engaged, the same things don't apply anymore" (Executive 15). This understanding will go a long way from a change leadership perspective in preventing organisational dysfunction and work towards creating organisational health. Contextualising individual behaviour within the organisational behaviour will also assist leaders to understand and further define those factors that influence organisational health.

There are individual and organisational characteristics of creating and enhancing employee engagement. Crabb's (2011) study on engagement identified three individual drivers of engagement namely, focusing on signature strengths, positively managing Emotions and aligning purpose and values to those of the organisation, which may be harnessed through coaching interventions. Whilst this highlights the role of the leader in the driver of organisational health, the study by Crabb (2011) further supports the findings of this study by identifying organisational drivers of employee engagement in addition to

the individual drivers. Figure 4 illustrates all of the elements in Crabb's (2011) and their link to this study's findings, as employee engagement is an outcome of various elements including the environment that the organisation provides.

From Figure 4 it can be ascertained that Crabb (2011) saw organisational health as peak performance with benefits for the organisation and the individual. The drivers of engagement from an organisational perspective, which match the findings of this study, include transparency and leadership (strong leadership), employees having a voice (inclusion), organisational integrity, reward and recognition (status). Whilst these were not listed as elements of organisational health in Crabb's (2011) study, it supported the neuroscience propositions that are evident in creating organisational health.

Figure 4: Individual and organisational drivers of employee engagement (Crabb, 2011)



The above findings also support Barnett's (2015) assertion that upholding employee engagement is only possible when organisations continuously monitor engagement levels on a consistent, frequent basis, and when people who can influence engagement are empowered to do so. When leaders are not empowered to affect engagement this may result in organisational dysfunction.

6.3.5. Organisational dysfunction

The findings of this research suggest that organisational dysfunction is defined as the opposite of organisational health according to the interviewees' responses. This supports Pope and Burnes (2013) statement that organisational dysfunction can be seen as the opposite of organisational health (Pope & Burnes, 2013). However, there isn't yet a consensus on what makes up organisational dysfunction between the findings of this research and literature.

In Pope and Burnes's (2013) study they identified a number of characteristics of organisational dysfunction such as, centralised decision making/authoritarian leadership, suggestions for improvements not received well/active resistance to upward feedback and managers choosing to remain uninformed, to mention a few. These characteristics were not vastly different to the elements that made up organisational decline as identified by Cameron (1994). This study reveals some truth in the elements described by Pope and Burnes (2013) as organisational dysfunction such as staff not having access to their leadership and the focus not being on the customer which can be linked to customer complaints being deflected in above definition.

However, other elements from the findings from this study do not match with Pope and Burnes's (2013) definition such as "there is too much internal competition", "people are looking after their own interests", and "working in silos", just to mention a few. Whilst Eppler (2012) positions that poor corporate communication is a result of organisational dysfunction, these findings suggest that is may also be a cause of organisational dysfunction. There is more of an alignment of the findings of this research and the earlier work of Cameron (1994) dysfunctional attributes of organisational decline. For example, "too much internal competition, people are looking after their own interests, and working in silos" can be likened to 'employees resistant to work as teams' explained as individualism, predominates to make teamwork difficult and thus promoting the work in silo's and creating internal competition. It also matches to the 'prevalence of organisational conflict' attribute where the participants fight over diminishing resources as competition and in-fighting increase.

Thus it appears that the findings of organisational dysfunction reveal a closer alignment to the earlier work of Cameron (1994) and definition of organisational decline. The findings

do reveal that the definition of organisational dysfunction according to the interviews are opposite to their views on organisational health, and since their perceptions of organisational dysfunction is also understood as organisational decline, it alludes to the fact that organisational health is thus seen as factors that will sustain the organisation from now into the future. This challenge presents an opportunity for future research, due to the insights that some interviewees expressed that whilst they might experience organisational health presently, they don't have the focus on the right ingredients at present to take the organisation into the future.

6.3.6. Towards a definition of sustainable organisational health

In McHugh and Brotherton's study (2000) they found that the concept of a healthy organisation is a challenge to define. Some literature refers to organisational effectiveness which may not mean the same as organisational health. Nonetheless, there would appear to be an underlying acceptance that health is an ideal state, and facilitates an environment where the organisation is able to deal with difficulties (McHugh & Brotherton, 2000).

There is a challenge in defining organisational success academically. The findings of this study suggest that the concept of preventing organisational dysfunction and thus creating a picture of organisational health can be defined in practice as – engaged employees that bring 'themselves' to work. They engage in a way that increases the organisation's productivity. It appears that some Executives grappled with this and in doing so were able to offer insight into organisational health as a notion of being sustainable into the future, shaping the organisation today for the needs of the future. This is where the difference in responses came in as most of the Executives commented on the state of their organisational health based on what is happening in the organisation now. Table 4 maps the insights of preparing the organisation for the future and against the SCARF principles.

It is apparent from Table 4 that the author's view, based on the themes that were coded, of organisational health did not always match the leader's view of whether the organisation is healthy or not. It became palpable that organisational health had to do with the sustainability of the organisation. Those Executives who showed evidence of all elements of the SCARF principle also spoke about preparing for the future of the organisation, those that didn't have all the elements and sometimes thought they did, defined health by looking at a short term, or here and now approach.

Table 4: Evidence of SCARF principle with Executive and Researcher perspective on organisational health

Executive	S (Status)	C (Certainty)	A (Autonomy)	R (Related-ness)	F (Fair-ness)	Organisational health: Executive's perspective	Organisational health: Researcher's perspective
1	X	X	X	✓	✓	Stressed but healthy	Moving to health
2	X	X	X	✓	✓	Partially dysfunctional	Moving to health
3	✓	✓	✓	✓	✓	Health	Health
4	✓	✓	✓	✓	✓	Moving to health	Health
5	✓	✓	✓	✓	✓	Health	Health
6	X	X	✓	✓	X	Moving to health	Not healthy
7	X	X	X	X	X	Not healthy	Not healthy
8	X	✓	✓	X	✓	Health	Not healthy
9	X	X	X	✓	✓	Moving to health	Not healthy
10	X	X	✓	✓	✓	Health	Moving to health
11	✓	✓	X	X	✓	Moving to health	Moving to health
12	X	X	X	✓	✓	Health	Not healthy
13	X	X	X	X	X	Not healthy	Not healthy
14	X	✓	✓	✓	✓	Health	Health
15	✓	X	X	X	✓	Health	Not healthy
16	X	X	✓	✓	✓	Health	Moving to health
17	✓	✓	✓	✓	✓	Health	Health
18	✓	✓	✓	✓	✓	Health	Health
19	✓	✓	✓	✓	✓	Health	Health
20	X	X	✓	✓	✓	Health	Moving to health
TOTAL	**8**	**9**	**12**	**15**	**17**		

What is currently working now may not be the recipe for survival in the future as identified by Executive 9. A few leaders alluded to the fact that they don't have the culture that is needed to take them into the future, whilst they are surviving now, employees will become increasingly disengaged if there are not serious shifts in the culture. Thus the author listed the organisations as healthy where the SCARF principle was established as part of the organisational culture, and where there was a future orientated view of the company, building capabilities for the future. The ones that were marked as moving to health, did not have all SCARF principles in place but there was a view around working on these elements and there was a recognition that more needed to be done in specific areas with action plans in place of achieving these for the future. Lastly, those noted as not healthy they either had a few or none of the SCARF principles in place and there was a sense that everything is fine and nothing needed to change. There were two leaders that could admit that they did not have a healthy organisation (Executive 7 and 13), and there was nothing in place as yet to change things, there was a sense of being overwhelmed and not yet

having a sufficient plan to change things, there was a sense of suffering from hubris in those particular organisations. One organisation (Executive 2) came out of a very difficult patch in the organisation where huge amount of changes completely destabilised the company, and was now working on stabilising the company for future growth, building change as a capability and thus it was noted by the author that they were now moving towards health.

It appears that based on Table 5 it is apparent that organisational health in this context is better referred to as 'sustainable organisational health'. Working towards a definition, it would include the fact that neuroscience propositions need to be embedded in the culture of the organisation which gives way to building sustainable organisational health. This includes the interplay of the culture, the alignment in the organisation and to its people, having strong leadership, engaged employees and the progressive attitude of these employees.

6.3.7. Conclusion

The most pertinent elements of organisational health have all been supported by literature despite sitting under different concepts within literature such as organisational effectiveness and organisational performance. The top elements consist of the culture of the organisation, the alignment within the organisation, the leadership, employee engagement and a progressive employee attitude. These elements all impact on one another and reinforce each other which thus suggests that creating such as environment within an organisation will create a more 'change ready' organisation that will lead to sustainable organisational health. Based on the findings, organisational dysfunction makes way to position a working definition for sustainable organisational health in the context of this study using the knowledge gained regarding the value of the SCARF principle and other neuroscience propositions.

6.4. Based on the above findings can a neuroscientifically based intervention be designed to develop change leadership within an organisation?

This research question sought to pull together the findings and interconnectedness that exists between research questions 1 to 3 in order to explore the process of identifying and

developing a neuroscience framework for change leaders that ensures sustainable organisational health. This is of particular importance given the context of the new world of work, the global business environment, working in a VUCA and rapidly changing environment. This framework will assist in enabling change leaders to consciously prepare for and create organisational success and sustainably in such an environment.

The SCARF principle presents a simple methodology that suggests if practiced will prevent organisational dysfunction (Rock, 2009), however, it does not provide details as to how this can be achieved and organisational dysfunction in the context of change is not explained. The findings of this study verify that there is evidence of neuroscience propositions in the lived experience of change leaders, and offers additional propositions as guidance to change leaders as well. Furthermore it highlights the elements of organisational health and more appropriately sustained organisational health. This section focuses on some of the interventions that would be important to develop change leaders by way of a neuroscience framework that enables sustained organisational health.

These interventions are discussed in a way so as to embed a culture of change to create a ‘change ready’ organisation. The three most critical elements that emerged from this study are the role of leadership, process and culture in developing change leadership by embedding neuroscience principles within the context of the organisation. The findings suggest that the SCARF principle is reliant on leadership style as it is leader-led, it is reliant on the current company culture and the efforts to improve the culture mainly by leaders. It is also reliant on a leader that is willing to hear their employee’s feedback and on organisational processes and the actual DNA of the organisation.

6.4.1. Leadership

Even though there was evidence for some of the elements of the SCARF principle, it was more specific to the department or business unit that the Executive interviewed led, and that it was not fully embedded or consistent across the entire business. This does suggest that the culture of change and embedding neuroscience principles is possible through a leader led environment. Smith (2009) asserts that the responsibility for engagement rests with senior management and that values, culture and commitment from leadership play a significant role in attaining this. It appears that leaders need to partner with employees in

order to drive the achievement of organisational goals including the management of change (Hailey & Balogun, 2002; Miller, Wilson & Hickson, 2004).

Ford and Ford (2012) assert that there is insufficient empirical research that looks at addressing the leadership of change to warrant a prescription for what works. This study contributes to this body of research by stating that the change leader should be focusing on neuroscience propositions to assist in creating a culture of change and ultimately crafting sustainable organisational health. The leader plays a critical role in influencing the culture of the organisation and creating a MIC-SCARF friendly environment. This supports Todnem et al. (2016) focus on developing the competence and capabilities of change leaders. This is reiterated in the findings of this study where Executives mostly felt that the environment and culture of an organisation is leader-led and that the leader embeds the neuroscience principles discussed in the interview. Furthermore, it was expressed by these Executives that leaders have to take full responsibility and accountability for building change competencies in their organisation.

A sentiment shared by Executive 10 was that you “have to be the change yourself, and drive it, to create buy-in…half the battle is won when leadership drive change, employees follow”. For this, it seems that the leader needs to have good self-awareness and be open to receiving feedback. According to Maccoby (2004) a leader who is self-aware gives others the feeling of safety even in uncertain environments by adapting their behaviour to ease stress. Miller (2001) adds that good leaders understand that their own behaviour is imperative for project success. Authentic leaders are open to the opinions of others, share information for optimal decision-making and share their own values, intentions, and feelings (Wang, Sui, Luthan, Wang, & Wu, 2014).

Executives explained the importance of being honest and transparent with employees in the process to build trust, certainty and help employees to keep focused on their performance. The importance of being transparent negates the threat response experienced when leaders hide their feelings as discussed by Oshsner and Gross (2005). This is not always easy however, as an Executive expressed the challenge in leadership is that “employees will question the plan, so you have to stick to your plan, you have to believe in yourself”. This also highlights the important of leaders to have self-efficacy in managing change. Paglis and Green (2002) explain that leaders who view their own ability to lead change positively are expected to be seen by others at work as initiating more

change efforts and persevere at obtaining their change goals even in the face of adversity. The numbers of changes implemented were very much dependant on the leader and the amount of energy put into driving the change from a leadership perspective.

Cameron and Green (2015) expressed that leaders manage change very poorly in organisations, and getting them to address the issues that cause the poor management of change will not only lead to a more fulfilling leadership experience, but more satisfying lives for their staff. The role of change management in the organisation is therefore solely not just the role of HR, it is imperative for every leader to be involved in driving the process and embedding a culture that supports change within the organisation. Even though most Executives felt it was the function of leadership in general, those organisations who felt HR should lead the change did not show evidence of all the SCARF elements and did not have organisational health. Most of the Executives felt that it is "most successful when EXCO owns the change…it is seen in doing the talking and in their everyday behaviour" (Executive 4). Top-management support and commitment is critical for change to be successful (Nica, 2013). Furthermore, the findings reveal that leaders have to identify the needs of employees in order to manage them uniquely from one another. Wang et al. (2014) builds on this notion that the leader needs to spend more time on developing employees that have less positive psychological capital as they could achieve complementarity congruity leading to improved performance. Leaders can do this by focusing on using internal control methods in order to recognise the individual needs of their employees, have a solutions focused orientation to problem-solving, grooming confidence in others, providing recognition, communicating, and the neuroscience principles discussed above (Morgeson et al., 2010; Schoo, 2008).

Lastly, leaders need to ensure that they are more accessible to their employees. The findings showed that most Executives are on their own floors in the building behind security doors. It appears that social distance is inevitable especially with high-level executives, however leaders can minimise the impact of perceived mistrust that this can create and close the gap with constant communication, transparency and clear public image, and consistent direction (Reichard, Serrano & Wefald, 2013). This reiterates that the leader should be in service of the organisation and not serving their own self-interests as expressed by Executive 5: "the leader has to act in the interest of the employees and the business…if leaders are acting in their own interests' then change fails". One of the Executives concluded that in order to develop a culture, then different type of leader and

employee are required, people that are comfortable with uncertainty. This requires co-ordination of organisational processes and crafting a culture that can deal with the uncertainty.

6.4.2. Process and Culture

The process and the culture are largely driven by leadership and are being discussed together here as the process should be embedded into the culture. These areas are deliberated as interventions that can be used to develop change leadership within an organisation. Furthermore, embedding these interventions consistently and continuously will eventually embed the desired culture to create a 'change ready' organisation.

The findings revealed that in order to create a culture of change employees will possibly need to first go through the process of "unfreezing" (discussing the need the create change as a competency in the current context of business), "spend time with them so they can thaw out" (apply neuroscience principles, create an environment that fosters the reward response as a trigger), and then "let then choose how to settle before refreezing" (creating a 'change ready' culture for the organisation). While this may sound simplistic, it will need to happen over a period of time in order to create a new context for the organisation.

Another tool that will consistently create awareness of newness and help the brain to be ready to create new neurological pathways is the process of engaging in scenario planning, as expressed by Executive 1. Scenario planning allows an organisation to explore various alternative futures that it may face. Chorn (2015) explains that the benefits of this from a neuroscience perspective is that is gets employees to participate in a conversation about the organisation and its future, this not only assists with having a 'bigger picture' understanding of the organisation but it also improves the self-esteem of employees. These conversations assist in decreasing the anxiety about the uncertain future and it also gives employees more autonomy as they perceive that have more control over such possibilities. Lastly it generates innovative possibilities for the organisation as the employee is engaging in systems thinking and this creates new neurological pathways (Chorn, 2015). This emphasizes the activation of many neuroscience propositions including elements of inclusion, communication, providing meaning and process within a leader-led environment.

The findings reveal that change management is not about the formal processes, it is more about the engagement from the start. Executives reiterated that employees want to contribute to strategy. From a process perspective there were various views on the approach to change, some indicating the value of “cut deep and cut once”, “needing change management specialists”, having “task committees for implementing change”, just to mention a few.

Jabri (2012) explains that a crucial element of the process approach is how people make sense of the change situation and how that impacts their behaviour. It is important to focus on all elements of the process based on the employees’ interpretations. Alvesson and Sveningsson (2016) assert that many change models assume that it is possible to control the change processes and that change is inclined to detail planning. They state that the challenge is that the models don’t say much about how changes emerge in real-life organisational settings and how people interpret the changes. Therefore there is value in the neuroscience approach to embedding change processes, as it assumes that people are different and will need certain elements in place (that looks different for different people) in order to trigger their reward responses and in turn make them more adept to responding to continuous change. Many Executives approached change in their organisation in a project management fashion. The minority of organisations that presented with a change ready culture said this is how not to manage change, it should “evolve naturally and not be given a name” (Executive 5). There were however examples that was contradictory to this in the findings; there were those organisations that were using a project management approach to build capabilities where a change ready culture already existed. These organisations also showed evidence of all elements of the SCARF principle and were also described as organisationally healthy. This highlights that even a project management approach with an intention to build capabilities is useful from an intervention perspective to create a culture of change.

The findings suggest that there are different views around approaching the change from a business case, employee involvement, or creating a ‘burning platform for change’. Kotter (1995) suggests that a ‘sense of urgency’ needs to be created to introduce a change. This study proposes that keeping neuroscience principles in mind this may be necessary (creating a mild threat response) when there is no culture of continuous change. As expressed by an Executive “When things are okay then people don’t see burning platform

for change…confirmation bias keeps things the same". Thus creating the 'burning platform for change' creates anxiety which either gets some people to do things differently and disables others in taking any action at all. However, if there is a culture of change embedded in the organisation then creating a burning platform for change is not necessary as people are included in creating the direction of the strategy and the organisation and want to improve things as a matter of course, then creating urgency is not necessary.

Whilst Rock and Cox (2012) admit that more research is needed on using SCARF in the workplace before, during and after an event (from explanatory to regulative to predictive), the results of this study shows that the SCARF principle provides most value when it resides in the culture of the organisation and was not brought up as effective as a once off intervention. This may require more investigation however, as this was not explicitly measured in this study.

With this in mind, in creating a 'change ready' organisation, it does not mean the organisation is benign from crisis. Todnem (2005) talks about crisis situations that don't allow for widespread consultation or involvement of employee, this suggests once more the need to build a culture of change so that whilst directive approaches may be needed or crisis situations may still happen the employees are more ready for such circumstances instead of creating chaos because well thought through change implementation plans were not put in place. Whilst Wilson (1992) suggested that the responsibility for organisational change has to become increasingly decentralized, the findings suggest that change needs to be leader led and the only way to decentralise is to ensure that the culture of change is embedded to hold everyone accountable to the neuroscience propositions and creating sustainable organisational health. An example from the data in this study comes from an organisation that had to apply many changes at once, mostly in a crisis management fashion, and this completely destabilised the company, people were not ready for any of the changes they were faced with. In hindsight Executive 2 who drove these changes internally agreed that there would be more benefit from creating more certainty upfront and eventually building a culture of addressing employee fears, etc.

Another useful aspect of designing a neuroscience based intervention to develop change leaders is for leaders to infuse hype, enthusiasm and energy into the change process. The findings suggest that this would need to be done with EQ as well. Along with this the

findings advocate that meeting people one-on-one will also assist in understanding employee needs and meeting the employees where they are at which is important for building a 'change ready' environment. This process builds trust by including the following neuroscience propositions of inclusion, the meaning making, providing certainty, giving employee significance, and communication processes.

Visualisation was another key intervention that can navigate employees through difficult times. Employees need to see what success looks like and experience it for themselves was a clear findings from the interviews held with Executives. From a neuroscience perspective new neurological pathways are being built for once uncertain situations when employees can see progress and early successes, which also makes them more open to change as confirmed by the interviewees. This can also be related to curiosity as a neuroscience proposition as mentioned by Yeats and Yeats (2007), as exploring new emergent futures incorporates a level of curiosity which allows the person to feel more comfortable with change. This was not a finding in this study, however it can be mapped back to the literature to have a link with creating a curious culture, which alludes to a more 'change ready' culture.

Whilst it is common to focus on the before and after, and outcomes of change processes; Alvesson and Sveningsson (2016) share that there is still a lack of focus on the micro-process of change in progress. The small wins need to be celebrated, "sharing good news stories as it builds credibility in the process". Despite the literature suggesting that there is emphasis on the outcome of change in practice Executives committed that there isn't enough evaluation on the effectiveness of change, and that it is a mistake not to evaluate it. This process provides another opportunity to build trust, give support, improve employee engagement and employee resiliency by making them feel like they are valued and part of the process beginning to end. This also gives organisations the opportunity to understand the real issues facing the organisation and then the strategy for follow through. Executive 11 felt that this was the one thing that broke down trust when there was a lack of follow through. Executive 4 also suggested that there should be metrics to measure whether change is being embedded as part of the culture, and if there is behaviour change in the organisation.

Karp and Helgo's (2008) study advised that for leaders to successfully change organisations they should influence the patterns of human interaction by increasing

meme, which is a form of spreading important change ideas as it sparks conversations which contain seeds of change without micro-managing the discussion, increasing involvement, and through symbols and creating a common language. Karp and Helgo (2008) are certainly alluding to embedding a 'change ready' culture in order to attain sustainable organisational health. Alvesson and Sveningsson (2016) suggest that 'everyday reframing' is useful as a mode of cultural change, it creates the visualisation of potential realities, improves relatedness and increases meaning making for all those involved. Executive 17 expressed that they had a focus on crafting the culture to be ready for change that they had "culture coffee conversations" regularly with staff to address uncertainty and in so doing conducting "everyday reframing" within the organisation.

In a paper by Tillott et al. (2013), it is suggested that it is reasonable to use the SCARF model as a framework to reflect on individuals' characteristics, create a positive workplace culture, and enhance their understanding of the factors that either engage or disengage staff to increase employee retention. However there was no validation of the SCARF principle being able to achieve this positive workplace culture and improving staff retention in their context. This study thus shows that these elements do indeed create a more 'change ready' organisation and a more performance orientated, and future-sustainability orientated culture. The data from this study also points to the fact that the culture that is created using the SCARF principle also plays a role in employee retention and those organisations tend to keep employees who enjoy that culture, and those that stay are very passionate about their organisation, whilst those that leave were never a 'culture fit', and as Executive 17 said, an 'organisational fit' in the first place. Executive 16 said: "You retain people in an environment where they are excited about the culture and the values". Thus they keep those who fit the culture, the organisation, and their vision of the way forward.

In embedding a culture where employee are able to pre-empt change, the reward response is being triggered which also lends itself to being more creative as glucose is present in the pre-frontal cortex more often than when the threat response is triggered. The advent of a more creative culture also suggests more innovative and problem solving approaches within the organisation. From the findings Executives admit to the loss of agility and creativity particularly when organisations become bigger. In analysing this, it is largely because employees didn't feel valued any more and more focus needed to be created on building an environment with the neuroscience principles to effectively trigger

the reward response of employees more often. Executives also shared that they have had experiences of trying to shift employee's external locus of control but did this by triggering the threat response, rather than creating the organisational support as suggested by Chiu et al. (2005). It seems that some organisational cultures from this study focused on trying to get buy-in and implement all communication channels at the implementation stage, whilst other organisations built a culture of wanting to get the most out of their people; this includes innovation and creative ideas. These organisations have SCARF embedded in their organisation and don't see change as an issue as the organisation is 'change ready'. It was also expressed that people don't generally like change, and the neuroscience principles behind that is understood, however, employees get used to the change and settle in quite quickly if change is built as a capability. This addresses the gap felt in organisations around getting employees on board quickly enough using neuroscience principles.

Many executives alluded to culture being a key ingredient in organisational success, however Executive 5 explained that in the longer term you "need to create a culture of change in order to manage change better", while a handful of Executives were concerned that they did not have the current culture to meet the future needs of the organisation, and that you need to "plan now for the culture of tomorrow", and that "culture needs to change for future to look different". In assessing past failures Executive 16 had an insightful realisation that "changes that have failed in the organisation are those that were not aligned to culture…culture is a limiting factor to change." Executives tried to ring fence new products outside the current organisational culture, as "culture eats new products". Whilst this was seen as a limiting factor the aim was to build an environment where anyone can drive change. Executive 5 also shared that even though they had this kind of environment, they did not have defined roles, key performance area's and job descriptions as they felt these limited the ability to drive change and take ownership for changes. Executive 11's viewpoint was that there can't be a plan for change, leadership have to be "emotionally ready and knowledgeable" to deal with change. This came from the understanding that change is too continuous to have a plan and hence the reason that there needs to be a culture of change. Change has to feel progressive, and this movement should feel positive for engaged employees as expressed by an HR Executive. Change embedded as a competency within the processes and culture of the organisation definitely shows value in building a more forward thinking sustainable organisation.

6.4.3. Conclusion

The evidence for the effectiveness of neuroscience propositions sit within the culture of the organisation. Creating this culture is dependent on the leader of that business unit, department, or company. It takes a certain type of leader that needs to be self-aware, engaging, and believes in the culture of change to embed consistent processes and interventions that build the effectiveness of change leadership as a whole. The section describes some of the practical interventions that are useful in developing change leadership from a leadership style perspective and embedding the processes to create a 'change ready' culture.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1. Synthesis of research data and contribution of research study

Change is experienced by individuals as difficult (Carter, 2012; Fishbane, 2015). Whilst organisations have focused on implementing change management processes to assist their employees, it remains a challenge. Change management failures have demonstrated that it is not yet more or different theory that is needed in change management, rather a more thorough understanding of what people in organisations are doing on a daily basis (Karp & Helgo, 2008). This study analyses the perspectives and practises of current change leaders from a neuroscience perspective to offer insights into building more robust and 'change ready' organisations for the future.

This study opens up unexpected and novel insights and ideas into the role of the reward and threat response in the brain for the change leader to enable employee productivity, creativity and preparation for change. This is what is needed to deal with the rapidly changing environment of work and the uncertainty that it brings. It is hoped that this text gives additional depth and richness to the understanding of firstly why change is so difficult, what can go wrong, and what can be done in order to make change work more instinctive and productive within organisations for the future. The present study adds to the growing body of research showing that neuroscience is indeed valuable in understanding what drives employee behaviour within the context of managing change. In addition, this study offers some new ideas for thinking and acting in change work from a leadership perspective, with a large focus on embedding a culture of change.

This thesis develops a neuroscience based framework for change leaders. Scholarly research has been done in linking neuroscience specifically to change processes. Neuroscience offers change leaders guidance in preventing organisational dysfunction associated with change. Developing this framework required three steps. Firstly, the validity of a set of neuroscience propositions needed to be explored. Secondly, the broader organisational dynamics around change needed to be understood. The concept of organisational health as an organisational dynamic needed to be understood in being able to prevent organisational dysfunction. Finally, a framework was developed in which the propositions were embedded in this set of broader organisational dynamics. The value of this framework affords the change leader to build a culture of change in the

organisation creating sustainable organisational health which is more than just preventing organisational dysfunction.

Thus the value this study offers in the change leadership space can be summarised with the following three main contributions, made up of the main findings and the development of a framework:

The first contribution of this study is that there is value in applying neuroscience propositions in the workplace. Whilst scholarship in this area explain the reward and threat response processes in the brain, this study confirms that applying and practising the MIC-SCARF (Meaning making, Inclusion, Communication, Significance, Certainty, Autonomy/Locus of control, Relatedness, Fairness) principles will create an environment where employees feel valued and are productive as a result. This offers change leaders practical tools on improving the performance of the organisation. This study also confirms the relevance of the SCARF principle as popular theory by providing more academic rigour into substantiating the value it can provide in creating a positive work environment. In addition, neuroscience propositions have to be embedded as a consistent practice and become part of the culture for it to be truly effective.

Neuroscience propositions provide guidance in improved management of change in the workplace and enables practitioners to better understand the principles of the reward and threat response. Such as the evidence found in Fuchs and Prouska's (2014) study where employees who have had negative experiences with change before will more likely resist new changes. The findings of this study suggest that the evidence for neuroscience propositions embedded in the culture of the organisation, making it more 'change ready' do not experience the setbacks of resistance as an obstacle to change. Amidst chaotic situations, Karp (2006) says that a few basic principles need to be put in place in order to hold the organisation together. Organisations are constantly dealing with uncertainty these days, hence the importance of a few basic principles being embedded as the culture of the organisation so that employees are ready to deal with the continuous change that faces the organisation.

The second contribution is the expansion on current literature in the area of organisational health and organisational dysfunction. This study confirms that organisational health is the opposite of organisational dysfunction. This study offers additional insight that

organisations should be looking towards creating an environment of sustainable organisational health. A working definition was uncovered in this study for sustainable organisational health as 'neuroscience propositions (MIC-SCARF) embedded in the culture of the organisation creating change as a core competency within the organisation in order to create sustainable organisational health'. This study showed empirical support for David Rock's (2008, 2009) SCARF principle in preventing organisational dysfunction. In addition, this study adds additional neuroscience propositions to the model to create sustainable organisational health which is more than organisational health.

The third contribution is the neuroscience framework developed from the findings to offer change leaders guidance in embedding sustainable organisational health. This can be done by utilising the leadership within the organisation, analysing the processes, and embedding a culture that supports and enhances productivity, future thinking and future coping styles by applying neuroscience thinking and principles. This stresses the importance for organisations to build this competency in order to minimise the impact of change on employees and enhance the levels of creativity and performance instead. The results suggest that it is no longer sufficient to manage change, but that change has to be a competency of the organisation for it to be sustainable in the future world of work. This study supports Luecke's (2003) suggestion that the better approach to change is where organisations and their people continually evaluate and respond to cues from the external and internal environment in a continuous and incremental way. This study builds on this; organisations cannot just have an 'approach' to change but they have to be constantly change-ready. This highlights the value of providing a practical model of embedding change as a culture thereby creating sustainable organisational health.

The key then is applying neuroscience in the workplace. As leaders are constantly having to lead amid chaos, uncertainty and complexity (Liebhart & Lorenzo, 2010), it becomes even more imperative to have an organisation that is able to deal with this. The findings confirm that neuroscience propositions provide guidance for practitioners in this regard as Diefenbach (2007) and Karp and Helgo (2008) correctly express that management challenges around change have more to do with the nature of human beings and our instinctive reactions to change and those leading change. Looking towards neuroscience can assist to better understand how to manage and mitigate the negative impact of change in the workplace if an organisation is to be sustainable and simultaneously create sustainable organisational health.

7.2. A model: Towards creating sustainable organisational health

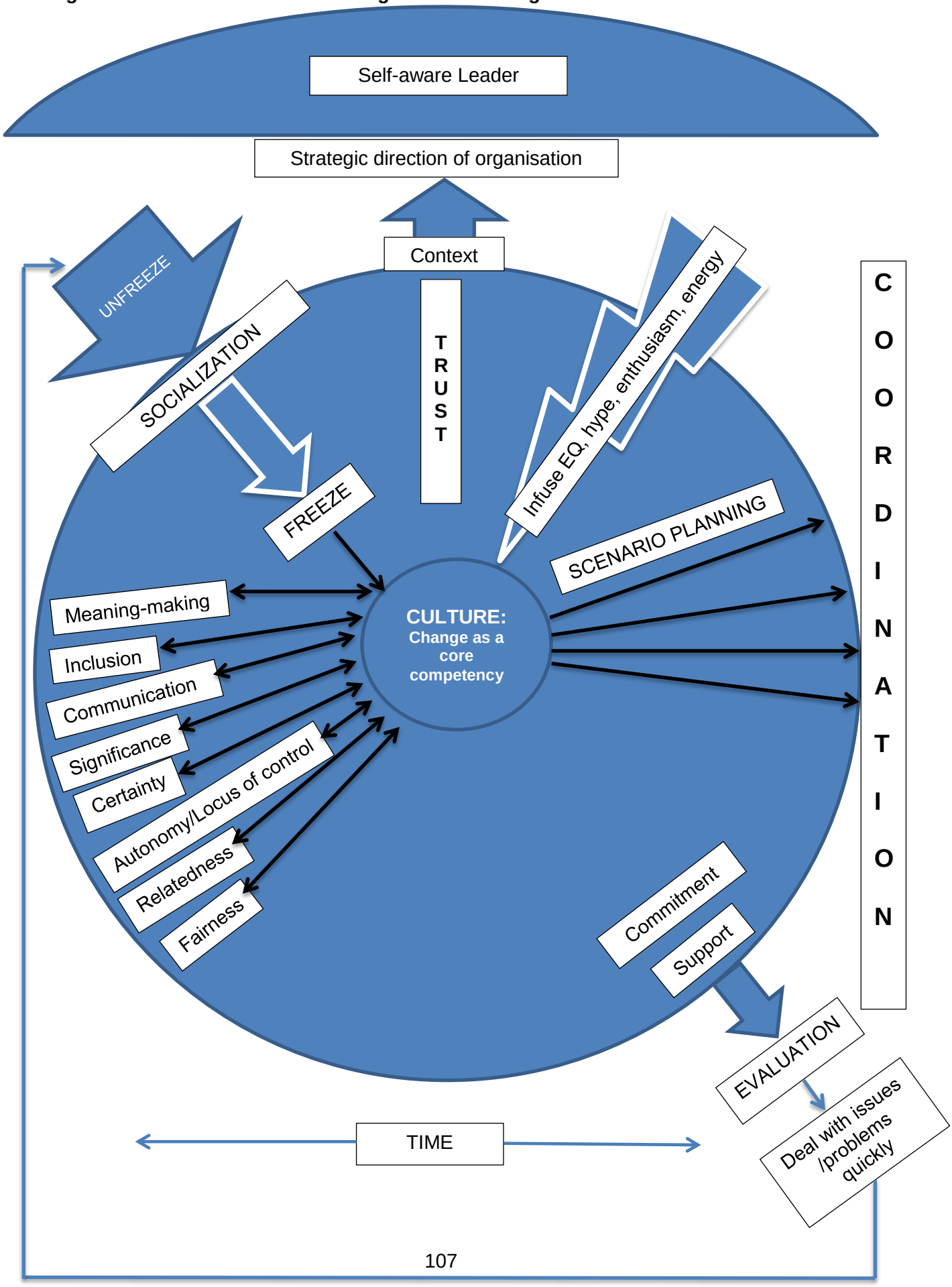
The model shown in Figure 5 brings together all the concepts uncovered in the findings of this study. The literature supports and articulates these concepts in various ways and the value in this study is the development of a framework that is useful as a recommendation for practitioners or change leaders to create sustainable organisational health as well as clarify and integrate some of the concepts from literature.

7.2.1. Explanation of the model: Towards creating sustainable organisational health

The context is the organisation, represented by a circle because it is malleable and permeable to the external environment. Organisations are affected by the external environment on a daily basis. This falls under the umbrella of self-aware leaders, as the environment is leader-led. The circle is moving upwards, under the umbrella of leadership towards the strategic direction of the organisation. This sits outside of the context as the organisation should always be moving towards creating that future, with the work happening inside the circle to achieve this.

Employees need to unfreeze outside of this context, realising that it takes a certain kind of individual to survive in a constantly changing environment, which requires a reframing of certain ways of thinking and doing things, to allow themselves to be influenced by the environment they are entering. This is followed by a process of transition which occurs on the border of the context through socialisation, which is also where the change occurs according to Lewin's (1947) 3-stage change process. Once the old ways of thinking are challenged and employees start settling into a new comfort zone this is when freezing takes place. This is aptly applied to Lewin's (1947) model as he took into consideration the context and the feedback loops which is also incorporated into this model. The idea for using Lewin's change model came from Executive 1 who used similar words to discuss the process of adapting to the new environment in their organisation. The 'freeze' is also integrated with the culture of the organisation, meaning employees that are comfortable with change. Moving into the centre of the environment is the culture where change is built as a core competency. This is essentially the heart of creating sustainable organisational health, hence it is in the centre, and everything around it is the elements that assist in creating that culture. First, trust needs to be running through every layer of the organisation, and is built by the leaders displaying these characteristics, and embedding

Figure 5: A model: Towards creating sustainable organisational health



the procedures discussed in this model. Leaders also need to infuse emotional intelligence, hype, enthusiasm, and energy in making all these elements and interventions work. The culture is the strategy of the business, the leader should be constantly concerned about creating and maintaining this culture.

Interacting both ways with the culture are the neuroscience propositions. They influence each other; practising a neuroscience principle has an impact on the culture which in turn strengthens the practise of the neuroscience proposition. Thus the arrows face both directions as both constructs reinforce each other. The neuroscience propositions included are MIC-SCARF (Meaning making, Inclusion, Communication, Significance, Certainty, Autonomy, Relatedness and Fairness). A by-product of this process, as the reward response if currently being triggered, is creativity within the employees and the organisation, thus it sits on the border of the culture and impacting the context within which it is being implemented.

On the opposite side supporting the culture of change is the constant ability of the organisation to scenario plan which enables employees to start discussing and seeing a different future for the organisation, supporting the neuroscience principles of certainty and inclusion, relatedness, communication and meaning making. Furthermore, the arrows reach out to the external environment either for ideas, or to move the context in another direction. The foundation for this environment is committed leaders and employees, with access to support when necessary for all of this to work together.

Coming out of the context is the constant need to evaluate whether all of the elements are operational or not, and where problems are identified it requires quick resolution with the use of necessary interventions which will require the process of unfreezing again. The change/intervention will need to go through the process of socialisation again in order to freeze and become part of the culture again. This feedback loop and evaluation process is imperative to ensure optimal functioning of the neuroscience principles embedded within the culture of change to enable sustainable organisational health. This would need constant co-ordination not just between the leader and the organisation, but the leader and the environment, and the organisation and the environment; hence this sits outside of the context and the umbrella and runs parallel to and through the system.

Lastly, this process takes time, and sometimes you will move forward, and sometimes the organisation make take a few steps backwards before intervening, unfreezing, socialisation, and freezing again before moving forward. Hence the arrows moving in both directions alongside time. It also represents the need to go slow, behaviour change and culture change does not happen overnight, it takes time to build culture and consensus. If all these elements are in place, it allows for the constant re-evaluation to the constantly changing environment, and this ultimately results in positive business indicators from a financial perspective automatically (as mentioned by Executive 8, if the culture is right, the business indicators flow from this).

All of these elements are an outcome of the literature and the research findings. They are brought together to provide change leaders with a neuroscience framework to creating sustainable organisational health. It is hoped that this model gives change leaders a framework upon which to base their co-ordination and practical neuroscience application within the organisation to create a culture of change. This is valuable on many levels, ultimately however to create effective organisational dynamics that looks after the future of the company from a neuroscience perspective.

7.3. Limitations and Recommendations

While this study has offered valuable insights into the applicability and validity of neuroscience propositions in the experience of change leaders within organisations, there are certain limitations in this study that provides an opportunity for future research.

7.3.1. Limitations of research study

The limitations of this study are discussed in detail in Chapter 4. The key limitations are summarised here as they provide a basis of recommendations for future research. The generalisability of this study was affected by the following variables: the limited time frame that the data was collected under, the biases that existed for the Executive and the researcher, the sample group that was exclusive to Executives, the conceptual jargon, and factors that were not directly researched in this study but may affect the outcome of the study. The recommendation is to conduct longitudinal study and/or multiple qualitative engagements with the sample and to vary the sample to address some of these factors.

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7.3.2. Recommendations for future research

Whilst the area of organisational cognitive neuroscience is relatively new, future research could perhaps focus on the practical application of such propositions in the workplace, particularly in terms of enhancing organisational effectiveness. The following research areas would assist in further understanding and gaining more knowledge of the value of neuroscience principles in the workplace:

1. The model developed from the findings of this study "Towards creating sustainable organisational health" should be tested by applying it to organisations and assessing the effectiveness of creating sustainable organisational health. This should be measured by the ability of the organisation to manage change on a continuous basis, and characterised as a forward thinking company, always preparing for future changes. The framework thus serves as a template to conduct future research.
2. Additional research should be done in the area of organisational health and the elements thereof building on the findings of this study. A survey tool could be developed from such findings in order for organisations to measure the strength of their organisational health and areas of focus, which will assist leaders in developing a more accurate measurement and evaluation of the state of the organisation's health. The model, 'Towards creating sustainable organisational health' may then be able to assist in working on which areas to develop.
3. Further research could be conducted from an employee perspective to analyse the impact of applying neuroscience propositions from an employee point of view which may highlight areas that may have been missed from a leadership perspective in order to contribute to the further development the model 'towards creating sustainable organisational health'.
4. It is evidenced from this study that highly disruptive events, such as retrenchments and job losses may require another approach in order to stabilise the organisation? The evidence of neuroscience propositions is questionable from the perspective of highly disruptive events that change the course of an individual's life and this may require further research as it was not the focus of this study.
5. Lastly, in building on this study further research could be conducted on the levels of innovation and/or employee retention in organisations that apply neuroscience principles, as the triggering of the reward response if assumed to result in more creative employees and employees that are satisfied. This would warrant additional research and could offer additional value in the strategic and/or HR space.

7.4. Conclusion

The objective of this study served to address whether there is a neuroscience framework that can possibly guide change leaders. Organisations struggle to obtain sustained organisational health, one of the reasons being their inability to adequately or constantly deal with change. In order to better deal with change we need to understand people and their reactions better, and one way to better understand and influence this is from an organisational cognitive neuroscience perspective. Change leaders lack the ability to understand drivers of human behaviour and the ability to create organisations that can deal with change. Therefore this qualitative study, consisting of collected data from the Executive level of organisations of 500 or more employees, provided evidence that neuroscience propositions have a positive impact on organisational health and in creating a change ready organisation.

The findings from this study contribute to the knowledge of organisational neuroscience and change leadership. For the first time, these concepts are integrated and clarified. Firstly, it was identified that the popular SCARF principle has empirical support from its application in organisations but was not sufficient and needed the addition of 'MIC'. Secondly, applying and practising neuroscience principles: MIC-SCARF (Meaning making, Inclusion, Communication, Significance, Certainty, Autonomy/Locus of control, Relatedness, Fairness) principles will create an environment where employees feel valued and are productive if embedded within the culture of the organisation. Thirdly, this study contributes to the knowledge and understanding of organisational health and organisational dysfunction with the introduction of a new concept, 'sustainable organisational health'. Lastly, it draws all the findings together and offers a neuroscience framework for change leaders to build sustainable organisational health.

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APPENDICES

Appendix A: Negative attributes associated with organisational decline (The Dirty Dozen)

	Attribute	Explanation
1.	Centralised decision making	Decision making is centralised at the top of the organisation as employee empowerment is curtailed
2.	Long-range planning neglected	Long-range planning is foregone as a focus at the expense of the more immediate crisis
3.	Low tolerance for risk-taking	Less tolerance for risk-taking as trial-and-error learning is curtailed
4.	Employee resistance to change	Conservatism and the protection of the status quo is pursued as employees seek to consolidate gains and reduce potential for loss
5.	Lower employee morale	A sense of hopelessness, dismay, betrayal, and anger pervade employee attitudes
6.	Certain groups highly vocal	Special interest groups organise and become more vocal and outspoken
7	Non-prioritised cutbacks	Non-prioritised cuts are used to mitigate and ameliorate organisational conflict/resistance
8.	Low credibility of administrators	Organisational leaders lose the trust and confidence of their subordinates
9.	Prevalence of organisational conflict	Organisational participants fight over diminishing resources as competition and in-fighting increase
10.	Bad news not passed up the hierarchy	Information is not widely shared because of fear and mistrust; posturing persists
11.	Employees resistant to work as teams	Individualism predominates to make teamwork difficult
12.	Top administrators scapegoated	Leaders are blamed for pervasive organisational turbulence and decline

Source: Cameron (1994)

Appendix B: Interview Schedule

Semi-structured interview schedule: GIBS MBA research 2016

Name of interviewee: **Date:**

Company: **Position:**

1. Expand on the role of the interviewee within the organisation (ensuring it meets sample requirements – 500 people, in C-suite position for at least 3 years/HR Director/Consultant with change experience, been through a change in last 2 years).
2. Explain the change that company underwent/is going through (get information to understand context of change as well)
3. What is the general process of rolling out a change within the organisation?
4. What is management's strategy to obtain buy in/ implement the change?
5. Understand employees initial reactions to change – link to how management was to implement and carry out the change
6. What has been helpful in managing change better in your organisation?
7. What would be helpful in managing change better in your organisation?
8. In your opinion, what factors assist employees to get on board with/implement the changes?
9. What role does status play in your organisation (giving people recognition, etc.)?
10. What effort is placed to ensure employees are not uncertain about anything they need to do, tasks, performance, implications of change, etc?
11. What degree of certainty/predictability exists in your organisation? (within the context of industry and for the employee themselves)
12. How autonomous do you feel you are in your role?
    And, how autonomous do you feel your subordinates are in their roles?
13. What is the culture around teamwork in your organisation?
14. How similar or different are your employees to you?
15. In your opinion, to what level is fairness a priority in your organisation? Unpack where possible.
16. Overall outcome of the change discussed – time frame?
17. What is your understanding of organisational health/dysfunction – elements thereof?
18. In your opinion, how would you describe this organisation: org health/dysfunction?

Appendix C: Informed Consent Form

Gordon Institute of Business Science
University of Pretoria

INFORMED CONSENT FORM

Re: MBA research study

I am a GIBS MBA student who is conducting research on experiences of change leaders. I am trying to find out if there is evidence of neuroscience principles in your experience of organisational change. Our interview, which will focus on your experiences of change in the organisation, is expected to last about an hour, and will help understand how change leaders experience change in the organisations from a neuroscience perspective.

The cost of this interview would be your time, however, the benefit would be the opportunity to contribute to a broader knowledge base in the form of this research study.

Your participation is voluntary and you can withdraw at any time without penalty. All data will be kept confidential and the findings will be captured by numbering the interviewees. If you have any concerns, please contact my supervisor or me. Our details are provided below.

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Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

Appendix D: Initial 31 themes of elements of organisational health

Agility
Alignment
Attitude
Brand value
Clear role definition
Clear strategy
Clear vision
Client focused
Corporate ethics
Creativity
Culture
Customer value proposition
Diversity/Inclusion
Employee engagement
Employee satisfaction
Empowered staff
Financial indicators
Healthy tension
Job security
Market share
Meaning
Peer/stakeholder perception
Positive client experience
Preferred employer
Pride in organisation
Rewards
Strong leadership
Succession plans
Teamwork
Trust
Working towards common purpose

Appendix E: Turnitin report (first 5 pages)

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Appendix F: Ethical clearance form

Dear Navlika Ratangee
Protocol Number: **Temp2016-01048**
Title: **Application for Guide**
Please be advised that your application for Ethical Clearance has been APPROVED.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.
Kind Regards,
Adele Bekker