Challenges of establishing a data governance framework in the South African life insurance industry

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ABSTRACT

Life insurance companies are extremely data intensive; collecting and storing current and historical customer data for various reasons such as marketing campaigns, assessing insurance risks, and as part of the actuarial and underwriting processes. Recent legislation pertaining to the manner in which customer data can be used, coupled with the Solvency Assessment and Management (SAM) regulations from the Financial Services Board (FSB), have amplified the need for life insurers to take a holistic approach to managing their data assets.

A data governance framework provides principles and guidelines to ensure that data meets the expectations of all business purposes in the context of data quality, ownership, compliance, privacy, and security. Although the benefits of establishing a data governance framework are unquestionable, the challenges associated with designing and implementing such a programme have hindered the progress of many life insurers in this arena.

This study makes use of in-depth interviews analysed with content analysis and cognitive maps to explore and uncover the main challenges life insurers have experienced, as understood from senior individuals who have been involved with data governance initiatives at their organisations.

Organisational culture, the lack of ownership and accountability, a silo approach to data management and the absence of guiding policies, were cited as the most common obstacles to the successful implementation of a data governance framework. The FSB's SAM regulations were found not to be a big driver of data governance from an operational perspective.

It is clear that life insurance companies face a number of challenges in establishing a data governance framework however, these are not insurmountable. The recommendations from this study can provide some guidance for life insurance companies wanting to establish their data governance frameworks and for those wanting to build on their current data governance capabilities.

DECLARATION

I, _____, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Lovashnee Forte

Signed at ……

On the …….. day of …… 20…..

DEDICATION

This research report is dedicated to two very important people in my life.

My mother, Kay Naidoo, thank you for your unconditional love and support over the years. It is through your encouragement and belief in me that I am where I am today. For that I am eternally grateful.

My husband, Jerome Forte, a special thank you for your devotion, patience and endless support. Your love and commitment is an inspiration.

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I would like to express my thanks to all of my family and friends who tirelessly listened to me complain and offered me encouragement when it was needed most. A special thank you to my mother for always being a shoulder to lean on and for your endless faith in me.

To Kerry Naude, I've found a friend for life. Your support and encouragement has meant a lot to me. Thank you.

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to identify the challenges of implementing a data governance framework in the South African life insurance industry. Data governance is becoming a regulatory requirement for life insurers and this study suggests an approach that can be practically implemented within the South African life insurance industry when designing and implementing a data governance program, which will provide strategic benefit as well as ensure regulatory compliance.

1.2 Context of the study

Key terms include: (i) data governance framework (ii) South African life insurance industry.

The volume of data collected by companies is increasing. In a study conducted by the International Data Corporation it was noted that from 2012 to 2020 the digital universe will double every two years (Gantz & Reinsel, 2012).

Data can be considered as an organisation's greatest source of risk and greatest source of value. Poor data management however, could lead to poor business decisions and greater exposure to compliance violations (Soares, 2010). Alternatively, the ability to leverage trusted data can assist organisations in providing better service, drive customer loyalty and spend less effort complying with regulations (IBM, 2007a).

Data includes information such as customer information, employee identifiers, trade secrets, strategic plans and market intelligence, all stored in an electronic format. Technological advances have made it possible to store massive amounts of information and provide wide access to that data (Moghe, 2009). Life insurance companies are extremely data intensive. Insurers collect and store current and

historical customer data for various reasons, such as to assess insurance risks and as part of the actuarial and underwriting processes (Capgemini, 2013).

Haug and Arlbjørn (2011) mention that there are numerous negative effects to business users as a consequence of poor data quality. This includes lower customer satisfaction, increased operating costs, inefficient decision making processes and lowered employee job satisfaction. Poor data quality means that it is more challenging to build trust in data and may result in a lack of user acceptance of any initiatives based on such data (Haug, Zachariassen, & Van Liempd, 2011).

A data governance framework comprises a set of core responsibilities and activities in an organisation, responsible for implementing the processes required to align data to the needs of the business in a proficient and controlled manner (Wende, 2007).

The Data Governance Institute (2014b) website defines data governance as follows:

> *"a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models, which describe who can take what actions with what information, and when, under what circumstances, using what methods."*

The lack of data governance practices can result in the creation of data silos, data redundancies, challenges around data integrity, inconsistency and inaccuracy resulting in unreliable, outdated and unknown data (Sardesai, 2012).

Financial institutions today also face evolving regulatory requirements and as a result, typically encounter a variety of data quality, accessibility, and security challenges (Chaudhary, Del Guidice, Shah, & Sifter, 2013). The quality of the underlying data is central to the ability of insurers to meet regulatory requirements such as Solvency II in Europe and Solvency Assessment and Management (SAM) in South Africa. In South Africa compliance to these directives is monitored by the Financial Services Board (FSB) and any non-compliance can lead to penalties or the loss of the insurers Financial Services Provider licence.

According to Chaudhary et al., (2013), regulatory requirements drive many of the concerns noted above and technology is an important part of the solution however, focusing on compliance and software alone will not address the issue adequately. Financial institutions require a complete data governance structure and a well-planned and well executed strategy for implementing it.

Many companies carefully manage their financial, physical and human assets however, they overlook the intrinsic value contained in their data (Marco, 2006a). A data governance framework can not only help in providing a competitive advantage, it can also help to move beyond focusing on compliance and to explore new opportunities for operational improvements that add genuine, long-term value to the entire organisation (el Abed, 2009). There are many challenges associated with designing and implementing a data governance programme which will be explored in this study.

1.3 Problem statement

1.3.1 *Main problem*

Identify the challenges associated with designing and implementing a data governance framework in the South African life insurance industry.

1.4 Significance of the study

Most organisations acknowledge that there is a need for improving data access, quality, and security. Many also identify that they have significant data shortcomings, such as issues with data quality, accuracy, access, or availability. Financial institutions lack a clear data management strategy in the form of a DG framework (Chaudhary et al., 2013).

The study can be used to assist companies within the South African life insurance industry by recommending a data governance approach and process that can be followed to not only meet regulatory requirements but also reduce operational risk and improve data quality. As the SAM requirements on data governance are fairly

new this study could assist insurance companies with adopting practical methods to ensure compliance therewith.

There is limited research on the topic of data governance (Weber, Otto, & Österle, 2009; Wende, 2007) which is considered as an emerging field of study (Cheong & Chang, 2007; Niemi, n.d.). This study contributes to the current body of knowledge by offering some insights into the challenges in implementing a data governance model as well as by making recommendations on how some these challenges can be overcome.

1.5 Delimitations of the study

Data governance principles and guidelines ensure that data meets the expectations of all business purposes in the context of data quality, data stewardship, ownership, compliance, privacy, security, data risks, data sensitivity and master data management (Loshin, 2010). The study examines various data governance frameworks and includes the following domains:

- data principles and guidelines
- accountability and decision rights
- data quality management
- data stewardship

The study identifies the challenges in implementing a data governance framework specifically in the South African life insurance industry. The study does not include other sectors of financial services such as banks, investment houses and pension funds.

The study does not include information technology (IT) systems design, IT strategy, or IT architecture. Data governance falls within the ambit of IT governance (Weber et al., 2009), however IT governance frameworks are not included in this study.

There are various pieces of legislation that apply to data privacy, such as the Protection of Personal Information Act (POPI), the Electronic Communications and Transaction Act (ECT) and the Consumer Protection Act (CPA). It has not

yet been established which Act takes precedence and this study does not attempt to reconcile these legislations. The life insurance industry is regulated by the FSB and therefore the SAM requirements pertaining to data governance have been considered.

1.6 Definition of terms

- Data governance (DG) – a mechanism for ensuring consistency and discipline to the process of managing, using, improving and protecting organisational information (IBM, 2007b).
- Life insurance industry – financial institutions with the main business of providing insurance against death and disability through individuals paying a monthly premium to the company.
- Financial Services Board (FSB) – the FSB is a regulatory organisation set up by government to protect consumers when buying long term insurance.
- Solvency Assessment and Management (SAM) – a risk based supervisory regime for the regulation of short term and long term insurers in South Africa that will be enforced by the FSB (FSB, 2013).

1.7 Assumptions

The following assumptions have been made regarding the study:

- The respondents have the required information relating to the data governance framework in their organisation, and is willing to share it.
- If a respondent does not wish to disclose certain information relating to the study, they have informed the interviewer that this is the case.
- Respondents are assumed to answer interview questions openly and honestly.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This section contains a literature review of the key themes of relevance to the study. The first area is a review of the literature around data governance frameworks and the need for data governance in the life insurance industry. The second area is around the challenges South African life insurers may face when implementing a data governance program. There has been limited research in the area of data governance and for this reason data governance sources from consultants, analysts and practitioner were incorporated into the literature review. The section concludes with an overview of the key learnings.

2.2 Background discussion

Data governance (DG) is an emerging topic that has received increased attention over the past few years (Cheong & Chang, 2007; Niemi, n.d.). DG has been defined by researchers (Khatri & Brown, 2010; Weber et al., 2009) and practitioners (Karel, 2007; Moghe, 2009; A. M. Smith, 2014). Both parties agree that DG is the entirety of the decision rights and responsibilities relating to the management of data. The ultimate goal of DG is to codify and enforce best practices for data management across the organisation (Fisher, 2009).

Soares (2010) mentions that DG is the practice of treating data as an organisational asset. Effectively the DG framework comprises a set of core responsibilities and activities in an organisation, responsible for implementing the processes required to align data to the needs of the business in a proficient and controlled manner. A DG framework allows people at all levels of an organisation to manage data as a strategic business asset (Niemi, n.d.; Soares, 2010).

2.3 Data Governance

In 2009, the King III report on Governance in South Africa was released. For the first time the topic of IT governance was dealt with in the report citing that the Board of Directors should be responsible for IT governance and ensuring that information assets are effectively managed (Institute of Directors in Southern Africa, 2009). Specific principles relating to the continuous monitoring of all aspects of information and data quality are also included in the report. DG encompasses parts of IT governance, however, DG specifies the framework for accountability and decision-making rights regarding the use of data (Weber et al., 2009) whereas the IT governance framework promotes effective and efficient uses of IT resources. This study will focus specifically on the DG framework.

2.3.1 *Data Governance Frameworks*

Based on their studies and experience, academic researchers and practitioners (Dyché, 2007, 2011; Gregory, 2011; Khatri & Brown, 2010; Moseley, 2010; Mosley, 2008; Russom, 2008) have proposed ways of designing and implementing DG. Various institutions have also formulated their own frameworks and maturity models; IBM, The Data Management Association and The Data Governance Institute to name a few.

Dyché (2007) suggests that the components of DG should include guiding principles, decision rights, decision making bodies and governance mechanisms which are underpinned by a decision-making structure that brings together these components. Russom (2008) postulates that the critical attributes of DG are the four P's. Figure 1 illustrates how people, procedures and policies all combine to enable a larger DG process. DG is typically about people co-operating to establish a DG process that accommodates the needs of their business units but with priority to enterprise goals (Russom, 2008).

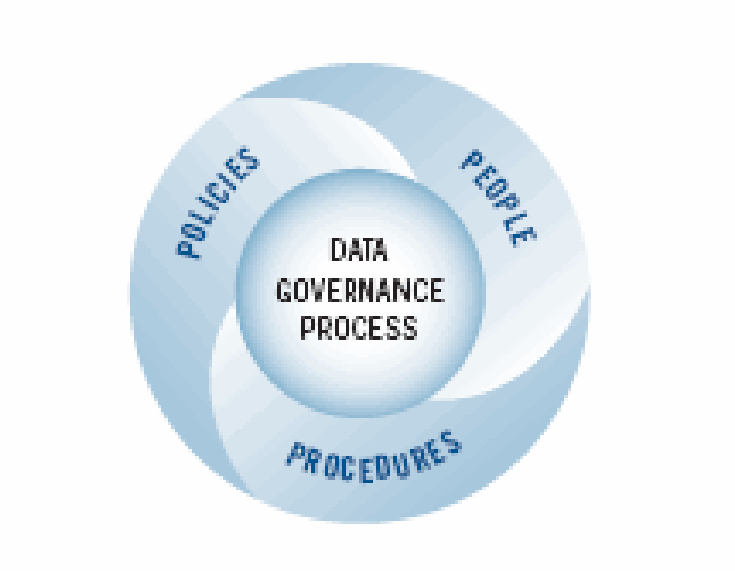

Figure 1: The 4 P's of data governance (Russom, 2008)

Moseley (2010) proposes the following five elements for a successful enterprise DG framework. The business rules and technology components were added to the attributes highlighted by Russom.

- **Policies:** standards that guide actions and provide direction about the operational procedures, decision making and data management activities.
- **Processes:** steps that lead to clearly defined deliverables.
- **Business rules:** the logic used to implement an organisation's policies and decision making processes.
- **People:** the roles and responsibilities of stakeholders who direct, measure and contribute to DG.
- **Technology:** data quality management tools that implement DG rules and policies.

Gregory (2011), much along the lines of Russom and Moseley, mentions that DG requires three core areas, namely, people, processes and technology to create a uniform and proper handling of an organisation's data across the enterprise. Academic researchers Kathri and Brown's proposed DG framework (2010) includes five domains including data principles, data quality, metadata, data access and data lifecycle.

Griffin (2005) explains that DG requires executive sponsorship which is effectively business ownership of corporate data. This encompasses the overarching definition of DG, namely, the business-driven policymaking and oversight of corporate information. As such, data should be owned by the business, which outlines its definitions, rules, access and usage policies (Dyché, 2011).

In 2004 IBM created a leadership forum to understand the emerging issues around data breaches and the challenges of protecting and managing data. The IBM DG Council was formed to provide a common platform for DG practitioners to explore the challenges and solutions around data (IBM, 2007b). IBM (2007b) identified eleven elements through their DG council representing their DG framework. The eleven elements are grouped into broader categories representing goals, enablers and supporting and core disciplines as depicted in Figure 2.

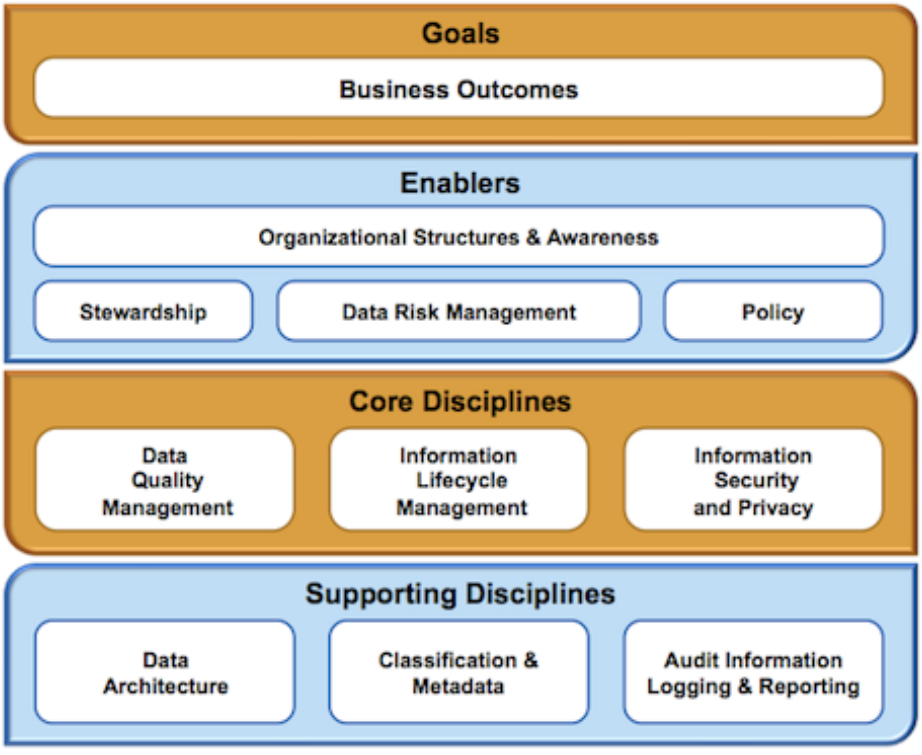

Figure 2: Elements of data governance (IBM, 2007b)

Each category consists of various subcategories that are grouped into five levels of maturity, with transition layers between maturity levels to denote steps and milestones that organisations can track as they progress with DG (IBM, 2007b).

Through these multiple levels, organisations can assess where they are currently and also set goals about where they want to be. Each category is both a starting place for change and a component in a larger plan. According to IBM (2007b) grouping the eleven elements of DG can help companies gain better insight into how to establish the larger plan. Organisations can also start with any of the eleven domains, based on their own business needs.

The Data Management Association (DAMA), an association of technical and business data management professionals, released a Data Management Body of Knowledge Guide (DAMA-DMBOK Guide) defining standard terms and definitions for data management processes, roles and deliverables. The DAMA-DMBOK Guide identifies ten major data management functions, as illustrated in Figure 3, on how to implement effective DG practices. The purpose of the guide is to build consensus for a generally applicable view of data management practices, identify guiding principles, to provide standard definitions for data management functions and identify common organisational and cultural issues (Mosley, 2008).

Figure 3: Ten data management functions (Mosley, 2008)

The Data Governance Institute (DGI), an organisation that provides in-depth, vendor independent DG best practices and guidance, has developed a framework that has been adopted by numerous companies around the world (The Data Governance Institute, 2014a). The DGI Data Governance framework was designed to help organisations achieve clarity, ensure value from efforts, create a clear vision and mission and establish accountabilities to name a few. The framework contains ten universal components of a DG programme (Thomas, n.d.).

Figure 4 illustrates the DGI Data Governance Framework which suggests a logical structure for classifying, organising, and communicating complex activities involved in making decisions about and taking action on enterprise data.

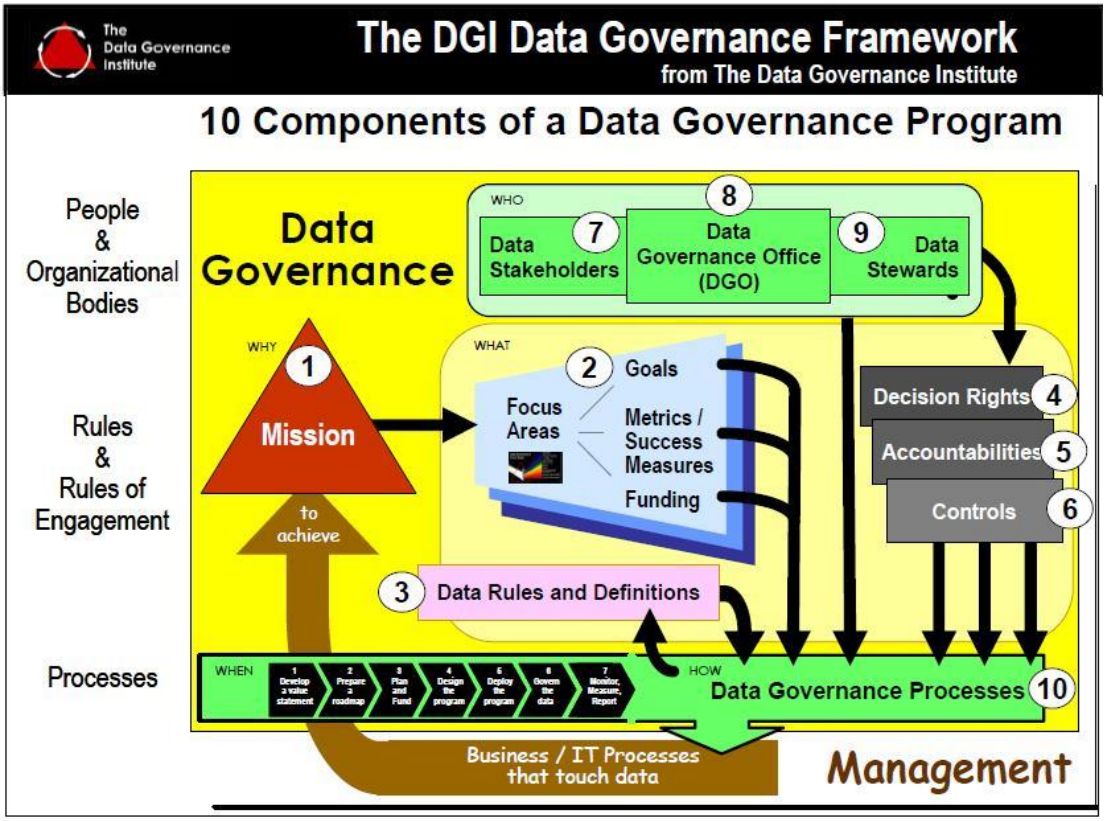

Figure 4: The DGI Data Governance Framework (The Data Governance Institute, 2014c)

The DGI framework outlines all of the rules that should be included such as policies, requirements, standards, accountabilities, controls, etc. The rules of engagement describe how different groups work together to make those rules

and enforce them. The people and organisational bodies are involved in making and enforcing those rules, and the processes are followed by people to govern data, while creating value, managing cost and complexity, and ensuring compliance.

The numerous frameworks noted above are relevant to this study because they provide alternatives in terms of the design and implementation of a DG programme within an organisation. There are also no regulatory requirements in terms of which framework an organisation should adopts which makes the implementation and design of a DG programme open to interpretation.

2.4 Key Elements of Data Governance

Ensuring compliance with regulatory requirements is the business goal most frequently mentioned in literature on DG (Otto, 2011). Other sources do not explicitly refer to compliance however, they suggest similar concepts such as risk reduction (IBM, 2007b; Moghe, 2009) and decision making (Dyché, 2007; Karel, 2007; Khatri & Brown, 2010). This section of the literature review focuses on several common domains within the different DG frameworks that are essential to the success of a DG programme.

2.4.1 *Decision Rights and Accountability*

Practitioners, academic researchers and institutes agree that establishing decision rights and accountability is a key component in a DG framework (Dyché, 2007; IBM, 2007b; Karel, 2007; Khatri & Brown, 2010; The Data Governance Institute, 2014c). Without active participation and accountability from business, especially senior leaders, DG initiatives usually fail, leaving the requirements for data quality management and strategic alignment undocumented and unstandardised (Karel, 2007). It is critical to identify a DG owner early in the process as accountability is vital for the success of the initiative (Soares, 2010). If no one owns the DG effort, it will be left with no clear purpose or direction. With this being said, if IT alone owns the initiative, business may feel as if the DG initiatives do not meet their needs or requires their input (Griffin, 2010). It is

therefore necessary to establish a DG council or decision-making body representative of all business units (Dyché, 2007; Griffin, 2010). C-level executives, IT managers, compliance and business managers should all be a part of the decision-making process (Griffin, 2005; Grossman, 2014).

Although executive sponsorship is important for a sustained DG programme, it should be a cross-functional, enterprise wide initiative requiring that everyone, irrespective of primary role or job function, accept a shared responsibility for data (Harris, 2011).

2.4.2 *Data Principles and Guidelines*

It is widely stated that a key component of DG includes principles, rules and guidelines (Dyché, 2007; IBM, 2007b; Khatri & Brown, 2010; Moseley, 2010; Mosley, 2008; Russom, 2008; The Data Governance Institute, 2014c). An organisation's data principles set the boundaries for the intended use of data and clarify the role of data as an asset (Khatri & Brown, 2010). A lack of acceptable data management practices and guidelines can result in challenges that are faced by both IT and business. Data principles form the cornerstone of a DG program or framework as they are the assertions of why the quality of certain classes of data is important (Soares, 2010). Soares (2010) further explains that the principles provide the directive of the scope and detail of oversight by answering three questions:

1. Why is the DG initiative being undertaken?
2. What are the business needs, risks, objectives, costs and opportunities that underlie the initiatives?
3. Why do the following policies and actions need to be undertaken and executed?

It becomes challenging to maintain and manage data without policies, strategies and dedicated efforts across business functions. DG seeks to solve these problems, through information policies, data rules, guidelines for managing key data elements and assigning roles for accountabilities and responsibilities (Sardesai, 2012).

2.4.3 *Data Quality Management*

Data quality management is a key component of DG as the effects of poor data quality can put the organisation at a competitive disadvantage (Eckerson, 2002). Appropriate data quality required for better decision-making and regulatory compliance is a driving force for many DG initiatives. As one of an organisation's most valuable assets, corporate data should be accurate, consistent, complete, up-to-date and easily accessible (Marsh, 2005). Studies show that many organisations are practising data quality in some sense, however, this happens in isolation without the collaboration of IT and business professionals who understand the data and its business purpose (Russom, 2006).

In a survey done by The Data Warehousing Institute (TDWI), 53% of respondents had suffered losses, problems or costs as a consequence of poor data quality (Russom, 2006). Better data quality is essential in order to make informed business decisions. The reverse is also true as poor data quality can lead to inaccurate indicators and unfavourable decisions (Becker, Poeppelbuss, Gloerfeld, & Bruhns, 2009). A Gartner study showed that 40% of business initiatives failed to achieve their targeted benefits. Furthermore, data quality issues affected labour productivity by 20% (Friedman & Smith, 2011).

Eckerson (2002) states that if not identified and corrected early on, defective data could contaminate systems and information assets putting customer relationships and decision-making processes at risk. Wende (2007) suggests that organisations need data quality management that combines a business focus and technical viewpoint to respond to strategic and operational challenges that demand high quality corporate data. The DG model incorporates the data quality roles and their types of interaction with data quality management (Weber et al., 2009).

A DG model helps companies structure and document their data quality accountabilities (Wende, 2007). Establishing and maintaining trust in data quality is essential for the success of DG (Niemi, n.d.).

2.4.4 *Data stewardship*

Data stewards are groups of individuals who hold the DG programme together by acting as the conduit between business functions and IT, serving as a control point for data quality (Marco, 2006b). Data quality specialists realised that enhancing data required the co-operation from business and IT teams. This brought about data stewards who were a mix of personnel responsible for promoting a partnership between IT and business with the purpose of finding and prioritising data quality improvements (Russom, 2008).

As part of the DG framework, organisations must define data steward roles for taking accountability and responsibility for business rules and data (el Abed, 2009). Data stewardship is a control mechanism designed to ensure the safeguarding of data for asset enhancement, risk mitigation and organisational control (Soares, 2010). Data stewards are not the data owners; instead they are curators responsible for improving the data quality. Owners have power and control over data whereas stewards manage the data on behalf of the owner (Marco, 2006a; Otto, 2011; Soares, 2010).

The concept of stewardship is meant to convey a fiduciary relationship with data that turns on a data manager whose loyalty is to the interests of individuals and entities whose data is stored in and managed by a system (Rosenbaum, 2010). Data stewardship activities enhance the ownership models and oversight mechanisms to ensure active management and data quality (Loshin, 2010).

Rosenbaum (2010) further suggests that DG establishes the policies for access, management and permissible uses of data. DG then identifies the methods and procedures necessary to the stewardship process.

2.5 The Need for Data Governance in the South African Life Insurance Industry

The life insurance industry, like many other industries, is faced with increasing competition amongst key role players and the value of information is becoming critical to competition in different organisations (Iyamu, 2011). As stated by Niemi

(n.d.), companies should treat information as a strategic asset in order to obtain a sustained competitive advantage. Apart from competition and strategic advantage, maintaining adequate quality of data is becoming a legal requirement (Capgemini, n.d.).

Data is becoming an increasingly important factor within the insurance industry (IBM, 2011). The volume of data being processed has increased considerably and data has become available in a greater variety of sources than ever before. Data is now being considered as a corporate asset and a source of competitive advantage. It is also subject to regulatory supervision. These developments have led to a demand for suitable DG and quality frameworks (Ernst & Young, 2013).

Insurance companies around the world are coming under increasing pressure to proactively manage their data in order to improve transparency and reduce operational risk (Investance, 2012). The quality of the underlying data is crucial to the ability to meet a variety of regulatory requirements. The most important governance objective within financial services companies is the availability of reliable and accurate data for risk aggregation and reporting, including data accountability and traceability (Capgemini, n.d.).

With new financial regulation such as Solvency II, Sarbanes Oxley, Dodd-Frank and international financial reporting standards (IFRS), insurance companies around the globe have been bombarded with costly and complex compliance measures. The Solvency II directive offers European insurers an opportunity to improve their risk performance and operational efficiency. According to Ernst and Young (2013), the goal of this EU-wide insurance legislation is to enable the development of a Single Market in insurance services. The life insurance industry has been moving towards enforceable DG and a key factor driving the importance of data quality is Solvency II. The Solvency II directive includes several requirements regarding data quality and governance. Accuracy, completeness and appropriateness of data used in technical calculations needs to be guaranteed and the data used for reporting purposes must be accurate and timely while demonstrating satisfactory data quality. Furthermore, an effective system of governance and an internal control system needs to be in place (Ernst & Young, 2013).

With due consideration of global trends in insurance supervision, and particularly Solvency II, the FSB started to develop a solvency framework that would comply with the criteria for Solvency II third-country equivalence, as well as accommodate the unique requirements of the South African insurance industry (FSB, 2013). SAM requires that insurers be able to demonstrate how data quality is defined and monitored. It is therefore crucial to review existing data quality controls to assess whether they can be used or require enhancement to comply with the SAM requirements (PWC, 2011).

SAM requirements make it essential to define DG hierarchies and appropriate data roles and responsibilities at all levels in order to address data quality at an enterprise level (PWC, 2011).

2.6 Challenges of implementing data governance

Some of the main reasons why companies do not adopt a formal data quality management programme include that no business unit or department feels that it is their responsibility, it requires cross functional co-operation and the return on the investment is problematic to quantify (Geiger, 2004).

According to Dyché (2007), possibly the greatest challenge to any governance initiative is changing the innate organisational culture. In addition to this, many companies recognise the need for a DG program, however, they either do not know where to begin, or see it as a strategic initiative with little or no operational value.

Members of the IBM Council cited some of the following DG challenges facing organisations as follows: (1) inconsistent DG can cause a disconnect between business goals and IT programs (2) governance policies are not linked to structured requirements gathering, forecasting and reporting (3) metadata and business glossaries are not used to track data quality and business value of data (IBM, 2007b).

Some factors increasing the data management challenge include increasing storage capabilities, multiple groups managing data and data ownership issues

(H. A. Smith & McKeen, 2008). In a study conducted by Haug and Arlbjørn (2011), they uncovered that a lack of delegation of responsibilities for maintaining data is the single aspect that has the largest impact on data quality. Data quality, a lack of clarity about the differing responsibilities of the data owners, data silos and multiple sources of data are some of the challenges that institutions encounter when designing and implementing a DG programme (Chaudhary et al., 2013; Fisher, 2009).

Insurers need to ensure that data related to Solvency II reporting is accurate, complete, appropriate and adequately controlled. This poses a challenge for many insurers who have historically managed their data only at a high level (IBM, 2011). Some of the challenges around data management arising from the FSB's SAM regime include embedding an appropriate DG structure and data quality management across the organisation, identifying, demonstrating and justifying the quality of data and effectively managing third parties to ensure quality and timeliness of external data (PWC, 2011).

According to King III, the board is responsible for IT governance (Institute of Directors in Southern Africa, 2009). The FSB's SAM requirements state specifically that the board is responsible for IT and DG (FSB, n.d.). DG audits are not generally included in the scope of work performed by external or internal audit, however, insurers will now be required to ensure that data within SAM requirements is properly controlled and reviewed (IBM, 2011).

Many insurers have made progress in meeting the Solvency II requirements however, the results of an Ernst and Young European Solvency survey indicate that integrating data and IT systems is still a significant obstacle. Other challenges around Solvency II and data include a lack of policies, procedures, roles and responsibilities relating to data management; inconsistent data models, data structures and data definitions; data quality of key data elements are poor; end to end data architecture, systems and controls points are very complex (Ernst & Young, 2013).

A challenge pertaining to the establishment of data stewardship is identifying the group or individual responsible for a set of data. Some data sets are easy to

allocate, for example, the Finance Department may be responsible for the financial data and Human Resources for the employee data but establishing who is responsible for customer data or product data is more challenging (Geiger, 2004).

Not all DG initiatives yield the desired results. Some of the major obstacles that influence the success of a DG initiative include cultural and organisational challenges that can lead to resistance to changes (Oracle, n.d.).

2.7 Conclusion of Literature Review

The literature review revealed that a DG framework is becoming a necessity for organisations, especially organisations in the life insurance industry. This is due to new regulatory requirements that encompass the implementation, embedding and demonstrating of DG across the organisation. It is clear that organisations face many challenges when implementing DG. This stems from a lack of ownership of the DG design and roll-out, a lack of policies and structures and inadequate data quality, to name a few. The biggest benefit of DG is improved data quality which can only be assured through DG initiatives and processes, which provide insight on data issues, resolution, standards and responsibilities. The formation of cross-functional teams within a DG forum allows for the right set of people to take control of data assets and make the right decisions in the context of data quality. Clean, accurate and complete data enables a business to make better decisions in order to achieve their business objectives while complying with regulatory requirements.

2.7.1 *Proposition 1: Benefits*

Implementing a DG framework encourages the understanding and management of data and can provide strategic benefits, a competitive advantage and ensure regulatory compliance.

2.7.2 *Proposition 2: Organisational culture*

Organisational culture and an unwillingness to change have a direct impact on the success or failure of a DG programme.

2.7.3 *Proposition 3: Ownership*

From an accountability and decision rights perspective, clear ownership and accountability for DG initiatives is not formally established.

2.7.4 *Proposition 4: Data governance councils*

A significant gap exists between the constitution of the cross-functional teams or DG councils having the right mix of appropriate individuals from both IT and business functions.

2.7.5 *Proposition 5: Data management standards and policies*

Data standards and policies that guide actions and provide direction about the operational procedures, decision making and data management activities are not clear and consistent.

2.7.6 *Proposition 6: Data quality management*

a) A lack of data quality management and stewardship can lead to financial and regulatory consequences should individuals use poor quality data to make business decisions.
b) The impact of DG and data quality management programmes are being not measured and therefore the benefits gained cannot be quantified.

2.7.7 *Proposition 7: SAM Compliance*

a) SAM regulations cite the adoption of DG practices as the responsibility of the Board of Directors however, compliance with these principles is not always adhered to.

b) As a life insurer, complying with SAM regulations is dependent on being able to embed an appropriate DG structure and data quality management programme across the organisation, however, this is adversely impacted by the complexity of systems and large volumes of fragmented data.

CHAPTER 3. RESEARCH METHODOLOGY

This section outlines the methodology that was used to conduct this research. Firstly, the literature around qualitative research is discussed, followed by a review of the research design and research instrument that was used. Issues of data collection and analysis in relation to this study are provided, followed by a discussion on the validity and reliability of the study.

3.1 Research methodology

This study used a qualitative methodology to gather the appropriate data to answer the research question. Qualitative research focuses on uncovering and understanding the experiences, perspectives and interpretations of people who participate in the study (Harwell, 2011; Jenner, Flick, von Kardoff, & Steinke, 2004; Merriam, 2002). This type of research is usually undertaken when there is a lack of theory around a particular subject (Merriam, 2002) and where there is a preference for global or broad concepts that are complex and open to many kinds of qualifications (Verschuren, Doorewaard, & Mellion, 2010).

Qualitative research is an interpretative and subjective exercise whereby the researcher is intimately involved in the process (Lacey & Luff, 2001). According to Bryman (2012) a qualitative research strategy emphasises words rather than the quantification in the data collection and analysis. Due to the conceptual and exploratory nature of the subject area coupled with a lack of theory on the subject, a qualitative research method is best suited to gathering the data.

Interviews are often used to provide context to other data by offering a more complete view of what happened (Boyce & Neale, 2006). The data was collected in a series of in-depth, open-ended interviews lasting between forty five to sixty minutes. In-depth interviews are one of the most common methods of data collection used in qualitative research (Legard, Keegan, & Ward, 2003).

3.2 Research design

The research design took the format of interviews which is a technique that includes conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular subject (Boyce & Neale, 2006). An open-ended interview allows for a rich, deep and textured picture and is a method of producing topic initiating and follow-up questions (Rapley, 2001). An open-ended interview allows the respondent to reply however they choose (Bryman, 2012).

Although the interview questions were open-ended, the interview itself was semi-structured which means that there was some predetermined order to the questions with some degree of flexibility in the way that issues were addressed by the respondents (Longhurst, 2003).

The advantages of an open-ended interview is that it allows the respondents to answer in their own terms, allows for unusual responses, the questions do not suggest certain types of answers and are useful for exploring new ideas (Bryman, 2012). Disadvantages include answers that may be incomplete or irrelevant (Taylor & Bogdan, 1984), answers have to be transcribed and coded which is extremely time consuming and there is also a great amount of effort required from the respondents (Bryman, 2012).

This method is the most appropriate due to the exploratory and qualitative nature of the study. The open-ended interviews aim to solicit information from respondents based on their knowledge and practical experience on the research topic. The semi-structured format allows the researcher to ask further questions in response to the replies received from respondents.

3.3 Population and sample

3.3.1 *Population*

The population was made up of all organisations that are directly and indirectly related to the life insurance industry.

3.3.2 *Sample and sampling method*

The companies where access was obtained are listed below:

Table 1: Accessible South African life insurance and consulting companies

No.	Company
1	1Life Direct
2	Absa Life
3	Clientele Life
4	Discovery Life
5	Hollard Life Assurance Company Ltd
6	KPMG
7	Professional Provident Society (PPS)
8	PWC
9	Sanlam Sky Solutions
10	Zest Life

There are three broad sample selection strategy categories in qualitative research namely, a convenience, judgemental and theoretical sample (Marshall, 1996). A convenience sample is a technique that involves the selection of the respondents primarily based on accessibility to the researcher and secondarily for their knowledge on the subject (Marshall, 1996; Russell & Gregory, 2003).

As this study is primarily explorative, qualitative and descriptive in nature, a snowball sample also offers some practical benefits (Atkinson & Flint, 2001). A snowball sample produces a sample based on referrals made among people who know of others who possess some knowledge on the research topic (Biernacki & Waldorf, 1981; Noy, 2008).

Both a convenience and snowball sample was used in this study due to the limited accessibility of respondents in the life insurance industry.

From the accessible life insurance companies, one to two team members responsible for the decision making, designing and implementation of DG in their organisations were selected for interviews. Interviews also took place with consultants or practitioners who provide DG services to life insurers due to their insights into challenges that these companies face regarding the implementation of DG. Interviews were requested via telephone and email to the respondents. If the relevant individuals were unavailable in the interview period, a suitably experienced alternate respondent was requested.

Table 2: Profile of respondents

Description of respondent type, e.g. Manager, Union representative, student	Number sampled
Chief Information Officer	2
Chief Operating Officer	1
Group IT Executive	1
Executive: Life Administration and Systems	1
Solutions Architect	1
Financial Director	1
Direct Marketing Manager	2
General Manager: Business Intelligence	1
Consultant	2

3.4 The research instrument

The open-ended interview schedule is provided in Appendix A. The questions were semi-structured and based on the propositions that were derived from the literature review. Each of the questions in the research instrument addressed the various propositions listed in this study. Please refer to Appendix B for the consistency matrix.

3.5 Procedure for data collection

The interviews were pre-arranged with the selected respondent at each life insurance and consulting company. The majority of interviews took place at the respondent's respective corporate offices which assisted in preserving the business environment whilst maintaining business language. The setting also presented an opportunity to observe the working environment of the respondent. Interviews were recorded with the consent of the respondents, as well as hand written notes taken. Observations on the physical surroundings of the office were noted, including office layout, atmosphere and any staff interactions. Data was collected on the body language and gestures of respondents. One interview was conducted telephonically due to the respondent being located in another province.

3.6 Data analysis and interpretation

In qualitative research, large amounts of text based data has to be reduced into a manageable form without losing any entrenched meaning. Furthermore, there is the challenge of making the process of data analysis transparent (Daley, 2004).

There is no one way of qualitative data analysis but rather a variation of approaches related to the different perspectives and purposes of the researchers (Dey, 2003; Elo & Kyngäs, 2008; Kawulich, n.d.). Content analysis is a widely used qualitative research technique (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005; Zhang & Wildemuth, 2009) and is a method of analysing written, verbal or visual communication (Elo & Kyngäs, 2008; Krippendorff, 1989). One of the key assumptions in content analysis is that the examination of text permits the researcher to understand the cognitive schemas of other people (Duriau, Reger, & Pfarrer, 2007). It goes beyond analysing words or extracting objective content from text to evaluating meaning, patterns and themes that may be evident or hidden in the text (Zhang & Wildemuth, 2009). Content analysis is a transparent and flexible method of research (Bryman, 2012).

Cognitive mapping is another method of analysing and presenting data in qualitative research. A cognitive map is a term that is used to illustrate a person's

mental representation of concepts and relationships and can be presented as diagrams or models (Swan, 1997). The maps are a depiction of the thinking around a problem and are usually derived from interviews. Cognitive maps can also be referred to as a method of illustrating the structure and content of a person's mental process (Ahmad & Azman Ali, 2003; Eden, 1992). This technique has gained in popularity as a tool to encourage creative thinking and problem solving (Dixon & Lammi, 2013).

All interviews were analysed using a combination of content analysis and cognitive mapping. The process that was followed for this study started with the transcribing of data obtained from the interviews. Common themes or concepts from each interview were identified and categorised using content analysis and then presented in the form of cognitive maps.

The aggregation of individual maps into a combined cognitive map produces a collective view that no longer a represents the cognition or thinking of one individual (Eden, 1988). Instead it represents common themes and concepts that were identified in the individual maps. The principal themes and ideas pertaining to the individual maps as well as the combined cognitive maps were extracted directly from the interview content without any reference to the literature. This was done to prevent any predetermined notions from influencing the manner in which the ideas of the respondents were presented.

The process of arriving at the combined cognitive map involved analysing the individual maps in great detail to identify the common ideas which were then grouped into themes and fleshed out in more detail in chapter 5.

3.6.1 *Anonymity of results*

Maintaining the anonymity of respondents is believed to be an important aspect of ethical research. Furthermore, data should be presented in a manner that allows the respondents to recognise themselves, while the reader should not be able to (Grinyer, 2009). Anonymity means that the identity of the individuals taking part is not known by those other than the researcher or research team (Ritchie, Lewis, Nicholls, & Ormston, 2013).

For the purposes of this research all respondents were assured of anonymity as the participating respondents work for life insurers that are in direct competition with one another. Respondents were comfortable with this approach and more willing to answer the research questions more candidly.

3.7 Limitations of the study

The study was reliant upon the availability of a small sample of individuals participating in the interviewing process. Gaining access to these individuals and securing their time did present a challenge. Although agreement to contribute was achieved, some interviews were cancelled. Every effort was made to ensure respondents honoured their agreement.

3.8 Validity and reliability

3.8.1 *External validity*

Developing validity standards in a qualitative study presents some challenges due to the necessity to incorporate rigour, subjectivity and creativity into the process (Whittemore, Chase, & Mandle, 2001).

A potential threat to validity in a qualitative study is called ‘researcher bias’ which results from selective observation and selective recording of information. Reflexivity, which is self-awareness and critical self-reflection pertaining to biases and predispositions (Johnson, 1997), was applied to this study to attempt to prevent any researcher bias.

External validity refers to the extent to which findings can be generalised (Bryman, 2012; Cohen & Crabtree, 2008; Merriam, 1995). Thick descriptions were used to promote external validity in this study. Thick descriptions involve providing enough information about the study so that readers will be able to determine how closely their situation matches the research situation (Merriam, 1995).

3.8.2 *Internal validity*

Internal validity ensures that the data collection process is uniform throughout and asks if the study investigates what it is meant to (Malterud, 2001). It refers to whether or not there is a good match between the researcher's observations and the theoretical ideas that they develop (Bryman, 2012).

Internal validity in this study was promoted through member checks whereby the data collected from the respondents and the interpretations thereof, was taken back to the respondents to confirm that the interpretations were plausible (Cohen & Crabtree, 2008; Merriam, 1995).

3.8.3 *Reliability*

Reliability is the consistency of the research findings (Long & Johnson, 2000; Malterud, 2001). Due to the subjective nature of qualitative research, there needs to be more rigour in the researcher's actions which can be attained through the concepts of validity and reliability (Morse, Barrett, Mayan, Olson, & Spiers, 2008). External reliability is the degree to which the study can be replicated and internal reliability is when there is more than one observer or member of the research team (Bryman, 2012).

Reliability in this study was assured through an accurate research instrument that was tested on a trial respondent prior to the actual interviews being conducted. Refinements were then be made to ensure that appropriate data was obtained from respondents.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

The results of the in-depth interviews that were conducted are presented in this chapter in the form of cognitive maps. Interview recordings were transcribed, analysed and then mapped out to present the views of the respondents in a succinct and easy to follow manner.

4.1.1 *Guideline for reading cognitive maps*

Cognitive mapping is not a methodology per se, it symbolises a collective term for a set of techniques that permits the researcher to produce a graphical illustration of an individual's understandings of a particular issue (Ahmad & Azman Ali, 2003). It is a modelling technique derived from George Kelly's theory of personal constructs (Eden, 2004). The map itself attempts to capture the language of the respondent by noting distinct phrases from the interview.

The map consists of pieces of text that are connected with unidirectional arrows. As cited in Eden (2004, p. 673) "the maps are a network of nodes and arrows as links where the direction of the arrows implies believed causality". Lines without arrows represent a non-causal link.

The central term of 'implementing DG' has been represented in each cognitive map to provide a starting point for reading the maps.

4.2 Cognitive Maps

Cognitive maps for the twelve interviews that were conducted are detailed in this section of the report. The respondents and associated companies are not named in order to maintain anonymity.

The maps are used to present the results of the interviews without any obvious classification of themes (although these are naturally evident in the grouping of

the phrases). The next chapter discusses and explains in detail the common themes which are evident in the maps.

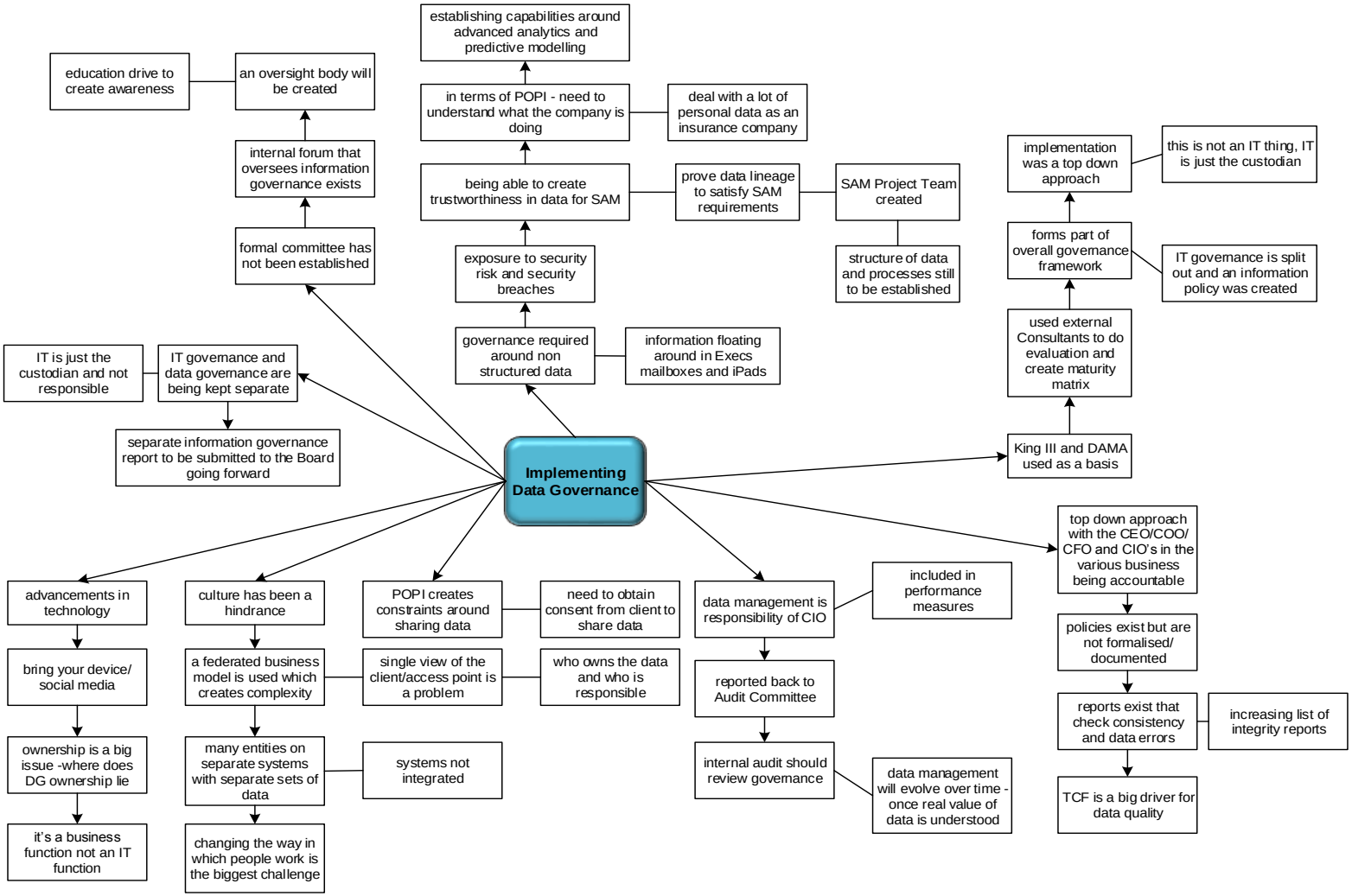

Figure 5: Cognitive map for interview 1

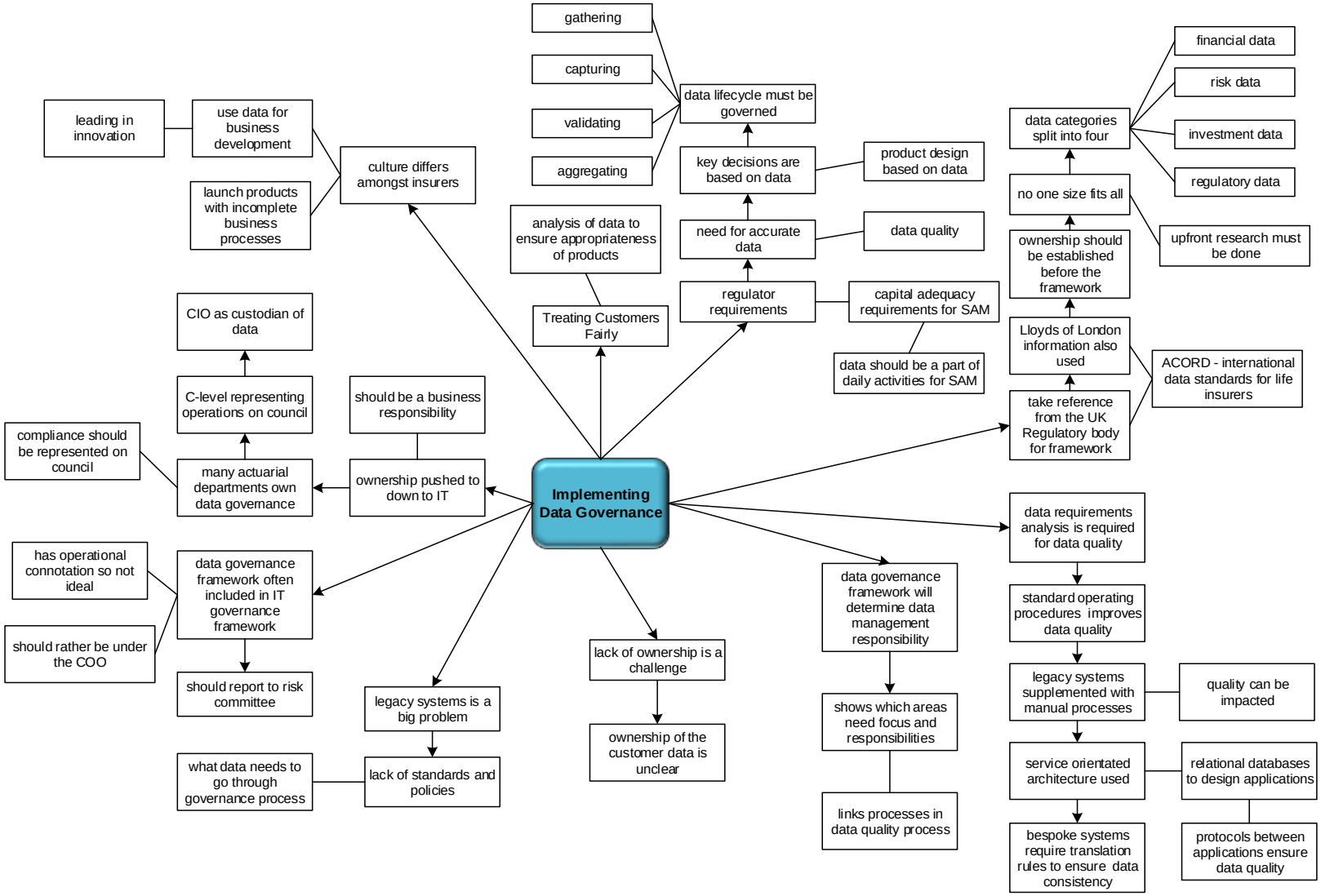

Figure 6: Cognitive map for interview 2

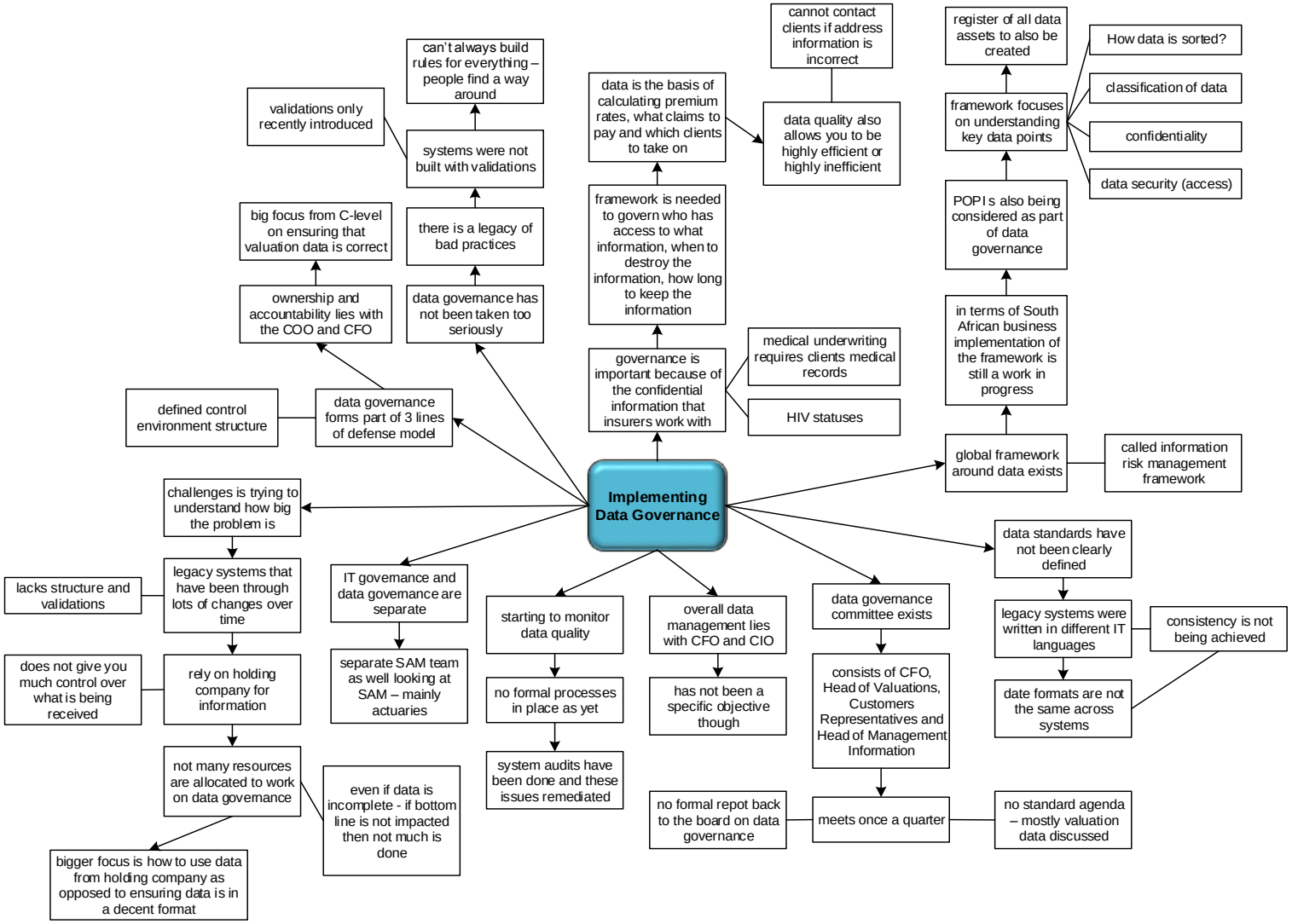

Figure 7: Cognitive map for interview 3

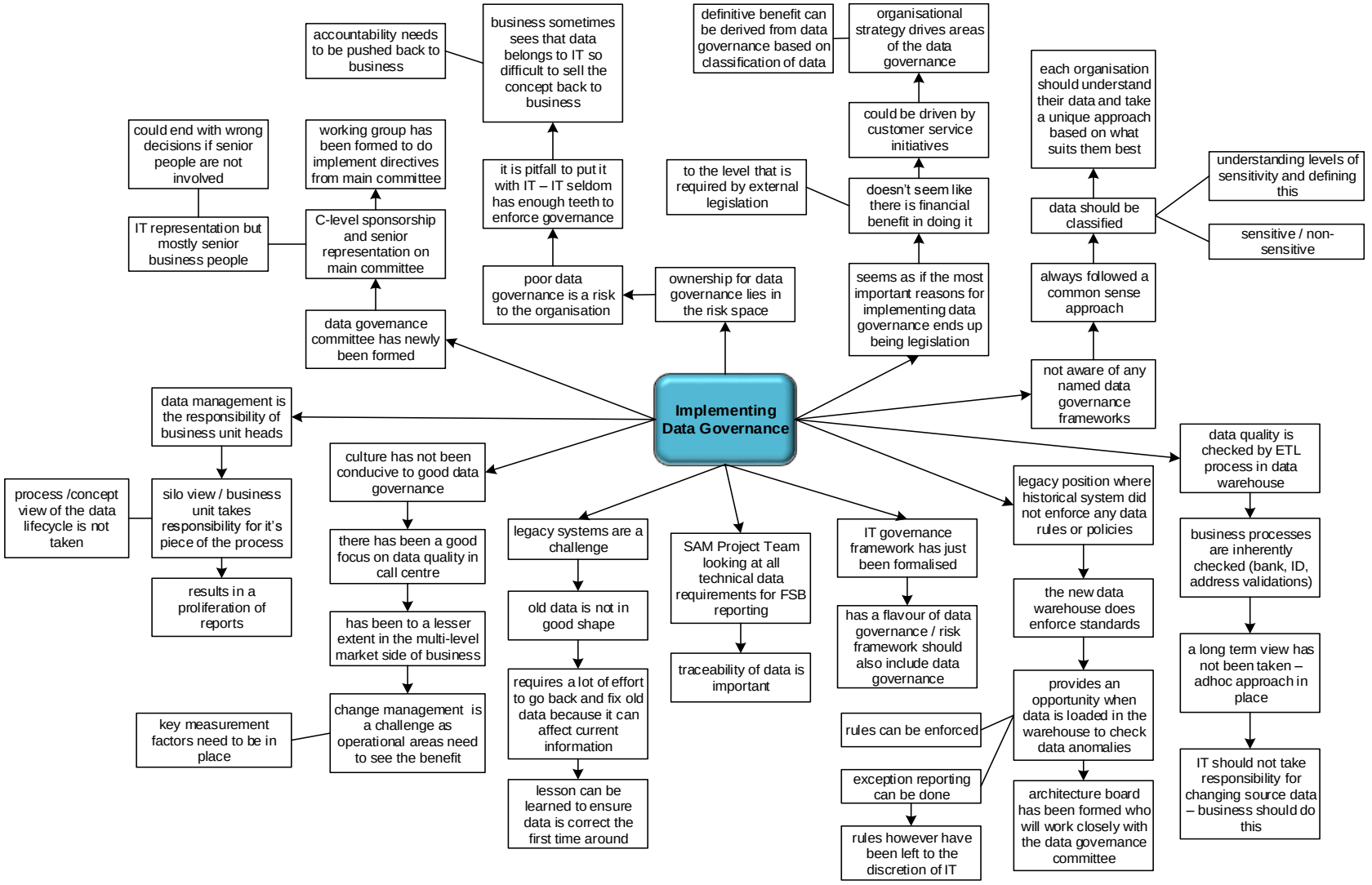

Figure 8: Cognitive map for interview 4

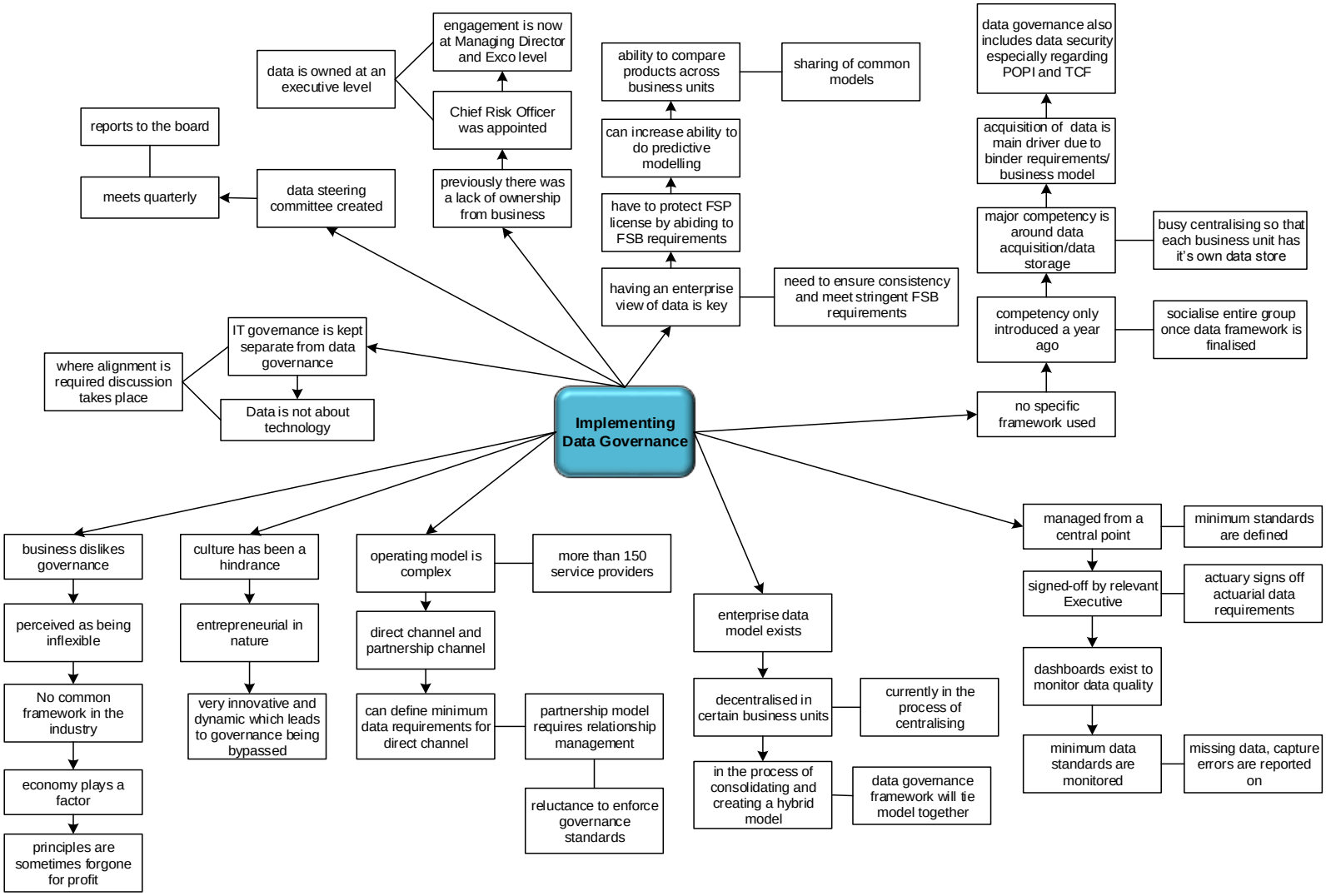

Figure 9: Cognitive map for interview 5

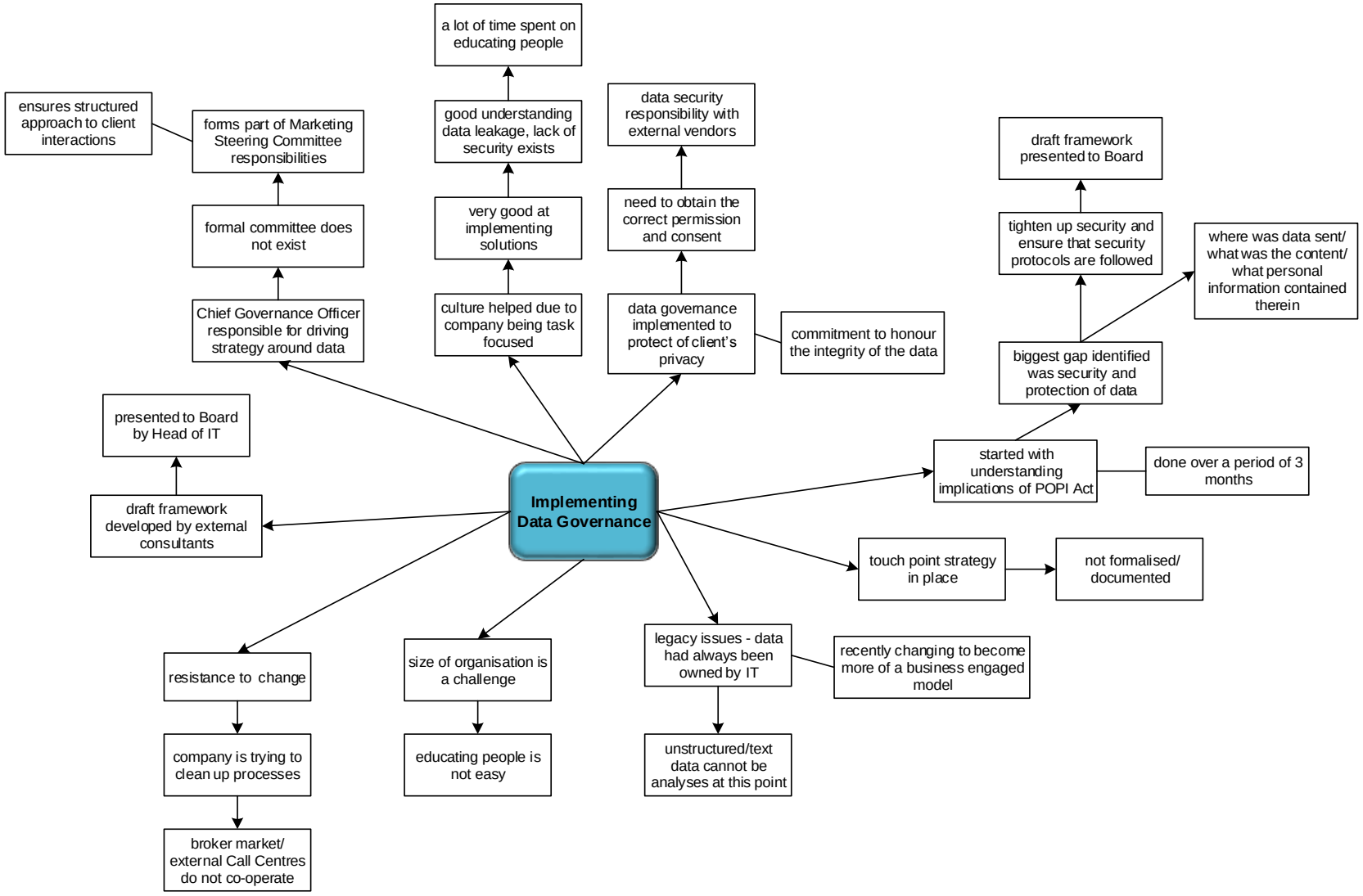

Figure 10: Cognitive map for interview 6

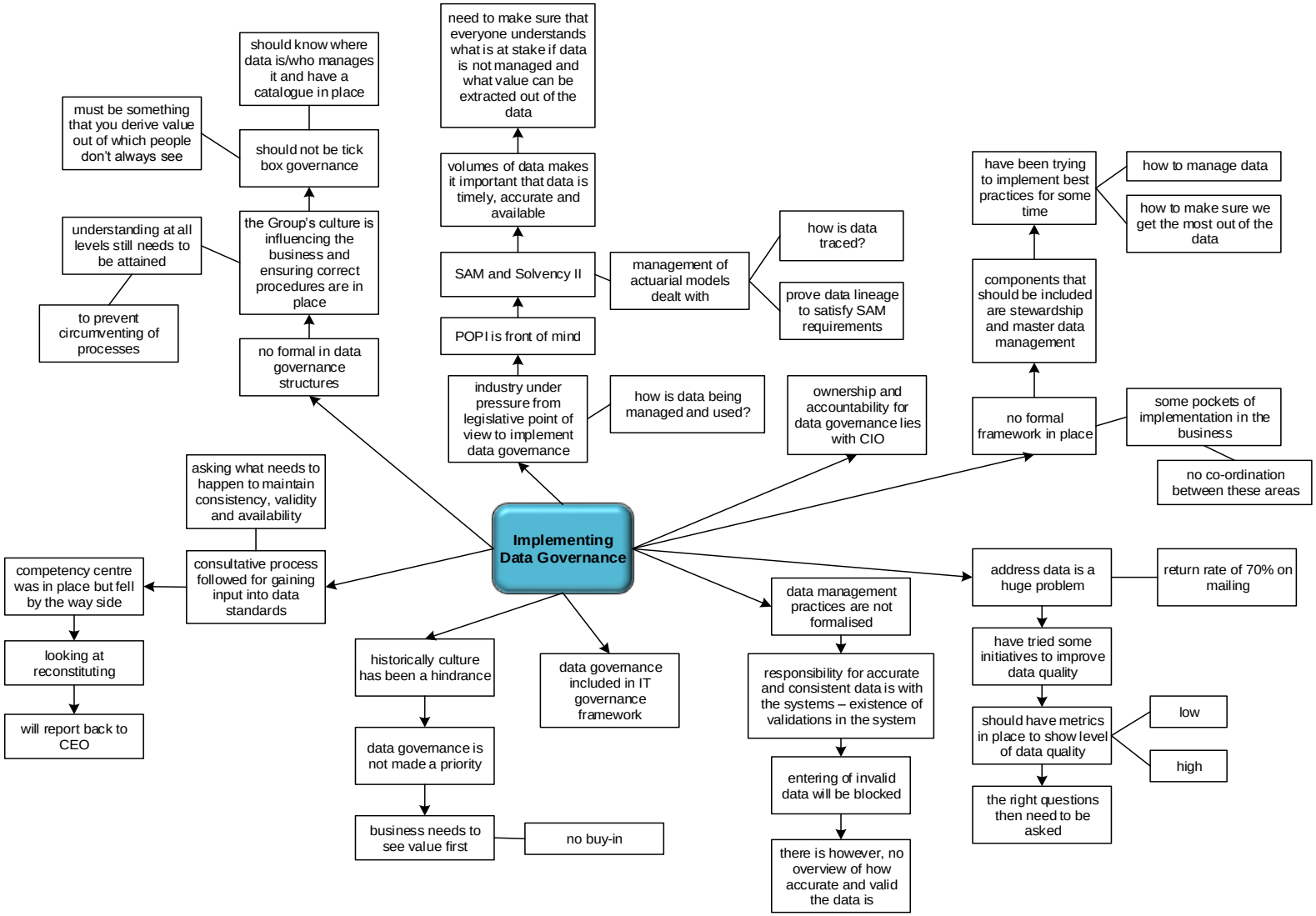

Figure 11: Cognitive map for interview 7

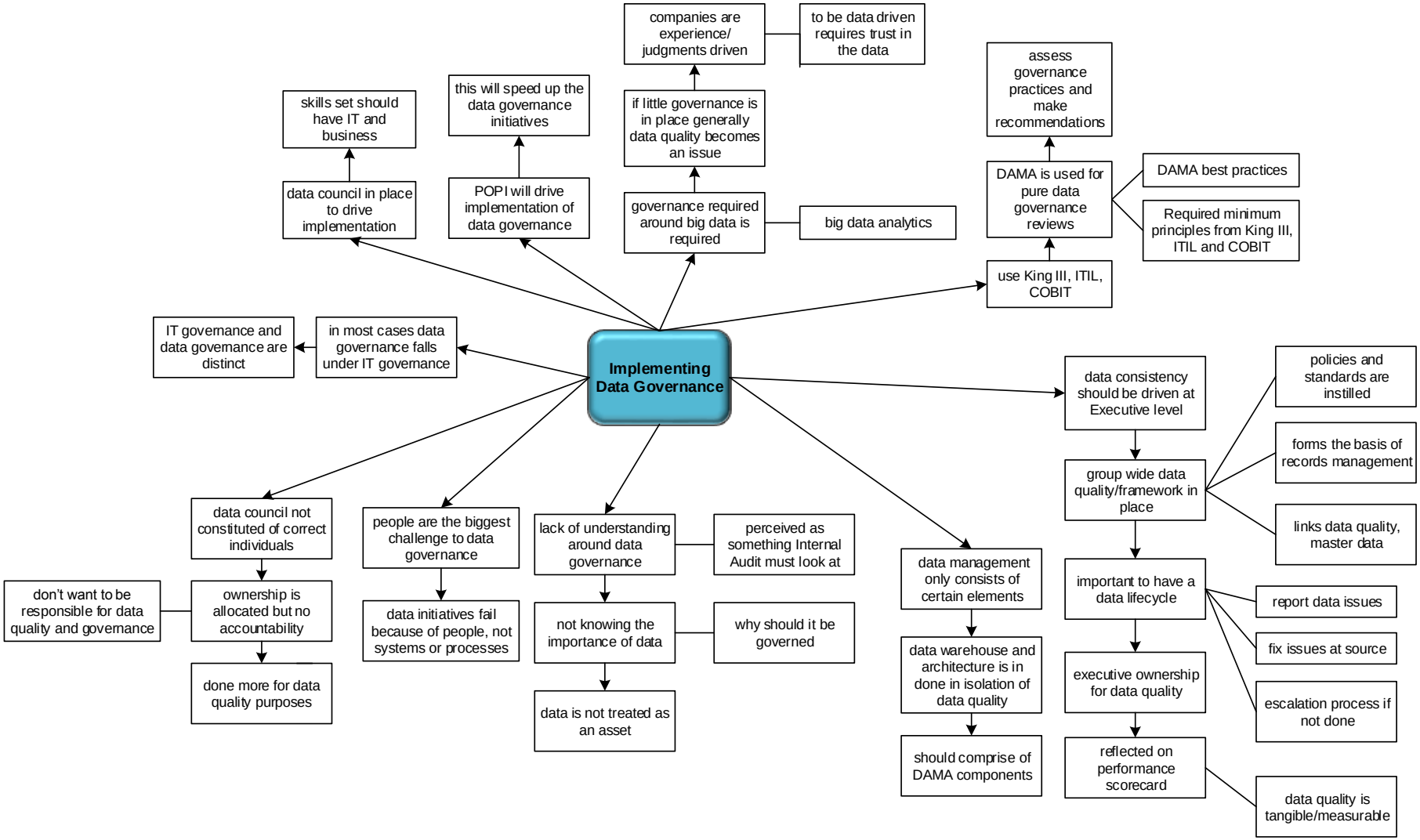

Figure 12: Cognitive map for interview 8

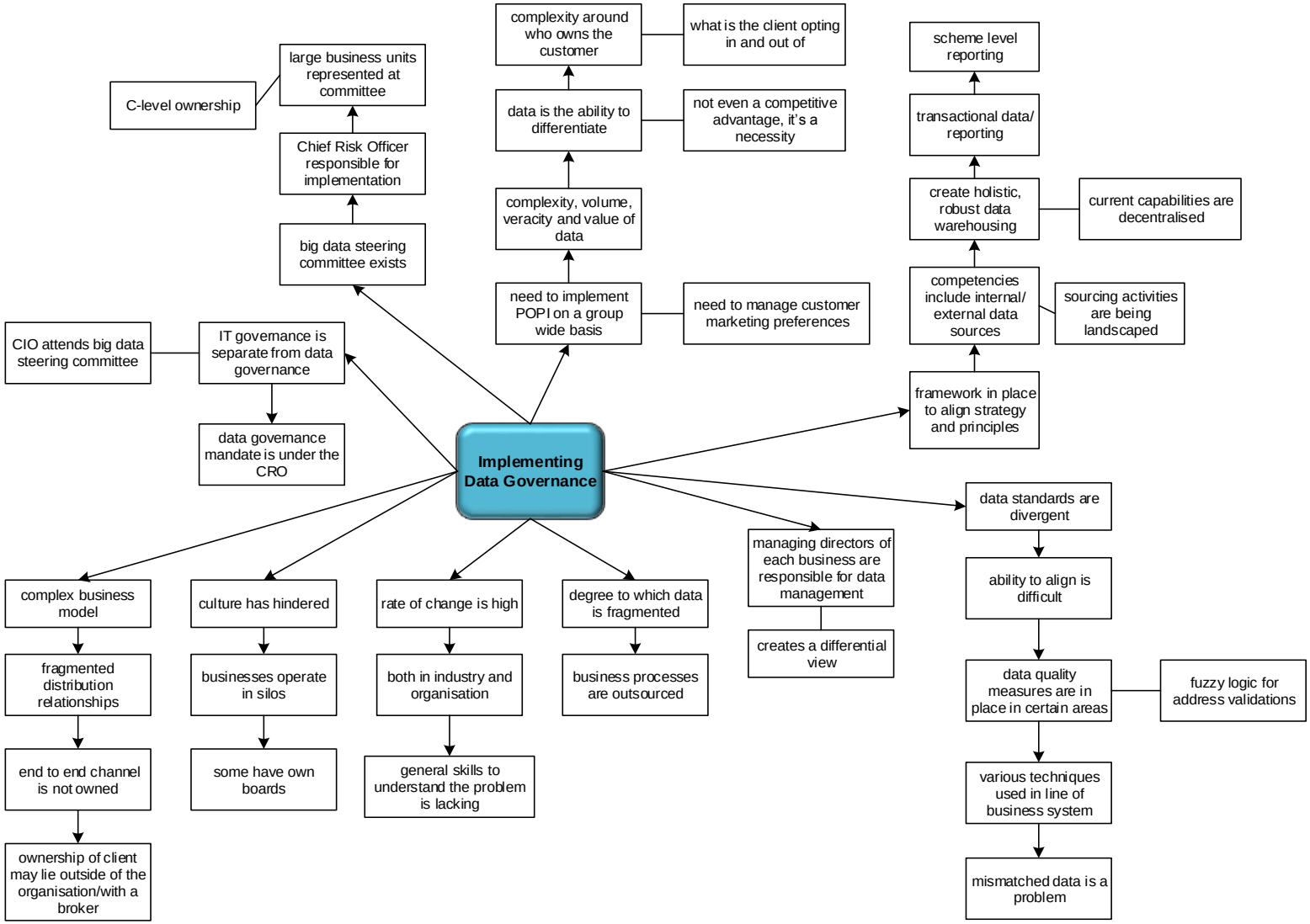

Figure 13: Cognitive map for interview 9

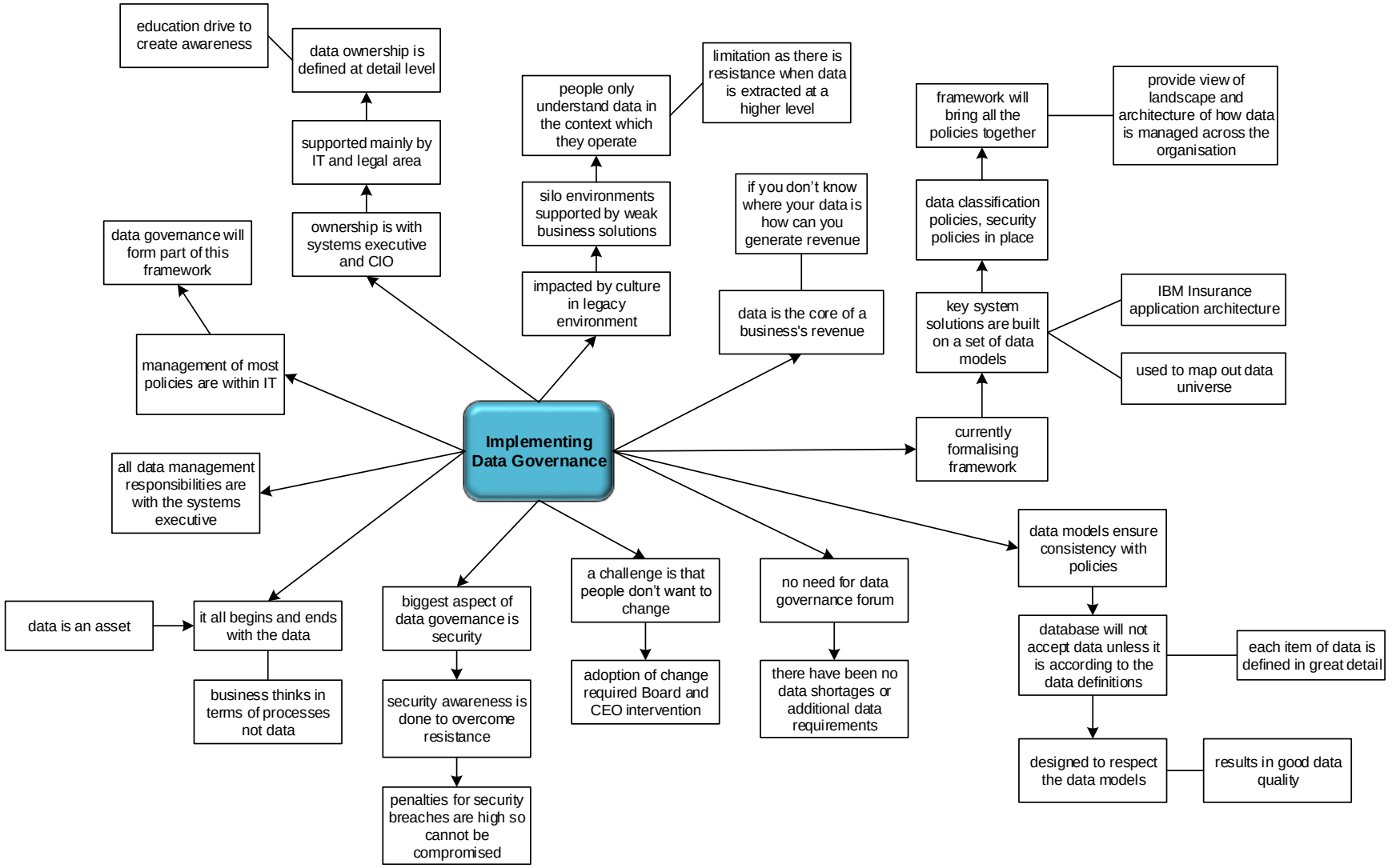

Figure 14: Cognitive map for interview 10

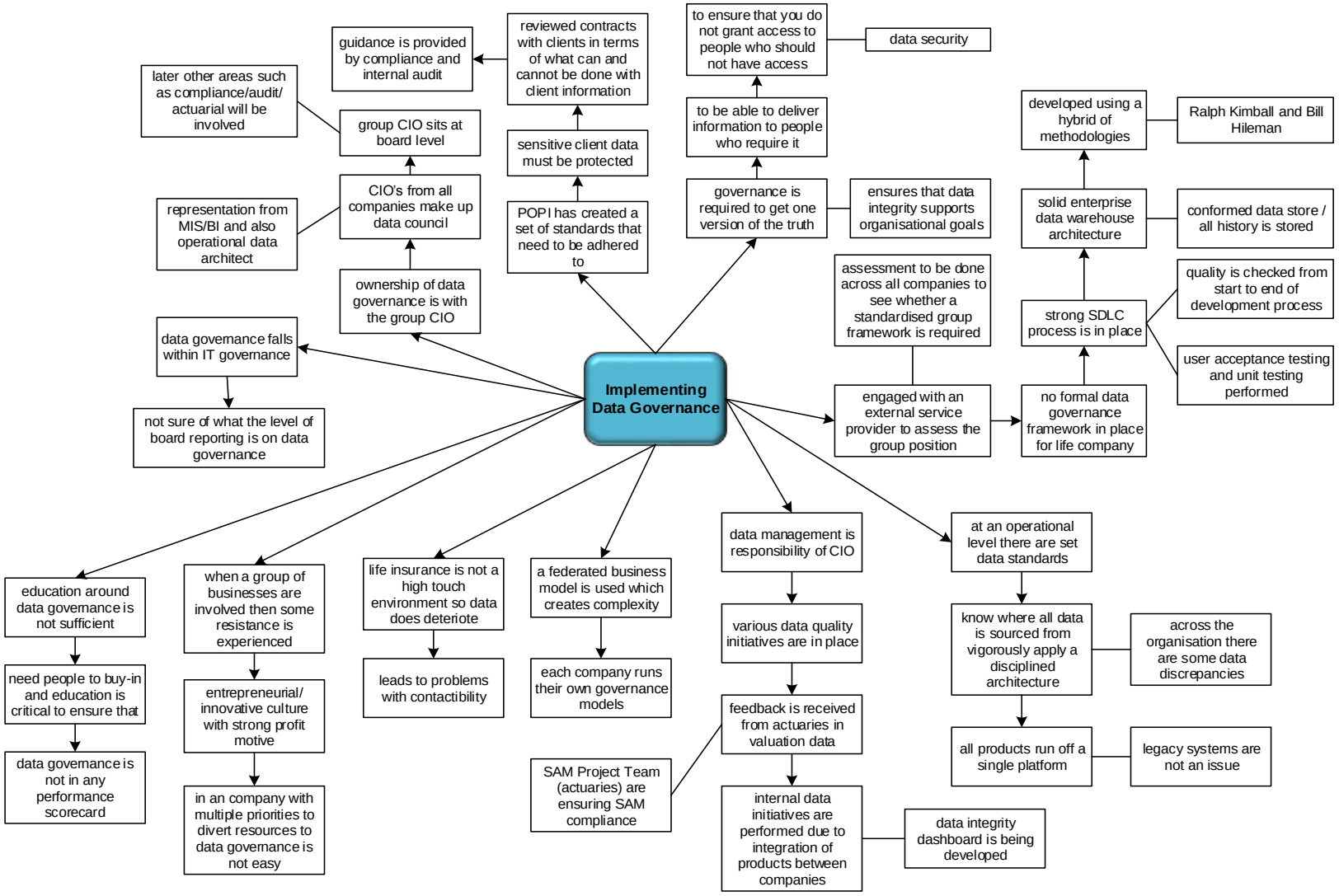

Figure 15: Cognitive map for interview 11

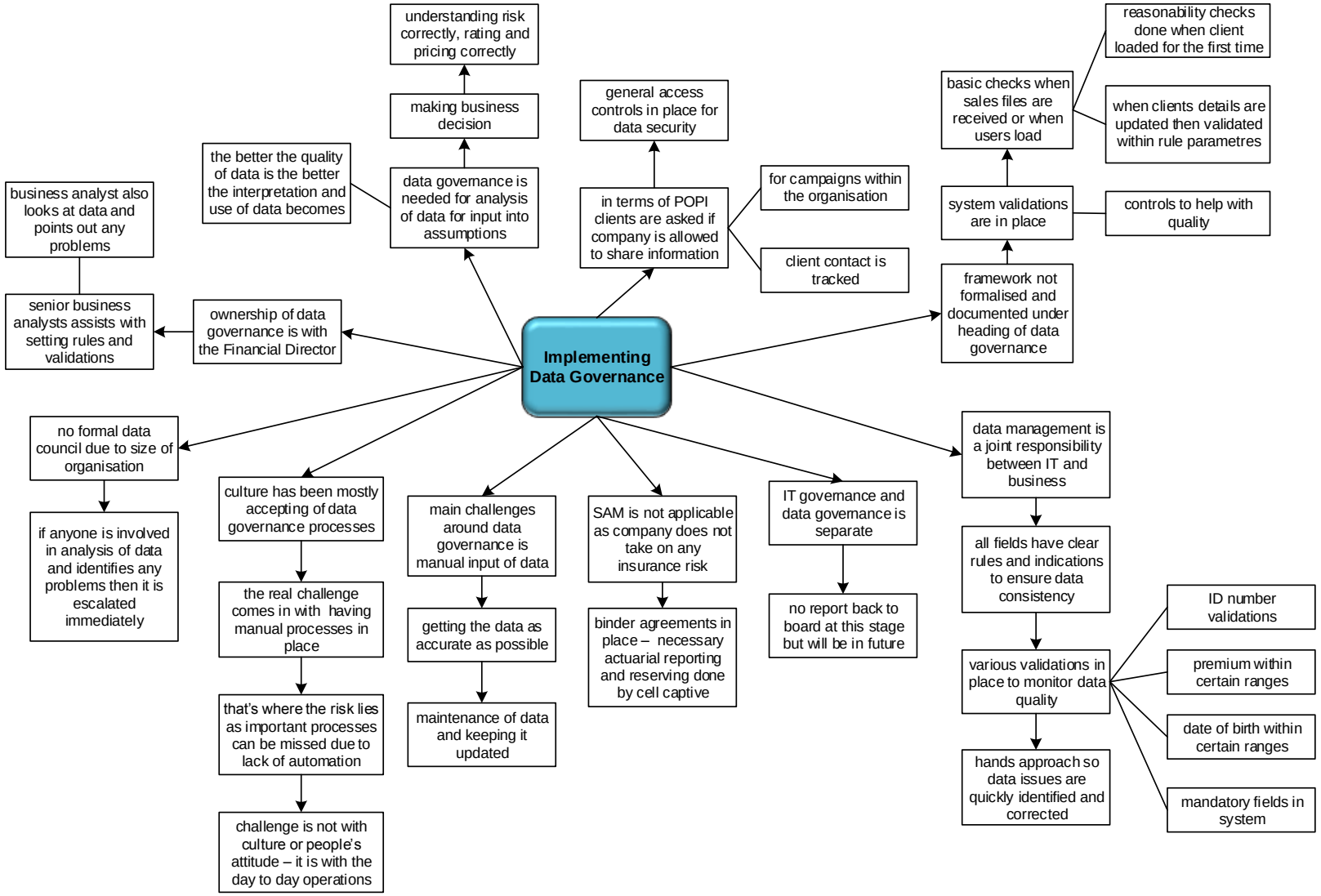

Figure 16: Cognitive map for interview 12

CHAPTER 5. DISCUSSION OF THE RESULTS

5.1 Introduction

In this chapter, the views and opinions of the respondents which have been expressed as facts, are discussed. A combined cognitive map representing the key concepts and common research themes that were identified is presented. The final section of this chapter examines the findings in relation to each of the propositions.

5.2 Combined cognitive map

The figures that follow represent a combined cognitive map which portrays the common themes and concepts that were identified from the individual maps. Figure 17 is a high level overview of the main themes which are explored further in the subsequent two maps.

The use of colour coding in Figure 17 was used to provide some guidance to the reader when reading Figures 18 and 19. Each of the coloured blocks in Figure 17 are expanded on in Figures 18 and 19 and discussed in detail. It is important to note however, that the themes are a useful mechanism in understanding the various issues but are in no way mutually exclusive. Although the themes are illustrated independently, it is important to note that they are interlinked in a more complex manner than shown in the diagrams.

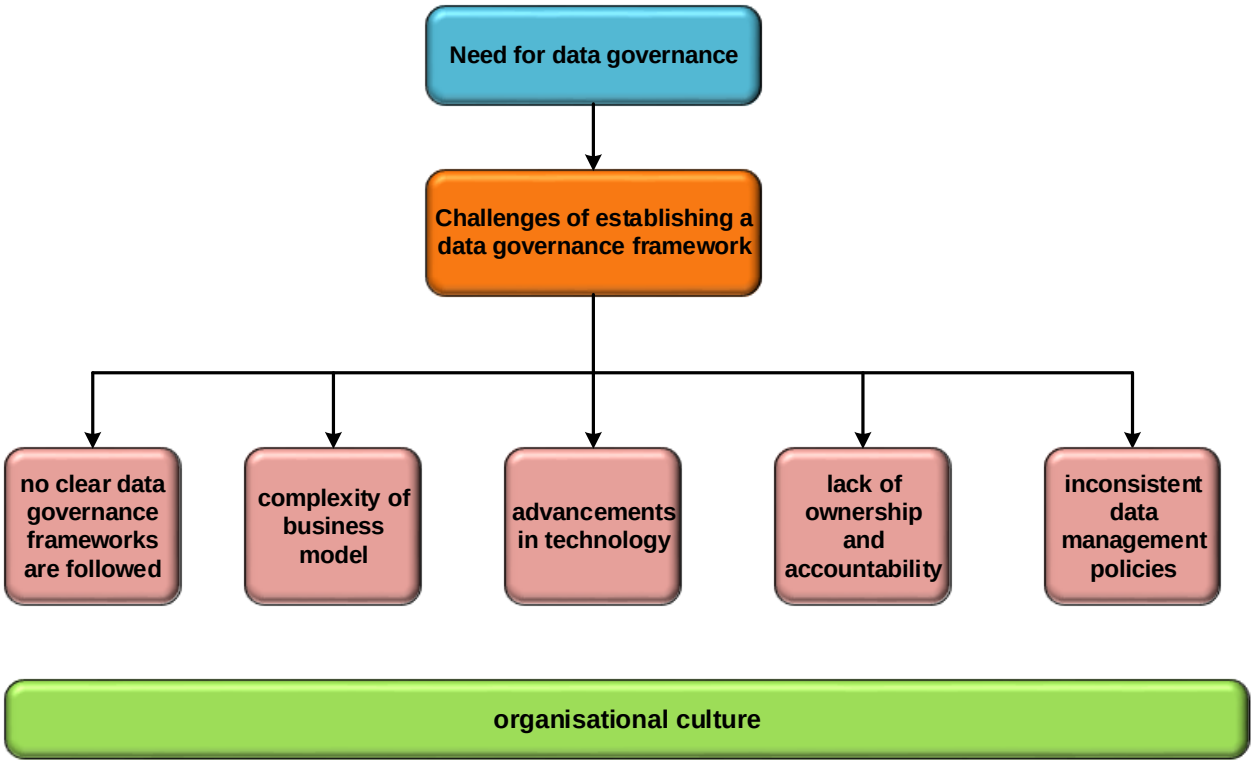

Figure 17: Key elements of the combined cognitive map

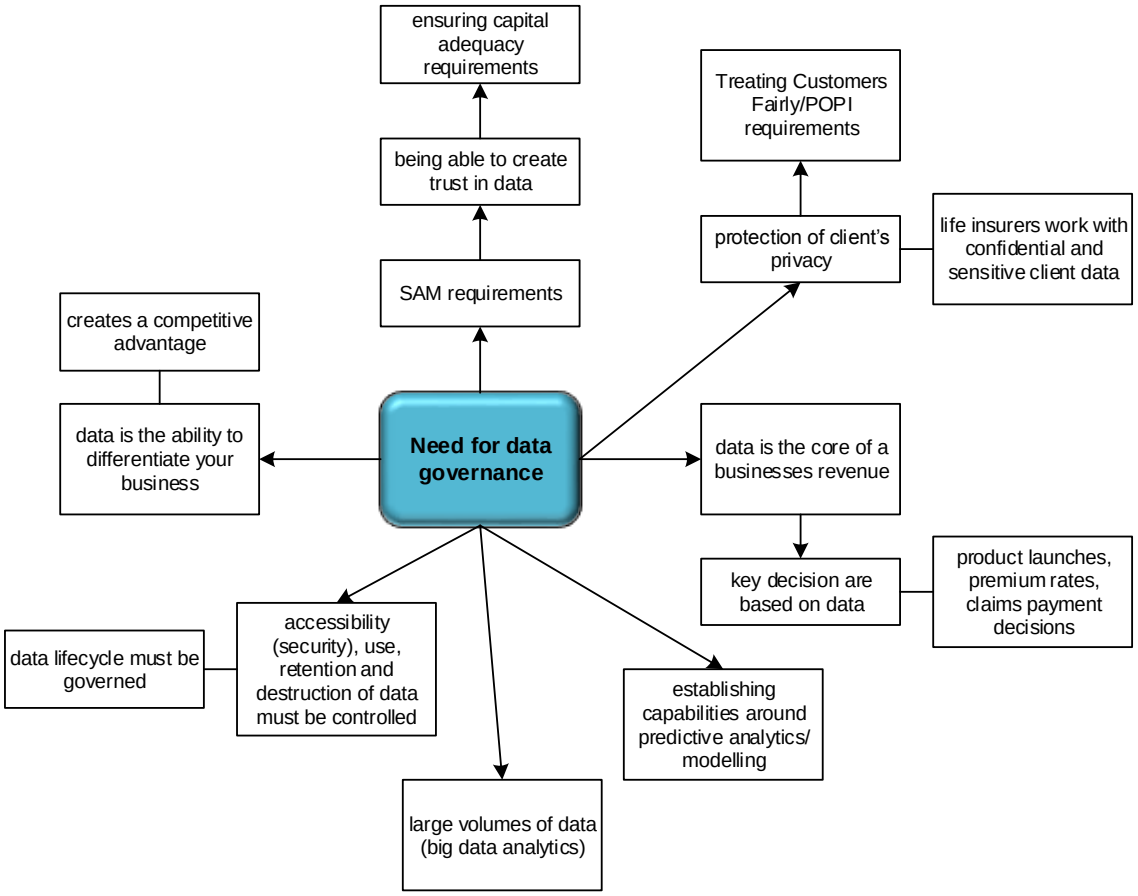

Figure 18: Element of the combined cognitive map – Need for data governance

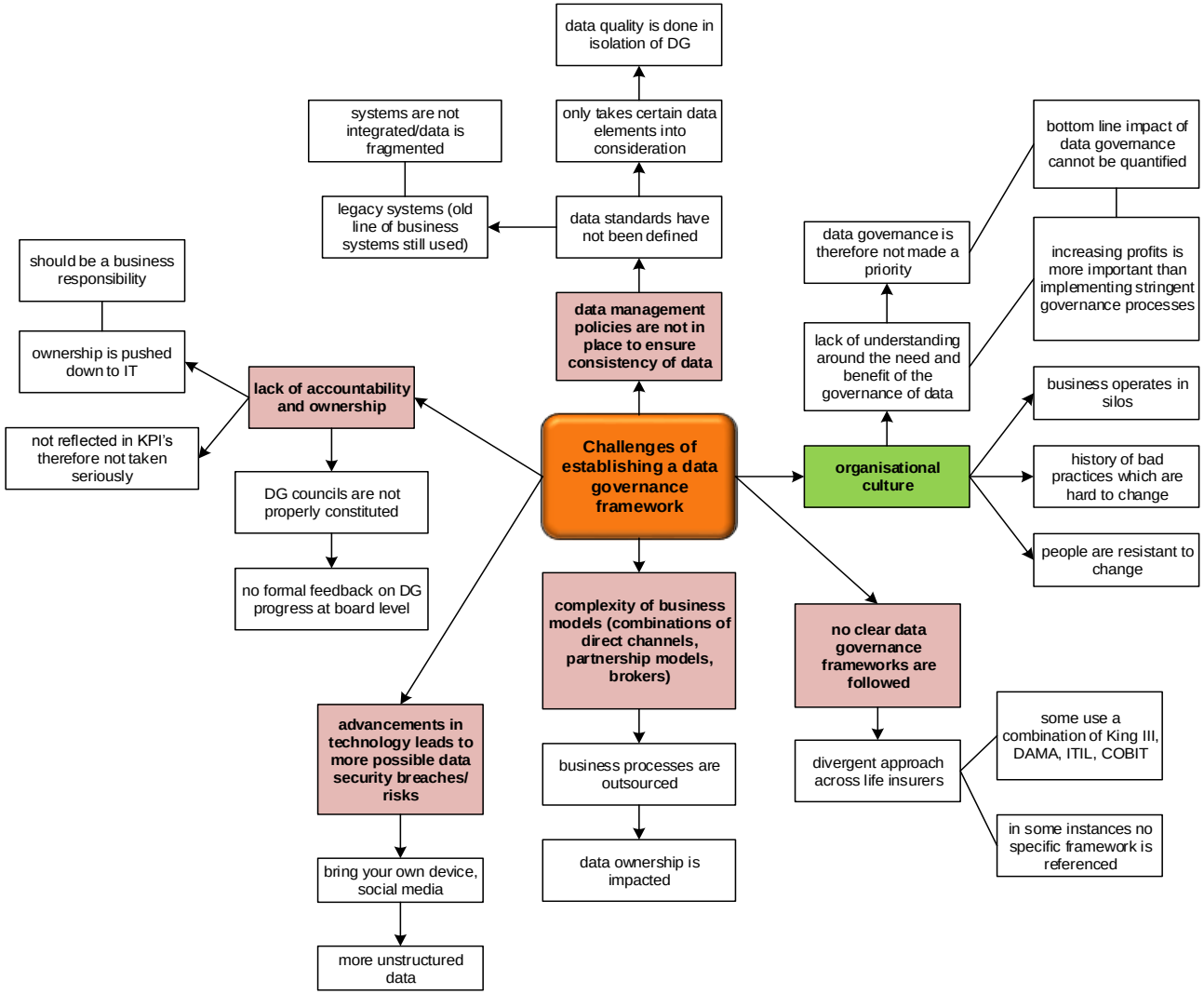

Figure 19: Element of the combined cognitive map - Challenges of establishing a data governance framework

5.3 Analysis of results

5.3.1 *Structure of the discussion*

The section discusses the propositions relative to the research findings and where applicable relates this back to the literature review. The main themes that were identified in the combined cognitive maps in the previous section forms the basis of the discussion.

Some of the themes or concepts that emerged from the analysis of the cognitive maps do not match the propositions exactly. There is also some overlap between the various themes and the propositions, and in certain instances the discussion of the themes is related to more than one of the propositions.

5.3.2 *The need for data governance*

This theme ties in with the first proposition pertaining to the benefits of DG. Although many challenges regarding the implementation of a DG framework or programme within the life insurance industry have been revealed through the interview process, the need for a DG framework on the other hand has surfaced as unquestionable. It was clearly evident that respondents, irrespective of the size of their organisation, were in agreement about the necessity of a DG framework.

A number of respondents expressed the view that data is an asset and a source of competitive advantage. This is in line with the opinions of various researchers and practitioners such as el Abed, Khatri and Brown, Marsh, Niemi, and Soares who have been cited in the literature review. Respondents generally believed that data allows companies that are in the life insurance industry to differentiate themselves and also provides a competitive edge. The more you know about your customer, the better you can service them. Other key decisions such as premium pricing, product launches and claims payment decisions also have to be based on good quality data that is appropriately governed.

The protection of client's privacy with reference to the POPI Act was mentioned as a reason as to why DG should be implemented. Insurer's collect and store sensitive client information such as medical records and HIV status. Even though the regulations pertaining to POPI have not yet been published, it was mentioned that life insurers have a commitment to honour and service their clients first and foremost. They also have to protect and honour the integrity of their client's data.

Reference to the Treating Customer Fairly policy was also made by respondents. In 2010 the FSB implemented a programme for regulating the market conduct of financial services companies, called Treating Customers Fairly (TCF). The TCF policy ensures that the fair treatment of customers is entrenched within the culture of financial services organisations (BRC, 2011). There was a view that client's data should be treated with respect and insurers should ensure that client's personal information is not negligently used or divulged in any manner.

Some of the respondents felt that the SAM requirements were a good reason to ensure that DG is in place. The ability to create trustworthiness in the data is crucial, as well as establishing the lineage of the data that must be submitted to the FSB. The data that is also used to determine the capital adequacy requirements needs to be accurate. Accurate information requires proper DG and data quality under the SAM regime. The respondents' view towards DG and SAM requirements is consistent with the view of both PWC and Ernst and Young as noted in the literature review.

It was mentioned that it is important for the entire data lifecycle to be governed and in order to do this there needs to be a framework in place that defines how data is secured, who has access to the data, how the data is stored, archived and eventually destroyed. From the point of gathering, validating, capturing, aggregating and reporting on the information; governance needs to be applied throughout. One respondent expressed an interesting opinion citing that "if companies want to move to a point where they can become truly data driven instead of almost judgmental or experience driven, they need to make sure that they can trust the data that they have. The only way this can be done is by setting up proper governance structures around the data".

Several of the respondents raised the point around big data. One of the respondents defined big data as “the ability to interpret large volumes of data and diverse data from different sources”. Insurers collect a lot of data on their customers through social media and other mediums with the goal of using this information to increase revenue through more focused marketing efforts, better risk profiling and being able to offer the right product to the right customer at the right time. The challenge is that this type of data is mostly unstructured (contains text, dates and other formats) which requires DG to bring in a structured approach to storing, accessing, analysing and using the information.

A few of the respondents touched on the point of establishing capabilities around advanced analytics and predictive modelling as another reason for establishing a DG framework. Understanding the data, looking at patterns and getting to a point where more predictive modelling can be done is becoming key to improving risk profiling and product pricing, which improves an insurer’s competitive advantage.

5.3.3 *The challenges of implementing data governance*

5.3.3.1 *Organisational culture*

The theme of organisational culture links directly to the second proposition. One of the challenges noted in the literature that was cited by the majority of the respondents was that organisational culture has an overwhelming impact on the success or failure of a DG initiative. In most instances, respondents noted that the organisational culture and people’s resistance to change was a hindrance to the success of DG efforts.

Several respondents pointed out that there was often a history of bad practices within their organisations due to an entrepreneurial approach to product launches and marketing initiatives. Insurers have become very innovative and dynamic which has led to governance processes being bypassed in the pursuit of market share by trying to be first to market with innovative ideas. According to one respondent, “governance processes are thought of as the ‘handcuffs’ on the organisation’s entrepreneurial spirit so the adoption of governance is slow”.

A shared view was that people are the biggest challenge to the success of DG. They are resistant to change and do not see the value in managing data correctly. One respondent felt that there is an understanding at a higher level which is not filtered down to the people who are expected to do the work. Buy-in is not obtained and people do not commit to following governance processes.

A few of the respondents also commented on the fact that efforts from DG are not always quantifiable which makes it a lower priority than initiatives that can directly improve the bottom line. This speaks to the underlying 'profit seeking' culture that exists.

People want to own the data when it suits their processes but do not want to be responsible or accountable for data, in particular the quality and governance aspects around those components of the data. So whether it is data quality or DG, these initiatives fail because of people not because of technology or processes.

The use of a federated model in the life insurance industry means that many life insurers end up operating in their own way even if they are a part of a bigger group. Often individual business units are largely ring-fenced and operate according to their own agenda and even have their own boards of directors. The culture in each business varies with each business unit having a differing appetite and approach towards DG processes.

Figure 17 illustrates the point that even though there are many challenges that are encountered around the design and implementation of DG, organisational culture is the one factor underlying all others. If the culture is not conducive to the implementation of DG then any initiative that is undertaken will not be very successful.

5.3.3.2 *No clear frameworks are followed*

Divergent views were expressed when respondents were asked what, if any, DG framework they have followed when designing and rolling-out their DG programmes. From the few respondents who did have a framework in place, no reference was made to any one framework in particular. Elements of King III and

the Data Management Association's (DAMA) Body of Knowledge Guide were mentioned however, in most cases respondents were still in the process of formalising their DG framework.

Due to the business model that is used by some insurers, one of the competencies within the DG framework is data acquisition and sourcing. Essentially all data sourcing activities were landscaped and time was spent defining and understanding all the various external and internal data sources. Other competencies that respondents felt should be included in a DG framework were data stewardship, data classification, data security, master data management, data quality and creating more robust data warehousing capabilities.

The respondents from the consulting companies mentioned using specific frameworks when performing DG reviews at life insurers. The one consulting company uses the DAMA Body of Knowledge principles. The other consulting company takes reference from United Kingdom's Financial Conduct Authority (FCA) which is equivalent to South Africa's FSB. This company also uses the Association for Cooperative Operations Research and Development's (ACORD) data standards. ACORD is an overseas non-profit organisation that enables the development of open consensus data standards and standard forms for the insurance industry (ACORD, 2015).

5.3.3.3 *Complexity of business models*

The complexity of the business or operating models used by life insurers having a direct impact on how DG is tackled and rolled out came across quite strongly from the interviews. In some instances, a federated model is used and in other instances, a combination of brokers, direct marketing channels and partnership models are used. One respondent also mentioned that some of their business processes are outsourced so data is fragmented along the supply chain. The above-mentioned operating models create a challenging landscape when trying to standardise data models and implementing a group-wide philosophy to the way in which data should be managed and controlled. Organisational culture has a major impact when a federated model is used because business units generally

operate in silos. Ownership is difficult to determine in a Broker and partnership model because the customer data is sometimes not owned by the company. In some instances, the company may be the underwriter and in other instances, the company may just be the distributor or be involved in a partnership where profits are shared. This influences how much control the main company can exert over the data, the standardisation and governance thereof.

5.3.3.4 *Advancements in technology*

A few of the respondents mentioned that the advancements in technology were becoming an increased risk to data and data security. The more digitised companies are becoming, the greater the exposure to security threats over data are. In addition to this, companies allow employees to use their own mobile devices (tablets and smart phones) to work on. The challenge around this is protecting the data that exists on these mobile devices. Should the device be stolen or lost, the company should be able to recover or delete the data off the device. These security protocols should form part of the DG agenda.

Social media is also a popular platform for collecting customer data. This results in more unstructured data pertaining to customers, which is independent of any line of business systems, which has to be controlled, secured and governed.

5.3.3.5 *Lack of ownership and accountability*

Other than overcoming the organisational culture and resistance to change, establishing ownership and accountability was widely viewed as the next biggest hurdle to the successful implementation of DG. The ultimate conundrum is who owns the data. Ownership implies control over the data meaning that one can authorise or deny access to data and is responsible for the accuracy and integrity thereof. The challenge arises when ownership over certain data items such as customer and policy data has to be established. Some respondents stated that ownership still lies with the IT department at a Chief Information Officer (CIO) level. Others mentioned that it lies with a C-level Executive in business.

In companies where ownership of DG was with IT, respondents felt that ownership for DG should be a business function and not an IT function. There

should be collaboration with IT however, decision rights over data is a business responsibility with IT only being the custodians of the data. Trying to get that mind-set shifted is difficult because when people think of data, they think of IT. Data is a risk management and control issue because data poses a strategic and operational risk to the business. These points resonate with those identified in the literature, particularly those made by Griffin, Dyché and Smith and Mckeen.

A means of creating accountability for DG is through the formation of a council or committee. The concept of creating accountability for DG is a key aspect mentioned by Dyché, Karel, Soares and Khatri and Brown in the literature review. In most instances respondents had a DG forum at their organisation. The minority of respondents had a formally constituted DG committee reporting back to a Risk Committee or Board of Directors. Others had an informal committee with no official feedback loop to a higher committee. One life insurer did not see the need for a DG forum or committee.

Several respondents mentioned that because DG is not reflected on any performance scorecards, it is not taken as seriously as it should be and it does not get the necessary attention that is required.

5.3.3.6 *Lack of clear data management policies and standards*

The overall responsibility for data management mostly rested with IT however, in a few of the organisations this was a shared responsibility between IT and a C-level Executive. It was evident from some of the respondents' answers that a clear understanding of what data management encompasses was lacking. Data management is also not being approached from a holistic perspective and only certain elements of data management practices are being applied. A DG framework should determine the data management responsibilities however, most respondents noted that their data management policies are not formalised or that data standards are divergent across the various business units, making it challenging to align or ensure consistency of data across the organisation. This is consistent with the views presented by Chaudhary et al. (2013) in the literature review where it is stated that financial institutions lack a clear data management strategy in the form of a DG framework.

Another contributing factor to inconsistent data standards is the existence of legacy systems or old line of business systems. This was mentioned by several respondents as an impediment to DG initiatives and also a contributor to the complexity of the systems and data architecture. Older systems were in most instances not integrated with newer systems and did not have the same level of validation controls (standard date formats, ID digit checks, etc.). One respondent mentioned in that "the use of different line of business systems that sit on different server platforms that are fundamentally different in nature makes the ability to roll out a DG framework exceptionally difficult".

According to the views of Eckerson, Moseley, Mosley and Kathri and Brown that were noted in the literature review, there is consensus that data quality should form part of the overall DG framework. This was found not to be the case with most respondents when asked about the data quality initiatives within their organisations. Almost all respondents indicated that there was some form of data quality initiative or programme in place to monitor and measure data quality which happens outside of any DG framework or structure. This is consistent with a study noted by Russom (2006) in the literature review stating that many organisations practise data quality in some sense, however, this happens in isolation without the collaboration of IT and business professionals who understand the data and its business purpose.

Two of the respondents mentioned that data quality deteriorates over time. One respondent in particular stated that "life insurance is not a high touch environment so the data becomes outdated which erodes the value of the data. This results in problems with contractility".

Data quality initiatives amongst the respondents varied from listening to sales calls, bank validations, address validations, exception reporting to check consistency and data errors, the existence of data models to ensure conformance to certain standards and dashboards to monitor data quality.

The responsibility for data quality monitoring and measurement was however, found to be quite contrary amongst the respondents. In some instances the Management Information Systems (MIS) or Business Intelligence (BI) team

would monitor data quality. In other instances the Data Warehouse team or IT in general were responsible. It is evident that data quality is seen to be predominately an IT responsibility, however, the comments noted in the literature review by Haug and Arlbjørn (2011) state that there are numerous negative effects to business users as a consequence of poor data quality. This includes lower customer satisfaction, increased operating costs, inefficient decision making processes and lowered employee job satisfaction all of which are business related problems, not IT related problems.

The role of a 'data steward' is also one that is not widely used amongst the life insurers that were interviewed. One respondent made an interesting remark that "the concept of data stewardship has a negative connotation in the South African market, whereas it is quite a high powered, generally highly paid position elsewhere in the world".

5.3.3.7 *Board responsibility for DG*

A majority of the respondents noted that DG is being kept separate from their IT governance framework. IT governance is usually reviewed annually however, there was no independent review of DG initiatives at the life insurers that were interviewed. This is consistent with what IBM (2011) mentions in the literature review, that DG audits are not generally included in the scope of work performed by external or internal audit.

There is no formal auditing or report back on DG at a board level. If boards are not receiving feedback on the DG efforts within the organisation then they are in fact not complying with the SAM principles that state specifically that the board is responsible for IT governance and DG.

5.4 Discussion of findings relative to Propositions

In this section, the research findings discussed in the section above are examined in light of the propositions.

5.4.1 *Proposition 1: Benefits*

Implementing a DG framework encourages the understanding and management of data and can provide strategic benefits, a competitive advantage and ensure regulatory compliance.

The views of the respondents were largely in support of this proposition in terms of the benefits of a DG framework. Respondents agreed that there is a definite need for a DG framework with specific mention of compliance with regulations such as POPI, SAM and TCF. Gaining a competitive advantage, better insights into customer behaviour, better priced products, building capabilities around advanced analytics and being able to do more predictive modelling was also cited as the benefits associated with a DG framework.

One of the themes that was identified around the challenges of DG was that no clear frameworks are followed by life insurers when designing and implementing their DG framework. From the respondents who had a formal DG framework in place, the minority used the DAMA and King III principles as the basis thereof. In most of the cases however, a completely bespoke approach was applied. Having said, this many respondents who were still in the process of formalising their DG frameworks still saw the future benefits that could be derived from a DG framework. A clear strategy around the purpose and overall direction of DG was also lacking.

The lack of any South African life insurance industry specific DG guidelines, much like that of ACORD, also means that life insurers run the risk of omitting important aspects of DG from their frameworks or programmes should they chose to only use a customised approach and not have any guiding principles to follow.

5.4.2 *Proposition 2: Organisational culture*

Organisational culture and an unwillingness to change have a direct impact on the success or failure of a DG programme.

A clear message that emerged from the research is the impact that organisational culture can have on the success or failure of any DG initiatives. The sentiments of the respondents directly correlates to this proposition and in most instances it was noted that organisational culture and resistance to change was a hindrance to the success of DG.

A history of bad practices, an entrepreneurial approach to business and the need to be first to market with innovations were all cited as organisational characteristics that made the implementation or roll-out of a DG framework a challenge.

The use of a federated model in the life insurance industry often leads to businesses operating in silos. Respondents using this type of model mentioned that the culture and appetite of the business units within the group differs, which impacts on how well or how poorly DG is accepted and implemented.

Organisational culture impacts on the buy-in obtained from individuals as there is not much awareness created around DG and the benefits thereof. There was a strong feeling that there is a lack of understanding about what DG is and the value that can be derived from it.

5.4.3 *Proposition 3: Ownership*

From an accountability and decision rights perspective, clear ownership and accountability for DG initiatives is not formally established.

The views of the respondents were in agreement with this proposition. Establishing the correct ownership and accountability structures over data was cited as a major hurdle when implementing DG. In many instances the ownership of DG was allocated to the CIO instead of to the business. Respondents agreed that there should be collaboration between IT and business, however decision rights over data is a business responsibility and should not lie with IT.

One of the themes identified in the cognitive mapping process was around the complexity of the business models (federated, brokers, direct channels, partnerships, etc.) used by life insurers, which often leads to businesses operating in silos. This impacts on the ownership of the data as in certain instances customer data does not belong to the company. Data is also fragmented along the supply chain where business processes are outsourced. Without clear ownership of data, decisions rights and accountability cannot be established.

In most instances formal data councils or forums have not been established which means that ownership and accountability has not been formally assigned or enforced. There is also a lack of formal feedback on any DG initiatives or progress thereof to a higher authority such as a board committee.

The lack of accountability over DG is exacerbated by the fact that it is not included on the key performance indicators or performance scorecard of the individuals who are expected to progress the implementation thereof.

5.4.4 *Proposition 4: Data governance councils*

A significant gap exists between the constitution of the cross-functional teams or DG councils having the right mix of appropriate individuals from both IT and business functions.

Yet again, the opinion of the majority of the respondents were in agreement with this proposition. Even though DG councils or forums have been established, respondents noted that the forum did not always include the right balance of individuals. Most forums were constituted of mainly IT representatives and did not represent the interests of the business users or owners. This again speaks to the point of where the ownership of data and DG should lie. It was also not clear from respondents whether or not an Executive sponsor had been selected to preside over and direct the DG activities.

5.4.5 *Proposition 5: Data management standards and policies*

Data standards and policies that guide actions and provide direction about the operational procedures, decision making and data management activities are not clear and consistent.

Through the research, it was evident that respondents were in support of this proposition. There is a lack of understanding around what data management involves and who should be responsible for it. Data management policies are inconsistent across business units due to complex business models and legacy system issues. There is also no clear strategy around the management of data from a holistic perspective and in most instances data management policies were found to not be formalised. DG councils should be responsible for establishing these data policies and guiding principles to achieve consistency and clarity across the organisation.

Advancements in technology such as the use of mobile devices and the use of social media to collect customer data adds to the security protocols that need to be in place but also to the sheer amount of data that needs to be managed. The challenge is that this data lies outside of operating systems and is not subject to any data management standards or policies.

5.4.6 *Proposition 6: Data quality management*

a) **A lack of data quality management and stewardship can lead to financial and regulatory consequences should individuals use poor quality data to make business decisions.**

Respondents widely agreed that key business decisions such as premium pricing, product launches and claims payment decisions have to be based on good quality data that is appropriately governed. This is consistent with the assessment made in this proposition. Most respondents stated that data quality initiatives are in place although these are separate from any DG framework or structure. Data quality is important from an actuarial valuation perspective for

regulatory reporting to the FSB and a lot of time and effort is spent on ensuring that this data, in particular, is of high quality.

The concept of stewardship and the role of a steward however, is not very well recognised or used in the life insurers that were interviewed.

b) The impact of DG and data quality management programmes are being not measured and therefore the benefits gained cannot be quantified.

This proposition is contradictory to the views expressed by the respondents. There are various data quality initiatives in place amongst most of the life insurers that were interviewed which are being measured and monitored.

Another conflicting view between the literature and respondents is that data quality should form part of the overall DG framework. Respondents noted that data quality initiatives are done in isolation of any DG structure or framework.

The impact of DG on the other hand is not being measured as the bottom line impact of DG efforts are hard to quantify in isolation of data quality initiatives which are quantifiable.

5.4.7 *Proposition 7: SAM compliance*

a) SAM regulations cite the adoption of DG practices as the responsibility of the Board of Directors however, compliance with these principles is not always adhered to.

The concept of Board level responsibility for DG did not come across as a high priority. This is in agreement with the statement in the proposition noted above. From the interviews a majority of the respondents did not include DG as part of their IT governance frameworks. IT governance is usually discussed at a Board level due to the fact that external and internal audit usually perform IT governance reviews. None of the respondents had any DG reviews performed by either internal or external audit and no formal feedback to the Board was being done.

This means that Boards cannot fully discharge their duties over DG, in terms of SAM, as they do not receive any audit reports or formal feedback from DG

councils or forums that would allow them to make an assessment over the appropriateness of the DG activities taking place. From a SAM perspective, Boards are not taking enough responsibility and are not well informed enough to ensure that the adoption of DG practices is happening across the organisation.

b) As a life insurer, complying with SAM regulations is dependent on being able to embed an appropriate DG structure and data quality management programme across the organisation, however, this is adversely impacted by the complexity of systems and large volumes of fragmented data.

This proposition also did not resonate strongly with the views of the respondents. A data quality programme being impacted by the complexity of systems and large volumes of data was mentioned as an overall challenge to DG and not in a SAM specific context.

Although compliance with SAM was mentioned as one of the reasons for implementing a DG framework, none of the respondents felt that the lack of a formal DG framework would negatively impact on their SAM compliance at this point in time. A reason for this could be because the final date for the implementation of SAM has been extended to 1 January 2016. A majority of respondents also mentioned that a separate SAM Project team, run mostly by the Actuaries, had been established. The Project Team was responsible for ensuring that all data requirements for the technical reporting to the FSB would be fulfilled.

5.5 Conclusion

The findings from this study are by and large supported by the literature review. The themes identified through the interview process and the findings uncovered were mostly in line with the propositions save for two. In summary it is clear that there are many challenges facing life insurance companies regarding the design and implementation of a DG framework, however, these are not insurmountable.

Regulatory compliance and the protection of clients privacy was found to be one of the main drivers behind implementing DG. Organisational culture, the lack of

ownership and accountability, a silo approach to data management and the absence of guiding policies were cited as the most common obstacles to the successful implementation of a DG framework. The FSB's SAM regulations were found not to be a big driver of DG from an operational perspective.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

This chapter encapsulates the main research findings, discusses how findings relate to the propositions and makes some recommendations for individuals in the life insurance industry who are tasked with designing and implementing a DG framework in their organisations.

6.2 Conclusions of the study

The main objective of this study was to explore the challenges associated with the design and implementation of a DG framework in the life insurance industry. Propositions relating to the challenges around DG emerged from the literature review which formed the basis of the study.

In achieving the research objective, a number of in-depth interviews were conducted that revealed numerous insights into the actual challenges that life insurers have experienced so far. The interviews were analysed using a combination of content analysis and cognitive maps, with a combined map presenting the main themes or findings from the interviews.

While the need for a DG framework within the life insurance industry is undeniable, varying approaches and numerous challenges have left life insurers on an uneven playing field with regard to the design, implementation and progress of DG. Most life insurers that were interviewed had the right attitude and willingness to tackle DG, however, a clear strategy and an enterprise approach to DG was found to be lacking. A completely customised approach to the design and implementation of DG was followed in most instances. Not much consideration was given to adopting or using a recognised framework as the foundation for DG design and implementation.

Ownership and accountability over data and DG was not always established and often did not lie with the correct individuals. Decision rights over data often resided with the IT department instead of business. People, their resistance to

change and lack of education on DG, were found to be the biggest challenges to implementing a DG framework. The complex business models used by life insurers (brokers, direct channels and federated models) contributed to a silo approach to DG being followed. DG is also not receiving the required attention at a board level as DG councils are not formally reporting back to any board committees.

Data policies, standards and guiding principles are inconsistent due to complex business models and legacy systems. Data standards and policies should be approved by the DG council and monitored throughout the organisation, which was found to be not the case.

Data quality management is being measured and monitored, although these initiatives are done in isolation of any DG structures. Managing and improving data quality was found to be the responsibility of the IT department, as opposed to the business users who should be responsible for the quality of the data. Data quality and data stewardship initiatives should be centralised under the DG framework.

Life insurance companies are extremely data intensive and collect and store a lot of customer data. The FSB released the first SAM roadmap in 2010 which would put more onus on life insurers to be able to demonstrate how data quality is defined and monitored.

SAM Project Teams have been established to ensure that all requirements with respect to data for the technical reporting to the FSB are being met. These teams are often run by the Actuarial team and do not interact with the DG functions. This could result in overlap and duplication of work.

6.3 Recommendations

From the research, a number of recommendations have come to light for life insurance companies who are currently busy with the implementation of DG but also for companies who are deciding on how to approach and set up a DG competency or framework.

The premise that data is an asset and as with any other asset, needs to be properly managed, secured and governed should form the basis of any DG framework. Before a DG framework or programme is embarked upon, a clear strategy is needed to set the overall direction of what DG is expected to achieve. It is important to set out the business objectives and to have a vision in terms of what outcomes DG is going to help the organisation to realise. This could be anything from improved decision making capabilities, ensuring regulatory compliance from a data security or data privacy perspective, gaining a competitive advantage, better customer insights, improved risk profiles and product pricing, etc. It is imperative that the reasons behind establishing DG are well articulated and communicated to ensure buy-in and understanding from the respective individuals.

A successful DG programme requires executive sponsorship and support. There should be a high senior official who is responsible for operational processes and standard operating procedures in the organisation who fulfils the role of the Executive Sponsor. This is usually the Chief Operating Officer (COO) or equivalent thereof as the nature of this role usually spans across business units, line of business systems and application silos; much like the sphere of DG.

In order to establish ownership and accountability and to give DG the necessary attention and impetus that it requires, a formal DG council should be formed and chaired by the Executive Sponsor. The DG council should have a mandate and operate in accordance with a charter. The CIO, as the custodian of data and managing the data warehouse and all administration systems, should be a member of the council. There should also be high level representation from the various business units or data owners. Individuals with competencies in actuarial, data management, risk management, finance and compliance should also be considered for the council. It would also be beneficial to create a link between the SAM Project Team and the DG council so that no overlap or duplication of work occurs. The council should be responsible for ensuring that data ownership is established and that data policies, standards and definitions exist to ensure consistency and clarity of data across the organisation.

A manner of ensuring that all strategic priorities arising from the DG council are properly handled and implemented could be through the formation of a working group (effectively a sub-committee of the DG council). This group would be responsible for implementing the action items that arise out of DG council and providing feedback to the council on the progress thereof. The working group could consist of business analysts, system owners and other operational staff who work closely with the various data items. A 'data steward' competency could be developed out of this pool of individuals. Stewards are business and IT subject matter experts who can effectively translate how data and systems influence business processes, decisions and interactions that are pertinent to the organisation (Karel, 2012). A lot of value can be gained by developing this skill set within an organisation as stewardship is a control mechanism designed to ensure the safeguarding of data for asset enhancement, risk mitigation and organisational control (Soares, 2010).

The DG council should not report back to an IT Steering Committee as DG is a business related function and not an IT function. The DG council should have a formal reporting line to either the Risk Committee or Audit Committee due to the operational risk and control issues (data policies, definitions and standards) dealt with by the DG competency. DG plans, progress and successful initiatives should be communicated and appraised by the Risk or Audit Committee as a mechanism of creating accountability. It is also a way of ensuring that the Board of Directors are being made aware of what DG processes are in place as the Risk and Audit Committees report back to the Board of Directors.

Once sponsorship, ownership and accountability for DG has been established, a formal framework can then be implemented. As per the literature review there are many recognised DG frameworks and approaches on which companies can base the design of their DG programme. The intention of a framework is to connect all of the different data related competencies and create a universal view of how all structured (financial, risk, investment and regulatory) and unstructured data should be governed across the organisation. It is also important that a DG framework is in place to govern who has access and can share information. There will never be a 'one size fits all' however, once a framework or specific approach

has been selected, the organisation can then customise the framework to suit their own unique set of circumstances. It is also important to note that a well-rounded DG framework should follow an enterprise wide approach and take into consideration people, processes, policies and technology across the organisation. It is crucial to ensure that no gaps in the DG framework exists and that the main competencies have been included. These competencies should at least include:

- Decision rights and accountabilities
- Data principles and guidelines
- Data quality management
- Data stewardship

Life insurers should map out and understand their data lifecycle from the point of gathering, capturing, validating and aggregating data, all of which needs to be appropriately governed. It is also important to have a data quality lifecycle where there is the opportunity to report data integrity issues which go through a formal process of making sure that the issues identified are corrected in the source system and that a proper escalation procedure exists should this not happen. All data quality initiatives should also be incorporated under the banner of DG and should not be done in isolation. The DG council should have oversight of both the data and data quality lifecycles.

A noteworthy point raised by numerous respondents was that the need for education around DG is paramount to its success. It is crucial to improve the understanding and 'market' the benefits of DG across the organisation, especially amongst the individuals who are expected to implement or uphold data policies and standards. This will ensure the buy-in of individuals who are expected to roll out DG. Resistance to change and a non-accepting organisational culture can be overcome through education and highlighting the business value that can be attained through DG.

Peter Drucker once said "What gets measured gets managed". This is a fitting statement in the context of DG because if DG is not reflected as a key measurement factor on a performance scorecard, it will not receive the necessary

attention it deserves. The individuals who are responsible for ensuring that DG is implemented within their organisations should have the DG initiatives reflected on their performance scorecard. This will provide the necessary incentive to ensure that DG is properly executed and the objectives achieved.

6.4 Suggestions for further research

DG is an emerging topic that is gaining a lot of momentum within the life insurance industry. There are many possibilities for further research in this field of study arising from this research, for example:

- This study was limited to the life insurance industry however, DG is not unique to this industry alone. Many life insurance companies these days are a part of a larger group which often includes short term insurance and investment companies. This study could be expanded to look at the challenges of designing and implementing a DG framework across insurance groups or financial services organisations.
- This study specifically excluded compliance with the POPI Act as the regulations have not yet been released. A future study could look at the implications of data privacy within the context of the POPI regulations and how that affects the manner in which data is collected, managed and shared within insurance groups or financial services organisations.
- An in-depth comparison of companies who have made significant inroads with their DG frameworks and how their operating environment and organisational culture assisted their progress could be undertaken to determine DG success factors.
- A study to establish a South African insurance industry standard pertaining to DG could be a beneficial research endeavour.
- A cost benefit analysis of implementing DG could be performed to determine what the return on investment (ROI) is of implementing and running a DG programme. Metrics that could be used to measure the success of DG initiatives can be suggested from the study.

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APPENDIX A

Actual Research Instrument

"The challenges of implementing a data governance framework in the South African life insurance industry"

I, _____agree to participate in the research study conducted by Lovashnee Forte.

The purpose and nature of the study has been explained to me in writing and verbally.

My participation is voluntary and I understand that I can withdraw at any time during the study without any repercussions.

I understand and give permission that extracts from the interview may be quoted and published in the research report.

I also understand that confidentiality and anonymity will be ensured in the research report and that no identifying features will be attached.

Signed:_____ **Date:** _____

I give permission for the interview to be audio- recorded: Yes/No

Signed:_____ **Date:** _____

Interview Questions

1. Please describe the specific framework and main competencies that you have selected for the design and implementation of data governance?
2. What, in your opinion, are the most important reasons for establishing a data governance framework?

3. Describe how the organisational culture has contributed or hindered the implementation of data governance?
4. How has ownership and accountability for data governance been determined and rolled-out?
5. How is the consistency and clarity of the data standards and policies being achieved?
6. How were the individuals on your data governance forum or council selected?
7. How has responsibility for data management been achieved?
8. Describe the processes that have been implemented to monitor and measure the data quality management initiatives?
9. Does data governance form part of your IT governance framework, if so, how does the Board of Directors attest to these principles being adhered to?
10. In terms of the SAM regulations, describe the activities or actions that have been implemented to ensure compliance thereto?

APPENDIX B

Consistency matrix

Table 3: Consistency matrix

Research problem: Challenges of implementing a data governance framework in the South African life insurance industry					
Main problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
Challenges of implementing a data governance framework in the South African Life insurance industry	• Kathri & Brown, 2009 • Dyché, 2007 • Mosley, 2008 • Russom, 2008 • Moseley, 2010 • Gregory, 2011	**Proposition 1: Benefits** • Implementing a DG framework encourages the understanding and management of data and can provide strategic benefits, a competitive advantage and ensure regulatory compliance.	Question 1 and 2 of interview with respondents	Qualitative data	Content analysis/cognitive maps

Research problem: Challenges of implementing a data governance framework in the South African life insurance industry					
Main problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
	• Dyché, 2007 • Dyché, 2011	**Proposition 2: Organisational culture** • Organisational culture and an unwillingness to change have a direct impact on the success or failure of a DG programme.	Question 3 of interview with respondents	Qualitative data	Content analysis/cognitive maps
	• Karel, 2007 • Soares, 2010 • Griffin, 2010 • Grossman, 2014	**Proposition 3: Ownership** • From an accountability and decision rights perspective, clear ownership and accountability for DG initiatives is not formally established.	Question 4 of interview with respondents	Qualitative data	Content analysis/cognitive maps
	• Geiger, 2004	**Proposition 4: DG Councils** • A significant gap exists between the constitution of the cross-functional teams or DG forums and having the right mix of appropriate individuals from both IT and business functions	Question 6 of interview with respondents	Qualitative data	Content analysis/cognitive maps

Research problem: Challenges of implementing a data governance framework in the South African life insurance industry					
Main problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
	• Kathri & Brown, 2009 • Soares, 2010 • Dyché, 2007 • DGI, 2014	**Proposition 5: Data management standards** • Data standards and policies that guide actions and provide direction about the operational procedures, decision making and data management activities are not clear and consistent.	Question 5 of interview with respondents	Qualitative data	Content analysis/cognitive maps
	• Weber, Otto, & Österle, 2009 • Wende, 2007 • Marco, 2006	**Proposition 6: Data quality management** • A lack of data quality management and stewardship can lead to financial and regulatory consequences should individuals use poor quality data to make business decisions. • The impact of DG and data quality management programmes are being not measured and therefore the benefits gained cannot be quantified.	Question 7 and 8 of interview with respondents	Qualitative data	Content analysis/cognitive maps

Research problem: Challenges of implementing a data governance framework in the South African life insurance industry					
Main problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
	• FSB, 2013 • FSB, 2013 • Ernst & Young, 2011	**Proposition 7: SAM compliance** • SAM regulations cite the adoption of DG practices as the responsibility of the Board of Directors however, compliance with these principles is not always adhered to. • As a life insurer, complying with SAM regulations is dependent on being able to embed an appropriate DG structure and data quality management programme across the organisation however, this is adversely impacted by the complexity of systems and large volumes of fragmented data.	Question 9 and 10 of interview with respondents	Qualitative data	Content analysis/cognitive maps