The evaluation of enterprise risk management (ERM) practices and implementation challenges in the Zimbabwe medical laboratory industry

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DECLARATION

I declare that “The enterprise risk management (ERM) practices and implementation challenges in the Zimbabwean medical laboratory industry” is my own work; that it has not been submitted before any degree or examination in any other university; and that all the sources used or quoted in this document have been indicated and acknowledged as complete references.

Donald Vhanda  ___________________  _______________

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DEDICATION

This research is dedicated to my two boys Eleazar and Ebenezer. The desire to pave a way for you has been a source of inspiration. It is because of you boys that I am called father. Knowing that you are there for me and looking up to me, drove me to work harder. May the good Lord protect, guide and increase you.
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ABSTRACT

This research study sought to find out the risk management practices, determine whether the current risk culture is conducive for ERM implementation, the various implementation challenges and the enterprise risk management (ERM) adoption determinants in the Zimbabwe medical laboratory industry. Risk management has occupied a key place on the agenda of practitioners, academics and the business community. It has been widely practised in the banking sector among other industries with a range of results. The nature of operation of the medical laboratory business makes it very mandatory to practise ERM. The literature review looked at the various schools of thought and past studies on this subject and identified the research gap. In some sections the researchers were agreeing and in some they disagreed. Also the limited studies done in the medical laboratory industry and the absence of studies done in the local industry left a research gap. Questionnaires and interviews distributed to 41 respondents were used to collect the research data. These were distributed to 6 Harare laboratories. Purposive, stratified and random sampling was used to target respondents at different levels within the organisations. The SPSS was used in the management and analysis of quantitative data. Reliability was assessed using the Cronbach’s alpha. This study concludes that the current risk management practices are poor and current risk culture does not support successful ERM implementation. Implementation of ERM in the Zimbabwe medical laboratory industry is faced by a number of challenges, most prominently, increased workload, staffing challenges, organisational structures that do not support ERM implementation, timeliness of information, inadequate technological support, financial resources, lack of information as well as the lack of RM expertise. The implementation of enterprise risk management (ERM) is determined by the regulatory environment, size, internal auditors, external auditors, compliance to quality assurance standards and top management support as depicted by p values which demonstrated positive relationships between the determinants and ERM adoption. The research also concludes that there exist a positive relationship between ERM best practices and risk culture. The two dimensions were found to be negatively correlated to ERM implementation challenges. Therefore the sector needs to build a risk focused culture for successful implementation of ERM.

Key words: best practice, implementation challenges, medical laboratory industry, ERM
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LIST OF ACRONYMS

AMR  Antimicrobial Resistance
BRM  Business Risk Management
CEO  Chief Executive Officer
CRM  Corporate Risk Management
CRO  Chief Risk Officer
ERM  Enterprise Risk Management
EWRM  Enterprise-Wide Risk Management
HIV  Human Immune Deficiency Virus
HRM  Holistic Risk Management
IRM  Integrated Risk Management
ISO  International Organisation for Standardisation
NBSZ  National Blood Service Zimbabwe
NYSE  New York Stock Exchange
PRA  Prospective Risk analysis
QA   Quality Assurance
SD   Standard Deviation
SHEQ  Safety Health and Environmental and Quality
SPSS  Statistical Package for the Social Sciences
TB   Tuberculosis
1.1. Background of the study

Risk management has occupied a key place on the agenda of practitioners, academics and the business community (Huber, 2013). Challenges in the business world ranging from global financial crisis, corporate frauds and scandals as well as collapse of major corporate entities, has prompted the uptake of enterprise risk management (ERM) (Lundquist, 2015). The concept of ERM is still new in the laboratory industry since most of the risk management principles were adopted from banks and insurance companies. The increased need for creation and protection of value has motivated laboratory companies to adopt ERM. The publication of ISO31000 and ISO15189 has defined a new trajectory for laboratory companies in managing risks. Laboratories are exposed to a number of risks ranging from operational, compliance, financial and business continuity. These risks are further exacerbated by high consumerism and litigiousness of the consumers. Acharyya, (2013) postulates that organisations need to manage their risks in a holistic approach. The need to manage risks in a holistic framework has triggered the curiosity of the researcher to unearth the current risk management practices, challenges faced in implementation and the major determinants of ERM adoption.

Various laboratory companies are driven by a number of factors in adopting ERM and the programme is being considered as a strategic tool as well as a source of competitive advantage. However, the implementation exercise is characterised by a number of challenges. According to Sweeting (2013), failure to implement a well customised ERM will not yield positive results to the organisation.

New guidelines have been published to introduce risk management principles to the clinical laboratory (Njoroge, 2014). Enterprise risk management is a systematic approach that aligns people, strategy, processes, technology and knowledge with the purpose of evaluating, assessing and managing the risks faced by an organisation (Dabari & Saidin, 2014). Risk management can minimize the chance of errors and ensure reliability of test results as well as ensuring the going concern of a business entity. Enterprise risk management deals with all possible risks effectively and in a coordinated manner.
The medical laboratory industry is associated with a lot of risks that if not looked into they have the potential of getting out of hand. Risk management and quality improvement are not isolated processes (ACHS, 2013). They provide a framework for considering everything an organisation does, how it is done, and identifying ways to make it even better before problems are identified. Many organisations have successfully implemented effective risk management and quality improvement programs where staff members are keen to participate and share their experiences (ACHS, 2013).

The goal of risk management is to minimise the negative consequences and improve firm performance (ACHS, 2013). Health services providers have a core business of delivering safe and effective patient care. However, the health industry is associated with high uncertainty and this could be an impediment on the survival of the organisation in this turbulent environment characterised by an array of risks. Organizations should not see risk management as a compliance issue, but as an integral part of the decision-making process and exploitation of opportunities tool (IFAC, 2015). Laboratory testing of patient samples is a complex process where errors can occur at any point in the testing process. It is therefore important that laboratories take steps to ensure reliable and accurate results are produced through managing risks in a holistic framework. Njoroge (2014) postulates that laboratories should examine their processes for weaknesses or potential hazards where errors could occur and take action to detect as well as prevent them before they affect test results. This can be done by mapping the testing process or following a sample through the pre-analytical, analytical and post analytical stages of testing and examining each step in the process for risk or potential hazards (Njoroge, 2014). No laboratory test or process is devoid of risk. Moreover, because the laboratory testing process involves numerous steps, the number of potential errors can be large.

Nueske, (2008) reiterates that today’s healthcare environment is characterised by complex organisations, new challenges and emerging risks, operational and financial wellbeing at risk, continually changing reimbursement rules and increasing state and federal regulations, educated consumers asking for more, new accounting standards, technology improvements and the “expectation gap” between producers of information and users of information. Leading service providers understand the risks most pertinent to their organizations and manage them in an integrated fashion (Nueske, 2008).
Medical or clinical laboratories are responsible for the analysis of diagnostic and monitoring tests for patients. Their practices are regulated by the Health professions authority (HPA) which set the minimum standards through its regulatory arm the Medical laboratory and clinical scientists’ council of Zimbabwe (MLCSCZ) required for the laboratory to open but the laboratories go on to implement their own systems (Webmaster, 2015). Clinical laboratories handle biological specimens, biological and non-biological wastes, and deal with chemicals of different toxicities. Their process flows should be in such a way that the errors are minimised as they may result in misdiagnoses to the patients and injuries to staff and patients. The regulatory compliances that a clinical laboratory has to satisfy in order to get operating licences include HPA, City health fire department and National Social Security Authority (NSSA). The reason why the laboratories have to be certified by so many bodies and the licences renewed every year is because the industry is a very risky one. According to several standards guiding laboratory practice, issues of safety are of paramount importance.

The laboratory operation is divided into the pre-analytical, analytical and post-analytical phases. Some of the tests that are done in the laboratory include the infectious diseases tests such as HIV, TB, Malaria and Typhoid etc. and non-infectious diseases such as diabetes and cancer. The laboratory confirms or rules out possible disease states. Medical laboratory scientists also play a critical role in the Antimicrobial resistance (AMR), antimicrobial stewardship and AMR surveillance.

1.2. Statement of the research problem

Failure to identify, assess and manage major risks facing medical laboratory companies may unexpectedly result in significant loss of stakeholder value (Shenkir, 2007). By nature, laboratory business is characterised by a myriad of risks ranging from: financial, human capital, legal, technological, regulatory, and hazardous environments (Hoppes, Crickette, & Epstein, 2017). Failure to manage these risks in a holistic framework can expose the organisation and the community at large to a number of undesirable consequences. Increased consumerism and information symmetry has exacerbated the risk of litigation since customers are now fully aware of their rights, violation of which will result in court cases whose awards are not pre-determinable. Operational risks have become more pronounced in the laboratory business since failure to manage infection control, waste management and
failure to produce timeous and accurate test results can expose both the organisation and the community at large.

Spread of infections can be compacted or cascaded by the nature of practice in a medical/clinical laboratory set up. Furthermore, the need to comply with both statutory and voluntary compliance obligations has increased the need for an integrated enterprise risk management program. Lack of documented risk management strategy in various medical laboratories can lead to an informal or ad hoc management of risks hence leaving these companies exposed to various negative outcomes ranging from strategic to operational. It is against this background that the researcher wants to unearth the major determinants for ERM adoption, implementation challenges as well as the current risk management practices in the Zimbabwean laboratory industry.

1.3. Research objectives

1.3.1 To evaluate the risk management practices in the Zimbabwe medical laboratory industry
1.3.2 To determine whether the current risk culture supports ERM implementation in the medical laboratories in Zimbabwe
1.3.3 To ascertain the enterprise risk management (ERM) implementation challenges in the medical laboratories in Zimbabwe.
1.3.4 To determine the determinants of risk management adoption in the Zimbabwe medical laboratory industry

1.4. Research questions

1.4.1 What are the risk management practices (strengths and deficiencies) in Zimbabwe medical laboratory industry?
1.4.2 What is the current risk culture in the Zimbabwe laboratory industry and does it support ERM implementation?
1.4.3 What are the ERM implementation challenges faced in the Zimbabwe laboratory industry?
1.4.4 What are the determinants of risk management adoption in the Zimbabwean medical laboratories?

1.5. Hypothesis

H₀: There is no relationship between ERM best practice and risk culture

H₁: There is a relationship between Best practice and risk culture

H₀: There is no relationship between risk culture and ERM implementation challenges

H₁: There is a relationship between risk culture and ERM implementation challenges

H₀: There is no relationship between risk management implementation challenges and ERM best practises

H₁: There is a relationship between risk management implementation challenges and ERM best practises

1.6. Research assumptions

1.6.1 Information gathered in this study from laboratories in Harare will be representative of laboratories in Zimbabwe.

1.6.2 The participants will understand the interview questions and answer them honestly and hence the information gathered from the subjects will answer the objectives.

1.6.3 Participants are free to participate in this research and do not have any other motives (No one is coerced).

1.7. Justification of the study

Most of the standards and guidelines concerning risk management are directed towards the equipment and reagents manufacturers, but there is not enough information about the risk management applied in clinical laboratories. However, it is possible to borrow the industrial principles of risk management in order to reduce the errors in a clinical laboratory. Risk
management is a new concept for clinical laboratories (Njoroge, 2014). Janssens (2014) also concurs that prospective risk analysis (PRA) is an essential element in quality assurance for clinical laboratories; however practical approaches to conducting PRA in laboratories are scarce.

The implementation of ERM has already been documented to improve firm performance (Hoyt, 2006; Nocco, 2006). Risk management is a powerful tool in enabling organisations to meet their strategic and operational objectives. Risk management provides reasonable assurance that the organisation’s objectives will be reached within an acceptable degree of residual risk (ACHS, 2013). Any form of risk whether financial, human capital, legal, technological, regulatory, loss prevention, strategic, loss prevention or hazardous environments have a bearing on the ultimate product of laboratory practice which is a laboratory result. Laboratory results have a direct influence in 70% of medical diagnoses and therefore the quality of laboratory service is the major factor which affects the quality of health care (Guzel & Guner, 2009).

Therefore in this spirit of continuous improvement and compliance to standards it became imperative that we do a research to investigate on the enterprise risk management practices and implementation challenges in the Zimbabwe medical laboratory industry. The need to fill this research gap in the clinical laboratories was the major drive behind this study. An investigation done locally can only be an eye opener and a reality check on the state of affairs in this crucial sector to both business and the health delivery system of Zimbabwe. Adding this business approach to the medical laboratory industry in the form of ERM thinking will revamp the industry and take it to another level. It also helps local laboratories to move a step closer to matching international best practices. All stakeholders be it patients, business owners, employees, the government, the communities will benefit from ERM implementation in the laboratories because it will lead to improved patient care, enhanced business performance as well as change of policy to protect the communities and patients better.

1.9. Purpose of the study

The study seeks to investigate the ERM practices, whether the current risk culture support ERM implementation, implementation challenges and the determinants of ERM adoption in the Zimbabwe medical laboratory sector. The study will offer the baseline assessment of
where the local laboratories stand as far as risk management is concerned, in comparison to international standards (benchmarking). This research will add to the existing pool of knowledge and literature on risk management and put forward recommendations that could improve the implementation of ERM practices in the medical laboratory sector.

1.10. Significance of the study

Of late there has been increasing interest in risk management across the world due to the global financial crisis impact on the world economy and also the changing business environment characterized by threats from economic, political, natural, and technical resources (Dabari & Saidin, 2014). Effective risk management, an integral component of good organisational management, minimizes negative outcomes and identifies opportunities for quality improvement (Bekefi & Yuthus, 2008). It therefore is an integral part of the cycle of strategic planning activities and or program planning. Risk management provides reasonable assurance that the organisation’s objectives will be reached within an acceptable degree of residual risk.

Therefore ERM is an integral approach to any business entity. This study is a critical eye opener to a different approach of managing businesses. This study contributes to the identified gap in the empirical study of ERM, particularly in the medical laboratory sector, and provides practical information for administrators at medical laboratory institutions, directorate, health professions authority and the ministry of health and child care (MOHCC) who have adopted or are considering adopting ERM. It will improve the laboratory services delivery and healthcare at large. Using information to make decisions is the hallmark of strategic leaders. Limited studies on risk management in the medical laboratory sector in developing countries and lack of research on risk management in the Zimbabwean medical laboratory industry are part of the motivation for this study. The understanding and knowledge of risk management are useful to all industries, top management, board of directors, internal and external auditors, and the stakeholders which can assist them in policy formulation, implementation and evaluation.
1.11. Definition of terms

**ERM practices:** ERM is the discipline by which an organization assesses, controls, exploits, finances and monitors risks from all sources for the purpose of increasing the organization’s short- and long-term value to its stakeholders (Rudolph, 2009). Rudolph, (2009) went further to highlight that best practice in ERM is a long process, evolving iteratively, rather than a once off project. Health companies are at various stages on this continuum. Practices range from doing nothing beyond solid silo risk management to fully implemented and functional plans that collect data which is used to make decisions. Few have a fully functioning risk culture, and better practices are often driven by company size, where larger firms have more resources to manage risks (Rudolph, 2009).

**Risk culture:** RIMS, (2011) reiterated that risk culture “consists of the norms and traditions of behaviour of individuals and of groups within an organization that determine the way in which they identify, understand, discuss and act on the risk the organization confronts and takes.” Trouble strikes when individuals, knowingly or unknowingly, act outside of the expected risk culture, or when the expected risk culture either is not well communicated, understood or enforced by the authorities. Indicators of a good risk culture include a well-structured company governance structure, a company with a clearly articulated risk tolerance, a company with a risk management that rests with an influential high level risk officer, top management involvement, qualified risk management staff, risk management objectives which are highly coordinated, a company incentive compensation that supports risk management as well as risk management policies and procedures that are clearly stated and widely known RIMS, (2011).

**ERM Implementation:** Involves carrying out the methods and processes used by organizations to manage risks and to seize opportunities related to the achievement of their objectives (Brian, 2013).

**ERM implementation challenges:** See literature review for details

**Zimbabwe medical laboratory industry:** refers to local medical or clinical laboratories that are responsible for the analysis of diagnostic and monitoring tests for patients. These are registered by the HPA and MLCSCZ. Only laboratories that process human specimens and are based in Harare were covered in this study (Webmaster, 2015).
Risk appetite: According to ISO 31000, (2009) risk appetite is “the amount and type of risk that an organization is prepared to pursue, retain or take.” The major challenge with risk appetite is how to implement and enforce it, making it relevant and applicable to business units on a day-to-day basis. This means linking risk appetite to strategic business decisions and collecting the appropriate metrics to measure it.

Risk Tolerance: is narrower than risk appetite in that it only sets the acceptable level of variation around objectives ISO 31000, (2009).

Residual risk: is defined as the threat a risk poses after considering the current mitigation activities in place to address it, and can be an important metric for assessing overall risk appetite (ISO 31000, 2009). Acceptable levels of residual risk are typically set by the risk management committee and accepted by the board of directors. This means to say that if a risk’s impact on the organization, multiplied by its likelihood of occurring, multiplied by its effectiveness of current mitigation activities falls outside of the level seen as acceptable, then the risk factor is out of tolerance. The process owners must then adjust the mitigation activities, procedures, or controls in order to keep the residual risk within the defined risk.

Financial risk: Majority of categories of risk have a financial impact or bearing, in terms of extra costs or lost revenue. But financial risk refers specifically to the money flowing in and out of the business, and the possibility of a sudden financial loss.
1.12. Chapter Summary

This chapter looked at a number of sections namely the background of the study, statement of the research problem, the objectives of the study together with the research questions, the hypothesis, assumptions, justification, purpose and the significance of the study. Enterprise risk management is the integrated or holistic management of risks facing an organisation. It was born out of the realization that medical laboratory companies are operating in a very dynamic environment which is characterized by constant, complex and rapid changes and require an integrated approach to risk management. Risks inherent in medical laboratories are by their nature, dynamic, and highly interdependent and as such need to be managed in an integrated way.

The following chapters examine the literature review of the study, the challenges of risk management, the history of ERM and the benefits of implementing ERM. What the literature say about the various segments of this research will be reviewed, past studies and the research gap will be highlighted.

Figure 1.1: Financial risks
CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter looks at the literature related to risk management practices and the theoretical framework of the study. It discusses the theoretical framework, ERM model and domains, risk, risk perception and risk management in medical laboratories, ERM frameworks and standards, factors influencing the level of adoption, ERM implementation challenges and the benefits and critique of ERM.

Corporate failures that crippled the world in the mid-1990s as well as the global financial crisis that unfolded in the US in 2007 and subsequent banking crises in several countries underscored the need for institutions to put in place adequate controls and systems to prevent the occurrences of such crises and ERM emerged as the best mitigating approach (Kanhai, 2014). Risk management is described as the systematic application of management policies, procedures and practices to the tasks of analysing, evaluating, controlling, and monitoring risk (Nolan, 2007). It is a process that involves anticipating what could go wrong (errors), assessing the frequency of occurrence of these errors, as well as the consequences or severity of harm they cause and finally what can be done to reduce the risk of potential harm to an acceptable level. Health care has changed dramatically over the past forty years, leading to an expansion in the role and responsibilities of health care risk management professionals. In the early years of the profession, health care risk managers focused primarily on exposures that related to general and professional liability. Today, health care risk management professionals must manage not only those exposures but also exposures that relate to managed care and capitation risks, mergers and acquisitions, employment and workers’ compensation risks, and risks related to corporate compliance and organizational ethics.

Despite the significant changes in health care over the past decades, the risk management process has remained virtually unchanged and continues to serve the same purpose: to maintain a safe and effective health care environment for patients, visitors, and employees, thereby preventing or reducing losses to the organization (Carroll, 2009). Over the years, health care risk management has moved from a discipline focused almost exclusively on medical professional liability issues to a profession concerned with all of the risks associated with accidental losses facing a health care organization.
The management activities of coordinating, planning, organizing, controlling and directing have been an integral part of risk management (Dabari & Saidin, 2014). Increasingly, risk management is moving toward the concept of enterprise risk management, considering the myriad of complex legal, regulatory, political, business, and financial risks facing health care organizations see Figure 2.

Another recent development in risk management has been the return of focus on patient safety (Carroll, 2009). The purpose of a health care risk management program is to protect the organization against risks associated with accidental losses, regardless of the cause. These can include: risks of injury (to patients, staff and the public); risks to the service user experience; risks to the compliance with standards (statutory, clinical, professional and management); risk to objectives and projects; risk to business continuity; risk to reputation, risk to finances as well as risk to the environment (Carroll, 2009).

The delivery of health care continues to change, so must the structure of risk management programs. The existing and emerging principles that apply to risk management will need to adapt to ensure safe, cost-effective and clinically effective care. The health care organization as it is known today will be different in the future, with multiple levels and both horizontal and vertical integration. Interdependency on organizational strategic and financial goals must be integrated into risk management program development and must meet the needs of the changing customer base (Carroll, 2009).

2.2. Theoretical framework

The theoretical framework is the “blueprint” for the entire dissertation inquiry. It serves as the guide on which to build and support one’s study, and also provides the structure to define how you will philosophically, epistemologically, methodologically, and analytically approach the dissertation as a whole. According to Maxwell (2005), the theoretical framework helps in summarising what has already been done in the field. The theoretical framework and literature can then be developed harmoniously, and then be used to support the data, interpret the findings, and underlie the recommendations. Therefore in this study literature was reviewed and it was used to formulate this study. Literature is reviewed below under the various subheadings that make up our topic to understand what theory says about ERM practices and implementation challenges and the determinants of adoption.
Theoretical framework is key to establish orderly connections between observations and facts. ERM studies done in various industries have had different outcomes on firm performances depending on applicability and how they were implemented.

2.3. Risk

According to Lundquist (2015), organizations are often called upon to plan for and manage a range of “risks” which, in actuality, are uncertainties in that they lack any historical frequency data which might guide decision-making and judgments. Emblemsvag (2010) clarifies the distinction: “Risks arise due to decisions made, while uncertainty is due to lacking information”. A widely accepted and commonly used definition comes from the ISO 31000, (2009) risk is the “effect of uncertainty on objectives.” An effect is a positive or negative deviation from the expected. Uncertainty exists whenever the knowledge or understanding of an event, consequence, or likelihood is inadequate or incomplete (Lashin, 2016). Risk is defined as the chance of suffering or encountering harm or loss (Njoroge, 2014). Another definition of risk is “the combination of the probability of occurrence of harm and severity of the harm” (IFAC, 2015). Laboratories should pay attention to the methods that are used in order to identify the deficiencies or hazards when errors do occur and to take action to detect and prevent errors before they can affect the results. Risks may be clinical or non-clinical. Risk is an uncertainty associated with a future outcome or event. It is a measure of uncertainty surrounding the achievement of objectives. Risk cannot be avoided but it should be managed. Using information to make decisions is key for strategic leaders. In the context of clinical risk management, risk is defined as an uncertainty in the provision of patient care that, with a projected likelihood of occurrence and a projected impact, is capable of causing harm to patients, to the persons involved in their care and/or to the organisation itself. Value is always a function of risk and return. Many organisations have ventured into risky moves in pursuit of value addition to their firms. Every decision taken has potential to increase, preserve or eroding value and the medical laboratory sector is no exception. Risk management is a requirement of ISO15189:2012 (a standard that most laboratories are working towards to achieve accreditation). It states that, “The laboratory shall evaluate the impact of work processes and potential failures on examination results as they affect patient safety, and shall modify processes to reduce or eliminate the identified risks and document decisions and actions taken.” (Kubheka, 2016). Although risk management may appear
cumbersome and menacing, laboratorians will soon realize that risk management simply involves management processes focused on the delivery of quality laboratory medicine, which have historically been performed on a day to day basis (Kubheka, 2016).

Figure 2.1: Types of risks

Source: Hoppes, Crickette, & Epstein, (2017)

Figure 2.1 summarises the types of risks that can be found in a medical laboratory set up.

2.4. Risk Perception and Risk culture

According to Paek et al. (2017), risk perception refers to people’s subjective judgments about the likelihood of negative occurrences. Many people believe the volume and complexity of risks have increased “mostly” or “extensively” in the past five years, and that finding is consistent across many organizations (Beasley, Branson, & Hancock, 2017).
Despite the fact that most executives understand that an organisation must take risks to generate returns, most organisations are struggling to integrate risk management with strategic planning efforts (Beasley, Branson, & Hancock, 2017). It is therefore critical to find out the risk perception in the Zimbabwe medical laboratory industry.

Risk-management culture is defined as the extent to which risk and risk management are important considerations in all aspects of the corporate decision making process (Santori, 2005). It encompasses the policy dimensions of ERM, the company's philosophy toward risk and its risk appetite, the organizational structure, the governance of the risk-management function, the external disclosures and internal communications, as well as the degree to which there is broad understanding and participation in risk management across (Santori, 2005).

According to an organizational culture that is focused on risk management is a key component of enterprise risk management adoption (Cendrowski & Mair, 2009). There is a very strong correlation between culture and successful ERM implementation. Kanhai (2014) reiterated that creating a culture for risk management is essential to implementing a successful ERM program. Culture is defined by RIMS (2011) as the norms and traditions of behaviour of groups and of individuals within an organisation that determine the way in which they “identify, understand, discuss and act on the risks the organization faces and tolerate.

Risk management is everyone's business and responsibility and it should be considered as an integral part of everyday work. The benefits to both the individual and organisation are based on making sure that the risks to quality and the delivery of patient care are actively minimised altogether (Teare & Masterton, 2003). A related and equally key feature is that this approach allows the reputation and finances of the organisation to be protected, together with the people for whom it has responsibility.

2.5. Risk Management

Risk management is defined as the sequential process of risk identification, risk assessment, and risk mitigation (Kubheka, 2016). According to Njoroge (2014), there is a spectrum of risk from very low to very high risk, and one can never achieve zero risk. Risk management involves anticipation of what could happen, the assessment of the frequency of these errors as
well as the consequences or the severity of the effects caused by it, and finally to decide what can be done in order to reduce the risk to a tolerable or an acceptable level (Njoroge, 2014). Medical decisions and effective treatment planning are dependent on accurate laboratory results; therefore, it is important to understand that in carrying out an effective risk assessment, “one size does not fit all!” (Kubheka, 2016).

Clinical risk management in hospitals and laboratories comprises the totality of strategies, structures, processes, instruments and activities in the fields of prevention, diagnostics, treatment and care that support staff members at all levels, in all functions and in all professional groups in recognising, analysing, assessing and handling risks in the provision of care, thereby increasing the safety of patients, those who care for them and the organisation itself (Kilbridge, 2008). The effectiveness of a risk management program is commensurate with the organization’s ability to identify and analyse its risk exposure (Carroll, R. 2011). Knowledge of the organization is crucial to the success of risk management programs. The consequences of not thoroughly understanding the organization can threaten and weaken a risk management program by causing loss of trust and credibility; wasting resources (money, time, and staff support) by focusing effort in areas that do not significantly affect quality outcomes, patient safety, and fiscal strength; and diminishing the role of risk management professionals by charging them with tasks that do not reduce risk or add value to the organization’s bottom line (Carroll, 2011).

“Risk management guides us over a vast range of decision-making, from allocating wealth to safeguarding public health, from waging war to planning a family, from paying insurance premiums to wearing a seatbelt, from planting corn to marketing cornflakes” (Bernstein, 2012). Risk management needs to be kept simple and seen as an added control to achieving organisational objectives. If risk management is seen as an integral part of setting and reviewing organisational objectives then risk management becomes one element in sound governance. Risk management does not replace what you are already doing but rather leverages these activities and builds on them (Hoppes, Crickette, & Epstein, 2017).

The traditional risk management (TRM) or "silo” approach is the system whereby units or sections of the organization separately manage risks. These approaches view risks as a series of single and unrelated elements with individual and separate coordination and classifications (Dabari & Saidin, 2014).
That change in phenomenon from the traditional to the new approach in risk management is referred to as a paradigm shift (Dabari & Saidin, 2014). Many commentators have emphasized that a TRM approach to risk management may not give the senior management and the board aggregated risk management and of late ERM has become the standard practice across the world because the TRM approach has failed to produce the desired results and that the financial disaster continues to occur from time to time (Dabari & Saidin, 2014).

The “silo” approach to risk management is narrowly focused on threats instead of focusing on opportunities and threats. Beasley, (2006) highlighted that in many projects, the risks are identified and analysed in a random and brainstorming fashion. This can be suicidal for the business as unexpected risks may arise, those which have not been assessed or planned for and have to be dealt with on an emergency basis, rather than be planned for and dealt with in a calculated manner. In the planning or preparation stage, it is essential that potential risks are identified, categorized and evaluated (Beasley, 2006).

Many risk management professionals are adopting the enterprise risk management (ERM) approach, described as a comprehensive process that evaluates all risk exposures confronting an organization from the top down. ERM is a discipline broad in scope and reflects an organization wide, on-going commitment to risk management principles. To be effective, ERM should be part of the organization’s strategic plan and viewed as both a proactive and a reactive process (Carroll, 2009).

There are considerable benefits to implementing risk management, all of which contribute to the increased likelihood that the organisation will achieve its objectives. These benefits include: better identification of opportunities and threats, prevention of potential risks from being realised, reduction of the element of chance, increased accountability and transparency for decisions, more effective allocation and use of resources, improved incident management and reduction in loss and the cost of risk, including insurance premiums, improved stakeholder confidence and trust, improved compliance with relevant legislation and accreditation processes, proactive rather than reactive management, and enhanced governance (Bekefi & Yuthus, 2008), all wanted outcomes in medical laboratories. In contrast, the consequences of not successfully managing risks are significant: negative publicity, complaints, penalties and fines, litigation, loss of services, loss of management time, misuse of resources, injuries, and other adverse outcomes (Bekefi & Yuthus, 2008).
All these negative consequences are not what one could ever wish for. Risk management is a continuous process.

The goal of risk management in health care is to minimise the likelihood of possible events that have negative consequences for consumers / patients, staff and the organisation; minimise the risk of death, injury and/or disease for patients, employees and others as a result of services provided; enhance patient outcomes; manage resources effectively through reliable decision making and planning; support regulatory compliance and to ensure organisational viability and development; encourage proactive management; and identify opportunities and threats (ACHS, 2013).

Risk management process involves the six steps namely: determination of risk management programme objectives, risk identification, risk evaluation, and selection of the techniques to handle the risks, techniques implementation and control and review of the decisions made (Nzokia, 2015). The end result of risk management is a controlled risk-taking environment (Santori, 2005).

2.6. Risk and risk management in medical laboratories

The health care industry is very complex, challenging and currently undergoing a substantial change where the implementation of the patient protection and affordable care act has altered the way health care is delivered and has shifted care to a patient-centric, value-based, integrated, preventative, transparent paradigm (Vila, 2016). Proper quality assurance is necessary to ensure results accuracy and reliability. Risk management is a new concept for clinical laboratories (Ada Aita, 2017). The Zimbabwe government emphasized the need to provide its citizens with quality medical services by strengthening evidence based medicine (laboratory services) (Chidziva, 2014). One way to achieve that was through ISO 15189 accreditation for medical laboratories. Accreditation is a procedure by which an authoritative body gives formal recognition that an organization is compliant and competent to carry out specific tasks according to predetermined standards (Chidziva, 2014). Risk management is a requirement of ISO15189:2012 (Kubheka, 2016). Despite the growing importance of ERM, there is still a lack of evidence on risk management implementation in the medical laboratory industry particularly in Zimbabwe.
Establishing the limitations in implementation and finding out where this industry stands in terms of risk management practice is the major objective of this study. This will facilitate a proper and calculated approach in revamping this sector. Enterprise Risk Management promotes effectiveness, efficiency and responsiveness in the delivery of health services while mitigating risks to the organization and optimizing the organizational performance (Vila, 2016).

Clinical laboratory tests play a critical role in medical decision-making and as such must be reliable and accurate, but unfortunately, no laboratory tests or devices are foolproof and errors can occur at pre-analytical, analytical and post-analytical phases of the testing process (Njoroge, 2014). The author went further to highlight that evaluating possible conditions that can lead to errors and highlighting the necessary steps to identify and prevent errors before they cause patient harm is therefore an important part of laboratory testing. This can be achieved through the practicing of risk management (Njoroge, 2014).

The pre-analytical phase includes all the procedures before the start of laboratory testing processes. This phase of the testing process is responsible for the majority of the laboratory errors, since the related procedures involve many sorts of non-laboratory professionals working outside the laboratory setting, thus without direct supervision by the more qualified laboratory staff (Lima-Oliveira, 2017). Studies have shown that 46% to 68.2% of laboratory errors occur during the pre-analytic phase. (Kubheka, 2016). Analytical this refers to the processes that happen in the actual testing area. Approximately 7% to 13% of lab errors occur during the analytic phase (Kubheka, 2016). Post-analytic phase is the final phase of the laboratory testing process. This phase involves the production of a final value, result, or a diagnostic report (Lima-Oliveira, 2017). Roughly 18.5% to 47% of errors occur in the post analytic phase (Kubheka, 2016). The high error rates seen in the pre-analytic and post analytic phases demonstrate the need for risk management in all phases of the testing process (Kubheka, 2016).

Besides business risk management policies and standards in healthcare centres, which are widespread as they are based on statutory provisions and regulatory authorities, the systematic and comprehensive preoccupation with clinical risk management is gaining importance in the health care system (Kilbridge, 2008). Based on the findings of research conducted in the field of critical error avoidance, risk management has been established as a
core task of management in securing the continued existence of organisations (Kilbridge, 2008). From that even medical laboratories in Zimbabwe will also need to survive and grow as business entities and they also need to provide quality patient care.

Risk management guidelines recommend that the laboratory should play a proactive role in minimizing the potential errors (Eliza & Dobreanu, 2015).

The implementation of quality assurance is one example of a detection mechanism employed by laboratories to alert scientists to test system errors before they impact patient results (Njoroge, 2014). Quality assurance refers to the processes and procedures that systematically monitor different aspects of a service, process or facility to detect and correct problems or variances that fall outside of established standards or requirements (Bucki, 2017). The most important objectives in implementing an effective risk management process and, hence, an internal quality control plan include identifying the potential errors in all phases of testing, and ensuring optimal and proper mitigation by putting in place effective and documented processes (Kubheka, 2016).

For risk management and quality improvement programs to be most effective, the governing body and leadership team must demonstrate commitment to the processes and define their expectations for all stakeholders (ACHS, 2013). In addition, the leadership team should ensure that there are sufficient resources to meet the requirements of the organisation and systems to effectively mitigate, control and manage all risks, and that attention is focused on the core business of the organisation – to care for and treat consumers / patients in a safe and high quality clinical environment (ACHS, 2013). The management of risks in health care should be part of both strategic and operational planning in every area and service of healthcare delivery, clinical and nonclinical.

The International Organization for Standardization's (ISO) 15189 is the gold standard quality criteria for clinical/medical laboratories and accreditation is the recognition of a quality system in full compliance with this particular standard (Bouchet, 2015). Risk management is a requirement of ISO 15189 (Kubheka, 2016). Bouchet, (2015) described it is an obligation for clinical laboratories to use the ISO standard to drive towards accreditation in order to ensure the trust of patients (managing reputational risk) and to gain national and international respect. The challenge is big for African laboratories, which must adopt this standard whilst taking into consideration the specific conditions in which they are based (Bouchet, 2015).
2.7. Enterprise risk management (ERM)

ERM can be known as corporate risk management (CRM), enterprise-wide risk management (EWRM), holistic risk management (HRM), integrated risk management (IRM), and business risk management (BRM) (Liebenberg & Hoyt, 2003). Nueske (2008) defines ERM as a holistic approach to identifying risk, more than regulatory compliance, financial, medical liability, patient safety or general liability thereby creating a portfolio view of risks, identifying interdependencies and interrelationships among risks, offering ability to manage risks within and across business units and improving organization’s ability to identify and seize opportunities thereby giving an organisation a competitive edge.

Figure 2.2 illustrates that when risks are managed holistically it ultimately results in value protection and value creation for the enterprise.

![Figure 2.2: Enterprise risk management domains](image)

Source: Hoppes, Crickette, & Epstein, (2017)
Nueske (2008) went further to highlight that ERM should be considered in the formulation of business strategy and it should involve all levels of management. Enterprise risk management refers to the overall process of managing an organization’s exposure to uncertainty with particular emphasis on identifying and managing the events that could potentially prevent the organization from achieving its objective. ERM is an organizational concept that applies to all levels of the organization. ERM focuses on adopting a systematic and consistent approach to managing all of the risks confronting an organization. Indeed, ERM is considered by many as the fundamental paradigm for managing the portfolio of risks confronting organizations (Liebenberg & Hoyt, 2006). From a managerial accounting perspective, ERM can be thought of as falling under the umbrella of the value-based management approach that provides an integrated framework for measuring and managing an organization, with the explicit objective of creating long-term value for the organization. The identification and analysis of risk on an enterprise wide basis encourages the risk management professional to identify and analyse other areas of risk beyond what is referred to as operational or clinical risk (Carroll, 2011). Those other areas include risks associated with the financial, human capital, legal, technological, regulatory, and hazardous environments.

The Committee of Sponsoring Organizations (COSO, 2004) defines ERM as: “A process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance of entity objectives.” The risk management implementation differs among business enterprises depending on the risk culture and risk appetite (Dabari & Saidin, 2014).

“The rise of risk management in recent years has drawn attention from several commentators who have been marvelling at the increasing spread and codification of risk practices under the term enterprise risk management (ERM)” (Mikes, 2009). There is an increasing focus on risk management in general and on the adoption of integrated risk management practices specifically. In the corporate sector, interest in the integrated and more strategic concept of ERM has grown significantly in the past 20 years (Arena, 2011). “During the first decade of the 21st century, ERM has become identified as a best management practice for organizations of all types, including for-profit financial and nonfinancial organizations, non-profits, universities and government organizations (Lermack, 2008 : 52).
ERM first “entered the business lexicon two decades ago, and has since developed into the gold standard of corporate governance practices” (Blaskovich, 2011). Interest in, and adoption of ERM in the corporate sector has grown significantly in the past twenty years and more U.S. companies have not only adopted ERM, but the role of the board and CEO in reviewing risks and using them for corporate governance has increased significantly, in part due to federal regulatory requirements (Pergler, 2012). As opposed to traditional risk management, where risks are identified and responded to on an ad hoc basis or in silos, ERM “is a process designed to identify, assess and prioritize, and prevent and manage the key risks that may have an impact on the ability of an enterprise to attain their long-term strategies and objectives” (Lermack, 2008). ERM also considers the “upside” of risk or opportunity generation. “Risk management should not be a separate function of the business process; rather managing downside risk and taking the opportunities from upside risk should be the key management goals. The effective management of risk is truly an interdisciplinary exercise grounded on a holistic framework” (Archaryya, 2008).

The Casualty Actuarial Society (CAS) (2003) defines ERM as “the discipline by which an organization in any industry assesses, controls, exploits, finances and monitors risk from all sources for the purpose of increasing the organization’s short- and long-term value to its stakeholders”. A scan through the various definitions of risk reveal three most common characteristics namely; Integrated (ERM must span all lines of business), comprehensive (ERM must include all types of risk) and strategic (ERM must be aligned with overall business strategy). According to Mikes and Kaplan (2014) enterprise risk management consists of active and intrusive processes that are capable of challenging existing assumptions about the world within and outside the organization.

Most ERM programs, particularly in the corporate sector, have their roots in compliance and internal controls. In response to several well-publicized significant business failures in the 1980s and 1990s that occurred as a result of high-risk financing strategies, regulators, ratings agencies, stock exchanges, and corporate governance oversight bodies insisted that corporate senior managers and boards take greater responsibility for managing risks in an integrated and institution-wide manner (CAS, 2003). In the Cadbury Report (1992) it was suggested that governing boards are responsible for setting risk management policy. “These new guidelines explicitly linked internal controls to risk management and extended beyond the financial
sphere, pressuring companies to embrace a broader range of risks in their analysis” (Arena, 2011: 784).

Nueske, 2008 weighed in with a direct comparison of the traditional risk management against ERM. The former is siloed, has little board oversight, has no infrastructure, has no standards and lacks rigor and quantitative analyses. The latter has an integrated view of risk across the organization, has stratification of risk into a portfolio as well as systematic, rigorous, continuous, coordinated well defined process owned by senior leadership and it is linked to strategy and business objectives.

ERM follows a portfolio approach therefore healthcare organizations are able to implement a structure that enables the leadership to make timelier and efficient decisions based on continuous risk identification, assessment and response as well as an enterprise-wide understanding of the impact (Vila, 2016).

2.8. ERM Frameworks and Standards

The use of standards and frameworks is claimed to proactively improve organizational resilience and sustainability (Fox, 2011). A framework is a structure for supporting or enclosing something, a skeletal support used as the basis in something being constructed (RIMS, 2011). A risk management framework is described as “an organizational specific set of functional activities and the associated definitions that define the risk management system in an organization and also the relationship to the risk management organizational system”. Standards are a collection of best practices and guidelines, developed collaboratively and over time, that can be used to improve management systems, processes and procedures. They are not regulatory guidelines or requirements, nor do they often include a set of “how tos” for implementation (RIMS, 2011). RIMS defines a standard as “an established norm or requirement, usually a formal document that establishes criteria, methods, processes, and practices under the jurisdiction of an international, regional, or national standards body”. Standards and frameworks differ from regulations, in that they are not legislated, but are often used by auditors to ensure best practices are being utilized by organizations (RIMS, 2011). The principles in ISO 31000 (Figure 2.3) establish the values and the philosophy of the process, linking the risk management process to the organization’s strategic goals. The framework emphasizes ways of integrating risk management into the organizational culture
so that it is supported, iterative, and effective. The process summarises the flow of how RM can be implemented. The diagrammatic presentation illustrates the principles, framework and the process of RM as per standard. These can vary between organisations but that is a template all frameworks and models can borrow from.

**Figure 2.3: Relationships between the RM principles, framework and process**

Source: ISO 31000

**2.9. ERM Process**

Risk practitioners and researchers identify several elements as necessary for an effective ERM program, including clear communication of the objectives and risk management policies throughout the organization (ISO 2009) and the necessity of sharing a common risk language within the organization (CAS, 2003; Shenkir, 2007). Regardless of definition or framework, most risk management processes follow a similar process: (1) identify objectives,
(2) identify risks; (3) assess risks, (4) respond to or mitigate risks, (5) report on risks, and (6) monitor and review the risk management process.

2.9.1. Objective Setting

Every enterprise exists to provide value for its stakeholders and that internal and external factors can impact those objectives, causing uncertainty or risk. Therefore, the ERM process begins with articulating or setting the strategic objectives for the organization before starting the rest of the risk management process. Risk management should not exist as a separate function, divorced from the organization’s strategic objectives, decision-making, and business functions; ideally, ERM is an integrated component of a governance process that includes awareness of and response to risk (Archaryya, 2008; Lermack, 2008).

2.9.2. Risk Identification

After objective setting, the next step in the risk management process is to identify risks unique to the organization. This process can be initiated by the CRO, a risk committee, or senior administrators and generally involves the use of techniques such as interviews, surveys, review of existing documents, and workshops across the organizations, resulting in a risk portfolio or risk register (Gallagher, 2009). The risk identification process involves a scan of both the internal and external environments, including local, state and federal trends for the industry (Gallagher, 2009).

2.9.3. Risk Assessment

After the risks of greatest concern are identified, those risks are evaluated (ISO 3100, 2009). Each risk must be assessed for impact as well as likelihood. The risk assessment process may include qualitative and quantitative techniques. Generally, an organization evaluates and prioritizes the risks in light of its risk tolerance and appetite for uncertainty set forth in the risk management policy (Gallagher, 2009). The organisation will then come up with a risk register.
2.9.4. Risk Response

Here the identified risks are evaluated and prioritized risks into action plans. At this stage, key risk indicators can be tied directly to key performance indicators. The treatment for the risks can fall into one of five categories according to Gallagher (2009)

- **Reduction**: reduce the likely frequency or severity to an acceptable level
- **Control**: minimize damage after a loss has occurred
- **Transfer**: assign responsibility for performing a risky activity to another party (insurance and indemnification)
- **Acceptance**: assume responsibility (after treatment is in place)
- **Avoidance**: eliminate, or never launch, the activity because the risk is too great

At this stage, a risk owner is often identified and is responsible for consulting with necessary constituents and developing a risk mitigation plan.

2.9.5. Monitoring and Review

After all the above steps, the organization then reviews its risk management program to ensure existing risk assessments reflect current operations, threats, probability, impact, and counter measure. The monitoring and review process is essential to ensure that the risk management program is up to date and that it is working effectively throughout the organization (CAS, 2003). The successful ERM program will include regular progress reports and comparisons to previous risk assessments so changes and refinements can be made appropriately, for continuous reduction of the likelihood and impact. A communication plan for various constituents is critical in this process.

Responsibility for ERM takes place in various places within an organization including internal audit, the chief executive officer (CEO), the board, the risk manager and/or a risk management committee.
2.10. Risk Implementation

Risk implementation is everyone’s responsibility. The board of directors provide guidance, direction and monitoring. CEO has ultimate ownership and sets tone for ERM process, each level of management stays informed and takes ownership of risks at their level and the chief risk officer, if one exists, is facilitator and challenger of the whole process (Nueske, 2008). Several studies have been done on determinants of risk management, implementation challenges and risk management practices in multiple organisations (Acharyya, 2013; Carrol 2009, Dabari & Saidin, 2014; Nueske, 2008; Beasley, Branson, & Hancock, 2017; Acharyya 2008). The results were varied practices and also different implementation challenges depending on the setting. Majority was done in developed countries like USA, and Canada and a few in Africa. The status in the medical laboratory industry specifically in this region of the continent is what this team of researchers want to unearth. In a study by Kanhai (2014) the implementation of ERM was determined by adequacy of risk governance structure, intensity of regulatory environment, quality of organizational culture, and size of the organisation. Dabari and Saidin (2014) investigated in an ongoing study, the effect of board characteristics, external audit quality, internal audit effectiveness, human resource competency, regulatory influence as well as top management support in influencing the implementation of enterprise risk management in organisations. The medical laboratory performs a variety of activities that can be considered risky in their day-to-day operation (Nicholas, 2011). Therefore it became imperative, in view of the not so clearly defined practices, to find out the practices on the ground in the Zimbabwe medical laboratory sector.

ERM can be split into three phases according to Nueske (2008), namely:

**Phase 1:** Implement governance and reporting standards.

**Phase 2:** Enterprise-wide risk assessment that engages all levels of management and all divisions of organization.

**Phase 3:** Implementation of risk mitigation plans, monitoring and reporting.
2.11. Determinants influencing the level of adoption of ERM

Several factors can influence the adoption of ERM. This study will zero in on a few factors namely the regulatory environment, the size of the organisation, internal and external auditors, the compliance to quality assurance standards as well as the financial capacity of the organisation, as applicable to the medical laboratory sector.

**Regulatory environment:** The organisation’s decision to implement ERM is affected by outside elements such as corporate governance, laws and regulatory compliance (Dabari & Saidin, 2014). The Deloitte Enterprise Risk Management Survey of 2008 also noted and highlighted that the primary driving interest behind implementing ERM is regulation and regulatory complexity. One reason for the rise in ERM is due to regulatory change brought by New York Stock Exchange (NYSE) Corporate Governance Rules that explicitly require registrant audit committees to assume specific responsibilities with respect to “risk assessment and risk management,” including risks beyond financial reporting (NYSE, 2003:42).

**Size of the organisation:** Several researches have found a positive correlation between size and ERM adoption. Hoyt, (2006) highlighted that bigger firms are more likely to engage in ERM due the higher complexity of their set up, ability to bear the administrative costs as well the nature of their wider array of risks. Others point out that ERM is more important in larger organisations, however that very size and complexity makes it harder to have an enterprise-view of risk (Deloitte, 2008). In the medical laboratory industry in Zimbabwe we have laboratories of different sizes and therefore it is very important to find the relationship on the ground in terms of size and level of ERM adoption.

**Internal and external auditors:** The quality internal and external auditors are more likely to advocate for the implementation of ERM and they have the influence on adoption (Zwaan, 2011 (Beasley, 2006)). Shenkir (2007) explain that a sound internal control system rests on adequate and comprehensive analysis of enterprise-wide risks and firms are advised to establish ERM.

**Compliance to quality assurance standards:** Organizations should always ensure compliance with regulations, rules and listing requirements of standards about corporate governance and risk management (Dabari & Saidin, 2014).
Top management support: Top management support is required towards effective provision of resources, structure and creation of a RM culture which is critical for enhancing implementation (Dabari & Saidin, 2014). Beasley et al., (2006) also concurred that that top management support is key for the effective implementation of risk management. A positive correlation between top management support and the level of ERM implementation was found.

2.12. ERM implementation challenges

Considering the already highlighted importance of risk management across industries, it is essential to know the current challenges that characterize the process of risk management implementation. The major challenges resulting from the study by Prioteasa, (2017) were establishing a risk function and a corporate culture (cultural capacity for openness), technical challenges, finding a proper ERM framework, lack of risk knowledge, keeping it simple, not recognizing ERM as a change management and risk awareness at board levels and lower levels, not linking risk to overall corporate strategy, and complex environmental challenges.

The list also included: lack of support, lack of financial resources, and involvement from management, difficulty of measuring the performance of risk management, reluctance from employees, lack of a common risk language (Prioteasa, 2017). In an as study done in Kenya by Nzioka (2015), a high risk appetite and resistance to change caused mainly by information asymmetry as far as risk management is concerned. Limited knowledge and awareness was also found as a critical barrier in an Iranian study (Chileshe, 2016). Kerstin et al. (2014) summarised the major challenges as as; inappropriate system, “human errors”, complexity of the environment, challenges in identifying risks and the metrics. Kerstin (2014) also highlighted the lack of expertise as one of the challenges of ERM implementation.

Karyl et al (2012) sighted increased workload as one of the major challenges faced in the implementation of risk management. The authors highlighted that ERM implementation involves a lot of paperwork in the preparation of policies and procedures that can be used to manage risks. This is where it becomes critical to incentivise employs to keep them motivated. Brian et al. (2013) pointed out to senior level management buy-in as a key ingredient to effective implementation of ERM. It can therefore be seen that the challenges affecting the implementation of ERM vary from place to place. The purpose of this study is
to examine the challenges of risk management implementation in order to achieve a broader understanding and evaluation of the subject in the medical laboratory in Zimbabwe.

2.13. Benefits and Critiques of ERM

Enterprise risk management will increase the likelihood of achieving organizational objectives by linking risk identification, evaluation, and response to strategic planning (Abraham, 2013; ISO 31000, 2009). Nueske (2008) also concurred that successful risk identification and mitigation become are key elements of strategic plan. It can maximize stakeholder confidence and trust (ISO 31000, 2009), improve value and competitive position and advantage (Kremer, 2012). While more organizations are striving to link ERM to performance and value, they still find it difficult to demonstrate tangible benefits such as the effectiveness on corporate performance or reputation, with very few corporations being able to quantify the value Arena, (2011) argued that ERM improve decision-making and governance throughout the organization by reducing gaps and silos.

Fraser, (2007) argue that there are a number of concerns with ERM including: gaps in the system due to pre-occupation with the bureaucracy of cataloguing leading to oversight of one major risk that could significantly impact an organization; risks are difficult to evaluate objectively; and the formalization of the ERM process itself leading to regulations and bureaucracy, creating its own potentially negative consequences. There are critiques of the “purely subjective approaches” noting that risk analysis by different groups can produce widely varying conclusions (Emblemsvag, (2010).

Evaluating the effectiveness of ERM and its components requires judgement, which is very subjective and this can be controversial. Assessing the likelihood and impact of an occurrence is very subjective, and how it can be managed, may be influenced by interests and power. A highly likely event may never happen and a less likely event may occur quite often. There is also subjectivity and political interest in identifying and interpreting the risk attitude for an organization. “A lot of organizations shy away from ERM because they can’t see how it provides anything other than just a list of the exposures we’re already aware of” (Essaides, 2013).
Often, in ERM implementation, not enough attention is paid to other management practices already in place, “leaving open the possibility that firms introduce ERM merely as a compliance device, or a self-contained internal control activity, but without assimilating it more closely into business processes” (Arena, 2011:788).


Most of published research on risk management practices and implementation challenges are written on the banking sector (Acharyya, 2013, Kanhai 2014, Dabari & Saidin, 2014) with few focused on the medical laboratory industry. Acharyya, (2013) concluded that the enterprise risk management adoption by insurance companies enables them to minimise their risk and add value for both their stakeholders. Kanhai investigated the factors of ERM adoption in Zimbabwe and found out that the adequacy of risk governance structure, culture, bank size and the intensity of the regulatory environment. Nzioka, (2015) investigated the risk management practices and implementation challenges in the Kenyan power sector. The study identified the number of risks that affected the sector, they also found out that the organisation has a risk management in place but accidents are still occurring.

Therefore, there exists a research gap in the area of overall risk management practices in the medical laboratory sector especially in Zimbabwe. There is need to carry out research to establish the existing risk management practices and implementation challenges in the medical laboratory sector to help the sector to attain its objectives. Experts identified deficiencies of quality information on implementation of ERM. Fraser et al., (2010) survey of risk managers found out that there is a gap in literature on how to tackle various issues of cultural, logistical, historical challenges that are in place in their respective organisations.

After looking at the various facets of the ERM, one can see that it is a very critical area for safety and business performance. The first key aspect is that people should get to understand what ERM is all about, the culture that is currently on the ground. After that people should get to know how they can implement ERM in totality in organisations. To do that the first critical aspect is to understand where they are in terms of ERM, where they should be, the challenges they have faced in implementation and how they can address those challenges to get to the desired state. After understanding all the dimensions of ERM highlighted above one realises that ERM is of paramount importance in the Medical Laboratory.
Addressing the whole process flow in totality from the pre-analytical phase, analytical to the post-analytical phase is very critical in minimising errors and improve business performance of the organisation. This will improve the service greatly in this diagnostic industry and improve the general healthcare at large. It takes everyone to understand the whole concept and the role that they have to play in implementation to achieve that.

2.15. Conceptual framework

Miles and Huberman, (1994) defined a conceptual framework as a written or visual presentation that explains either graphically, or in narrative form, the main things to be studied – the key factors, concepts or variables and the presumed relationship among them. It is the researcher’s idea on how the research problem will have to be explored. Conceptual framework is the researchers’ understanding of how the particular variables in the study connect with each other. Risks ranging from: financial, human capital, legal, technological, regulatory, and hazardous environments can all be found in a laboratory set up. The risk culture of an organisation determines their RM practice. The key determinants of the ERM adoption include regulatory environment, size, internal and external auditors, compliance to quality assurance standards as well as top management influence or support on the implementation process. The researchers tested these various variables in the Zimbabwe medical laboratory sector, in both the private and public laboratory setups.

While it is possible to conduct research studies without a clearly stated framework, Caliendo and Kyle (1996) assert that it is precisely the use of frameworks and the structure they confer on research studies that distinguishes scholarly work from journalism. Focusing research on the literature makes it more relevant and objective to compare what the literature says and the reality on the ground. Also the drawing of conclusions will be made much easier since there will be a comparison between literature and the field.

After interrogating the theoretical framework and literature, the following ERM implementation conceptual framework was adopted. The framework is composed of ERM adoption determinants, implementation challenges, best practices and risk culture in the Zimbabwean laboratory industry, figure 2.4.
2.16. Chapter summary

Literature review section covered what has been done and said about the various sections of the study. In some sections the researchers were agreeing and in some they disagreed. Also the limited studies done in the medical laboratory industry and the absence of studies done in the local industry left a research gap that we seek to explore in the upcoming chapters where we look at the methodology and the findings as well as the discussion, conclusion and the recommendations for future studies.
CHAPTER 3. RESEARCH METHODOLOGY

3.1. Introduction

This chapter covers the research design followed in carrying out the study. It describes the research design, research philosophy, research strategy, data collection methods and data analysis techniques used in carrying out this research. This chapter thus describes and justifies the research methodology adopted to explore the research questions highlighted in Chapter 1.

The study focuses mainly on Medical laboratories in Harare. Although several laboratories have branches dotted around the country, they all have their main branches in Harare and those Harare samples can be used as representatives of practices countrywide. Staff will be randomly selected from the various departments within organisations. Harare laboratories will be targeted because that is where we find the highest concentration of Laboratories’ head offices and also to minimise use of resources as well as time factor since the instruments of data collection involve questionnaires and interviews. Research requires a systematic approach to finding answers to the stated research problem (Saunders et al, 2009). A research onion approach as highlighted by Saunders (2009) will be used.

![Research onion approach](image_url)

Figure 3.1: Research onion approach. Source: Saunders et al. (2009)
3.2. Research Philosophy

For this study the researcher adopted an interpretivism research philosophy. In the social world it is argued that individuals and groups make sense of situations based on their individual experience, expectations and memories. Meaning is therefore constructed overtime and constantly reconstructed through experience resulting in many differing interpretations. It is these multiple interpretations that create a social reality in which people act and behave (Saunders, 2009). Research philosophy is subdivided into two paradigms which are essential to social science researches namely positivism and phenomenology which however differ in ontology and epistemology.

3.2.1. Positivism

Positivism implies that the role of the researcher is limited to data collection and interpretation of the findings through objective approach and the research findings can be observed and quantified. The researcher applied this approach as some data gathering instruments implied quantifiable methods. The approach depends on quantifiable observations that lead to statistical analysis. The researcher applied phenomenology approach in this study.

3.2.2. Phenomenology

Phenomenology focuses on experiences, events and occurrences with minimum regard for the external and physical reality. Phenomenology is a variation of interpretivism. Gummesson (2003) argues that every research is interpretive and more researchers contented that every researcher battles with the problem of risk perception while considering objective versus subjective viewpoints, only to favour the subjective perspective as more balanced. Interpretivists believe that the topic of research can be largely understood through subjective interpretation, which helps to gain real insight in and understanding of the subject. They also argue that individuals understand various situations through their experience, thinking and expectations (Easterby-Smith et al., 2012).

Bhattacherjee, (2012) in his researches employed qualitative methods such as questionnaires and unstructured interviews and rejected the positivism by its association with quantitative research methods such as experiments. Cohen, Manion and Morrison (2007) moreover
explain that positivism cannot be applied to the study of human behaviour where immerse complexity of human nature and elusive and intangible quality of social phenomena contrast with the order and regularity of the natural world. This is more related to the field of RM where risks can be viewed from a human judgemental perspective. The anti-positivists accentuated that social actions must be studied through interpretive means centred upon understanding of the meaning and purpose that employees attach to their personal actions (Bhattacherjee, 2012).

Considering the nature of ERM, the researchers chose a mixed approach (both positivism and phenomenology) as it encompasses all dimensions in ensuring that the research is done properly.

3.3. Research Approach

In this study what has been said about ERM in general is tested in the Medical laboratory industry therefore this research approach is a deductive one. Research approaches can be either deductive or inductive. Inductive reasoning makes broad generalizations from specific observations. Deductive reasoning, or deduction, starts out with a general statement, or hypothesis, and examines the possibilities to reach a specific, logical conclusion. In this study we are finding out whether what has been hypothesised in other industries is applicable in the medical laboratory sector as far as ERM is concerned.

3.4. Research design

The research was a mixture of qualitative and quantitative methods. Data was collected from the six big laboratories in Harare. The study took a survey approach, which sought to investigate RM practices, risk culture (strengths and deficiencies), challenges faced when implementing ERM as well as some of the key determinants of the adoption of ERM in the laboratories. The study was conducted using descriptive research design which was considered appropriate in describing and evaluating the current state of RM in the medical laboratory industry.
3.4.1. Descriptive Research

The descriptive research is a method of collecting information by interviewing or administering a questionnaire to the population under study Orodho, (2005). Kombo (2006) further postulated that descriptive research studies are not only limited to fact findings but may often result in the formulation of important principles of knowledge and solution to apparent significant problems. Therefore, it cannot fit well into the category of either qualitative or quantitative but rather it applies the elements of both within the same study.

In line with the views advocated above a descriptive research bests suits this investigation in that it will avail the present condition of RM practices in the industry. The deficiencies, strengths in RM processes, culture and challenges as well as determinants of adoption faced in ERM implementation are clearly ascertained as highlighted in literature. Descriptive researches offer information for future course of action and hence suit this research as there is a need for future action in components which are behind (Sekaran, 2010). Descriptive research allows a thorough study of characteristics associated with a subject population such as who, when, where, what, and how of a topic. Thus, this study is broad, covering different objectives towards aiming at finding the RM practices, whether the current culture support ERM implementation and the determinants of ERM adoption in the medical laboratory industry. This is more relevant to the investigation of ERM practice and implementation (Cooper and Schindler, 2011).

3.5. Sampling, target population and sample size

Sampling techniques can be classified into two major groups, probability (representation) and non-probability (judgmental) sampling (Saunders et al. (2009). Sampling was done in four stages. The first stage involved purposive sampling were Harare laboratories were targeted because that is where we find the highest concentration of laboratories’ head offices and also to minimise use of resources as well as time factor since the instruments of data collection involved questionnaires and interviews.

The second stage involved selecting six big laboratories (those with a staff compliment of fourty and above) and this was done through purposive sampling technique. At the third stage within the organisation, stratified random sampling technique was applied. Staff at various levels within the organisation (management, practitioners, front officers, nursing department
as well as the housekeeping departments) formed the different strata. Within each strata one individual was selected randomly, at the fourth stage, and were given questionnaires and interviewed to assess how ERM is viewed at the different levels and departments within the organisation. This was meant to arrest low turnout, a known problem with most questionnaires. Therefore purposive sampling was used.

According to Saunders et al. (2007), the sample size was defined as the number of people to be surveyed. In a study by Kanhai, (2014) to determine the factors of ERM adoption in Zimbabwe, the researcher used a sample size of 18. In a study similar to this one done by Nzioka, (2015), the researcher used a sample size of 10. In this study a sample of 41 was used, table 3.1. Questionnaires were directed to all representative departments within organisations. ERM can only be effective when all people across all levels from front officers to top management are familiar with the requirements and the measures put in place.

Table 3.1: Respondant distribution

<table>
<thead>
<tr>
<th>Targeted segment</th>
<th>No. of Questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSMI Clinical Laboratories</td>
<td>16</td>
</tr>
<tr>
<td>Parirenyatwa Group of Hospitals</td>
<td>5</td>
</tr>
<tr>
<td>Pathology Laboratories</td>
<td>5</td>
</tr>
<tr>
<td>Lancet Clinical Laboratories</td>
<td>5</td>
</tr>
<tr>
<td>Cimas Medical Laboratories</td>
<td>5</td>
</tr>
<tr>
<td>NBSZ</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
</tr>
</tbody>
</table>

3.6. Procedures

After the proposal was approved we send out letters to the various laboratories in Harare asking for permission to contact our research by administering questionnaires to their staff members. Upon approval explanations on the scope of the research project and how we expect it to benefit the Zimbabwean community and policy implementation were given. A
pilot study was performed in Harare to test the content validity of the questionnaires, willingness of response, terms and its understandability, and time taken to respond to the questionnaire. Questionnaires were hand administered and an interview contacted after responding to the questions. Where the people involved did not understand, the questions were explained by the interviewer.

3.7. Instrumentation

To ascertain the validity of the research instruments, the researchers used a suitable probability sampling for the study. And as such, each sample represented the true position of the population such that the sample could be generalised. The researchers made sure that the questions used in interviews and questionnaires were extracted from research objectives and research questions. The questionnaires were rechecked to eliminate bias in formulating questions. The researchers designed a structured questionnaire for gathering data, as well as a set of interview questions for purposes of following up to get detailed explanations of the results of the questionnaire survey. Questionnaires and interviews were used to gather information. Both were well structured to gather enough information to address the objectives. Questions were explained to the respondents to make sure that they understood them fully before responding. The questionnaires were designed to probe the hard aspects of risk management in the laboratory through a yes/no question, likert scales to probe the RM soft aspects, RM culture and ERM implementation challenges. Open-ended questions were included to allow respondents to highlight some issues which might not have been captured well in closed questions. Interviews supplement these questionnaires by interviewing the respondents in the various organisations. That enabled both validating the results of the questionnaire and digging deeper on conflicting information received on potential issues. To determine risk management practices and the strengths and weaknesses, culture and determinants of ERM adoption the questionnaires were distributed to staff at all levels from management, medical laboratory scientists, nurses, to general hands at the various institutions. People who were most likely to understand the subject were chosen in the study. Six laboratories namely PSMI clinical laboratory, Cimas medical laboratory, Lancet clinical laboratory, Pathology laboratory, Parirenyatwa group of hospital laboratory and the National Blood Service Zimbabwe (NBSZ) laboratory participated in the study.
3.7.1. Validity and reliability of research instruments

To ascertain the validity of the research instruments, the researchers used suitable probability sampling for the research. And as such, each sample was a representative of the true position of the population such that the sample could be generalised. The researcher made sure that the questions used in questionnaires and interviews were extracted from the research objectives and research questions. Biases in formulating questions were eliminated by rechecking questionnaires.

Reliability is the level to which analysis, procedures or data collection methods would yield reproducible findings (Saunders et al., 2009). The researcher maintained the measure that produces the same result if probed repeatedly in the same way. Reliability was analysed using the Cronbach’s coefficient alpha on the SPSS.

3.8. Data presentation and analysis

Data was collected and compiled and edited for accuracy, relevance, completeness, reliability and consistency through the use of computer generated programs namely SPSS and Microsoft Word for computing summations, percentages, and tables that are important for clear data analysis and presentation. SPSS is a Windows based program that is used for statistical analysis and to create tables and graphs. SPSS is a vital tool in data analysis because it includes data labelling options, can generate numerous tables, recorded output, and powerful statistical options while those of excel include, easy data entry, software widely available, quick and easy pivot tables and nice and flexible charting options. SPSS is widely used by health-care researchers, market researchers and survey organizations among others because of its ease of use and data management capabilities. SPSS uses the following statistical methods, descriptive statistics, bivariate statistics such as means, correlation, analysis of variance (ANOVA), and numerical outcome prediction. Hence the researcher chose these tools because they are appropriate for the study, data analysis and presentation.

The data was quantitative, thus, descriptive statistics, percentages, frequencies, and Likert scale were used to analyse the data. The overall ERM score for the organisation was obtained by aggregating scores of dimensions by using the averaging method. An individual dimension score was computed using a similar procedure of corresponding sub-dimensions. The mean scores were ranked to see if the risk culture supports ERM implementation and to
assess the adequacy of RM best practice. Data analysis results are presented in tables, figures and the radar scales.

Significance levels between variables were tested using the sample T-Tests. Statistical significance was then used to determine the strength and direction of the observations between groups to see whether they are real or simply due to chance.

3.9. Delimitations

The researcher chose not to observe multiple laboratories, even though such comparisons might have been more valuable. However most laboratories have branches in Harare and the practices in these laboratories in Harare are a representation of other branches countrywide. I distributed the questionnaires to the management, practitioners, front officers, nursing department as well as the housekeeping departments, because the way each department manages risk may be different and assessing all levels in an organisation will help us to see if there is information symmetry in the organisation. The questionnaires were distributed in May 2018.

3.10. Limitations

Due professional care would be executed in this study; however, the following limitations were anticipated:

i. **Researcher Bias:** - The Researcher acknowledges being part of one of the medical laboratories under investigation, and hence independence may have been compromised to some extent. The Researcher exercised the greatest level of professionalism to prevent bias as far as possible, and ensure impartial opinion and treatment of research subject and persons interacted with.

ii. **Information limited disclosure:** - While authority to access information was granted, there was potential of limited disclosure of pivotal information due to fear of being reported to compliance organisations and competitors. This may have compromised the quality of information available for analysis in the study but we hope that was not the case because the information that was required was not confidential information.
The researcher used the close links with the various laboratories to ensure that they could be trusted with the information.

iii. **Complexity of compound effects**: - The Zimbabwean scenario has been characterised by a myriad of factors that affect several lines of business. Failure to implement ERM may be a result of the several challenges facing the business community.

iv. **Time and resources constraints**: - I would have ideally required more time and more resources to cover the whole country and every laboratory but time and resource limitations forced us to go the sampling route.

### 3.11. Ethics

In conducting this research the following ethical considerations were taken into account.

i. **Permission**: - Interviews and questionnaire answering was subject to the granting of permission from the various laboratory heads.

ii. **Use of information and Confidentiality**: - Every aspect of this research was treated with the adequate confidentiality and necessary safeguards from unintended disclosures. The researcher kept all the questionnaires and gathered information under lock and key in the university library. Information obtained was used for academic purposes only.

iii. **Informed consent**: - Participation in this study was free. One was free to choose to take part in this study after being given enough information about the whole investigation. Participants were also free to withdraw at a time where they feel so in a study. Views and opinions expressed were solely for the reasons of this study and no correspondence shall be entered into after this study.

iv. **Dignity**: - respondents and interviewees maintained their dignity during, and after, the process. No action, in whatsoever form, was instated post the findings of this research.

v. **Unbiased**: - Questions in the questionnaire and interview were those addressing the objectives of this study only. The questions were unbiased towards a certain outcome.
Participants were chosen because of their positions and the laboratories that they work for, no bias was exhibited.

vi. **Confidentiality**: names of the various laboratories or respondents were not published. Findings were only used for academic purposes

3.12. **Chapter Summary**

This chapter has described and justified the research design. This survey used descriptive research to evaluate the frameworks which insurance companies adopted in the implementation of ERM, and then to assess the practices, challenges and determinants of the implementation process. A questionnaire and interview surveys were conducted for six medical laboratories. The results from the survey were analysed and subjected to descriptive statistics and rankings to draw conclusions on the research questions. The upcoming chapter presents the findings from the field study.
CHAPTER 4: RESULTS

4.1. Introduction

This chapter covers the analysis of data, findings and discussion of the study. The respondents highlighted and explained the RM practices, implementation challenges as well as ERM adoption determinants. The collected data is organised, summarised and interpreted in this chapter. Presentation and analysis will focus and be structured on the specific research problems, objectives and questions of the research study. Data presentation methods were chosen carefully to give the best possible interpretation there could be.

4.2. Revisiting research objectives

- To evaluate the risk management practices in the Zimbabwe medical laboratory industry.
- To determine whether the current risk culture supports ERM implementation in the medical laboratories in Zimbabwe.
- To ascertain the enterprise risk management (ERM) implementation challenges in the medical laboratories in Zimbabwe.
- To determine the determinants of risk management adoption in the Zimbabwe medical laboratory industry.

4.3. Response rate

The researcher obtained a fairly satisfactory response rate which allowed for proper generalisation of the results. The researcher hand delivered 50 questionnaires and a total of 41 questionnaires were returned representing 82% response rate, table 4.1. This response rate is deemed good and acceptable as purported by (Mundy, 2002). Mundy (2002) suggests that a response rate above 80% allows for generalisation of the results obtained. The high response rate was achieved due to the use of purposive sampling technique that was adopted in this research. The researcher started by identifying the top 6 laboratories and these laboratories were made up of different departments namely: management, practitioners, nursing department, front officers, and housekeeping department. These departments were classified in strata using stratified sampling.
Table 4.1: The sample frame for the questionnaire

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Questionnaires Dispatched</th>
<th>Questionnaires Returned</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSMI Clinical Laboratories</td>
<td>16</td>
<td>16</td>
<td>100%</td>
</tr>
<tr>
<td>Parirenyatwa Group of Hospitals</td>
<td>7</td>
<td>5</td>
<td>71.4%</td>
</tr>
<tr>
<td>Pathology Laboratories</td>
<td>6</td>
<td>5</td>
<td>83.3%</td>
</tr>
<tr>
<td>Cimas Medical Laboratories</td>
<td>7</td>
<td>5</td>
<td>71.4%</td>
</tr>
<tr>
<td>NBSZ</td>
<td>7</td>
<td>5</td>
<td>71.4%</td>
</tr>
<tr>
<td>Lancet Clinical Laboratories</td>
<td>7</td>
<td>5</td>
<td>71.4%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>41</td>
<td>82%</td>
</tr>
</tbody>
</table>

Source: Primary Data

4.3.1. Demographic distribution

4.3.1.1. Gender distribution

Figure 4.1 demonstrates that the male composition is more than that of female, though the researcher tried to strike a balance between males and female. Males constituted 61.6% of the sample. These results can be justified by the nature of the industry which is male dominated and few women are trained in these areas. However, the laboratory industry is encouraging qualified women to apply for future vacancies in order to close this gap. Figure 6 is exhibiting the gender distribution of the sample.
Figure 4.1: Distribution of respondents by gender

Source: Primary Data

4.3.1.2. Age distribution

In carrying out an ERM research it is imperative to study age group of the respondents since age is directly related to work experience. It can be observed in Figure 4.2 that majority of the respondents were within the age range 30 to less than 40 category representing 48.8% of the respondents. It can also be noted that 46.3% fall in the 20 to less than 30 category and 4.9% fall in the 40 and above category. It can be concluded that the composition of the sample was a true representation of the whole population, since the industry is dominated by youngsters. The respondents in these age groups especially the 30 to less than 40 is mainly composed of the people who are managing various risks in the respective laboratories.
4.3.2. Zimbabwe medical laboratory industry work experience of the respondents

Work experience of the respondents was very important since the researcher wanted to ensure that the questionnaire was answered by experienced individuals with a sound understanding of business processes. The majority of the respondents were in the less than 5 years category of experience. The industry is dominated by the younger generation who are more qualified than the older generation who predominantly had diplomas. Since risk management is still new to the industry most youngsters are sent for training and they are actively participating in its implementation processes. 46.3% were in the experienced category of five to ten years and only 2.4% were in the 10-15 years category. The sample was a fair representation of the population in the medical laboratory industry. Table 4.2 shows the work experience of respondents from the six laboratories.

<table>
<thead>
<tr>
<th>Working experience</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid less than 5 years</td>
<td>21</td>
<td>51.2</td>
</tr>
<tr>
<td>5 to 10 years</td>
<td>19</td>
<td>46.3</td>
</tr>
<tr>
<td>10 to less than 15 years</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Primary Data
Therefore, it can be observed that the responses obtained from questionnaires are a true representation of all the laboratories since each and every experience range is included in the sample. This is supported by Beasley et al. (2013) and Acharryya (2013) who postulated that ERM research samples should include all the stakeholders involved in managing risks and those affected by risk management activities. Having analysed the composition and the key attributes of the respondents the researcher went on to analyse the data in greater detail.

4.4. Reliability Statistics

The researcher tested the quality of data collected using Cronbach’s alpha coefficient for internal consistency reliability of scales in the questionnaire. The reliability statistics of four categories are shown in Table 4.3.

### Table 4.3: Reliability statistics

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s Alpha</th>
<th>N of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERM best practices</td>
<td>0.923</td>
<td>21</td>
</tr>
<tr>
<td>RM implementation challenges</td>
<td>0.748</td>
<td>14</td>
</tr>
<tr>
<td>Risk culture</td>
<td>0.887</td>
<td>20</td>
</tr>
<tr>
<td>ERM determinants</td>
<td>0.744</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: Primary Data

The data collected passed the reliability and consistence test as depicted by the Cronbach’s Alpha of more than 0.74 for all the factor dimensions of the research. Munday, (2002) postulate that a Cronbach’s Alpha of more than 0.7 demonstrates high level of consistency and reliability. The results obtained allows for generalisation of the findings to represent the whole population in the laboratory industry.

4.5. ERM best practice

It is important for ERM drivers to carry out a needs assessment on the existing RM systems and processes in place before introducing the new program and by so doing, the ERM drivers will be able to complement the existing system rather than to make wholesome changes. Generally all organisations manage risks, just that some do so formally and some informally (Kubheka, 2016). Allowing staff members to own the formalisation processes and the
breaking of silos is a good way of moving forward. To analyse the gaps respondents were asked questions on various issues that define ERM practice. ERM best practise is well defined in the ISO 31000 guidelines and their requirements were the ones that were used to test the market using a questionnaire and interview.

4.5.1. Risk management policy

According to Tables 4.4 and 4.5, the respondents perceived twenty one elements as critical components which need to be addressed by Zimbabwe medical laboratory industry. Amongst the elements, it was found that the Zimbabwe medical laboratory industry does have a risk management policy in place (yes = 80.5%). On further interrogation in the questionnaire and interview the researcher found out that the organisation uses different policies like the quality manual, safety manual, Safety and Health, Environment and Quality (SHEQ). Those who thought that they have a risk management policy in place were referring to the safety and quality policies. The question on whether the RM policy document supported the goals and objectives of RM scored the mean of 3.65 but as highlighted above most people were referring to a wrong policy. This finding indicates that some form of risk management is being done in the industry; it is just that it is incorporated in quality assurance. That is consistent with assertions from Kubheka, (2016) that risk management is not new to clinical laboratories but only formal RM is new.

4.5.2. Risk Common Language

Majority of the laboratories do not have risk common language documents (no = 55%). During interviews different respondents within the same organisation were speaking different risk languages showing information asymmetries within organisations. In good RM practice people in an organisation speak the same language. Lack of a risk common language document was also found to be an obstacle in ERM implementation by Renault et al., (2016).

4.5.3. Risk Management Expertise

The RM function was not adequately qualified in RM as shown by 57.5% who said that the central risk function was not qualified, and 53.8% who said there were no risk committees. A scan through the various laboratories showed that only one laboratory had a defined risk management department. The rest had RM functions incorporated into the quality assurance
departments. This is consistent with findings from Yaraghi (2011) who highlighted that organisational structure can be a challenge in ERM practise.

4.5.4. Risk Ownership

Risk management ownership is not clearly assigned at all levels for all risks (mean=3.15), this may be as a result of lack of RM policy which leads to a silo way of managing risk. Majority of respondents did not know the risks which they own. Most of the questions asked during the interviews were referred to RM and quality assurance department which showed that these departments seemed to be the owners of all the risks to which the organisation is exposed to. RM responsibilities need to be given to people so that there is ownership of the proceedings. Rotami, et al. (2015) in a study about RM implementation in the United Kingdom concurred that lack of ownership was one of the challenges faced in RM. Mazlina and Amirah, (2015) also highlighted the importance of ownership. ISO 31000 (2009) defines a risk owner as a person with an accountability and authority to manage risk.

4.5.5. Communication

The risk status and changes in the level or overall organisation’s risks are not communicated regularly in various laboratories (mean=3.12). From the interviews, the researcher discovered that only two organisations have an easy and clearer communication channel on risks even if it is bad news. In other organisations risks are not reported freely, in some cases there is even a tendency to victimise the person who would have raised the issue. Even in organisations where reports can be raised easily sometimes the feedback or response delays in coming or it never comes. Therefore communication is a key ingredient of RM implementation. Mazlina and Amirah, (2015) gave similar sentiments that communication is a key ingredient of ERM implementation, where employees should make the developments part of their daily activity. ISO 31000 (2009) defines communication as on-going and iterative processes that an institute does to provide, share or obtain information and to engage in dialogue with stakeholders regarding RM.

4.5.6. Risk Management Training

More respondents had not received RM training since 2017 (51.2%), and from the interview some people had never received any form of RM training since they joined their
organisations. Those who had received some training had much to do with quality assurance issues since quite a number of organisations are working towards accreditation. Resource limitations were mainly raised for the scanty trainings received in the industry. However in the follow up questions one of the key issues raised by employees was that training and RM awareness sessions are of paramount importance to improve RM at organisations. Only one organisation has a risk manager and a risk officer, the rest slot in the RM duties in the quality manager roles. Ciocoiu, (2015) and Fraser and Simkins, (2016) highlighted the need to overcome the lack of training barrier to implement ERM well. Hosseini, et al. (2016) found out that education and training for RM are critical success factors.

4.5.7. Risk appetite and tolerances

Most organisations in Zimbabwe medical laboratory industry does not have a well-documented risk appetite and tolerances in place (60%). In some of those organisations where some respondents indicated that they had those documentations in place, other respondents indicated that such documents were not in place indicating that there is information asymmetry in those organisations. Certain documents are secretly kept in certain departments yet in ERM information should be equally shared across all departments and all employees. It is the level of risk appetite and tolerance which determine what the organisation can take and leave as far as risks are concerned.

Table 4.4: Frequency of responses on the hard aspects of ERM best practice

<table>
<thead>
<tr>
<th>ERM best practice components</th>
<th>(Yes) %</th>
<th>(No) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does your station have a documented RM policy?</td>
<td>80.5</td>
<td>19.5</td>
</tr>
<tr>
<td>2. Is there a risk common language document</td>
<td>45.0</td>
<td>55.0</td>
</tr>
<tr>
<td>3. Is there a RM committee</td>
<td>46.2</td>
<td>53.8</td>
</tr>
<tr>
<td>4. Is the central risk function well qualified in RM?</td>
<td>42.5</td>
<td>57.5</td>
</tr>
<tr>
<td>5. Did you receive any RM training since 2017?</td>
<td>48.8</td>
<td>51.2</td>
</tr>
<tr>
<td>6. Are risk registers used at your station?</td>
<td>70.7</td>
<td>29.3</td>
</tr>
<tr>
<td>7. Do you formally report any risks to your superior?</td>
<td>78.0</td>
<td>22.0</td>
</tr>
<tr>
<td>8. Do you have documented limits that restrict the level of risk that you can take (Risk appetite)</td>
<td>40.0</td>
<td>60.0</td>
</tr>
<tr>
<td>9. Is there a documented Change Management Policy?</td>
<td>43.6</td>
<td>56.4</td>
</tr>
<tr>
<td><strong>Overall score</strong></td>
<td><strong>55.0</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Source: Primary Data
Table 4.5: Responses on the soft aspects of ERM best practice

<table>
<thead>
<tr>
<th>ERM best practice components</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The policy support the goals objectives of risk management</td>
<td>3.6500</td>
<td>1.00128</td>
</tr>
<tr>
<td>2. I understand risk management policy</td>
<td>3.6829</td>
<td>0.90662</td>
</tr>
<tr>
<td>3. Is the risk management policy well expressed and explained?</td>
<td>3.3659</td>
<td>1.04298</td>
</tr>
<tr>
<td>4. Risk ownership is assigned at all levels for all risks</td>
<td>3.1463</td>
<td>1.01393</td>
</tr>
<tr>
<td>5. Is there use of monitoring methodologies such as key risk indicators and risk dashboards</td>
<td>3.3750</td>
<td>1.31437</td>
</tr>
<tr>
<td>6. The risks continuously identified at in my organisation</td>
<td>3.5854</td>
<td>1.09489</td>
</tr>
<tr>
<td>7. The potential impacts of the identified station risks analysed</td>
<td>3.5385</td>
<td>1.16633</td>
</tr>
<tr>
<td>8. The risk status and changes in the level or overall station risks communicated regularly at your station</td>
<td>3.1220</td>
<td>1.00487</td>
</tr>
<tr>
<td>9. The RM log updated on regular basis at my organisation</td>
<td>3.0976</td>
<td>1.20010</td>
</tr>
<tr>
<td>10. Employees and stakeholders are educated on RM and encouraged to actively identify communicate risks</td>
<td>3.4634</td>
<td>1.09767</td>
</tr>
<tr>
<td>11. Risk status meetings carried out at my organisation</td>
<td>2.2439</td>
<td>1.06725</td>
</tr>
<tr>
<td>12. Management fully consider risk in determining the best course of action</td>
<td>3.3415</td>
<td>1.17494</td>
</tr>
<tr>
<td><strong>Overall score</strong></td>
<td><strong>3.30</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Primary data

* - (The following scales are used to measure the respondents’ perception on the adequacy of ERM best practice infrastructure.

Mean scores ranging from $1.0 \leq M < 1.8$: Very poor practise

Mean scores ranging from $1.8 \leq M < 2.6$: Poor practise

Mean scores ranging from $2.6 \leq M \leq 3.4$: Neutral

Mean scores ranging from $3.4 < M \leq 4.2$: Good practise

Mean scores ranging from $4.2 < M \leq 5.0$: Very good practise)

From the evidence provided in Table 6 the means of the items 3; 4; 5; 8; 12 on ERM soft aspects obtained a neutral mean score. Respondents are neutral in their perceptions about the adequacy of ERM best practices on RM, a sign of risk immaturity. Item 11 on whether risk meetings are held was ranked as poor practice, Risk meeting are very crucial for information dissemination to and from the various stakeholders as indicated in ISO 31000 guidelines.
Overall score for ERM soft aspects is in the neutral category (3.32) and 55% of the expected hard aspects are in place. Therefore there is risk immaturity.

After looking at the current practises of RM in the medical laboratory industry in Zimbabwe and comparing with the ISO 31000 guidelines, it can be concluded that the current ERM implementation in the medical laboratory industry is still immature, findings which are consistent with a survey by Beasley et al., (2010), where ERM at various organisations were underdeveloped and immature. Beasley et al., (2016) also found the ERM practise to be “immature and not providing strategic value.” Dabari and Saidin (2014) also found out that RM was still at its formative stage in Nigeria. Prioteasa & Ciocoiu, (2017) highlighted that ERM is a complex process subject to certain conditions and affected by several factors.

4.5.8. ERM best practice maturity in the Zimbabwean laboratory industry

In order to complement the Tables 4.5 and 4.6 on testing the maturity level of the Zimbabwean laboratory industry on the ERM best practice dimension, a radar was used on a scale of 1 to 5, figure 4.3. An average maturity level of 3.30 was obtained for the Zimbabwean laboratory industry. The research reviewed that the laboratory industry is still behind in terms of risk management best practices.
Figure 4.3: Radar scale showing the industry RM best practices maturity
4.6. ERM implementation challenges

Prioteasa and Ciocoiu (2017) alluded to the presence of problems in implementing ERM. Knowing the current state of challenges bedevilling the medical laboratory industry is of paramount importance in crafting any strategy of addressing them. Addressing and eliminating the challenges is necessary for effective implementation of a customised ERM framework. The respondents were asked questions in the questionnaire and in the interview on these challenges. Several challenges were highlighted by the respondents, Figure 6. The following are the challenges that stood out as being apparent in the industry.

4.6.1. Increased workload

Respondents perceived increased workload as one of the major challenges as depicted by a high mean score of 4.0732 on likert scale of 1 to 5. Since the mean score was not enough to draw a valid conclusion, interviews were conducted and most of the respondents stated that the ERM implementation is associated with increased paperwork. One of the respondents stated that “We are already overloaded with the quality systems and accreditation requirements so the burden is too much”. All of the laboratories in the study are either accredited or are working towards accreditation for ISO 15189. This might have influenced the increased workload perception since the processes involve a lot of documentation. This particular challenge seems to be found in the Zimbabwean setting only. However, with the current economic environment prevailing in the country and the recent mass retrenchment exercise that affected the nation allowing employers to release their employees on three months notices of 2016, it was observed that most of Zimbabwean laboratories are operating with a skeletal labour force in order to reduce the operational costs. Karyl et al (2012) also cited increased workload as one of the major challenges of ERM implementation.

4.6.2. Staffing challenge

The respondents posited that the staffing issue was one of the major challenges in ERM implementation as exhibited by a mean score of 3.6829 on a likert scale of 1-5. Most laboratory companies in Zimbabwe are operating with a skeletal staff due to hush economic challenges currently prevailing in the country. Yaraghi (2011) and Rostami et al. (2015) concurred with the findings that human resources and staffing issues are dome of the
challenges faced in ERM challenges. Karyl et al. (2012) also agreed with the findings that increased workload can compromise ability to successfully implement ERM.

### 4.6.3. Organisation structure deters RM implementation

Organisational structure is fundamental for successful implementation of a strategy. Most organisations highlighted that they do not have risk committees and risk officers as exhibited by 54% of the respondents who agreed with the statement that the organisational and reporting structures were major constraints in ERM implementation. An overall mean score of 3.55 was obtained. Most respondents have a feeling that RM is easier managed when there is a department looking into driving the RM of the organisation. It was also found that only one organisation had a RM department in the laboratory companies. Others were incorporating RM issues into the QA department but even the quality managers felt that there should be separation of roles. Yaraghi (2011) and Muralidhar (2010) also highlighted organisational structure as a key challenge in RM implementation. Several scholars agree that having a central risk function with a chief risk officer (CRO), risk policy, and objectives is a very big step in RM implementation (Dornberger et al. 2014; Fraser & Simkins, 2016). Brian et al., (2013) pointed out to senior level management buy-in as a key ingredient of effective implementation of ERM.

### 4.6.4. Timeliness of information is a problem

Slow responses to raised issues and not giving issues the due urgency they deserve is a downfall of many organisations in ERM implementation as shown by a mean score of 3.5128. Some late or no responses are a result of lack of financial resources to address the raised issues or lack of top management support. A follow up to the questionnaire responses indicated that most organisations are facing challenges with delays in resolution of raised issues. Ciocoiu, (2015), Fraser & Simkins, (2016) and Rostami, et al. (2015) also found the time factor being a hindrance to RM implementation.
4.6.5. Inadequate technological support

Lack of technological support was found to be a challenge in ERM implementation with a mean score of 3.500 on a likert scale of 1 to 5. Risk management thrives on efficient technological infrastructure for reporting purposes. This might have arisen due to limited financial resources in the industry due to liquidity crunch currently prevailing in the land. Technology (equipment and laboratory information systems) is a very critical tool as far as achievement of objectives is concerned. According to Machetti (2012) risk technology such as risk dashboards, risk heat maps and risk models are critical in the implementation of ERM. Dornberger et al. (2014), Muralidhar, (2010) also alluded to technological challenges being one of the drawbacks of ERM implementation.

Other challenges highlighted in the industry but that did not necessarily gunner a mean score of 3.5 are highlighted in Table 4.6. The reason why they might not have garnered a significant score is because they might affect one organisation more than the others and vice versa, since the study was focusing on an industry wide study.

However, the standard deviation also offers very critical information to the analysis. Higher standard deviation values mean that the responses are well spread from the mean, implying that the highlighted challenge affect organisations differently, and since the mean score may be affected by outliers sometimes standard deviation can give us an important insight. Therefore the researcher considered the following factors important in the industry as well; lack of support from senior management (SD=1.29), lack of financial resources to implement the program (SD=1.26), lack of RM expertise within the organisation to implement the program (SD 1.18) and lack of information is a problem (SD=1.15). Prioteasa and Ciocoiu (2017) also found the above four mentioned challenges in a literature review study done in Romania. Kerstin (2014) also highlighted the lack of expertise as one the challenges of ERM implementation.
Table 4.6: ERM implementation challenges

<table>
<thead>
<tr>
<th>ERM implementation challenges</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over-regulation in organization hinder RM implementation,</td>
<td>2.6585</td>
<td>.93834</td>
</tr>
<tr>
<td>Lack of support from senior management.</td>
<td>2.9756</td>
<td>1.29398</td>
</tr>
<tr>
<td>Strong competition from other type of management techniques to be implemented.</td>
<td>3.0244</td>
<td>.98711</td>
</tr>
<tr>
<td>Lack of information needed is a problem</td>
<td>3.1000</td>
<td>1.15025</td>
</tr>
<tr>
<td>Failure by leaders to spearhead the project</td>
<td>3.1463</td>
<td>1.03829</td>
</tr>
<tr>
<td>Lack of RM expertise within the organisation to implement the program.</td>
<td>3.1707</td>
<td>1.18115</td>
</tr>
<tr>
<td>Lack of financial resources to implement the program</td>
<td>3.3415</td>
<td>1.25717</td>
</tr>
<tr>
<td>Insufficient necessary level of investment for ERM implementation</td>
<td>3.3500</td>
<td>1.09895</td>
</tr>
<tr>
<td>Wide discrepancy between expectation and practices in RM implementation.</td>
<td>3.4146</td>
<td>1.07181</td>
</tr>
<tr>
<td>Inadequate technology support (i.e. installation of information technology system for risk identification and assessment),</td>
<td>3.5000</td>
<td>1.15470</td>
</tr>
<tr>
<td>Timeliness of information is a problem</td>
<td>3.5128</td>
<td>.88472</td>
</tr>
<tr>
<td>Organization structure deters RM implementation,</td>
<td>3.5500</td>
<td>1.10824</td>
</tr>
<tr>
<td>Staffing is an area posing a big challenge</td>
<td>3.6829</td>
<td>.98588</td>
</tr>
<tr>
<td>Increased workload</td>
<td>4.0732</td>
<td>.95891</td>
</tr>
</tbody>
</table>

Source: Primary data

4.7. Analysis on RM culture Medical laboratory industry in Zimbabwe

Organisational culture was found to be a significant challenge in several studies (Prioteasa & & Ciocoiu, 2017; Kanhai, 2014). It is therefore very important for the organisation to have a risk culture which supports the ERM implementation. Organisational culture determines the success or failure of ERM implementation program and culture should be embedded in the corporate strategy and then cascaded downwards into day to day operation of the organisation. Components of a good RM culture (18 elements) are outlined in Figure 4.4 together with mean of the responses.
The mission, vision, and values of this organisation are clearly communicated. The culture promotes learning from experience. There are consequences of breaching set controls in your organisation. There are specific RM roles assigned to me. Staff feels able to raise risk issues (even if ‘bad news’). There is a RM budget in place for this year. The company is doing a good job at taking calculated risks. The organisation has secure channels/methods for whistle blowing. Employees encouraged to seek out opportunities. There is a general pro-active risk-awareness culture at all levels. The staff is encouraged to challenge existing practices. My organisation responds effectively to external opportunities and threats. My organisation considers the long-term impact of its strategic decisions.

Risk culture maturity in the laboratory industry

Figure 4.4: Radar scale showing risk culture in Zimbabwe medical laboratory industry
The radar was developed in order to assess the level of maturity and risk practices in the Zimbabwean laboratory industry. All the elements were rated on a scale of 1-5 and it was found that the risk culture is still poor in the laboratory industry as depicted by an average rating of 2.81. This simply mean the risk maturity culture is till at 2.81 on a scale rating of 1-5. The radar clearly demonstrates that vision and mission statements are the only components which are clearly communicated in all the labs surveyed.

The results in Figure 4.4 showed that only a few components of culture are perceived to be well practised in the laboratory industry, namely clear communication of mission, vision and values (Mean = 4.2683), which is true since majority of these documents are posted on walls, websites, desktops and calendars for most organisation nowadays so it is actually very difficult to miss them; having a culture that promotes learning from experience (Mean = 3.5250), this is very common in organisations working towards accreditation which are always encouraged to deal with non conformities in a non punitive manner but taking every occurrence as a learning curve and having consequences in place for breaching set controls (Mean = 3.4146).

Eleven items (1, 2,3,4,5,9,11,13,18,19 and 20) in Figure 4.4 showed responses that lay in the neutral zone (Mean scores ranging from 2.6 to 3.4). The standard deviations range from 0.905 to 1.28. Meaning to say that there was a wide distribution of the responses from the respondents some had such practices in place some did not, which makes sense since practices vary from one organisation to the next. Means are affected by outliers and they may not be the best way of presenting data when the responses are not following a normal distribution. A scan through the questionnaire responses shows that the majority of those items indicated on the mean score neutral zone have weak score. Indicating that organisational culture in the industry does not support ERM implementation. The poor culture is consistent with poor ERM practises highlighted above when the researcher interrogated the hard and soft elements of risk. Interview responses also confirmed that culture is a critical driver of risk implementation. Fraser & Simkins, (2016), Rostami, etal., (2015), Ciocoiu, (2015), Yaraghi, (2011), Kanhai (2014) highlighted that organisational culture is key for ERM implementation.
From the study, rewards are generally not aligned to RM goals of the various organisations (mean= 1.9750) this could be as a result of performance appraisals of employees which does not include RM goals. Only one organisation highlighted that in the performance scorecards there is a section on RM and it will result in payment of incentives but the weighting is low. Incentives should be clear and straight forward and employees should be well aware of that so that they strive to achieve the attached objectives. This aspect also shows the levels of senior management commitment to RM. Incentives were also found to be not aligned to RM objectives (mean = 2.000). Closely linked to incentives and rewards is the practice of performances evaluations which are not linked to RM outcomes/duties (2.3659). Linkages of performance evaluation, incentives and rewards to RM outcomes can only be found in organisations where senior management is fully committed to the RM cause. Rostami et al. (2015), postulated the need for putting forward tangible benefits to drive ERM implementation.

Risk appetite is not clearly communicated in various organisations as demonstrated by a low mean score of 2.2439, probably because there were no proper documentations of the risk appetites of the organisations. About 60% of the respondents showed that there was no a risk appetite documents in place. Closely linked to the above is also the revelation that the organisations do not take risks consistent with the stated risk appetite as depicted by a low mean score of 2.3415. This means that laboratory companies do not fully consider the possible consequences of the risk which they take and this may expose them to catastrophic risks which may threaten business continuity. This finding is also justified by the lack of risk management policy in most laboratory companies.

Respondents found their organisations at different levels of RM management from other medical laboratories in the country (2.3659). Different organisations have their own peculiar way of managing their risks akin to their culture and set up, they have different appetites and tolerance levels as well as different ways of managing risks.
4.8. Hypothesis testing

The research tested the following three hypotheses in order to fully meet the objectives of the research.

1. **H<sub>0</sub>:** There is no relationship between ERM best practice and risk culture  
   **H<sub>1</sub>:** There is a relationship between best practice and risk culture
2. **H<sub>0</sub>:** There is no relationship between risk culture and ERM implementation challenges  
   **H<sub>1</sub>:** There is a relationship between risk culture and ERM implementation challenges
3. **H<sub>0</sub>:** There is no relationship between risk management implementation challenges and ERM best practises  
   **H<sub>1</sub>:** There is a relationship between risk management implementation challenges and ERM best practises

Table 4.7: Correlations of ERM best practice, implementation challenge and risk culture

<table>
<thead>
<tr>
<th>Best practise</th>
<th>Risk culture</th>
<th>Implementation challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>best practise</strong></td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td><strong>risk culture</strong></td>
<td>Pearson Correlation</td>
<td>.735**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td><strong>Implementation challenges</strong></td>
<td>Pearson Correlation</td>
<td>-.549**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.001</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

Source: Primary data

Bivariate product moment correlation was performed in order to test the relationship that exists between the factor dimensions of the research. Table 4.7, indicates that there is a strong positive correlation between risk culture and ERM best practices as exhibited by a coefficient of 73.5% \( p=0.000 < 0.01 \). This result demonstrates that organisations with strong risk culture are more likely to implement effective risk management systems which are in line with
internationally acceptable risk management best practices. This result is in sync with the words of Sweeting (2013) who postulates that a robust risk culture in a key ingredient to effective ERM implantation.

ERM implementation is not only determined by the resources employed nor quality of risk management policies but fitness of these for the purpose. Therefore the right fit of organisation culture is critical for the achievement of ERM best practises.

Implementation challenges were found to be negatively correlated to ERM best practice as shown by coefficient of -0.549, \( p=0.01 < 0.01 \) This result demonstrates that ERM implementation challenges have a strong negative bearing on the attainment of ERM best practices in Zimbabwean laboratory industry. This result is consistent with the findings of (Kanhai, 2014) who stated that if the programme is not well implemented the organisation will not be able to comply with the internationally acceptable standards.

The bivariate correlation analysis results also exhibited a negative relationship between ERM implementation challenges and risk management culture as exhibited by a coefficient of -58.6\%; \( p=0.00 < 0.01 \). This result shows that ERM implementation challenges are the major impediments to effective risk culture. According to Sweeting (2013) strong risk culture is the cornerstone of any ERM implementation programme. Since the \( p \) values are less than 0.01 \( H_0 \) is rejected on all the three hypothesis tests that were conducted and conclude that all the factor dimensions tested are related to each other in the Zimbabwe medical laboratory sector.

### 4.9. Types of risks prevalent in the Zimbabwe medical laboratory sector

Figure 4.5 highlights the types and prevalence of risks in the Zimbabwe medical sector. The respondents highlighted in the interview the risks that they thought were prevalent at their respective organisations and the industry findings were combined in Figure 4.5.
4.10. Descriptive Analysis on RM determinants in the Medical laboratory industry in Zimbabwe

It is critical for all stakeholders to understand the determinants of ERM adoption so that appropriate systems and procedures can be structured to ensure successful ERM implementation. This study evaluated factors influencing the adoption of ERM practices in the medical laboratory sector in Zimbabwe Table 4.8.
Table 4.8: Determinants of RM adoption in Zimbabwe medical laboratory industry

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>P -Value with ERM adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory environment</td>
<td>3.9512</td>
<td>.94740</td>
<td>0.002</td>
</tr>
<tr>
<td>Size</td>
<td>3.5366</td>
<td>1.00244</td>
<td>0.002</td>
</tr>
<tr>
<td>Internal auditors</td>
<td>3.7805</td>
<td>.79095</td>
<td>0.001</td>
</tr>
<tr>
<td>External auditors</td>
<td>4.1707</td>
<td>.54325</td>
<td>0.002</td>
</tr>
<tr>
<td>Compliance to quality assurance standards</td>
<td>4.3659</td>
<td>.53647</td>
<td></td>
</tr>
<tr>
<td>Top management support</td>
<td>3.6341</td>
<td>1.06668</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Primary data

4.10.1. Regulatory environment

The results demonstrated that there is a relationship between regulatory environment and the adoption of ERM implementation as depicted by p=0.002<0.05. A mean score of 3.9512 was obtained to further support that the regulatory environment support ERM adoption. ERM structure includes some of the requirements that are enforced for opening or renewal of licences by the regulatory authorities. This is consistent with findings from a study by Kanhai (2014) who also found a significant relationship between regulatory environment and ERM implementation. Regulatory requirements are meant to protect stakeholder interests and safety thereby promoting RM implementation. Legal and regulatory compliance were also highlighted as a key driver for ERM implementation by (Renault et al., 2016). Dabari and Saidin, 2014 also found regulatory compliance to be an element that affects ERM implementation, therefore the results agree on this particular front.

4.10.2. Size

The mean score of 3.5366 was obtained which highlights that the size of the organisation is a key determinant of ERM implementation and adoption in the laboratory industry. A significant relationship was found between ERM adoption and laboratory company size as depicted by p=0.002<0.05).

Bigger organisations are exposed to a myriad of complex risks which range from strategic, operational and emerging hence prompting them to adopt ERM as a risk management tool which address risks in an integrated framework. The size of a company is usually seen in its
assets. Assets are a measure of the economic resources for companies. Managing such requires due care and robust risk management framework which manage these risks in a holistic framework. More complicated and complex organisations are forced to adopt ERM framework as it becomes easier and cheaper to manage in an integrated framework. Bigger organisations especially in the medical laboratory sector are the ones that pursue the accreditation requirements, and the fact that such ventures are costly it calls for having more financial resources to be able to take that route. Bigger organisations have more to protect than smaller ones therefore they are more likely to go the ERM route as compared to smaller ones. Some of the costs involved in ERM like risk transfer especially in the form of insurance requires more resources. However, others argue that the more the size the less the need to adopt ERM as the organisation has more risk appetite and can easily absorb the costs thereby making it unnecessary to adopt ERM. Yazid, Razali and Hussin (2012), Kanhai (2014) agreed with the findings that size is a key determinant of ERM adoption. Several researches have found a positive correlation between size and ERM adoption. Hoyt, (2006) highlighted that bigger firms are more likely to engage in ERM due to the higher complexity of their set up, ability to bear the administrative costs as well the nature of their wider array of risks. Others point out that ERM is more important in larger organisations, however that very size and complexity makes it harder to have an enterprise-view of risk (Deloitte, 2008), who disagreed with the notion that size is a critical determinant of ERM adoption.

4.10.3. Internal auditors and external auditors

The impact of internal auditors is one of the major determinant of ERM adoption in the laboratory industry as depicted by a mean score 3.7805. External auditors were found to have a major impact than internal in forcing laboratory companies to adopt ERM as shown by a mean score of 4.1707 on a likert scale of 1-5. A significant relationship was found between the influence of both internal & external auditors and ERM adoption as exhibited by: p=0.001<0.05 and 4.1707, p=0.001<0.05) respectively. Auditors are more likely to scrutinise the systems and recommend the adoption of ERM to organisations. Auditors have a significant influence in the adoption of ERM. Firms that have or can hire high quality audit firms are more likely to adopt ERM (Dabari and Saidin, 2014). There is therefore a positive relationship between internal and external auditors and ERM adoption. Internal and external auditors are more likely to advocate for the implementation of ERM and they have the
influence on adoption (Zwaan, 2011; Beasley, 2006). Shenkir (2007) also concurred by explaining that a sound internal control system rests on adequate and comprehensive analysis of enterprise-wide risks and firms are advised to establish ERM.

4.10.4 Compliance to quality assurance standards

The need to comply with quality assurance standards was found to be one of the major drivers of ERM adoption as depicted by a high mean score of 4.3659 on a likert scale of 1-5. It was also found that a significant relationship exist between the need to comply with quality assurance standards and ERM adoption at 5% level of significant as shown by the result P=0.002<0.05. Quality assurance standards that are common in the medical industry are ISO 15189 and ISO 9001. These two have requirements for risk management. Therefore since almost all of the big laboratories are either accredited or are working towards accreditation it makes compliance with the standards mandatory. Hence compliance to standards is a key determinant of ERM adoption and is significant in the adoption of ERM. Ciocoiu, (2015) indicated that the nature of the business itself is a key driver for ERM implementation. By nature the medical laboratory business requires that the organisation have an assurance that the results they produce are quality and reliable, which pushes the laboratories to work towards accreditation. In so doing laboratories find themselves having to comply with RM requirements since it is well spelt out in the standard (Kubheka, 2016). Organisations were urged to always ensure compliance with regulations, rules and listing requirements of standards, corporate governance and risk management (Dabari & Saidin, 2014)

4.10.5. Top management support

Top management can be the key driver of ERM implementation as shown by a mean score of 3.6341. A significant relationship was found between top level management support and ERM adoption as depicted by the result p=0.000<0.05). For proper adoption across all the departments the leadership need to come from the top. Top management is always key in providing the necessary leadership, guidance, resource allocation, structure and creation of the right organizational culture (Dabari & Saidin, 2014). A positive relationship was found between top management support and ERM adoption, and is significant in the adoption of ERM. In a study done in the Iranian construction industry, the authors concurred that management support is a critical success factor in ERM implementation (Hosseini, etal,
2016). Renault, et al., (2016), Ciocoiu, (2015), Yaraghi, (2011) also concluded that top management support is of paramount importance in ERM implementation. Beasley et al., 2006 also concurred that top management support is key for effective implementation of risk management.

Therefore the regulatory environment, size of the organisation, internal auditors, external auditors, compliance to quality assurance standards and top management support are significant determinants of ERM adoption in the Zimbabwe medical laboratory sector. Compliance to quality assurance standards is the biggest determinant and size is the least determinant among the factors investigated in this study.

4.11. Chapter summary

The researcher used data analysis procedures earlier mentioned to assist with the analysis of the data collected so that it could be understood better. It was established that there is a poor risk culture in the medical laboratory industry, more needs to be done to ensure that the current culture rises to a level where it can support proper ERM implementation. The various practices in the industry were highlighted and these fall short of international best RM practises. The various challenges bedevilling the industry were highlighted and discussed. The determinants of ERM adoption were well laid out. This information can be used well for intervention or for policy formulation to improve the healthcare of the nation and the region at large. The following chapter looks at the various conclusions from the earlier highlighted objectives and problem statement. With recommendations and areas for further research clearly highlighted.
CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This research study focused on finding out the ERM practices, whether the current risk culture support ERM implementation and the various implementation challenges faced by the medical laboratories in Zimbabwe. Since this industry is so critical to the health care delivery to the nation, and since ERM has the potential to improve the industry both from an operational and a business point of view, it became imperative to carry out this study so that we do a baseline assessment as we look forward to finding ways of closing the identified gaps between the current practices and the international best practices. Conclusions from the study were drawn from the research data, with the intention of answering the stated research questions and the statement of the problem. In this section the research findings were compared to other more or less similar studies in other settings, to put the research into broader context. Conclusions summarise one’s understanding of the processes and dynamics of the subject under study and they summarise one’s judgment of what, if anything, should be done in response to the research questions. Recommendations focused on indicating the solutions to the problems, possible areas of improvement in the study, whilst exposing avenues for further research in the area of study that can probably help to solve some of the limitations highlighted in this research.

This study was done to achieve the following objectives:

- To establish the risk management practices in the Zimbabwe Medical Laboratory industry
- To determine whether the current risk culture supports ERM implementation in the Medical Laboratories in Zimbabwe
- To ascertain the enterprise risk management (ERM) implementation challenges in the Medical Laboratories in Zimbabwe.
- To establish the determinants of risk management adoption in the Zimbabwe Medical Laboratory industry
5.2. Summary of the major findings

Having realised the challenges of ERM implementation in the Zimbabwe medical laboratory sector and the current risk culture prevailing in the industry, the researcher (based on the literature review and the field research) came up with a set of viable recommendations that we suppose can help the various organisations and the MOHCC to revamp service delivery and patient care in the country. Some of the major constraints of the study were the short time frame and the fact that the research did not involve all the laboratories in the industry. The following is the summary of findings as per the objectives of the research.

5.2.1. Current RM practices in Zimbabwean medical laboratory sector

After analysing the current risk practices in the medical laboratory sector in Zimbabwe a number of practices were noted to be lagging behind. Respondents indicated that they have the RM policy in place however it was apparent that people did not really understand the aspects that should constitute a proper RM policy like guidelines, procedures, action plans, agreed timescales. There was no risk common language document in place in the laboratories. It was also found that the laboratory industry is suffering from lack of risk experts who can spearhead the implementation of the programme. There are no risk committees in all laboratory companies; absence of the central risk function was also noted to be one of the areas suffocating the risk management efforts. It was also found that the risks are not clearly assigned to everyone at all levels. Communication about risk issues is also still poor in the industry since there are no formal and secure communication lines. RM training is very scarce in the medical laboratory industry. Risk appetite and risk tolerance levels are not clearly defined and understood by employees despite the importance they carry in guiding managers when making strategic decisions. ERM practises and level of implementation differ from laboratory to laboratory but generally from the study done the practices are generally poor than what is expected in the ISO standards. Overally the maturity level is still very low in the laboratory industry.
5.2.2. Current risk culture and ERM implementation

In order to stand a chance of a successful ERM implementation, the RM culture needs to be strong. People are well versed with the mission, vision and core values and there is a culture that generally promotes learning from experience. However, incentives and performance evaluation are not linked to risk management outcomes and this can affect the level of commitment of employees towards risk management. Channels of communication are not well defined in some organisations, in certain organisations victimisation is a common occurrence when an employee raise a risk issue. Staffs are not encouraged to challenge existing practices and this stifles the culture of continuous improvement. Whistle blowing which is very important in ERM implementation is not backed up by secure channels in the industry. RM budgets are not available and this demonstrates lack of commitment of the organisations towards risk management.

5.2.3. Enterprise risk management implementation challenges

With the complex nature of ERM implementation it comes with several challenges which include increased workload, staffing issues, improper organisational structures to support ERM implementation. Timeliness of information or the delay in intervention or responses to raised issues is still a challenge. There is also inadequate technological support which is critical in developing proper reporting system through key performance indicators and risk dashboards. Lack of financial resources, lack of information and the lack of RM expertise are some of the major issues bedevilling the Zimbabwe medical laboratory sector. Challenges vary from one laboratory to another; however it would be better if the studies were done per institution so that each organisation will deal with their local issues.

5.2.4. Determinants of RM adoption in Zimbabwean medical laboratory industry

Risk management adoption can be determined by a number of factors which include regulatory environment, size of the organisation, internal and external auditors, compliance to quality assurance standards and top management support. All these have a positive relationship with the adoption of ERM in the Zimbabwe medical industry.
5.3. Conclusions

Most of the literature suggests that a successful implementation of ERM contributes to the overall value of the organisation. The medical laboratory industry has certain pieces of proper ERM in place but a lot more needs to be done to match the international best practises of ERM to improve both the business viability and to improve patient care as per the guidelines from ISO 31000, a finding which is consistent with what was postulated by Ada Aita, (2017), Kilbridge, (2008) and Kubheka, (2016). This study concludes that the current risk management practices are poor and current risk culture does not support successful ERM implementation as postulated by Nueske, (2008). Risk management differed amongst enterprises depending on risk culture and risk appetite (Dabari and Saidin, 2014). Therefore the sector needs to build a risk focused culture for successful implementation of ERM. Implementation of ERM in the Zimbabwe medical laboratory industry is faced by a number of challenges, most prominently, increased workload, staffing challenges, organisational structures that do not support ERM implementation, timeliness of information, inadequate technological support, financial resources, lack of information as well as the lack of RM expertise, findings which were consistent with several studies such as Kerstin (2014), Prioteasa, (2017), Karyl et al (2012) and Brian et al (2013).

The implementation of enterprise risk management (ERM) is determined by the regulatory environment, size, internal auditors, external auditors, compliance to quality assurance standards and top management support as depicted by p values which demonstrated positive relationships between the determinants and ERM adoption, findings which were consistent with Beasley, (2006), Dabari and Saidin (2014) and Shenkir, (2007) . The research also concludes that there exist a positive relationship between ERM best practices and risk culture, a finding which is consistent with findings from Cendrowski and Mair, 2009. The two dimensions were found to be negatively correlated to ERM implementation challenges. The findings were consistent with by Kanhai (2014) though he investigated in the banking sector, Cioucou, (2017) who carried out a study in the Romanian construction sector. Razali, (2012) found similar relationship between determinants and ERM implementation in a Malaysian study on public listed companies. The whole focus of ERM is on patient safety (Carroll, 2009)
5.4. Recommendations

Having realised the challenges currently being faced by laboratories in Zimbabwe, having scanned through their current risk culture as well the way they are currently practising RM, and having tested some of the factors that determine ERM implementation the researcher came up with the following possible recommendations.

5.4.1. Training and educating

It is recommended that all the employees at every level of the organisation should receive regular training on risk management issues.

5.4.2. Risk management policy and standard documents

The laboratory companies are recommended to craft customised risk management polices with clearly spelt out objectives, risk appetites and tolerance for the particular organisation. Consulting the ISO 31000 guide when coming up with these documents will help the various organisations to match international best practises.

5.4.3. Creating a RM committee

ISO 31000 guidelines recommend that the risk department should be separate and headed by an influential person for quicker resolutions of issues raised as well as getting buy in from subordinates. The RM team needs authority to be powerful enough. If well integrated in the top decision makers RM can be very strategic as it can drive all other key arms of the organisation well. Giving RM a central function in the organisation could be where strategic organisations are going in the short future. Risk should be separate from audit and the department should play an oversight role. Appointing risk champions that would feed into the risk committee could also be key for bigger organisations.

5.4.4. Incentivising RM initiatives and financing RM

It is a mark of good RM culture to reward staffs who are risk conscious. What gets rewarded gets done more. Recognising outstanding achievements brings about motivation. Having a separate RM budget will make it easier to come up with control measures and responding to
issues quickly especially in big organisations where bureaucracy could be a challenge. Sentiments also highlighted by RIMS (2011).

5.4.5. Top management support

This is a key ERM adoption determinant. Therefore one of the top management and influential people should lead the change management programme of RM to ensure compliance from subordinates. Top down approach is well supported in literature. When the senior management grasp the vision and run with it and the rest of the staff members are socialised the chances of that particular programme succeeding are high.

5.4.6. Open communication and getting buy in from the staff members

Closely related to the above is allowing an open communication system in the organisation. Noting concerns and recommendations and taking action as well as giving feedback on progress or lack of it thereof. Communication channels seem to be a big challenge in a number of laboratories that participated in the study. Communication brings everyone on the same page in an organisation and that is a key way of breaking down silos. Channels for whistle blowing should be made secure because the people on the ground have the information and they are usually the very first to notice malpractices and areas of non-conformities. If people can be incentivised or at least be protected after whistle blowing issues will continue to pop up. People tend to participate more in programmes especially change management ones if they are well involved. Selling the idea to people and let the people come up with risk registers and mitigatory measures and listening to their inputs is a good way of getting buy in. This need to be done right from the start so that the people will feel very much involved.

5.4.7. Conflict management

Conflict creates silos and barriers. Organisations that operate as separate departments find it difficult to integrate when it comes to risk management. Some of the separations in departments could be due to differences especially between departmental heads. Therefore managing and resolving conflicts is key in ensuring unity and integration and ultimately implementing integrated risk management.
5.4.8. Consistent reviews and adhering to set policies and standards

It is one thing to have documents in place and it is another to have them followed religiously and updated to reflect the needs of the time. Consistent progress reviews helps to keep the organisation in check as far as set targets and objectives are concerned. It also keeps the momentum going and it is a key ingredient of accomplishing goals. Following standard operation procedures ensures uniformity and compliance to international best practises. Monitoring and evaluation are as key as implementation.

5.4.9. Creating organisational structures that support ERM implementation

Different from what has been mentioned above is coming up with a set up that has a shorter reporting structure to the top to facilitate quicker decision making. Organisation structure was mentioned as one of the key challenges facing the medical laboratory sector as far as ERM implementation is concerned. A structure should encourage quicker dissemination of information and awareness and captures feedback efficiently. Such a structure should focus on formally managing risks, not on a part time or ad hoc basis.

5.4.10. Adequately staffing laboratories

Staffing issues were raised in almost every laboratory that participated in the study. Adequate staffing is key in ensuring compliance to standard operation procedures (SOPs). ERM comes with an added burden. Increased workload leads to burnout and shortcuts. ERM implementation is not an event but a process that need to be treated with due care. There is need to communicate the vision well, build teams, manage resistance issues, setting up quick wins and reinforcing the changes.

5.4.11. Culture change and accepting ERM as change management initiative

Culture is defined as a way of doing things by various scholars. The current prevailing culture in the laboratory industry does not support ERM implementation therefore there is great need to undergo through a culture change programme to ensure grasping of the new paradigm shift in operations.
5.4.12. Encouraging compliance to QA standards

This was the most powerful determinant of adoption, which makes sense since newer standards are already incorporating RM in their scope. The general industry feeling is that accreditation is the way to go. Most laboratories in the study are either accredited or are working towards accreditation. Therefore encouraging people to go that route does not appear like a new thing but ‘just a continuation along a good path,’ as pointed out by Hoppes, Crickette, & Epstein, (2017) when they indicated that risk management does not replace what you are already doing but rather leverages those activities and builds on them.

5.5. Areas of further research

Purpose of research is to add to the existing pool of knowledge. However the dimension I have taken to do this baseline assessment in the industry requires further edification in the form of more research work to make it a complete piece. Areas of further research are:

- Spreading the study to the whole country, with a bigger sample size and more time frame. It can strengthen the findings more
- Investigating the impact of RM in the medical laboratory industry.
- Establishing the most cost effective RM model for resource limited settings
- Investigating other determinants of ERM adoption

5.6. Chapter summary

The chapter discussed the major findings from the four objectives, the conclusions as well as some of the recommendations and constraints that the researcher felt may help improve the implementation of ERM in the Zimbabwe medical laboratory sector. Areas for further research were also highlighted in cognisance of the fact that research is an on-going exercise.
REFERENCES


APPENDICES

Appendix 2: Questionnaire and interview guide

COORDINATOR, GRADUATE SCHOOL OF BUSINESS BINDURA, Zimbabwe

Cell: 0772 241 401 0772 154 882/887
Fax: 263 – 271 – 7620
Email: donmara@buse.ac.zw

BINDURA UNIVERSITY OF SCIENCE EDUCATION

To whom it may concern:

Dear Sir/Madam

Ref: Request for information for a research project

My name is Donald Vhanda, Student Number B1645370, a final year student at Bindura University of Science Education (BUSE) in the Department of Graduate School of Management student pursuing a Master of Business Leadership [MBL] Degree. I am undertaking a research titled “An Investigation on the Enterprise Risk Management (ERM) practices and implementation challenges in the Zimbabwean Laboratory industry”. The main purpose is to understand the current practices in the industry and possible implementation challenges so that recommendations can be done to the industry to incorporate ERM into their business processes. This information will be solely for academic purposes and will be in partial fulfilment of the requirements for the Master of Business Leadership at Bindura University of Science Education. **I would like to thank you in advance for your positive contribution to the success of the project by your participation in completing this questionnaire. Your responses are of paramount importance in enabling me to obtain as full an understanding of this topical issue. You reserve the right of participation in this study.**

If you have any concerns, please contact the undersigned;

Donald Vhanda
Email address: dvhanda84@gmail.com
Cell: +263 772957195
INSTRUCTIONS:

i) Please answer all questions fully and honestly.

ii) Where boxes are provided indicate your answer by ticking the appropriate box.

iii) Do not write your name or identity on the questionnaire.

SECTION 1: PERSONAL DETAILS

1. Gender?

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<td>Male</td>
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2. Age group?

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<tr>
<td>20 - 30 years</td>
<td>31-39 years</td>
<td>40 years and above</td>
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3. How long have you been employed at your organisation?

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<tr>
<td>1–5 years</td>
<td>6–10 years</td>
<td>11–15 years</td>
<td>16–20 years</td>
<td>20 years and above</td>
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Section 2: ERM Best Practices

Please tick the appropriate response in the boxes provided on the extent to which your organisation practises the following?

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>1. Does your organisation have a documented risk management policy?</td>
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<td>2. Is there a risk common language document</td>
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<td>3. Is there a risk management committee</td>
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<td>4. Is the central risk function well qualified in RM?</td>
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<td>5. Did you receive any RM training since 2017?</td>
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<td>6. Are risk registers used at your organisation?</td>
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<td>7. Do you formally report any risks to your superior?</td>
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<td>8. Do you have documented limits that restrict the level of risk that you</td>
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can take (Risk appetite)

9. Is there a documented Change Management Policy?

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<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
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<th>SA</th>
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<tbody>
<tr>
<td>1. The policy supports the goals and objectives of risk management</td>
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<td>2. I understand risk management policy</td>
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<td>3. The risk management policy is well expressed and explained</td>
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<td>4. Risk ownership assigned at all levels for all risks</td>
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<tr>
<td>5. There is use of monitoring methodologies such as key risk indicators and risk dashboards</td>
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<td>6. Risks are continuously identified at my organisation</td>
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<td>7. The potential impacts of the identified risks are analysed</td>
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<td>8. The risk status and changes in the level or overall organisation’s risks are communicated regularly at my organisation</td>
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<td>9. Are employees and stakeholders educated on RM and encouraged to actively identify communicate risks</td>
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<td>10. The risk management log updated on regular basis at my organisation</td>
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<td>11. Management fully consider risk in determining the best course of action</td>
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<td>12. Monthly risk audits are carried out in my department</td>
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**SECTION 3-RM Implementation challenges**

Do you think your institution is likely to face these challenges in implementing RM Framework?

Please tick the appropriate response in the boxes provided.

**Key:** Strongly Disagree (SD); Disagree (D); Neutral (N); Agree (A); Strongly Agree (SA);
<table>
<thead>
<tr>
<th>QUESTION</th>
<th>RATING</th>
</tr>
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<tbody>
<tr>
<td>1. Increased workload</td>
<td>SD</td>
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<td>2. Lack of financial resources to implement the program</td>
<td>D</td>
</tr>
<tr>
<td>3. Lack of RM expertise within the organisation to implement the program.</td>
<td>N</td>
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<td>4. Lack of support from senior management</td>
<td>A</td>
</tr>
<tr>
<td>5. People is an area posing big challenge</td>
<td>SA</td>
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<tr>
<td>6. Failure by leaders to spearhead the project</td>
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<td>7. Timeliness of information is a problem</td>
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<td>8. Lack of information needed</td>
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<tr>
<td>9. Over-regulation in organization hinder RM implementation</td>
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<tr>
<td>10. Strong competition from other type of management techniques to be implemented</td>
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<tr>
<td>11. Wide discrepancy between expectation and practices in RM implementation</td>
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<tr>
<td>12. Inadequate technology support (i.e. installation of information technology system for risk identification and assessment)</td>
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<td>13. Organization structure deters RM implementation</td>
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<tr>
<td>14. Insufficient necessary level of investment for ERM implementation</td>
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Section 4: Risk Culture

Please tick the appropriate response in the boxes provided

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<thead>
<tr>
<th>Statement</th>
<th>SD</th>
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<th>N</th>
<th>A</th>
<th>SA</th>
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</thead>
<tbody>
<tr>
<td>1. There is a general pro-active risk-awareness culture at all levels.</td>
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<tr>
<td>2. The staff is encouraged to challenge existing practices.</td>
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<tr>
<td>3. Staff feels able to raise risk issues (even if “bad news”).</td>
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<td>4. Employees encouraged to seek out opportunities</td>
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<td>5. The staff is confident that they will not be blamed for failure.</td>
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<td>6. The culture promotes learning from experience.</td>
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<td>7. Rewards are aligned to RM goals.</td>
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<td>8. Risk appetite is clearly communicated in my organisation</td>
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<tr>
<td>9. My organisation responds effectively to external opportunities and</td>
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<tr>
<td>threats</td>
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<td>10. My organisation manages and takes risks consistent with its stated</td>
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<td>risk appetite</td>
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<td>11. My organisation considers the long-term impact of its strategic</td>
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<td>decisions on its risk appetite</td>
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<td>12. The mission, vision, and values of this organisation are clearly</td>
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<td>communicated</td>
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<td>13. The company is doing a good job at taking calculated risks</td>
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<td>14. RM in my organisation is as good as RM at similar Medical</td>
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<td>Laboratories in the country</td>
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<td>15. Incentives are aligned to RM objectives</td>
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<td>16. There are consequences of breaching set controls in your organisation.</td>
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<td>17. Performance evaluation is linked to RM outcomes/ duties</td>
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<td>18. The organisation has secure channels /methods for whistleblowing.</td>
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<td>19. There are specific RM roles assigned to me.</td>
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<td>20. There is a RM budget in place for this year.</td>
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Open ended questions

1. What do you see as your organisation's 3 greatest strengths in risk management?

2. What do you see as your organisation's 3 greatest weaknesses in risk management?

3. What do you believe are 3 ways of improving the current risk management practices in your organisation?

INTERVIEW GUIDE

1. What are the risks to which the organisation is exposed?

2. How would you comment on the effectiveness of the risk governance structures in place?

3. What would you want changed to improve the culture of the organisation towards RM?

4. How do you distinguish between risks and opportunities in conducting your daily tasks?

5. How do you describe the commitment and the demonstration of the organisation to uphold good RM practice?

6. How easy is it for you to communicate any risk issues in the organisation? Explain?

7. Are there any incentives for individuals who manage their risks well? If yes, what are these?

8. Are there references materials in place that makes the entire organisation have a uniform understanding of RM in the organisation?