

Risk culture assessment of a financial services organisation

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PREFACE

This mini-dissertation is the final deliverable in the Centre for Applied Risk Management (UARM)'s taught master's degree programme. The mini-dissertation was written in article format and consists of three sections: Research project overview, Article and Reflection.

This mini-dissertation is the student's work. The student was responsible for the final concept, set up, execution of the research project and writing of the mini-dissertation. The members of the supervisory team contributed in an advisory and technical support capacity on study conception and design, analysis and interpretation of data and critical revision of the manuscript by the student. The mini-dissertation was language edited before submission.

The main study supervisor gave the student permission to submit this mini-dissertation for examination.

ABSTRACT

Academic interest in the topic of organisational culture and its effects on management practice has increased dramatically since the 2008 financial crisis, following which risk culture was identified as a key contributor to bank collapses and losses (Power et al., 2013)

The Financial Stability Board (FSB) has issued guidelines in 2014 to assess risk culture for financial services on the premise that, while risk cultures vary across financial institutions, there are common foundational elements which are indicative of a sound risk culture.

The current literature on risk culture does not include a specific method of assessing risk culture. This study used a pilot study, the 2016 Risk Culture Questionnaire developed by the North-West University Centre for Applied Risk Management, to assess the risk culture maturity of a financial services organisation. We incorporated the FSB guidelines into the online questionnaire by means of additional banking related items.

The sample mainly comprised risk practitioners, with a few participants from business. We received 63 useable responses from 133 (47%) potential participants approached, 88% of which were from risk practitioners. The sample was divided into managers and non-managers.

The results showed that risk management was perceived to be highly integrated within the case study organisation, but significant statistical differences between management and non-management levels emerged for risk understanding, which was one of the risk culture sub-factors identified. Initial opportunities for improvement of risk management awareness were identified to guide the organisation

Keywords: Risk management, Organisational culture, Risk culture, Financial Stability Board

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RESEARCH PROJECT OVERVIEW

Given the global emphasis on prudent risk management in the banking industry following the financial crisis in 2008, it has become increasingly important to ensure that organisations strive towards a mature risk environment. Strengthening risk management is therefore a top priority, with specific improvements in risk culture being one of the recommendations of the Final Report of the Institute of International Finance (IIF) Committee on Market Best Practices (CMBP, 2008). The report found that organisations are making a concerted effort to transition from a sales driven culture to a more risk focused culture. In such an environment, business and the risk function can collaborate to proactively prevent unnecessary losses. This in turn translates into a competitive advantage for the organisation in a tough economic environment.

The challenge is to successfully implement best practices, and in order to do so, the organisation must establish a mature risk culture. The case study organisation is a large, financial services organisation in South Africa. According to the case study organisation's annual integrated report, "effective risk management is key to the successful execution of strategy and is based on a risk focused culture and an effective risk governance structure". Adopting an entrepreneurial culture means that the organisation may have differing understanding of risk and risk culture within the different segments of the organisation. The main research objective of this study was to establish the current state of risk culture in the case study organisation. In order to achieve the main research objective the following secondary research objectives were formulated for this study:

- To understand the organisation's risk culture and to establish the perceptions of participants with regard to the parameters of the risk culture assessment framework of the organisation. The parameters include tone from the top, setting risk goals, providing resources and sound platforms and aligning measurements and rewards.
- To identify the criteria by which a financial services sector regulator would assess risk culture; and
- To establish the perceptions of participants with regard to the parameters of the risk culture assessment framework of the organisation.

The study is based on the approach to culture studies by Hofstede (Hofstede, Hofstede & Minkov, 2010) with a specific definition of risk culture based on integration of formal risk management principles into the organisation, and establishing a link between risk management and meeting the organisation's strategic objectives.

The ***Journal of Risk Research*** is described as “an international peer-reviewed journal that is committed to publishing theoretical and empirical research and commentaries at the forefront of the communication, regulation, and management of risk.” It is published ten times a year. Given the frequency of publication, its international footprint and the subject matter, it is well suited as a vehicle in which to publish this study. This study will contribute to the conversation on risk culture and benefit its readers. The author guideline for the *Journal of Risk Research* is available at <http://authorservices.taylorandfrancis.com//>

ARTICLE

Risk culture assessment of a financial services organisation in the banking sector

1 Abstract

Academic interest in the topic of organisational culture and its effects on management practice has increased dramatically since the 2008 financial crisis, following which risk culture was identified as a key contributor to bank collapses and losses (Power et al., 2013)

The Financial Stability Board (FSB) has issued guidelines in 2014 to assess risk culture for financial services on the premise that, while risk cultures vary across financial institutions, there are common foundational elements which are indicative of a sound risk culture.

The current literature on risk culture does not include a specific method of assessing risk culture. This study used a pilot study, the 2016 Risk Culture Questionnaire developed by the North-West University Centre for Applied Risk Management, to assess the risk culture maturity of a financial services organisation. We incorporated the FSB guidelines into the online questionnaire by means of additional banking related items.

The sample mainly comprised risk practitioners, with a few participants from business. We received 63 useable responses from 133 (47%) potential participants approached, 88% of which were from risk practitioners. The sample was divided into managers and non-managers.

The results showed that risk management was perceived to be highly integrated within the case study organisation, but significant statistical differences between management and non-management levels emerged for risk understanding, which was one of the risk culture sub-factors identified. Initial opportunities for improvement of risk management awareness were identified to guide the organisation.

Keywords: Risk management, Organisational culture, Risk culture, Financial Stability Board

2 Introduction

Poor corporate governance is a major source of enterprise risk (Kendrick, 2005). “Detailed analyses of the significant internationally relevant crises within large financial institutions over recent years have identified the internal risk environment as a key explanatory factor” (Sheedy, Griffin, & Barbour, 2015). The financial crisis of 2008 precipitated increased emphasis and academic interest in the role that risk culture plays in an organisation as an indicator of good risk management practices. For purposes of this study, we define organisational risk culture as how groups of people use risk management principles when making decisions on uncertain future events that could have a negative impact on reaching the organisation’s objectives.

“In the post-2008 global financial crisis environment, directors of financial institutions are expected to provide oversight of organisational culture as it relates to risk” (Sheedy, Griffin, & Barbour, 2015). In the context of our work, we prefer to define risk as “the negative effect of uncertainty on objectives”. “Corporate governance requirements around the world are increasingly demanding that boards of organisations should understand and address their risk cultures” (Power et al., 2013). This was in acknowledgement by the Senior Supervisors Group (2009) of the dramatic failures of corporate governance and risk management at many systemically important financial institutions during the 2008 global financial crisis. These financial institutions were found to have embraced mathematical models as reliable predictors of risk in favour of human judgement (FCIC, 2011).

In a dynamically changing business environment, a culture of risk aversion and compliance needs to be reconciled with values of entrepreneurship and legitimate risk seeking. Kendrick (2005) proposes that this dilemma can be resolved when organisations implement an approach to enterprise risk management which is closely integrated with strategic planning and opportunity seeking, thereby forming the core framework for corporate governance. He argues that a mature risk culture is an important element for the successful implementation of risk management. This study is based on the premise that successful implementation is dependent on the maturity of the risk culture within an organisation. It is therefore essential that we establish the current state of risk culture within the case study organisation, in order to improve on it where necessary. Current academic literature on risk culture does not include a specific method of assessment of maturity levels of risk culture.

This study uses elements from the Switzerland based Financial Stability Board (FSB) guidelines (FSB, 2014) on assessing risk culture as a standard, as well as the Centre for

Applied Risk Management (UARM) Risk Culture Questionnaire (UARM RCQ-2016) developed by North-West University, to measure the current state of risk culture within the case study organisation where no measure exists.

The aim of the study is to assess how participants view the levels of integration of risk management as a discipline into the management of the organisation as well as the practice of risk management as an essential enabler for achieving the organisation's objectives. The results of the survey would then give an indication of the maturity of risk culture. In addition, since the case study organisation is in the banking sector, the FSB requirements (FSB, 2014) were used as a benchmark to measure risk culture.

The remainder of this article is arranged as follows: section 3 briefly provides a literature review of risk management, organisational culture and risk culture. The literature is used to conceptualise a framework within which we define a culture of risk for the purpose of the study. Section 4 discusses the research method used, followed by section 5, which discusses the results; section 6 sets out the conclusions.

3 Background

This section provides a brief background to risk management including enterprise risk management, and the relationship between risk management and organisational culture. Sections 3.1, 3.2 and 3.3 discuss risk management, organisational culture and risk culture, respectively. Section 3.3 expands on the current definition and elements of risk culture, highlighting the importance of risk culture in an organisation.

3.1 Risk management

"Organisations of all types and sizes face internal and external factors and influences that make it uncertain whether and when they will achieve their objectives." The effect of this uncertainty on an organisation's objectives is defined as "risk" (ISO 31000, 2009). The set of coordinated activities to direct and control an organisation with regard to risk is known as risk management (ISO 31000, 2009).

Out of the discipline of risk management emerged an inclusive approach known as enterprise risk management (ERM). ERM has its roots in the late 1990s, as companies searched for ways to provide more effective and proactive containment of their business risks (Barton & MacArthur, 2015). ERM distinguishes itself from traditional risk management in several respects, the most significant of which is that it considers risks from the enterprise

perspective as opposed to focusing on risks that originate and are managed within functional silos or specific business units of an organisation (RIMS, 2010).

Hoyt and Liebenberg (2011) cite the studies of Miccolis and Shah (2000); Cumming and Hirtle (2001); Lam (2001); Meulbroek (2002), who “argue that ERM benefits firms by decreasing earnings and stock price volatility, reducing external capital costs, increasing capital efficiency, and creating synergies between different risk management activities.”

Mikes and Kaplan (2014) argue that while there are proponents of ERM who believe “that risk management is a mature discipline with proven unambiguous concepts and tools that need only regulations and compliance to be put into widespread practice”, risk management approaches are largely unproven and still emerging. This view is supported by Bromiley, McShane, Nair, and Rustambekov (2015), who argue that the difficulties experienced by some leading financial services firms during the 2008 financial crisis have cast doubt upon the efficacy of ERM.

3.2 Organisational culture

Khosla (2015) quotes Schein (1992) in stating that “Organisational culture is the key to organisational excellence and the function of leadership is the creation and management of culture.”

Numerous frameworks for understanding organisational culture have been proposed, using a wide variety of ideas (Kimbrough & Compton, 2009). Hofstede describes culture as “the collective programming of the mind which distinguishes the members of one group or category of people from another” (Hofstede, Hofstede & Minkov, 2010). Schein (2010) describes organisational culture as “A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems.” Power et al. (2013) quote Cameron and Quinn (2011) who state that “An organisation’s culture is reflected by what is valued, the dominant leadership styles, the language and symbols, the procedures and routines, and the definitions of success that make an organisation unique.”

It is the nature of business enterprises to take risks. Li, Griffin, Yue, and Zhao (2013) find that corporate risk-taking is fundamental to firm performance and survival. There are studies which link risk taking behaviour with cultural norms, whether it is country- or companywide. Mihet's (2013) study on the effects of national culture on firm risk-taking found a positive

correlation between understanding the impact of national culture on corporate risk-taking decisions, and internal conduct of multinational firms. Her study also confirmed that culture directly impacts corporate risk-taking.

Li et al. (2013) presents evidence supporting the view of the important role of cultural influences in corporate risk-taking. The relationship between organisational culture and enterprise risk management can be found in the current ERM frameworks. Kimbrough and Compton (2009) propose that culture is featured prominently in theoretical ERM frameworks, though words used to describe it vary. They cite the examples of “context” and “establishing context” as appearing in risk management literature in furtherance of their argument. They also quote a study by Miccolis (2003) that identified “organisational culture” and “organisational turf” among the top barriers to ERM implementation.

3.3 Risk culture

3.3.1 Context and definition

“Interest in the cultures of organisations and their effects on management practices goes back many years and there is an extensive body of scholarship on this topic. This interest has increased dramatically since 2008” (Power et al., 2013).

Levy, Lamarre, and Twining (2010) note that in the aftermath of the 2008 financial crisis, risk culture was identified as a key contributing factor to the various bank collapses and losses witnessed over the past few years. The Institute of International Finance (Green & Jennings-Mares, 2008) found that the “Cultivation of a consistent risk culture throughout firms is the most important element in risk management “. There is strong consensus among regulatory supervisors that a strong risk culture in firms is essential to the safety, soundness and financial stability of the financial industry (IIF, 2009). It is therefore imperative to the financial services industry that a consistent definition of risk culture be identified and applied.

Various definitions of risk culture have been proposed in the available literature. Power et al. (2013) propose that risk culture is “not a separate kind of thing to culture in general but rather a specific kind of framing of the culture problem, allowing general concerns about culture to focus on risk-taking and risk control activities”. In their attempt to conceptualise risk culture, Barton and MacArthur (2015) argue that risk culture is “the product of organisational learning about what has or has not worked for the organisation in the past”.

For the purpose of the present study, risk culture within an organisation is defined as “the norms and traditions of behaviour of individuals and of groups within an organisation that determine the way in which they identify, understand, discuss, and act on the risks the organisation confronts and the risks it takes” (Levy et al., 2010).

Weaknesses in risk culture are often considered the root cause of the global financial crisis of 2008 (FSB, 2014). A sound risk culture consistently supports appropriate risk awareness, behaviours and judgements about risk-taking within a strong risk governance framework (FSB, 2014)

3.3.2 Elements of risk culture in the financial services sector

The FSB is an international body that monitors and makes recommendations about the global financial system. Established in April 2009 as the successor to the Financial Stability Forum (FSF), which was itself founded to promote international financial stability, the FSB has published a guidance document on the foundational elements that contribute to the promotion of a sound risk culture within financial institutions, in which we find the additional elements of risk culture.

It is accepted that risk cultures vary across financial institutions. According to IRM (2012) a risk culture can be measured by means of their Risk Culture Aspects Mode, which encompasses eight aspects of risk culture, grouped into four themes:

- Tone at the top
- Governance
- Competency
- Decision making

The FSB proposes that the elements of risk governance, risk appetite and compensation are the common foundational elements that support a sound risk culture (FSB, 2014). These elements have been elaborated by the FSB’s Thematic review on risk governance (FSB, 2013), “which sets out sound practices for effective risk governance, including the roles and responsibilities of the board, the chief risk officer and risk management function, and the independent assessment of the risk governance framework”. FSB (2013) “set out key elements for: (i) an effective risk appetite framework, (ii) an effective risk appetite statement, (iii) risk limits, and (iv) defining the roles and responsibilities of the board and senior management in establishing the approved risk appetite statement.” FSB (2009) aims “to ensure effective governance of compensation, alignment of compensation with prudent risk taking and effective supervisory oversight and stakeholder engagement in compensation”

Building on the foundational elements of risk culture above, the FSB acknowledges that assessing risk culture is complex. The guidance document notes several indicators or practices which are indicative of a sound risk culture. Awareness of an institution's balance between risk-taking and control can be built by considering the following factors collectively:

- Tone from the top
- Accountability
- Effective communication and challenge
- Incentives.

The case study organisation has adopted a risk culture assessment framework comprising the following factors:

- Tone from the top
- Setting risk goals
- Providing resources and sound platforms, and
- Aligning measurement and rewards.

The objective of this study was to determine the level of risk culture maturity of the case study organisation. In order to do so, we had first to identify an acceptable definition of risk culture as well as identify the elements which made up risk culture. For the purpose of the present study, risk culture within an organisation is defined as “the norms and traditions of behaviour of individuals and of groups within an organisation that determine the way in which they identify, understand, discuss, and act on the risks the organisation confronts and the risks it takes” (Levy et al., 2010).

The FSB is an international body, which has assumed the key role of promoting the reform of international financial regulation. The FSB has issued “Guidance on Supervisory Interaction with Financial Institutions on Risk Culture—A Framework for Assessing Risk Culture” to enable supervisors to assess risk culture by using an established framework (FSB, 2014). The guidance document allows supervisors to explore ways to assess risk culture at financial institutions and identifies initial foundational elements that currently contribute to the promotion of a sound risk culture. The guidance document “also aims to assist supervisors in identifying practices, behaviours and attitudes that may influence the institution's risk culture.”

4 Method

This study used a philosophy of interpretivism in its approach. We used the elements from the FSB framework on assessing risk culture as a standard for measuring risk maturity

because this is the framework that has been adopted by the case study organisation studied. (FSB, 2014)

To facilitate our understanding of risk culture, we made use of a quantitative research design. We conducted an initial meeting with senior management to contextualise the study. Thereafter we used the Centre for Applied Risk Management (UARM) Risk Culture Questionnaire (RCQ) version 2016 (UARM RCQ-2016) and additional customised items, to conduct an online survey to collect data on the way risk was perceived by the organisations employees.

Participants

The participants in this study were all employed by a large retail and commercial bank in South Africa with an international footprint. The organisation trades as a division of one of the largest financial services groups in the country and employs in excess of 30 000 people. The sample mainly comprised risk practitioners, with a few participants from business. We received 63 usable responses from the original 133 questionnaires issued (47% response rate), and 88% of the responses were from risk practitioners. The sample was divided into managers and non-managers.

The participants in the survey were identified using the following rationale. The participants from the risk function represented all segments within the organisation who were based at head office in Johannesburg. We had limited access to business participants, owing to the timing of the survey coinciding with the financial year end of the organisation. To minimise impact on business, I focused on a single lending product house, in which I serve as a risk manager. I included all the operational risk managers for the entire organisation.

The IIF (2009) recommends that management, boards and supervisors all have essential roles in setting and promoting risk culture and that business managers, risk officers, internal and external auditors and control functions play a role in creating and sustaining a sound risk culture within an organisation. It was agreed with the organisation that, as this was a first study on risk culture which encompassed “tone from the top” among other elements, only risks management staff and business management would be surveyed. To minimise impact on operations it was agreed that compliance staff would be excluded. Agreement was reached to provide feedback to senior risk executives once the results of the survey were collated and analysed, and that the business management sample would be limited to a single portfolio within the segment of the chief risk officer. A convenience sampling method was used to choose the 133 participants who represented executives, senior, middle and

junior management. These participants covered all segments of the organisation. As this was to be an electronic survey, we obtained e-mail distribution lists of the risk managers from head office as well as managers from business management.

The draft questions were piloted with two participants in the organisation to test the understanding of the questions for clarity and to reduce ambiguity, after which minor edits were made. The survey questions were vetted by the human resources representative prior to actual distribution. Assurances were given that no company specific information would be divulged in the survey nor the analysis of the responses. A further assurance was given on maintaining the anonymity of the case study organisation. The draft questionnaire was piloted to a few participants for comment and identification of potential errors. Their feedback was considered and refinements were made to the questionnaire. The questionnaire was distributed electronically to the entire target population of 133 participants.

Ethical considerations

An initial interview was set up with the segment Chief Risk Officer and the Human Resources representative to contextualise the study, present the intent and purpose of the survey, obtain buy-in from management, and obtain permission to conduct the study. A formal letter of approval was received to conduct the study.

Instrument

The instrument distributed to the participants was a combination of the items contained in the UARM RCQ-2016, which forms part of a pilot study into risk culture and constituted the bulk (34) of the items (Appendix A). In addition, eight items were added to address aspects (Risk Understanding, Individual Responsibility and Accountability) of the guidelines issued by the FSB.

The UARM RCQ-2016 provided a core set of items focused on the integration of risk management principles within an organisation. The questionnaire is based on Hofstede's work on national risk culture studies (Hofstede, Hofstede & Minkov, 2010). The UARM RCQ-2016 is an online closed questionnaire, which consists of demographic (8), risk culture (34) and diagnostic items (2), to which the eight additional items were added to create our instrument. The main aim of the questionnaire was to assess how respondents view the levels of:

- Integration of risk management principles into the management of the organisation;

- The practice of risk management as an essential enabler for achieving the organisation's objectives.

Forty risk culture items were initially devised as part of the pilot UARM RCQ-2016 and the factor analyses was conducted by the UARM research team. Two factors emerged from 34 out of the original 40 items. The factors were named using the contents of the items per factor and sub-factor, namely:

Factor 1: Risk Integration (25 items)

Factor 2: Risk Culture Diagnostic: Individual (9 items)

Sub-factor 2.1: Risk Understanding (7 items)

Sub-factor 2.2: Individual Responsibility and Accountability (2 items).

The FSB framework is best practice in the financial services sector and provides guidance on risk culture specific to financial institutions, including the banking sector. Table 1 is a comparison between the themes provided as guidance by the FSB and the themes covered in the case study organisation's Risk Culture Assessment Framework. Each theme has indicators (in the case of the FSB) and parameters (in the case of the organisation).

The FSB guidance document provides a set of statements per indicator which can be converted into questions or items. We have drawn a comparison between the guidance provided and the framework being used to establish the gap in coverage.

Table 1: Gap analysis between FSB guidance indicators and the case study organisation's risk assessment framework parameters*

Theme	FSB guidance indicator	Theme	Case study organisation risk assessment framework parameter
Tone	1. <i>Leading by example</i> 2. <i>Assessing espoused values</i> 3. <i>Ensuring common understanding and awareness of risk</i> 4. <i>Learning from past</i>	Tone	1. <i>Zero tolerance for unethical conduct</i> 2. <i>Structures & forums that encourage openness</i> 3. <i>Leadership pipeline</i>

	<i>experiences</i>		
Accountability	1. <i>Ownership of risk</i> 2. <i>Escalation process</i> 3. <i>Clear consequences</i>	Setting risk goals	1. <i>Ensure ERM goals, policies, Std's are communicated</i> 2. <i>Ethics & Accountability to risk parameters are acknowledged as important</i>
Effective communication and challenge	1. Open to alternate views 2. Stature of control functions	Providing resources and sound platforms	1. <i>Ensuring RM goals are attainable by staffing RM functions adequately.</i> 2. Apply fit and proper tests for key roles 3. Embed risk controls in business platforms
Incentives	1. <i>Remuneration & performance</i> 2. <i>Succession planning</i> 3. Talent development	Alignment measurement and reward	1. Accurate & relevant performance metrics 2. <i>Risk metrics are incorporated into performance management framework</i>

*Highlighted in italics are those parameters which are aligned, leaving those highlighted in bold italics only to represent the gap between the standards and the framework used by the organisation. Those items in the organisation's framework which are not aligned to the standards are excluded from further scrutiny as the idea is to test which areas of the standard remain uncovered and not the converse.

The items which were identified as gaps were then matched against the questions in the UARM RCQ-2016, to avoid repetition and to avoid unnecessarily increasing the length of the questionnaire.

The responses were gathered using a five point Likert scale. The Likert scale used captured the attitudes, in which participants specify their level of agreement or disagreement about a particular statement. Each of the five responses has a numerical value, which was used to calculate the mean and mode of responses. The mean is the measure of central tendency. To "calculate the mean we simply add up all of the scores and then divide by the total number of scores we have" (Field, 2013). The "mode is simply the score that occurs most frequently in the data set" (Field, 2013)

By combining the elements of risk culture covered in the UARM RCQ-2016 with the elements of the FSB framework, we were able to offer an assessment tool which has been customised and can be used by other organisations within the banking sector to conduct similar risk culture assessments.

Organisations “wishing to implement a formal approach to risk management or aiming to improve their approach need a framework against which to benchmark their current practice” Best practice benchmarks can be defined in terms of risk maturity (Hillson, 1997).

Process

The electronic survey was distributed via e-mail to the target audience with a short introductory paragraph to set the context for the request to complete the survey on risk culture. A follow up request for responses was sent a week later to boost the response rate. The survey was closed after a period of 4 weeks. The data was statistically analysed for different levels of the organisation with the responses separated by job role and job level. The responses of senior management were also compared to the responses of middle management to test for differences in opinion. The views were then aggregated and conclusions drawn.

Data Analysis

The data from the survey were analysed using SAS®.

There was high internal reliability with regard to the responses of participants in the study. Since the variances for the items were heterogeneous, we used the standardised Cronbach's alpha to determine how well the UARM RCQ-2016 worked for this sample in the case study organisation. The Cronbach's alpha for the sample was 0.96, concluding that the items were reliable. Risk culture maturity scores were obtained by calculating the mean of the items per factor. The demographical items were analysed using descriptive statistics and the UARM RCQ-2016 and additional items were analysed using descriptive and inferential statistics.

5 Results

The objective of the study was to determine the level of risk culture maturity of the case study organisation. This section sets out the results of the survey.

5.1 Demographics

A total of 51 (80.95%) of the 63 participants represented management, with 12 (19.05%) participants representing non-management. The management responses were further split into 22 senior management responses (34.92%) and 29 middle management responses (46.03%)

Levels of management within the organisation are defined in terms of bands. Band C is middle management, Band B is senior management, and Band A is executive management. Bands D and below are considered non-management. For the purpose of this study, we defined management as comprising Bands A, B and C.

A total of 7.94% of participants were between the ages of 20 and 29 years, 47.62% were between the ages of 30 and 39 years, and 33.33% of participants were between the ages of 40 and 49 years. The balance of 11.11% was 50-59 years of age. We can infer that the majority of the responses were provided by mature participants.

With regard to the number of years employed, 33.33% (21) participants were employed for more than 5 and less than or equal to 10 years, while 30.16% (19) had been employed for more than 10 years. This indicates that the participants had some experience, and that they were sufficiently mature to give considered responses.

More than 60% of participants had a tertiary education qualification. Of the rest, 7.94% (5) indicated a high school education as the highest level of education achieved; 20.64% (13) indicated a college education; and 41.27% (29) had a postgraduate degree.

In terms of role type, a large majority of the participants were involved directly in the risk management field (88.89% [56]), with 6.35% (4) being in business and 4.76% (3) being in organisational management. For purposes of comparison, the operations and organisational management participants were combined into one category.

Three-quarters (74.6% [47]) of participants listed English as their first language and 82.54% (52) were South African nationals, which indicates that the language of the questionnaire would not be an inhibiting factor to the participants. More than half (57.14% [36]) were females and 42.86% (27) were males.

5.2. Results of UARM RCQ-2016

5.2.1 Discussion of results

Table 2: Factor scores for all participants and by management level

Factor Scores			
	Factor 1	Sub-factor 2.1	Sub-factor 2.2
All participants	4.1	4.3	4.6
Management level	Factor 1	Sub-factor 2.1	Sub-factor 2.2
Management	4.1	4.4	4.6
Non-management	4.0	4.0	4.5

High scores for Sub- factor 2.2 in the results indicate high levels of risk management maturity. In order to establish whether the risk culture differed between management and non-management the following was done. A graphical test for normality was performed and it was observed that the distribution of the items was skewed to the right.

Since the parametric assumption of normality did not hold, the non-parametric Wilcoxon rank sums tests were used in order to establish whether there were differences in the distributions of the groups being compared. Under the null hypotheses of no difference among class levels, the test statistic has an asymptotic chi-square distribution with $r-1$ degrees of freedom, where r is the number of class levels. For the Wilcoxon scores this test is known as the Mann-Whitney U test. Table 2 shows the factor scores (see Appendix A) for all participants and by management level.

Table 3: Mean Wilcoxon score test: Factor Level Analysis for management levels

Mean Wilcoxon score					
Management level	n	Wilcoxon mean score	Chi square test statistic	p-value	Significant difference at α=0.05
Factor 1: Risk Management Culture					
Management	48	29.96	0.21	0.65	No
Non-management	10	27.30			
Subfactor 2.1: Risk Understanding					
Management	51	33.06	4.22	0.01	Yes
Non-management	10	20.50			
Subfactor 2.2: Individual Responsibility and Accountability					
Management	51	31.83	0.14	0.71	No
Non-management	11	29.95			

Table 3 groups the individual questions highlighted in Table 2 into factors (see Appendix A). Statistically significant differences were observed between management and non-management for Sub-factor 2.1: Risk Understanding at the 95% level of confidence. As a result, the focus of the discussion is on risk understanding. Furthermore, items 8, 11, 26 and 34 differed for Sub-factor 2.1 and are shown in Table 4.

Table 4: Mean Wilcoxon score (Mann Whitney U): Item level analysis for differences between management levels

Mean Wilcoxon score					
Management level	n	Wilcoxon mean score	Chi square test statistic	p-value	Significant difference at α=0.05
Subfactor 2.1: Risk Understanding					
8. I understand the organisations risk management framework (processes, practices, etc)					
Management	51.00	33.55	4.34	0.04	Yes
Non-management	11.00	22.00			
11. I understand how to manage risk as part of my role					
Management	51.00	34.55	6.43	0.01	Yes
Non-management	12.00	21.17			
26. I understand the consequences of not managing the risks connected to my role					
Management	51.00	34.29	5.82	0.02	Yes
Non-management	12.00	22.25			
34. I know how well the organisation is performing in meeting our objectives					
Management	51.00	34.54	5.91	0.02	Yes
Non-management	12.00	21.21			

Table 4 shows that statistically significant differences were observed between management and non-management, notwithstanding the fact that the responses of both of the groups were very high. The statistical significant differences draw attention to the fact that the level of agreement differed subtly but that management had a higher level of comfort with the statements made in each item than non-management. Each of these items will be analysed more extensively in Tables 5 to 8.

Table 5: Item 8 of UARM RCQ-2016

Item 8	I understand the organisation's risk management framework (processes, practices, etc.)		
Item 8	Management	Non-management	Total
Did not complete	0%	8%	2%
2	2%	0%	2%
3	14%	33%	17%
4	45%	50%	46%
5	39%	8%	33%

Table 5 indicates that 46% of the overall participants claimed to understand it perfectly while 33% claimed to understand the organisation's risk management framework well. The Wilcoxon mean scores show management had significantly greater understanding with a mean score of 33.55, as opposed to non-management's mean score of 22.

Table 6: Item 11 of UARM RCQ-2016

Item 11	I understand how to manage risk as part of my work role.		
Item 11	Management	Non-management	Total
3	8%	17%	10%
4	33%	67%	40%
5	59%	17%	51%

As shown in Table 6, 51% of participants claimed to understand how to manage risk as part of their work role perfectly, with 39% claiming to understand how to manage risk well. The Wilcoxon mean scores for the 51 management participants were 34.55 as opposed to the 12 non-management with a score of 21.17, which indicates higher level of understanding by the management participants.

Table 7: Item 26 of UARM RCQ-2016

Item 26	I understand the consequences of not managing the risks connected to my role.		
Item 26	Management	Non-management	Total
3	6%	17%	8%
4	24%	50%	29%
5	71%	33%	63%

Table 7 shows that 63% of participants claimed to perfectly understand the consequences of not managing risk connected to their role, with 29% understanding the consequences well. A mean score of 34.29 was observed for management and 22.25 for non-management, indicating a higher level of understanding of the consequences by the management participants.

Table 8: Item 34 of UARM RCQ-2016

Item 34	I know how well the organisation is performing in meeting our objectives.		
Item 34	Management	Non-management	Total
1	0%	8%	2%
2	6%	8%	6%
3	16%	42%	21%
4	51%	33%	48%
5	27%	8%	24%

Table 8 shows that 48% of participants claimed to know how well the organisation was performing in meeting its objectives; with 24% of participants claiming to know perfectly and 21 % of participants leaning towards knowing moderately well.

Also emerging from the data is the issue of ownership of risk. Item 41 questions the participants on their perception of the ownership of risk within the organisation.

A quarter (25%) of participants believed that risk is owned by Strategic & Operational managers (business or first line of defence); 44% believed that risk is owned by Risk, Strategic and Operational managers & Auditors (second and third line of defence).

The results are surprising, as the majority of the participants of this survey comprised risk managers. A three line of defence governance model is accepted practice within the organisation. This model dictates that business is the first line of defence, with the control functions (risk management and audit) constituting the second and third lines of defence. Business is both accountable and responsible for the ownership of risk. The results however show that the majority of the respondents believed that ownership of risk sits with the second and third lines of defence.

5.3 Discussion

The following is a discussion of the results of the factor analysis of the UARM RCQ-2016.

5.3.1 Factor 1: Risk Integration

Twenty five (25) questions emerged from the factor analysis of the UARM RCQ-2016 that deals with risk culture and risk culture integration. Only one item (Item 40: How seriously do you think the organisation will take the results of this survey) stood out from the results. The mode was recorded as a score of 3, with a higher standard deviation, indicating that the participants varied in their opinions as to whether the results of this survey would be taken seriously. The balance of the results revealed mode scores of 4 and 5, indicating a high level of agreement between management and non-management on the items, with no statistical significant difference between the management and non-management groups.

5.3.2 Sub-factor 2.1: Risk Understanding

The results show that there was a statistically significant difference between how management and non-management viewed Sub-factor 2.1: Risk Understanding. For purposes of this study “understanding” is based on the participants’ perceptions of the factors.

The factor analysis yielded seven (7) questions for Sub-factor 2.1. There were statistically significant differences for items 8, 11, 26 and 34 (see Table 3) with management showing higher levels of understanding than non-management. There was a high level of agreement in respect of the remaining three (3) questions for Sub-factor 2.1. From the above results, we can infer that the culture in the organisation is very much “top- down” driven, where the upper management is more knowledgeable about risk and the issues it faces than non-management. We can also infer that the strategic information has not filtered down to the operational levels of the organisation. Management level participants may be under the impression that risk is well understood but the results show that non-management is not as

confident as management about risk. There may be various reasons for this misalignment of understanding. Operational levels are very functional specific and may not see their contribution to the bigger organisational goals.

Item 42: To improve risk management in the organisation, I believe that we must start with improving risk ... (select only one of the options below)

- Communication
- Accountability and Responsibility
- Management processes
- Management systems
- Data
- Training

Of the participants, 44% (28) indicated in their responses that an improvement in the areas of accountability and responsibility would improve risk management in the organisation. A further 25% (16) indicated that increasing awareness of the risk function by increasing communication would be a means of improving risk management.

5.3.3 Sub-factor 2.2: Individual responsibility and accountability

Only two of the UARM RCQ-2016 questions relate to individual responsibility and accountability: item 22 and item 23.

The results for item 22 (I am responsible for managing the risks connected to my role) and item 23 (I am accountable for events linked to risks connected by my role), recorded high values for the mode (score of 5) and low standard deviations. This indicates that there was a high level of agreement with these two statements.

Interestingly, the results for items 22 and 23 seem to contradict the responses to the non-diagnostic item 42.

Item 42 of the UARM RCQ-2016, asks the participants' perspectives on how to improve risk management in the organisation. In response to the question, 44% of participants believed that Responsibility and Accountability would improve risk management in the organisation, followed closely by 25% who believed that communication was the answer to improving risk management. If there was already a high degree of understanding of Responsibility and Accountability, then it remains to be investigated which aspects of Responsibility and Accountability could be improved upon.

5.3.4. FSB indicators of sound risk culture

The FSB guidance on assessing risk culture notes that “there are several indicators that can be indicative of a sound risk culture, namely: Tone from the top, Accountability, Effective communication and challenge, and Incentives.” The present study took these indicators into account by combining the elements of risk culture covered in the UARM RCQ-2016 with all the elements of the FSB framework, with the exception of Incentives.

5.4 Results of FSB indicators

5.4.1 Discussion

Table 9 highlights the items used in the UARM RCQ-2016 which cover specific aspects of the FSB indicators of sound risk culture.

Table 9: Categories of FSB indicators and related UARM RCQ-2016 items

	FSB Indicator			
	Tone from top	Accountability	Communication & Challenge	Incentives
UARM	Item 7	Item 1	Item 2	Not determined
	Item 32	Item 22	Item 6	Not determined
	Item 35	Item 23	Item 15	Not determined

In Table 9, Items 7, 32 and 35 articulate the FSB indicators of ensuring common understanding and awareness of risk indicating a general agreement with the statements and confirming a good tone from the top. These items record high values for the mode (scores of 4, 4, and 5, respectively) indicating a general agreement with the statements.

Items 1, 22 and 23 articulate the ownership of risk, responsibility and accountability.

Items 22 and 23 record high scores for the mode (5 and 5, respectively) with high scores for median and low standard deviations. This indicates a high degree of agreement with regard to the responsibility and accountability of managing risks.

In order to establish whether there was a relationship between the risk culture questionnaire and the additional questions, the Spearman rank order correlation was calculated for each of the items. Correlations coefficients above 0.5 are presented in Table 10.

Table 10: Relationship between additional FSB items and UARM RCQ-2016 Items

Additional FSB Item	UARM RCQ-2016 Item	Correlation coefficients	Strength of correlation
1. Management in my organisation has a clear view of the risk culture to which they aspire.	4. I believe that risk management makes a positive contribution to achieving the organisations objectives.	0.5	Strong
	5. I believe that risk management principles are actively used in decision making in the organisation.	0.6	Strong
	12. Risk management is integrated into the organisations management processes.	0.6	Strong
	17. Executive managers practice what they preach on risk issues.	0.6	Strong
	19. My concerns about risk will be taken seriously by executive management.	0.5	Strong
	21. I trust the messages from management on risk related issues.	0.5	Strong
2. My manager promotes a consistent approach to risk	16. My manager practices what s/he preaches on risk	0.7	Strong

management.	issues.		
	17. Executive managers practice what they preach on risk issues.	0.6	Strong
	18. My concerns about risks will be taken seriously by my manager.	0.6	Strong

Table 10 exhibits the strong correlation between the additional questions posed to meet the FSB culture items and the items in the UARM RCQ-2016. This indicates a strong correlation with Factor 1: Risk Integration. Not only was the correlation strong but also statistically significant, and the result indicates that the existing RCQ items sufficiently covers these FSB items.

6. Conclusion

The main research objective of this study was to establish the current state of risk culture within the case study organisation. In order to achieve the main research objective the following secondary research objectives were formulated for this study:

- To understand organisational culture and risk culture,
- To identify the criteria by which a financial services sector regulator would assess risk culture; and
- To establish the perceptions of participants with regard to the parameters of the risk culture assessment framework of the organisation, this included tone from the top, setting risk goals, providing resources and sound platforms.

Our literature review allowed us to establish the context of risk management, organisational culture and risk culture. The FSB guidelines helped us in identifying the criteria by which a financial services sector regulator would assess risk culture, and by developing and making use of the instrument, we were able to measure the elements of risk culture within the organisation as set out by the FSB guidelines.

We used the elements from the FSB framework on assessing risk culture as a standard for measuring risk maturity because this is the framework that has been adopted by the case study organisation studied. These elements comprised:

- Tone from the top

- Accountability
- Effective communication and challenge
- Incentives.

We used these elements (except Incentives) as the criteria against which we measured the case study organisation.

We expect to find that the organisation had high levels of risk management maturity, as the organisation operates in the highly-regulated financial services sector, and the results in Table 2 above confirmed this expectation. In addition, we can infer from the results that the culture in the organisation was very much “top- down” driven, where the upper management was more knowledgeable about risk and the issues it faced than non-management. We can also infer that the strategic information had not filtered down to the operational levels of the organisation.

Management level participants may be under the impression that risk was well understood but the results show that non-management was not as confident about their understanding of risk as management was. There may be various reasons for this misalignment of understanding. Operational levels are very functional specific and may not see their contribution to the bigger organisational goals.

As indicated in item 42 of UARM RCQ-2016, improvements in risk management could be made by raising awareness of risk management through improving the communication of the risk strategy as well as by clearly setting out the roles and responsibilities of the parties involved in managing risk.

The results of this study show that the participants generally perceived that risk management principles were integrated into decision making with the aim of achieving the organisation’s objectives. Overall the results support our original expectations of the organisation having a high risk maturity, albeit with room for improvement. Those areas for improvement lie in improving the communication and raising the awareness of risk management at an operational level.

While the study objectives have been met, an opportunity exists for the organisation to develop the instrument we used in compiling a more comprehensive risk culture diagnostic questionnaire to diagnose the sources of other risk culture issues. While this study was limited in the number of business participants, a further study could be conducted which includes a greater sample of business participants, while the role of incentives could also be investigated as per FSB guidelines. Cross referencing the results of the two studies would

yield valuable management information to improve the efficiency and effectiveness of risk management within the organisation.

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REFLECTION

“Research is to see what everybody else has seen and think what nobody else has thought”

Albert Szent-Gyorgyi

Never were truer words spoken. My journey into the world of academic research has been a fascinating one, an emotional rollercoaster that thrilled and delighted me as much as it caused me fear and anxiety. This has been nothing short of a Hero's (or Fool's) journey and I find myself completely transformed by the experience.

I have come to accept research as being an art and a science. In retrospect, there are many lessons that I have learned, and many things that I would do differently.

From a project point of view, I would increase my sample to include more business participants. The results suggested that risk managers are clear with regard to their responsibility and accountability but the majority felt that improvements in this area could improve risk management in the organisation. A greater participation / response from business could yield some interesting results.

The project plan together with the research proposal proved to be the most useful tools, offering a guideline in respect of direction and milestones.

Also key are the relationships between supervisors and student. It is imperative that the work at hand remain a living document, with constant revision and countless iterations passing between the supervisors and the student.

The two personal attributes that I found key to this journey are perseverance and an unwavering belief that it can be done. There must also be a willingness to make various sacrifices (sleep being the one that comes to mind).

APPENDIX A: UARM RISK CULTURE QUESTIONNAIRE PILOT

UARM RCQ-2016

Summary

Sep 2016

Hermien Zaaiman (Research project leader)

This document provides a brief overview of the 2016 pilot version of the UARM Risk Culture Questionnaire (UARM RCQ-2016).

1. Aim of UARM RCQ-2016

The aim of the UARM behavioural risk research programme is to develop tools to assess and improve the integration of formal risk management principles into organisational management. The aim of the UARM risk culture research project is to develop tools that can be used to assess the risk management culture ('risk culture') of organisations and identify possible problem areas related to risk culture.

We distinguish between risk management as a function in the organisation and the use of risk management principles during decision making in the organisation. We expect that participating organisations will have a formal risk management function intended to facilitate and oversee the use of risk management principles at the organisation's strategic and operational management levels. As the specific implementation of risk management tends to differ from organisation to organisation, the UARM risk culture survey has been developed independently of how risk management is implemented in the organisation.

2. Terms

The term risk culture can have many meanings. This implies that risk culture must be carefully defined to allow for optimally reliable and valid assessment of the perceived risk management culture in an organisation. We took a value of risk management to the organisation based approach in the UARM Risk Culture research project. The terms necessary to understand our definition of risk culture are now defined.

Risk: For the purpose of this research project, we define risk as *the negative effect of uncertainty on objectives*. This definition links Hubbard's definitions of risk:

'Long definition: The probability and magnitude of a loss, disaster, or other undesirable event' or 'Shorter (equivalent) definition: Something bad could happen' Hubbard (2009, p. 8)

to the ISO 31000 definition of risk as *'the effect of uncertainty on objectives'* (ISO, 2009b, p. 1).

Risk management: We use the ISO 31000 definition for risk management as *'coordinated activities to direct and control an organization with regards to risk'* (ISO, 2009b, p. 2). Hubbard (2009, p. 10) expands on this in his long definition of risk management: *'The identification, assessment and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events'*.

Expected value of risk management to organisations: ISO 31000 recommends that *'organizations develop, implement and continuously improve a framework whose purpose is to integrate the process for managing risk into the organization's overall governance, strategy and planning, management, reporting processes, policies, values and culture'*. Such integration is expected proactively to increase the likelihood of achieving objectives by, in part, establishing a reliable basis for decision making and planning. (ISO, 2009a, pp. v, vi)

Based on this ISO 31000 view of the value of risk management, we view the integration of risk management principles into organisational decision making as an essential enabler for achieving the organisation's objectives. Taking risk into account during decision making at all organisational levels and management processes should contribute to reaching the organisation's objectives.

Risk Culture: We used the Hofstede approach to culture as starting point for the development of the UARM Risk Culture Questionnaire (RCQ). Hofstede, Hofstede, and Minkov (2010, p. 516) define culture as the trained unwritten rules of the social game or the *'collective programming of the mind that distinguishes the members of one group or category of people from another'*. An organisation can be seen as a cultural group that consists of subgroups, each with their own subculture.

For this study, we define organisational risk culture as the way in which groups of people use risk management principles when making decisions on uncertain future events that could have a negative impact on reaching the organisation's objectives. This definition allows for an assessment of the expected value of integrated risk management to achieving the objectives of the organisation.

3. UARM RCQ development guidelines

The UARM risk culture questionnaire and items should:

- Be applicable across organisational sectors, work roles and risk types;
- Have a strong academic theoretical foundation;
- Be applicable in practice, i.e. with relevant and clear items, as briefly expressed as possible.

The RCQ items are based on key practices linked to the integration of risk management into the organisation's management at all levels of the organisation. The main aim of the questionnaire is therefore to assess how respondents view the levels of:

- Integration of risk management principles into the management of the organisation;
- The practice of risk management as an essential enabler for achieving the organisation's objectives.

The questionnaire also includes items that can be used as diagnostic indicators of where further questions should be asked about the risk culture of the organisation. The pilot version of the questionnaire (UARM RCQ-2016) was not intended to be a complete diagnostic tool. Based on the positive results from the questionnaire, we intend to further develop the risk culture diagnostic categories in the next versions of the questionnaire.

4. UARM RCQ items, factors and maturity levels

The pilot UARM RCQ-2016 online questionnaire consists of demographic, risk culture and diagnostic items. It took less than 15 minutes to complete for an initial test sample of respondents, with an average completion time of 10 minutes. This is brief enough to allow for adequately high response rates in the student research studies.

For ethical reasons, the questionnaire requires the participants to confirm that they are older than 18 years, have read the introductory information, and consent to participation on a voluntary basis before being allowed to continue with the questionnaire. Consent to participate is followed by standard and research-project-specific demographic items, such as age; gender; highest level of formal education completed; level in the organisation (e.g. board, executive, senior and middle management, non-management); function type (e.g. risk management, organisational management, operations); and length of time employed in the organisation.

Risk culture items

Forty risk culture items were devised during workshops with UARM students and research group members. The UARM student and research group members are all fully employed in risk-related roles across industry sectors. This allowed relevant, practical input into the development of the items.

The student research-project data were used to conduct a detailed factor analysis of the responses to the UARM RCQ-2016 version of the UARM Risk Culture Questionnaire. One would expect factors related to risk culture to correlate with each other. Initial exploratory analyses on the individual student data sets supported this expectation by indicating that the factors were not orthogonal, but correlated. The final factor analysis was therefore performed using the principal axis factor method with promax rotation and listwise exclusion of responses with missing data, as advised by writers such as Fabrigar, Wegener, MacCallum, and Strahan (1999).

Two factors were identified involving 34 of the original 40 items. The 34 items showed consistent high internal reliability with Cronbach's alpha coefficients of between 0.95 and 0.96 for all seven student research projects. The second factor was divided into two sub-factors based on the results of further factor analyses. The factors were named using the contents of the items per factor and sub-factor:

Factor 1: Risk Integration (25 items)

Factor 2: Risk Culture Diagnostic: Individual (9 items)

2.1: Risk Understanding (7 items)

2.2: Individual Responsibility and Accountability (2 items)

The items in Factor 1 assess the participant's perception of the integration of risk management principles into decision making with the aim of achieving the organisation's objectives. The items related to the contribution of the formal risk management function(s) to objectives driven decision-making are also included in this factor. These items will be further refined, based on the initial research results to create an even more reliable and valid UARM RCQ to be used for research in 2017 (UARM RCQ-2017).

The items in Factor 2 do not directly measure risk culture as defined for the purposes of this research project. The personal ('I') risk understanding and risk responsibility-accountability items divided into two sub-factors that can be used diagnostically to investigate further underlying aspects of risk culture. More diagnostic items will be developed in further

research to allow for a more comprehensive diagnostic set of factors that can be used to evaluate the underlying reasons for participant perceptions of risk culture in organisations.

Calculation of factor score

At this stage in the development of the UARM RCQ, the factor scores per factor are calculated as the average of the means of the items making up the factor. This approach is generally recommended for new questionnaires where the factor loadings have not been confirmed (DiStefano, Zhu, & Mindrila, 2009; Russell, 2002).

The factor scores were calculated for each student's sample data using the items listed in Appendix UARM RCQ-2016 per factor. As the factor score values are calculated by averaging the self-reported perceived status of risk culture in the organisation, they cannot be seen as absolute measures of organisation's prevailing risk culture. The factors provide a summary of the participant's views of risk culture in the organisation. The possible influence of item response biases on the scores (e.g. directional, confirmatory, social desirability and acquiescence biases) should be investigated in further research studies to establish whether the items adequately assess risk culture levels.

We may expect that the organisations in which the student studies of risk culture were done have levels of high risk management maturity as they operate in well-regulated sectors and therefore expect high factor scores for the 2016 student studies. Studies in organisations with lower levels of risk management maturity will also have to be conducted to assess the validity of the questionnaire. Nonetheless, the perceived risk culture factor scores should permit preliminary conclusions about the perceived risk integration, individual understanding of risk and risk responsibility and accountability in the samples studied. Statistically significant differences between item responses of sample subgroups should also provide diagnostic information on risk culture differences between groups within organisations.

The UARM risk culture maturity model

The factors allowed us to define a risk culture maturity model. Maturity levels corresponding to the five level Likert-type answer scales for each factor are provided in Table 1. At this stage, the sample maturity levels may be used as initial indicators of participant perception of the risk management culture in the group studied.

Note:

The maturity levels are used for interpreting the results of the questionnaire. This information does not appear in the questionnaire itself and is not seen by the research participants.

5. Conclusion

The 25 UARM RCQ-2016 risk culture items in Factor 1 show promise as a measure of perceived risk culture where the value of risk management is viewed specifically in terms of:

- Integration of risk management principles into the management of the organisation;
- The practice of risk management as an essential enabler for achieving the organisation's objectives.

Based on their nature, the items belonging to Factor 1 can also be seen to assess the perceived risk management tone of the organisation.

The Factor 2 diagnostic items can be used to provide limited additional information on two aspects that may influence risk culture in the organisation. The current items for Factor 2.1 measure the respondent's risk understanding. Factor 2.2 assesses personal responsibility and accountability for risks connected to the person's role. These items, combined with responses on the items in Factor 1 and the diagnostic items 41 (risk ownership) and 42 (what should improve) will be used as the basis for compiling a more comprehensive risk culture diagnostic questionnaire (i.e. what to ask the respondents to be able to diagnose the source of risk culture issues?). This question will be addressed in further UARM research projects.

Note: The development of the questionnaire will be written up in detail as a separate article.

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Table 1. UARM Risk Culture Maturity Model (UARM RCQ-2016)

Factor	Factor Name	Risk Culture Maturity Levels				
Factor 1	Risk Integration	1.0 <= FS < 1.5 RM Not viewed as an integrated enabler of achieving the organisation's objectives	1.5 <= FS < 2.5 RM viewed as a low integrated enabler of achieving the organisation's objectives	2.5 <= FS < 3.5 RM viewed as a medium integrated enabler of achieving the organisation's objectives	3.5 <= FS < 4.5 RM viewed as a high integrated enabler of achieving the organisation's objectives	4.5 <= FS < 5.0 RM viewed as a fully integrated enabler of achieving the organisation's objectives
Factor 2	Risk Culture Diagnostic: Individual					
Sub-factor 2.1	Risk Understanding (Personal assessment of own understanding of risk in the organisation)	1.0 <= FS < 1.5 Do not understand risk in the organisation	1.5 <= FS < 2.5 Low level of understanding of risk in the organisation	2.5 <= FS < 3.5 Medium level of understanding of risk in the organisation	3.5 <= FS < 4.5 High level of understanding of risk in the organisation	4.5 <= FS < 5.0 Completely understand risk in the organisation

Sub-factor 2.2	Individual Responsibility and Accountability	1.0 ≤ FS < 1.5 Not at all responsible and accountable for risks connected to role	1.5 ≤ FS < 2.5 Low level of responsibility and accountability for risks connected to role	2.5 ≤ FS < 3.5 Medium level of responsibility and accountability for risks connected to role	3.5 ≤ FS < 4.5 High level of responsibility and accountability for risks connected to role	4.5 ≤ FS < 5.0 Completely responsible and accountable for risks connected to role
FS:	Factor					Score

6. References

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