A risk culture comparison between risk practitioners and business managers

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ABSTRACT

When external auditors identified a lack of buy-in into risk management in a telecommunications organisation and gave a 'risk immature' rating, it aligned with the perception of a poor risk culture. Risk culture relates to the understanding of risk management as well as the common goal or strategy everybody within an organisation supposedly strives towards, which is to mitigate the negative effects that events can have on reaching the objectives of the organisation. To investigate the reason for the risk-immature rating was the motivation for this study. An online survey was conducted on a population comprising risk practitioners and business managers at relatively junior levels in the organisation to establish the perceived risk culture, as well as to determine if there are possible factors contributing to the level of risk culture that existed. The survey consisted of statements about risk management and risk culture as well as questions measuring risk knowledge, understanding and application. The survey used Likert-type scales, and some free-format comments and recommendations. The main aim of the questionnaire was to assess how respondents view the levels of: i) integration of risk management into the management of the organisation; ii) risk management as an enabler for achieving the organisation's objectives. The results were analysed using descriptive and inferential statistics. The risk culture maturity for both independent groups was high, but significant differences were observed for understanding of risk. Participants responded that in order to improve risk management in the organisation, the following needs to be addressed: responsibility and accountability; risk communication; risk training and awareness. The literature also supports risk awareness, understanding and communication as key success factors for an enhanced risk culture. The contribution of this research is that the survey was conducted in a large organisation at the junior work levels, not senior or executive management. The results highlighted that key success factors for a mature risk culture is not present at the junior levels. A total of 739 completed surveys were received. The survey also formed part of the Centre for Applied Risk Management's pilot Risk Culture Questionnaire study.

Key words: risk culture; junior levels; risk integration; risk communication; risk understanding; UARM RCQ-2016

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Research problem statement

In the organisation under review, the perception exists that business managers understand risk management. However, the organisation was rated as risk immature after an external audit on the risk maturity of the organisation due to risk management not being fully embedded into business procedures and processes. There is a lack of buy-in into risk management processes and the risk department has not succeeded in showing the value-add of risk management. There is little collaboration between business managers and risk management practitioners, and the risk awareness of more junior staff members is almost non-existent.

In order to address the shortcomings in the organisation with regard to the integration of risk management into business, it is important to understand the risk culture of the organisation. Furthermore, the level of understanding of risk management concepts and risk management in general needs to be established.

Research objectives and questions

Based on the research problem identified in the problem statement, areas of concern were defined and converted into research objectives.

The first area of concern is the lack of understanding of the risk culture in the organisation. In order to establish a baseline for the current perceived risk culture, an online survey was sent to risk practitioners as well as to business managers to test the perceived risk culture of the organisation.

A second concern is whether the risk culture is the same across the organisation, especially when comparing risk practitioners and business managers. The responses from the survey were analysed statistically.

A further concern is the perceived difference in understanding of risk management between risk practitioners and business managers in the organisation. The online survey not only included risk culture questions, but also questions to test the understanding of risk management. The results for risk practitioners and business managers were compared to establish whether there is a similar or different understanding of risk management in the organisation.

Last, the concern about how to close the possible gap between risk practitioners' and business managers' understanding of risk culture and risk management was addressed by recommendations received from both parties. Questions that offered different options as well as some free-format comments formed part of the survey. The literature was consulted to investigate the concepts important for the study, namely culture, risk culture and risk management.

It is currently the responsibility of the risk department to promote risk culture and risk management awareness in the organisation under review. The shortcoming in this approach is that it is driven by people who have a strong bias for risk management. Risk management is entrenched in their way of talking, doing and thinking. This poses a challenge to business managers who do not have that same orientation. Even simple risk terminology proved to be confusing to business managers; for example, when enterprise risk management is explained to business managers, who immediately think of the enterprise business unit and therefore make an incorrect link. There is a need to design a common risk language that also makes business sense to improve the flow of information between the risk department and business units.

Subsequent to the concerns described, the research objectives and research questions of the study were formulated and are presented in Table 1.

Table 1: Research plan

#	Research Objective	Research Question	Method
1	Analyse the risk culture of risk practitioners and business managers.	What is the risk culture of risk practitioners and business managers?	Online questionnaire
2	Compare the results of the risk culture survey between risk practitioners and business managers.	What are the differences, if any, between the risk culture of risk practitioners and business managers?	Statistical analysis
3	Analyse the understanding of risk management by risk practitioners and business managers	What are the differences, if any, in the understanding of risk management between risk practitioners and business managers?	Online questionnaire
4	Recommend approaches or actions to be taken to address any difference in understanding and needs communicated by the participants.	What could be done differently to eliminate the differences in culture and risk understanding?	Manually extract recommendations from free-format text in the questionnaire. Compare with and use existing recommendations from the literature.

In order to achieve the objectives and report on the outcomes, the following steps needed to be followed:

- Establish the target sample population;
- Compile a questionnaire;
- Distribute questionnaire and collect responses; and
- Analyse responses.

Expected contribution of the study

Many organisations experience poor initialisation and implementation of risk management or a lack of embedded risk management, which could be an indication of an immature risk culture. This study could benefit those organisations due to the type of research approach followed.

The focus of the study is on the junior work levels where you find the majority of personnel. Business managers and heads of departments in the company where the research was conducted, could apply the learning gained from the results and improve communication about risk management, but also provide better training opportunities for the junior staff. Improved communication and training should lead to better understanding of risk, risk management and collaboration. This could also improve the commitment and participation of junior staff.

The benefit to other institutions could be that a similar study could be conducted in a large organisation with more than 8 000 employees. A good response rate was expected and substantial feedback would contribute to the reliability of the study.

Journal of choice

The electronic *Journal of Risk Research* was chosen to potentially publish this research paper. The journal is internationally peer-reviewed and is committed to publishing theoretical and empirical research at the forefront of the communication, regulation, and management of risk. It aims positively to influence the development of risk management and risk management methodologies.

A RISK CULTURE COMPARISON BETWEEN RISK PRACTITIONERS AND BUSINESS MANAGERS

1 Abstract

When external auditors identified a lack of buy-in into risk management in a telecommunications organisation and gave a 'risk immature' rating, it aligned with the perception of a poor risk culture. Risk culture relates to the understanding of risk management as well as the common goal or strategy everybody within an organisation supposedly strives towards, which is to mitigate the negative effects that events can have on reaching the objectives of the organisation. To investigate the reason for the risk-immature rating was the motivation for this study. An online survey was conducted on a population comprising risk practitioners and business managers at relatively junior levels in the organisation to establish the perceived risk culture, as well as to determine if there are possible factors contributing to the level of risk culture that existed. The survey consisted of statements about risk management and risk culture as well as questions measuring risk knowledge, understanding and application. The survey used Likert-type scales, and some free-format comments and recommendations. The main aim of the questionnaire was to assess how respondents view the levels of: i) integration of risk management into the management of the organisation; ii) risk management as an enabler for achieving the organisation's objectives. The results were analysed using descriptive and inferential statistics. The risk culture maturity for both independent groups was high, but significant differences were observed for understanding of risk. Participants responded that in order to improve risk management in the organisation, the following needs to be addressed: responsibility and accountability; risk communication; risk training and awareness. The literature also supports risk awareness, understanding and communication as key success factors for an enhanced risk culture. The contribution of this research is that the survey was conducted in a large organisation at the junior work levels, not senior or executive management. The results highlighted that key success factors for a mature risk culture is not present at the junior levels. A total of 739 completed surveys were received. The survey also formed part of the Centre for Applied Risk Management's pilot Risk Culture Questionnaire study.

Key words: risk culture; junior levels; risk integration; risk communication; risk understanding; UARM RCQ-2016

2   Introduction

In the organisation under review, the perception exists that business managers understand risk management. However, the company was rated as risk immature in an external audit on the risk maturity of the organisation because risk management was not being fully embedded into business procedures and processes (PWC, 2014). There was a lack of buy-in into risk management processes and the risk department did not succeed in showing the value-add of risk management. Furthermore, there was little collaboration between business managers and risk management practitioners, and the risk awareness of more junior staff members was almost non-existent.

Risk concepts were introduced into the workplace without clarity about how they should be interpreted. Culture was not a new concept, but did all stakeholders understand what was meant by 'risk culture'? Similarly, risk management was not new, but not all terminology was standardised when separate risk management departments were introduced.

If an organisation wanted to place the emphasis on a particular kind of risk culture, it would have to focus on understanding what that risk culture really entails. In order to address the shortcomings in the company with regard to the integration of risk management into business, it was important that risk practitioners as well as business managers share the same understanding of risk culture. Risk culture should be entrenched in business practices.

Furthermore, the level of understanding of risk management concepts and risk management in general needed to be established.

It is currently the responsibility of the business risk management department to promote risk culture and risk management awareness in the organisation under review. The shortcoming in this approach was that it was driven by people who have a strong bias towards risk management, which was already entrenched in their way of talking, doing and thinking. This posed a challenge to business managers who did not have that same orientation. Even simple risk terminology proved to be confusing to business managers. For example, when enterprise risk management was explained to business managers, they immediately thought of their specific enterprise business unit and therefore made an incorrect link. There was a need to design a common risk language for use by the company. This would also make business sense and improve the flow of information between the risk department and business units.

The aim of this research was to gauge and compare the risk culture between risk practitioners and business managers. The questionnaire used in this research aimed to establish how the different personnel understood and applied risk management and risk management concepts. Participants could indicate what type of training they required as well as what level of risk information they preferred to receive.

This research project forms part of a larger study as a pilot of the UARM risk culture questionnaire (UARM RCQ-2016) in an attempt to validate the items. More details are contained in Appendix A.

3   Background

The research reported in this dissertation was performed in a listed South African telecommunications company, which has an African footprint. The majority shareholder is based in the United Kingdom and has a global footprint. Over 8 000 people are employed by the company. The core business is telecommunications, but in order to remain competitive more focus is being placed on alternative technologies to support the numerous services offered. The organisation has well-established oversight structures for risk management, has a chief risk officer and a dedicated enterprise risk management department. Risk assessments are performed at various levels in the company, although the focus of these assessments is not at the organisational level as focused on in this research. The annual integrated report includes risk information, and quarterly risk reports are submitted to the holding company. An 'Enterprise Risk Management Policy and Framework' is kept updated and is published centrally on the organisation's internal website.

In the organisation risk practitioners are responsible for risk orientated activities such as performing risk assessments, or providing direct input into risk assessments or risk reports. Risk practitioners could be formal risk managers, or staff that are required to perform some risk management duties as part of their job description. On the other hand business managers are the normal managers in business who manages a team of people. Their duties do not require any formal risk related activities or reporting.

In the business under review, some areas of concern arose out of the researcher's responsibility as a risk manager. The concerns were defined and then converted into research objectives.

The first area of concern was the potential lack of understanding of risk culture in the organisation. In order to establish a baseline for the current perceived risk culture, an online survey was sent to risk practitioners as well as to business managers to assess these perceptions.

A second concern was whether the risk culture was the same across the organisation, especially as perceived by risk practitioners and business managers. The responses from the survey were statistically analysed to establish this.

A further concern was the presumed difference in understanding of risk management between risk practitioners and business managers in the organisation. The online survey not only included items about risk culture, but also some to test the understanding of risk management. The results for risk practitioners and business managers were compared to establish whether there was a similar or different understanding of risk management in the company.

Lastly, a concern about how to close the possible gap between risk practitioners' and business managers' understanding of risk culture and risk management was addressed by inviting recommendations from both parties.

These concerns were translated into the following research objectives:

- Analyse the risk culture of risk practitioners and business managers;
- Compare the results of the risk culture survey between risk practitioners and business managers;
- Analyse the understanding of risk management by risk practitioners and business managers; and
- Recommend approaches or actions to be taken to address any differences in understanding and training needs communicated by the participants.

The concepts important for the study, namely, culture, risk culture and risk management, will be discussed and defined in the next three sections with reference to the literature that was consulted.

Culture

The first concept to understand is culture and how it is perceived in an organisation. Hofstede et al. (2010) define culture as the collective programming of the mind to distinguish

the members of one group or category of people from others. How decisions are made is a key component of risk culture according to Brooks (2010). Alveson (2013) felt that culture is best understood as referring to deep-level, partly non-conscious sets of meanings, ideas and symbolism. In their organisational research, Kirby and Kummerow (2013) worked on the basis that organisational culture described the attributes of an institution related to its appearance, behaviour and beliefs. Hillson and Murray-Webster (2007) demonstrated how each country has its own culture, and how that influences the culture of the organisation. Companies are also known for their unique cultures. The Kirby team considered the uniqueness of institutional culture and compared it to the personality of the business. It translated into their values and how work was done in context (Kirby & Kummerow, 2013). According to Vazquez (2014), culture was often to blame when security breaches or risk management breakdowns occurred. He claimed that culture was identified as the reason behind a failure, to share unpleasant or difficult messages with leadership and for establishing the wrong incentives in an organisation. Culture seemed to be a convenient excuse that everyone seemed to understand and accept when the precise cause of a negative event could not be identified clearly. In Schein's work on organisational culture he states that a cultural group has a shared purpose, tactics, strategies and metrics (Schein, 2004). In earlier work he mentions that culture is established when a group has enough common experience (Schein, 1999). Even though culture is an abstract concept, it can put real and powerful forces in motion. He continues to mention the role leaders should play in managing organisational culture and that the leaders should be aware of the fact that they are instrumental to guide change in that culture (Schein, 1999).

Risk culture

Risk management culture, subsequently referred to here as 'risk culture', is a sub-component of organisational culture. Banks (2012, p. 18) describes risk culture as: " …a state where risk management processes are so intuitive and so embedded in the fabric of an institution that they exist subconsciously and are practiced as a matter of course." The Institute of Risk Management South Africa (IRMSA, 2014, p. 54) defines risk culture as: "… the overall behaviour of all employees in how they view, handle, manage and communicate about risk." The definition of organisational risk culture for the purpose of the Centre for Applied Risk Management (UARM) risk culture research is how groups of people integrate risk when making decisions on uncertain future events that could have a negative impact on reaching the business's objectives. The research described in this dissertation is based on and linked to the UARM definitions of risk culture.

Risk culture has a very specific focus. It plays a critical role to ensure effective risk governance endured even in times of organisational change. In one of the McKinsey Working Papers on Risk, Levy et al. (2010) asserted that failures such as fraud, safety breaches and operational disasters, amongst others, had their origin in flaws in unique organisational cultures that allow particular risks to take root and grow. According to them, a strong risk culture demonstrated several critical and mutually reinforcing elements:

- A clear and well-communicated risk strategy;
- High standards of analytical rigour and information-sharing across the organisation;
- Rapid escalation of threats or concerns;
- Visible and consistent role-modelling of desired behaviours and standards by senior managers;
- Incentives which encourage people to 'do the right thing' and think about the overall health of the whole institution; and
- Continuous and constructive challenging of actions and preconceptions at all levels of the business.

A risk culture is all about behaviour and the processes that are put in place to encourage and reinforce desired behaviour (Brooks, 2010). Levy et al. (2010) concluded that it was vitally important that organisations actively shaped a risk culture in which those inherent risks were being managed and run. It is important to find a definition that relates to the existing organisational culture before one starts assessing and analysing the risk culture. For the purpose of this study, the UARM definition 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 (Appendix A) was sufficient.

Risk culture should exist consistently at all levels in the company. In its guidance for practitioners handbook, issued by the Office of Government Commerce (OGC, 2002) in the United Kingdom, the very first paragraph in the section about embedding risk management starts with what is needed to create a sustainable risk management culture, and that it should be delegated to all levels in the organisation. Banks (2012) stresses the importance that the responsibility and accountability does not lie with an individual, and that leadership in the organisation should reflect the fact that risk management is ultimately everybody's concern. This is important for successful risk culture. The essence of culture and therefore also of risk culture is that there must be a group of people involved. If an entity wants to place the emphasis on a particular kind of risk culture, the company will have to place some emphasis on understanding what that risk culture entailed. It is therefore important that risk

practitioners as well as business managers share the same understanding of risk, risk culture and risk management. As pointed out by Brooks (2010), a risk aware culture must extend throughout the organisation, to all levels and all individuals who are required to make decisions. A risk management culture should be entrenched in business practices. Communication should be clear and convey the undiluted message from top management right through to the junior workforce.

Risk management

The whole need for this study is based on poorly embedded risk management. Risk management is important for an organisation that wants to maximise its ability to protect and create value, and to ensure proper corporate governance (IRMSA, 2014). Risk management is what will ensure that the company's objectives are met. In order to avoid risk management being simply a 'tick-the-box' exercise, it is vital that an effective risk culture is established. Only then will risk management create true value for the business (IRMSA, 2014, p. 23). To provide further context one needs to understand the definition of risk and risk management. For the purposes of this study it will suffice to use the ISO 31000 definition of risk as 'the effect of uncertainty on objectives' and the definition of risk management as 'coordinated activities to direct and control an organization with regards to risk' (ISO, 2009b, pp. 1-2).

Research was performed by Ward (2001) to understand the role of the corporate risk manager; an important finding was that even the title of 'risk manager' can be misinterpreted by business. A risk manager does not manage the risk on behalf of the business. Ward (2001) comments that titles such as 'risk manager', 'risk controller' and even 'risk co-ordinator' may be confusing, as they imply responsibility for risk management thinking and actions throughout the organisation. If the titles of risk managers are confusing, it is possible that risk terminology is also confusing. Risk concepts are being introduced into the workplace without clarification of how exactly they should be interpreted. Culture is not a new concept, but do all stakeholders understand what is meant by 'risk culture'? Similarly, risk management is not new, but all the terminology being used might not have been standardised when risk management departments were introduced.

The UARM RCQ-2016 contains specific questions about risk terminology and policies and procedures, and aims to gauge whether the sample group were aware of all the measures that were in place. The necessary risk management oversight structures do exist in the company, as well as the necessary policies and procedures, but it could be possible that

only senior management is aware of this and that these key principles never reached the ears of people at the lower work levels in the organisation.

According to Banks (2012), there are factors that will contribute to the success of risk management in a company and a few that are relevant to this research project have been highlighted:

- An organisation must have a clearly defined business strategy that reflects all dimensions of risk;
- An organisation's management must have an understanding of risks;
- An organisation must have the ability to communicate clearly at all levels; and
- An organisation must have an internal culture that is attuned to risk.

Context of the study

As stated earlier, the aim of the research was to investigate the understanding of risk and risk culture maturity at more junior work levels in one organisation.

In their study about organisational risk propensity, Harwood et al. (2009) highlighted the importance of being able to measure risk propensity (or risk culture in the context of this study) in companies because it influences the way decisions are made. If one knows what the risk culture is or what drives it, one can change it. In a description of academic research performed on enterprise risk management, Iyer et al. (2010) analysed ten academic studies that included empirical results of actual companies. In seven instances the focus of the studies were the risk managers, the chief risk officer, the chief audit executives, board, senior risk executives and senior risk officers. Even previous research in the organisation under review focused on senior management levels, the board, the oversight committees such as the Risk Management Committee and Audit Committee, and those responsible for establishing risk management in the organisation.

The UARM RCQ-2016 categorises risk culture maturity in five levels (Table 2) that indicate the different views about the contribution of risk management to the achievement of objectives. More detail is also included in Appendix A.

Table 2: Risk culture maturity levels

Level	Description
Level 1	Risk management is not viewed as an integrated enabler of achieving the organisation's objectives.
Level 2	Risk management is viewed as a low integrated enabler of achieving the organisation's objectives.
Level 3	Risk management is viewed as a medium integrated enabler of achieving the organisation's objectives.
Level 4	Risk management is viewed as a high integrated enabler of achieving the organisation's objectives.
Level 5	Risk management is viewed as a fully integrated enabler of achieving the organisation's objectives.

The lower the level, the less risk management is perceived as an enabler in terms of achieving operational objectives. The results from the UARM RCQ-2016 described in this research are compared in respect of these levels to ascertain what the prevailing risk culture is in the organisation referred to in the research.

It seemed worthwhile to assess the perceived risk culture that prevailed at the lower work levels in the organisation being studied as well as whether risk culture maturity was linked to how well risk management was understood. The expectation was that the results would indicate that no risk awareness training was performed at the lower work levels. Furthermore, the needs of the junior personnel would have to be considered when recommending measures to address the shortcomings in the current processes for risk management awareness and training.

4   Method

The first research objective was to analyse the risk culture of risk practitioners and business managers. In order to gauge the prevailing risk culture, a questionnaire was sent to junior personnel in the organisation. A convenience sampling method was used to target these employees. The payroll department of the company provided the names and e-mail addresses of all permanent staff on junior management and non-managerial work levels based in South Africa, a total of 3 478. In the company the managers, senior and principal specialists operate at work level 4. Work level 5 includes specialists, supervisors and team leaders. Risk practitioners can operate at either level 4 or 5 and can also have any of these titles.

The survey was conducted using the pilot UARM RCQ-2016 questionnaire that contains 34 items about risk management and risk culture. A similar approach using a survey with Likert scales and statistically analysing the results has proved successful in measuring risk culture

(Yang, 2015). Respondents could rate the statements on a 5-point Likert scale (from *Never* to *Always;* as well as from *Perfectly* to *Not at all*). Two items were added to test the perception of risk ownership in the organisation (by *Risk managers, Strategic managers, Operational managers, Auditors,* and *I do not know*) and what could be done to improve risk management (by means of *Communication, Accountability and responsibility, Management processes, Management systems, Data, Training,* and *Other*). Maturity levels corresponding to the Likert scales were defined for each factor (Appendix A). The sample maturity levels may be used as initial indicators of a participant's perception of the risk management culture in the group studied. The responses aimed to meet the second objective, to compare the results of the risk culture survey between risk practitioners and business managers.The main aim of the questionnaire was to assess how respondents view the levels of: i) integration of risk management into the management of the organisation; ii) the practice of risk management as an essential enabler for achieving the organisation's objectives.

The questionnaire also included a message indicating the aim of the research and the support of the Chief Risk Officer for this study. The purpose of this was to add more weight to the process and to obtain more responses.

Apart from the UARM RCQ-2016, a further nine, company-specific and peer-reviewed items were added (Appendix B). The purpose of the additional items was to establish the risk knowledge, understanding (research objective three) and application, as well as risk training and information needs of the participants. The survey allowed participants to add some comments that were reviewed and converted to recommendations as set out in the fourth research objective. After an initial pilot of the questionnaire with eight employees, it was sent to the target population. The pilot proved to be satisfactory as a test of validity.

The participants were divided into two groups, risk practitioners and business managers, by virtue of their response to a question about their involvement in risk management. Those who indicated their involvement as 'directly' fell into the risk practitioners group, and those who indicated 'indirectly' or 'not at all' were grouped together as business managers. This study focused on analysing and comparing the responses received from these two groups.

An online tool, Research.net, was used and the link to the questionnaire was distributed by e-mail. The process was administrated by UARM, which ensured that the survey could be conducted anonymously. The researcher included instructions on how to complete the survey, which was available for three weeks. During this time two follow-up requests were sent to all potential respondents to complete the questionnaire. A total of 739 complete

responses were received, a response rate of 21.3%. Everybody provided consent to participate in the survey.

The data gathered were statistically analysed in order to check for completeness and statistical relevance. SAS[®] procedures were used to analyse the reliability of the data and the normality of the data was also tested. Demographic information was analysed in terms of such attributes as age, gender, position in the company, and length of service. The UARM RCQ-2016 was analysed in terms of descriptive and inferential statistics. The test used to compare the two independent groups was the Wilcoxon rank sums (Mann-Whitney U) test. The additional nine items were analysed by applying the Wilcoxon rank sums test, as well as the two-way table chi-squared test.

It would have been possible to perform an interpretive study and use interviews as the data collection method but due to the size of the organisation and the timeline for the research, surveys were a more practical approach. This research also formed part of the UARM RCQ-2016 pilot study. Research conducted by the Macquarie University in Australia on risk culture supports the use of surveys in large firms to test perceptions as well as to allow for objective comparisons over time and across businesses (Sheedy & Griffin, 2014).

5   Results and Discussion

A factor analysis was performed for the UARM pilot group and the factors obtained were:
1.   Risk culture: risk integration (25 items).
2.   Risk culture diagnostics: individual:
    2.1   Risk understanding (7 items);
    2.2   Individual responsibility and accountability (2 items).

The test for reliability was performed using the PROC CORR procedure of SAS[®]. It found a high internal reliability for this group (Cronbach's alpha of 0.964).

The demographic information was analysed using the PROC FREQ procedure of SAS[®]. Among the 739 participants, a total of 242 (32.8%) operate at level 4 and 497 (67.3%) work at level 5. Risk practitioners made up 68 (9.2%) and business managers 671 (90.8%). This sample constitutes 289 (39.1%) from Commercial, 250 (33.8%) from Operations and the remaining 200 (27.1%) worked in Support. The majority of participants had been employed for more than five years (534 or 72.3%).

Table 3: Risk culture maturity level results

	Factor Scores		
	Factor 1	Sub-factor 2.1	Sub-factor 2.2
All participants	3.9	3.7	4.3
Business managers	3.9	3.7	4.3
Risk practitioners	3.9	4.1	4.6

Table 3 provides the results from the UARM RCQ-2016 for all the participants, as well as the corresponding business managers and risk practitioners whose results are being compared. The overall result of the questionnaire indicated a very similar risk culture. A result of 3.9 for factor 1 indicates that risk management is viewed as a high integrated enabler for achieving the organisational objectives. Sub-factor 2.1 indicates a high level of understanding of the risk in the organisation. For sub-factor 2.2 business managers fall within the range of 3.5–4.4, which means a high level of responsibility and accountability for risks connected to their role. Risk practitioners' average score of 4.6 indicates that they completely understand risk in the organisation (4.5–5.0).

The PROC UNIVARIATE procedure in SAS® was used to test for normality of data. The histograms for the factors were skewed to the right. Since the parametric assumption of normality did not hold, the non-parametric Wilcoxon rank sums (Mann-Whitney U) test needed to be applied to test for differences between the groups, therefore the PROC NPAR1WAY procedure in SAS® was applied.

Table 4: The Wilcoxon rank sums test results per factor

Factor	Group	n	Wilcoxon mean score	Chi-squared test statistic	p-value	Significant difference at $\alpha = 0.05$
Factor 1: Risk culture: Risk integration	Business managers	462	260.19	0.12	0.73	No
	Risk practitioners	59	267.31			
Sub-factor 2.1: Risk understanding	Business managers	626	336.00	18.16	0.00	Yes
	Risk practitioners	66	446.05			
Sub-factor 2.2: Individual responsibility and accountability	Business managers	636	347.88	3.22	0.07	No
	Risk practitioners	67	391.13			

The Wilcoxon test results per factor for business managers and risk practitioners are depicted in Table 4. Risk understanding was significantly different between the two groups. At an item level, three items from factor 1, five items from sub-factor 2.1 and one item from sub-factor 2.2 indicated significant differences. Appendix C presents the results for these items.

One item required participants to choose whom they considered should own the risk in the organisation and 10% of respondents indicated that they did not know. This item allowed participants to choose any combination of risk owners, including the option of 'I don't know', which proved problematic to analyse, because some participants chose the 'I don't know' option as well as some of the roles listed. The process did not allow the researcher to clarify these instances and all responses that also included the 'I don't know' option were added to the 'I don't know' total. The detailed responses are included in Appendix D. The top options mostly chosen as risk owners were risk, strategic and operational managers, as well as auditors.

Participants could also indicate what could be done to improve risk management. Accountability and responsibility, communication as well as training were highlighted as the top three areas that would assist in improving risk management in the organisation.

The additional nine items that were added to the UARM RCQ-2016 set out to test understanding of risk with reference specifically to the organisation under review. The results aligned with the responses to the UARM items.

Table 5: The Wilcoxon rank sums test results per item

Item detail	Group	n	Wilcoxon mean score	Chi-squared test statistic	p-value	Significant difference at α = 0.05
The aim of the risk management process in my organisation is not to eliminate risk, but to manage risk as best possible	Business managers	671	371	0.43	0.51	No
	Risk practitioners	68	360			
I understand how to apply my organisation's approved risk impact and likelihood scales when I make decisions	Business managers	653	349	25.14	0.00	Yes
	Risk practitioners	67	477			
I understand that controls are put into place to mitigate the effects of a risk materialising	Business managers	666	357	17.68	0.00	Yes
	Risk practitioners	68	466			
I understand my organisation's risk terminology	Business managers	666	358	15.98	0.00	Yes
	Risk practitioners	68	461			
I understand how risk management principles can add value to my business operations	Business managers	666	356	22.86	0.00	Yes
	Risk practitioners	68	479			
I involve the risk management department when I perform a risk assessment	Business managers	529	293	1.47	0.22	No
	Risk practitioners	62	320			

Significant differences between the two groups were observed for the four items measuring the understanding of risk management (Table 5). This result is similar to the results obtained from the UARM RCQ-2016 analysis. More detailed information is depicted in Tables 6, 7, 8 and 9 about the respective items. The results indicate that risk practitioners have a better understanding of risk management principles as elaborated on in the notes section of each of the following tables.

Table 6: Detailed results for item 44 where a significant difference was observed. Percentage calculated on total number of participants per group.

44. I understand how to apply my organisation's approved risk impact and likelihood scales when I make decisions.	Business Manager		Risk Practitioner	
	Frequency	Percentage	Frequency	Percentage
Not applicable	18	2.68	1	1.47
Not at all	33	4.92	1	1.47
Not well	105	15.65	2	2.94
Moderately well	209	31.15	14	20.59
Well	227	33.83	30	44.12
Perfectly	79	11.77	20	29.41
Total	671	100.00	68	100.00

Note: Only 45.6% of business managers answered "Well" and "Perfectly", whereas 73.5% of risk practitioners answered "Well" and "Perfectly".

Table 7: Detailed results for item 45 where a significant difference was observed. Percentage calculated on total number of participants per group.

45. I understand that controls are put into place to mitigate the effects of a risk materialising.	Business Manager		Risk Practitioner	
	Frequency	Percentage	Frequency	Percentage
Not applicable	5	0.75	0	0.00
Not at all	15	2.24	0	0.00
Not well	70	10.43	1	1.47
Moderately well	187	27.87	12	17.65
Well	263	39.20	30	44.12
Perfectly	131	19.52	25	36.76
Total	671	100.00	68	100.00

Note: Only 58.7% of business managers answered "Well" and "Perfectly", whereas 80.9% of risk practitioners answered "Well" and "Perfectly".

Table 8: Detailed results for item 46 where a significant difference was observed. Percentage calculated on total number of participants per group.

46. I understand my organisation's risk terminology.	Business Manager		Risk Practitioner	
	Frequency	Percentage	Frequency	Percentage
Not applicable	5	0.75	0	0.00
Not at all	36	5.37	1	1.47
Not well	127	18.96	6	8.82
Moderately well	240	35.77	16	23.53
Well	197	29.36	35	51.47
Perfectly	66	9.84	10	14.71
Total	671	100.00	68	100.00

Note: Only 39.2% of business managers answered "Well" and "Perfectly", whereas 66.2% of risk practitioners answered "Well" and "Perfectly".

Table 9: Detailed results for item 47 where a significant difference was observed. Percentage calculated on total number of participants per group.

47. I understand how risk management principles can add value to my business operations.	Business Manager		Risk Practitioner	
	Frequency	Percentage	Frequency	Percentage
Not applicable	5	0.75	0	0.00
Not at all	16	2.38	0	0.00
Not well	74	11.03	1	1.47
Moderately well	180	26.83	7	10.29
Well	265	39.49	36	52.94
Perfectly	131	19.52	24	35.29
Total	671	100.00	68	100.00

Note: Only 59.0% of business managers answered "Well" and "Perfectly", whereas 88.2% of risk practitioners answered "Well" and "Perfectly".

The sample group had another opportunity with the additional, company-specific items, to indicate what training they would like to receive with regard to risk management principles and whether it should be high level, general awareness training or detailed, practical training (Table 10). Calculated as a percentage per study group, 48.1% and 51.9% of business managers requested high-level and detailed training, respectively. The percentages for risk practitioners were 35.3% and 64.7%. Therefore the risk practitioners mostly requested detailed training whereas business managers were 50/50 for detailed and high-level training.

Table 10: Responses to items about training requirements on risk management principles

I would prefer to receive training on risk management principles in the following manner:				
	Business manager		Risk practitioner	
	Frequency	Percent	Frequency	Percent
High level, general awareness training	323	48.14	24	25.29
Detailed, practical training	348	51.86	44	64.71
Total	671	100.00	68	100.00

A significant difference was observed between risk practitioners and business managers when the chi-squared test by means of a two-way table was applied on the item testing training preferences. The groups, however, displayed a similar need for relevant risk management information to be shared. For risk information relating to the division's risk profile, 95.8% of business managers responded yes and 97.1% of risk practitioners. A total of 96.7% of business managers responded yes to standardised risk information that could impact their objectives versus 99% of risk practitioners.

The results obtained from the UARM RCQ-2016 as well as the additional company-specific items indicated that there was a similar and high perceived risk culture for both business managers and risk practitioners. However, the responsibilities and accountabilities were better understood by risk practitioners. Differences were also observed for risk understanding. Common themes across the responses were clearly divided into issues that could either be improved on or indicated a gap such as responsibility and accountability, communication as well as training. Among the recommendations highlighted in the free-format comments from respondents were improvements in the way risk information was shared and better channels of communication. An additional issue that was identified and which could be addressed in the organisation was the levels of knowledge about ownership of risk.

This study had the limitation that it focused on only two work levels in a large organisation. However, these levels also embrace the majority of the company employees and could be instrumental in driving a risk culture in the organisation. More often than not training efforts or research is focused on the more senior levels in the business, rarely to consider what the perceptions are at ground-level. The people at lower levels who have to make things happen, implement new policies and procedures, as well as having to apply risk management principles in everything that they do on a daily basis, are seldom, if ever, fully trained or well communicated with. This is evident from the responses indicating a need for detailed, practical training. It appears that the many layers and work levels tend to pose a particular challenge in bigger organisations.

The value of the results from this survey was twofold: First, it provided a baseline perceived risk culture index for the company and highlighted real concerns and needs from the business managers and risk practitioners. The findings also confirmed the expectation that risk practitioners will have a better understanding of risk management. Second, the disparity in number of staff between the two study groups highlights a further concern, that risk management will not be effectively embedded and driven throughout the business due to the lack of resources in terms of risk practitioners. This lack of resources implies that there is only a limited amount of influence that can be brought to bear in the company's operations with regard to risk management principles.

The fourth research objective was to recommend approaches or actions to be taken to address any difference in understanding and needs communicated by the participants by analysing their feedback in the survey. Accountability and responsibility, communication as well as training were highlighted as the top three areas by the participants that would assist

in improving risk management in the organisation. This is supported by Brooks (2010), who also mentions risk awareness across the organisation, full and transparent communication and accountability as some of the elements of a risk-aware culture. Blunden and Thirlwell (2010, p. 52) state: "Clarity about roles and responsibilities is a key part of risk governance and of a good risk culture." To establish a strong risk culture, Banks (2012) lists, amongst other items: tone at the top, making risk awareness actionable by using and applying your knowledge, promoting the free flow of communication, displaying strong expertise, and accepting accountability and responsibility. He also includes accountability, communication and expertise in his "simple rules of risk".

The significant role communication plays in an organisation's culture is also emphasized by Brache (2002). Communication forms a significant component of strategy implementation and oral and written communication skills are key capabilities in most jobs. The way goals are communicated has a major influence not only on the degree to which they are understood, but also on the degree to which they are embraced, tolerated or resisted. The important role communication plays is also supported by a study conducted on risk-information framing and how the message should be amended to fit the characteristics of the receiver of the information (Fraser-Mackenzie, Sung, & Johnson, 2014).

Schein is very clear that one should not set out to change your organisation's culture (Schein, 2004). One needs to understand the issues, build on the strengths and change the way you are working. Culture comes from social learning and will start to change as the organisation learns through experience.
IRMSA (2014) lists the way in which risk information is conveyed as well as staff with proper risk management skills as signs of a healthy and effective organisational risk culture. The complete list is attached as Appendix F.

The results obtained from the survey that was conducted at the lower work levels in the company provided insights into the challenges experienced by the staff. Although the risk culture maturity was not as poor as was expected, the lack of understanding and knowledge of risk management negatively impacted the risk culture. This is supported by the literature consulted, which provides sufficient guidelines about the various success factors for a mature risk culture. The comments made by the participants could be interpreted as a cry for help. They are trying their best to do the right thing, but it is futile without proper communication and training. On the positive side, their comments can be translated into practical actions that can be put in place to address the shortcomings identified.

6   Conclusion

At the onset of this study four research objectives were set. First, the risk culture of risk practitioners and business managers was to be analysed. This was achieved by piloting the UARM RCQ-2016 questionnaire by means of an online survey tool. The focus was on the junior work levels of the organisation. Second, the results for the two groups were compared. Both groups scored the same for risk integration with risk management viewed as a high integrated enabler of achieving the organisation's objectives. Business managers scored 3.7 and risk practitioners 4.1 for risk understanding, but both still fell within the same scope of a high level of understanding of risk in the organisation. In the category for individual responsibility and accountability, risk practitioners scored higher at 4.6, which translates into being completely responsible and accountable for risks connected to their role. Business managers scored 4.3, which means they still have a high level of responsibility and accountability for risks connected to their role. Third, the understanding of risk management by business managers and risk practitioners was analysed. A statistical analysis of the items in the survey that aimed to test risk understanding indicated significant differences between these two study groups. Lastly, the free-format comments and responses to questions about what information and training would be ideal, provided valuable input into recommendations for actions to be taken to enhance the status quo.

The disparity between risk practitioners and business managers with regard to the respective numbers of staff could provide an opportunity within the organisation to investigate the impact that these numbers have on embedding a better risk culture and driving risk management.

The literature sources that were consulted also highlighted the importance of communication in the quest to improve risk culture. The comments from the participants and best practice as documented by other researchers will provide a solid basis for further actions by the company to address the gaps identified.

The study provided valuable insights into the risk maturity of the organisation and created a solid understanding of risk culture and its importance. The risk culture maturity of the company was greater than anticipated, but the lack of training and poor communication of necessary risk information proved to be a hindrance in embedding risk management across all departments and processes. The survey might have paved the way to further initiatives by indirectly creating some awareness about risk culture.

The benefit to other institutions lies in the fact that a comprehensive study was conducted in an organisation with over 8 000 employees. A good response rate was achieved (739 complete responses out of a total sample of 3 478), and the participants provided substantial feedback.

Some of the limitations of the study were that it focused only on two work levels in the company, and it also excluded the operations in other African countries. Historically, the response rate was acceptable, but a greater number of responses would have been desirable. The time taken to complete the survey was less than 15 minutes, but some respondents complained about the number of questions. Interviews could be considered to obtain more information in future research studies. The study does not claim to have identified all the issues pertaining to risk culture and embedding risk management in a large organisation, but it provides a good starting point.

Further research could include a wider population and more in-depth interviews. Other researchers could validate the findings in their organisations by also comparing different work levels, especially the more junior levels in their institutions.

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REFLECTION

An external audit opinion inspired this research project. In my role as a senior specialist: enterprise risk management, I experienced the lack of buy-in into risk management and poor collaboration with business first hand. In order to address the shortcomings in the organisation with regard to the integration of risk management into business, it was important to understand the risk culture of the company. Furthermore, the level of understanding of risk management concepts and risk management in general needed to be established.

The research journey commenced with me conducting a literature review on the subject of risk culture. Limited research has been conducted on risk culture and limited tools exist that could be used to gauge the perceived risk culture in organisations. The survey was conducted in conjunction with North-University and it formed part of the 2016 pilot version of the UARM Risk Culture Questionnaire (UARM RCQ-2016). As explained by Zaaiman (2016): "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 (Appendix A)."

The focus of the study was to compare business managers and risk practitioners at the more junior work-levels in the organisation. A total of 739 participants completed the survey, which was a combination of UARM RCQ-2016 and additional questions that tested risk understanding and enquired about the need for risk training and risk information.

I did not expect to see the results for both groups to be the same for risk integration with risk management viewed as a high integrated enabler of achieving the organisation's objectives. Both groups also fell within the same scope of a high level of understanding of risk in the organisation. In the category for individual responsibility and accountability, risk practitioners scored higher, which translates into their being completely responsible and accountable for risks connected to their role. Business managers have a high level of responsibility and accountability for risks connected to their role.

Significant differences were observed for sub-factor 2.1 as well as for some of the additional questions that aimed to test the understanding of risk management and risk principles. The value was in the recommendations made by participants to improve risk management in the organisation. Accountability and responsibility, communication as well as training were highlighted as the top three areas by the participants that would assist in improving risk management in the organisation. This aligns with the literature in which success factors for a

risk-mature organisation, listed by various authors, includes training and communication and accountability.

I expect the work that was done for this mini-dissertation will prove very valuable for my organisation because it is the first time such an exercise was performed in the company. Feedback from 739 employees and the type of information provided can be used constructively to improve the risk culture and risk management of the organisation. We do not have to address risk culture as a priority any more, but rather focus our efforts on training and communication, which will result in the added benefit of an improved risk culture. I am in the very fortunate position to have an employer that supported me along the way and anxiously awaited the results. My organisation is interested in the results and recommendations of the study and eager to apply what I have found.

The contribution to the wider risk management community is my contribution to the validation of the UARM RCQ-2016 that will be used and applied to measure risk culture. The exposure to the development of a questionnaire of that nature was immense. It is an enormous task to design a survey that will evaluate risk culture and which can be applied globally. Furthermore, my results that confirmed what the literature says about key success factors for a mature risk culture, builds onto the risk management body of knowledge. I believe I have added a slightly different dimension by focusing on junior work levels.

On a personal level, I learnt never to underestimate the work that goes into doing academic research. Sometimes the relevant literature was hard to find. The volumes of literature were more than expected. The academic literature is also not easy reading. Research is cumbersome, but if you want others to take your work seriously, you cannot take shortcuts. There is a reason for every process. In the end every moment spent reading or discussing or debating was well spent. I emerged wiser, more informed and more aware. Should an opportunity like this present itself again I will probably plan better and procrastinate less. I will be stricter in managing my personal life so that everyday chores do not consume valuable study time.

Looking back over the past two years, I cannot believe how quickly it all went, even with the ups and downs and deadlines and frustrations. I discovered that the more I learned, the more I wanted to learn and I realised every time how much knowledge exists and just how little I know. It is an immense privilege to be able to experience the endless possibilities that exist when you open your mind to learning.

APPENDIX A: UARM RISK CULTURE QUESTIONNAIRE PILOT

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). G. Hofstede, G. J. Hofstede, and M. 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.
For more information, please contact Hermien Zaaiman (hermien.zaaiman@nwu.ac.za).

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

Factor	Factor Name	Risk Culture Maturity Levels				
		1.0 <= FS < 1.5	1.5 <= FS < 2.5	2.5 <= FS < 3.5	3.5 <= FS < 4.5	4.5 <= FS < 5.0
Factor 1	Risk Integration	RM not viewed as an integrated enabler of achieving the organisation's objectives	RM viewed as a low integrated enabler of achieving the organisation's objectives	RM viewed as a medium integrated enabler of achieving the organisation's objectives	RM viewed as a high integrated enabler of achieving the organisation's objectives	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)	Do not understand risk in the organisation	Low level of understanding of risk in the	Medium level of understanding of risk in the	High level of understanding of risk in the	Completely understand risk in the
Sub-factor 2.2	Individual Responsibility and Accountability	Not at all responsible and accountable for risks connected to role	Low level of responsibility and accountability for risks connected to role	Medium level of responsibility and accountability for risks connected to role	High level of responsibility and accountability for risks connected to role	Completely responsible and accountable for risks connected to role

FS: Factor Score

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APPENDIX B: ADDITIONAL NINE, COMPANY-SPECIFIC AND PEER-REVIEWED ITEMS

43. The aim of the risk management process in my organisation is not to eliminate risk, but to manage risk as best as possible.

    Yes / No / I don't know

44. I understand how to apply my organisation's approved risk impact and likelihood scales when I make decisions.

    Not applicable / Not at all / Not well / Moderately well / Well / Perfectly

45. I understand that controls are put into place to mitigate the effects of a risk materialising.

    Not applicable / Not at all / Not well / Moderately well / Well / Perfectly

46. I understand my organisation's risk terminology.

    Not applicable / Not at all / Not well / Moderately well / Well / Perfectly

47. I understand how risk management principles can add value to my business operations.

    Not applicable / Not at all / Not well / Moderately well / Well / Perfectly

48. I involve the risk management department when I perform a risk assessment.

    Not applicable / Never / Infrequently / Sometimes / Usually / Always

49. I would prefer to receive training on risk management principles in the following manner:

    High level, general awareness training

    Detailed, practical training

50. I would like to receive standardised risk information about my division's risk profile.

    Yes / No / I don't know

51. I would like to receive standardised risk information that could impact on my objectives.

    Yes / No / I don't know

APPENDIX C: DETAILED RESULTS FOR UARM RCQ-2016

Item	Chi-squared test statistic	p-value	Significant difference at α = 0.05
Factor 1: Risk Management Culture			
RCQ_1	0.0114	0.92	
RCQ_2	0.4238	0.52	
RCQ_4	4.2067	0.04	**
RCQ_5	4.0637	0.04	**
RCQ_6	9.9488	0.00	**
RCQ_9	3.5422	0.06	
RCQ_10	0.0009	0.98	
RCQ_12	0.0969	0.76	
RCQ_13	0.3096	0.58	
RCQ_15	0.0041	0.95	
RCQ_16	1.7726	0.18	
RCQ_17	0.1438	0.70	
RCQ_18	0.9862	0.32	
RCQ_19	1.396	0.24	
RCQ_20	2.1478	0.14	
RCQ_21	0.1617	0.69	
RCQ_24	3.0522	0.08	
RCQ_25	0.0692	0.79	
RCQ_27	0.0401	0.84	
RCQ_29	3.0242	0.08	
RCQ_31	1.0326	0.31	
RCQ_36	0.8206	0.37	
RCQ_37	0.0534	0.82	
RCQ_39	0.2667	0.61	
RCQ_40	1.9967	0.16	
Sub-factor 2.1: Comfort with Risk Management Role			
RCQ_7	12.3191	0.00	**
RCQ_8	29.8321	0.00	**
RCQ_11	21.0377	0.00	**
RCQ_26	8.4546	0.00	**
RCQ_32	19.0172	0.00	**
RCQ_34	0.5673	0.45	
RCQ_35	11.1777	0.00	**
Sub-factor 2.2: Individual Responsibility and Accountability			
RCQ_22	3.0028	0.08	
RCQ_23	4.7029	0.03	**

**Yes

APPENDIX D: RESPONSES TO ITEM 41 IN UARM RCQ-2016

Item 41: Who owns the risk in the organisation?

RCQ_41	Frequency	Percent (%)
I do not know	73	10
Strategic and Operational managers & Auditors	1	0
Operational managers & Auditors	3	0
Auditors	5	1
Risk and Strategic managers & Auditors	9	1
Risk and Operational managers & Auditors	10	1
Risk & Strategic managers	13	2
Strategic managers	14	2
Strategic & Operational managers	14	2
Risk managers & Auditors	18	2
Operational managers	53	7
Risk & Operational managers	64	9
Risk managers	107	14
Risk and Strategic & Operational managers	175	24
Risk and Strategic and Operational managers & Auditors	180	24
TOTAL	739	
*Risk managers & I do not know	4	0.54
*Operational managers & I do not know	1	0.14
*Risk, Operational managers & I do not know	3	0.41
*Risk & Strategic managers & Auditors & I do not know	1	0.14
*Risk, Strategic & Operational managers & I do not know	1	0.14
*Risk, Strategic & Operational managers & Auditors & I do not know	2	0.27

Responses marked with * were added to "I don't know"

Who owns the risks in the organisation?

APPENDIX E: RESPONSES TO ITEM 42 IN UARM RCQ-2016

Item 42: To improve risk management in the organisation, I believe that we must start with improving risk…

RCQ_42	Frequency	Percent (%)
Accountability and Responsibility	237	32.07
Communication	232	31.39
Data	16	2.17
Management processes	62	8.39
Management systems	31	4.19
Training	161	21.79

Free-format comments mentioned: Awareness, communication (how it is done as well as at what level it is done), training, ownership, processes, systems and accountability.

APPENDIX F: SIGNS OF HEALTHY AND EFFECTIVE ORGANISATIONAL CULTURE (IRMSA)

The following are signs of a healthy and effective organisational risk culture:

- The executive and senior management maintain a distinct and consistent tone when conveying information about risk-taking and avoidance (and consider their tone as appropriate for different levels).
- Organisation-wide commitment to ethical principles, evident right through the organisation, from the actions of individuals to the consideration of stakeholders when making decisions.
- All members of the organisation accept that risk should be managed without pause; it includes being accountable and taking ownership of specific risks and risk areas.
- Information pertaining to risk is disseminated in a timely and transparent manner through the entire organisation; negative risk and related events are communicated swiftly. A transparent and integrated reporting is adopted in the organisation's annual reporting to stakeholders.
- Risk-event reporting and whistle blowing is encouraged, as the organisation actively seeks to learn from mistakes and near-misses.
- The organisation sees no process or activity as too large, too complex or too obscure for thorough risk management.
- Appropriate risk-taking behaviours are rewarded and encouraged; inappropriate behaviours are discouraged and rectified.
- The organisation values, encourages and develops risk management skills, resources its risk management function properly and is a member of various professional bodies.
- The organisation's members are encouraged to obtain professional risk management qualifications and are given the opportunity for technical training.
- The organisation accepts diverse perspectives, values and beliefs as it means the status quo will be consistently and rigorously challenged.
- The risk culture is managed in conjunction with employee engagement and a people strategy to ensure that people are supportive socially but also strongly focused on the task in hand.

APPENDIX G: JOURNAL OF RISK RESEARCH GUIDELINES

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