

Open University Cyprus

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***Master's join degree/post graduate Programme
Enterprise Risk Management (ERM)***

MASTER THESIS



**Measuring and Analyzing maturity in Risk Management in
Primary Education regarding Health and Safety**

Maria Sea

Supervisor

Pandelis Ipsilandis

May 2019

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«Enterprise Risk Management (ERM)»
Faculty of Economics and Management

Open University of Cyprus

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Summary

This master thesis refers to the Risk Management procedures, standards, to the Risk Maturity Models and to the risk environment in general. The research focuses on the level of maturity in Risk Management in the public primary education in Cyprus regarding health and safety and its goal is concentrated on the improvement and future development of the educational system.

Analyzing the basic risk maturity models, a new and appropriate model was designed for the purpose of this thesis. The ideal model includes five attributes and four maturity levels and has been created in order the level of risk management to be measured.

The research methodology which was followed was through web forms using self-administered questionnaires and the responders were only the managers of public primary schools.

After a sample of 98 out of 331 responses the results were considered reliable with a confidence level of 80% and a margin of error of 5.45%. Combining the risk maturity model and the outcomes from the survey, the conclusions were that the overall risk maturity level in the primary education regarding health and safety is considered to be "Basic" (level 2 out of 4 levels of risk management maturity). Despite the satisfied indicators of high levels on risk management maturity in some of the attributes, the weakest area of the risk management defines its level of maturity.

Περίληψη

Αυτή η μεταπτυχιακή εργασία αναφέρεται στις διαδικασίες Διαχείρισης Κινδύνου, στα πρότυπα, στα Μοντέλα Ωριμότητας Κινδύνου και γενικότερα στο περιβάλλον κινδύνου. Η έρευνα επικεντρώνεται στο επίπεδο ωριμότητας στη διαχείριση κινδύνων στη δημόσια πρωτοβάθμια εκπαίδευση στην Κύπρο σχετικά με την υγεία και την ασφάλεια, και ο στόχος της είναι η βελτίωση και η μελλοντική ανάπτυξη του εκπαιδευτικού συστήματος.

Αναλύοντας τα βασικά μοντέλα ωριμότητας κινδύνου, σχεδιάστηκε ένα νέο και κατάλληλο μοντέλο για τους σκοπούς της παρούσας εργασίας. Το ιδανικό μοντέλο περιλαμβάνει πέντε χαρακτηριστικά και τέσσερα επίπεδα ωριμότητας και έχει δημιουργηθεί για να μετρηθεί το επίπεδο διαχείρισης κινδύνου.

Η ερευνητική μεθοδολογία που ακολουθήθηκε ήταν μέσω διαδικτυακών εντύπων, δηλαδή μέσω συμπλήρωσης ερωτηματολογίων και οι ανταποκρινόμενοι ήταν μόνο οι διευθυντές δημόσιων δημοτικών σχολείων.

Μετά από ένα δείγμα 98 από 331 απαντήσεις τα αποτελέσματα θεωρήθηκαν αξιόπιστα με επίπεδο εμπιστοσύνης 80% και περιθώριο σφάλματος 5,45%. Συνδυάζοντας το μοντέλο ωριμότητας κινδύνου και τα αποτελέσματα από την έρευνα, το συμπέρασμα ήταν ότι το συνολικό επίπεδο ωρίμανσης του κινδύνου στην πρωτοβάθμια εκπαίδευση, όσον αφορά την υγεία και την ασφάλεια, θεωρείται "βασικό" (επίπεδο 2 από τα 4 επίπεδα ωριμότητας διαχείρισης του κινδύνου). Παρά τις υψηλές ενδείξεις, όσον αφορά την ωριμότητα διαχείρισης κινδύνου, σε ορισμένα από τα χαρακτηριστικά, ο ασθενέστερος τομέας της διαχείρισης κινδύνου καθορίζει και το επίπεδο ωριμότητάς της.

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Chapter 1

Introduction

This dissertation introduces the ideas and the definitions of Risk Management and Risk Management Maturity. Following, a deep analysis in the Risk Management Standards lays out the basic knowledge required to understand the substance of this thesis.

The focus on the analysis of the maturity; the definition, the maturity levels and the maturity models in the Risk Management, provides a first glance in the world of risk.

Due to the economic crisis of the past several years, primary education in Cyprus has been greatly affected. Unfortunately, the educational system of the country combined with the recent educational arrangements caused concerns and created the necessity for further research. Therefore a deep analysis in the maturity of the Risk Management in the primary education will bring into the light the problematic features and characteristics of the current educational system regarding health and safety. With the appropriate survey (self-administered questionnaires) we examine the level of this maturity, how important it is and how can we improve it. It is followed by an analysis and presentation of the selected data as well as with conclusions and interpretations of the results.

Hence, this research could be an important indication of the present situation and the beginning of a future progress and provisions in this field.

Chapter 2

An Overall View of Risk Management

In this chapter the emphasis is being given on the analysis of the definition and evolution of the Risk Management. The basic stages of Risk Management Process are also being described as well as the Risk Management Standards.

2.1 The Definition of Risk Management

“Risk management” comprises two terms. Some people believe that “risk” is the possibility of losing something that has a value. Risk can also be defined as the intentional interaction with uncertainty that may bring gains or losses to individuals or organizations. However, values can be gained or lost when taking risk resulting from a given action or inaction, foreseen or unforeseen. According to Borge (2001: 4) “*risk means being exposed to the possibility of a bad outcome. It refers to the effect of a probable event that may occur in the future (positive or negative)*”. Nevertheless, risk is also defined by the ISO Guide 73 (ISO 31000 2009) as “*the effect of uncertainty on objectives. Note that an effect may be positive, negative, or a deviation from the expected. Also, risk is often described by an event, a change in circumstances or a consequence*”. Orange Book from HM Treasury explains it as the “*uncertainty of outcome, within a range of exposure, arising from a combination of the impact and the probability of potential events*” (HM Treasury 2004).

On the other hand “Management” is the well-known term of the sequence of actions made in order to achieve specific goals or to solve problems. Therefore “Risk Management” means “*taking deliberate action to shift the odds in your favour –increasing the odds of good outcomes and reducing the odds of bad outcomes*” (Borge 2001: 4). Institute of Risk Management (IRM) specifies that “*risk management involves*

understanding, analysing and addressing risk to make sure organisations achieve their objectives. Enterprise Risk Management (ERM) is an integrated and joined up approach to managing risk across an organisation and its extended networks”(IRM 2018). It is widely used across a variety of settings to identify and assess risks, and to institute measures to mitigate these risks. Roberta Carrol, an independent consultant specializing in the advancement of healthcare enterprise risk management, states that “Risk identification in the ERM realm endeavours to identify and manage uncertainty. Just like the toss of a coin, uncertainty has the potential for different and distinct outcomes by either creating a loss or creating value. The discipline of ERM strives to address uncertainty in a timely fashion, implementing strategic initiatives to increase the likelihood of adding value while preventing or minimizing loss”(Carrol 2016: 25) .Hence, the purpose of Risk Management is to avoid the unexpected and familiarize with the uncertainty by analyzing the past events, the present trends and the future indications. Risk management has a lot of applications in finance, medicine, engineering meteorology, seismology and in a myriad other areas. Nonetheless, the importance of the Risk Management is derived from its benefits. In this century of chaos and turmoil the implementation of Risk Management is required.

2.2 The Evolution of Risk Management

Fortune and chance are terms that have been created centuries ago. Specifically they have first appeared in dice games probably right after Jesus Christ’s birth as they mentioned in the Gospels. However the first form of risk management was originally generated from Hammurabi Code and it is related with a policy involving a recovering of cargo loss from shipwreck. In the framework of that code, freight expenses could be financed through a loan, but on the occasion that the ship is wrecked, the loan obligation is waived. This idea was the beginning of the development of the insurance companies and the first seed for the growth of risk management.

In 1752 Benjamin Franklin founded the “First America”, a fire insurance company in USA which followed by the establishment of Lloyd’s Society in London in 1771 by some English businessmen. Due to the high risk of potential damage in the marine sector, they decided to combine their resources in order to mitigate their risk of sea transportation losses and insure their clients. The twentieth century saw the rise of the probability in science as well as the creation of the formal risk management.

Until the early beginnings of 1970 most people and especially businessmen and project managers were not familiarized with the terms of risk and risk management. Controversially, in business projects they were trying to avoid further investigation regarding this sector. The effects of the uncertainty were ignored and were treated as necessary evil that should not be taken into consideration. The project risk management was rapidly developed throughout the 1970s when severe risk problems appeared. Lots of businesses needed to follow risk assessment procedures and risk methodologies processes. At that time lots of risk management academics and professionals published papers in respect with risk analysis and risk assessment.

Therefore the formal advent of risk management was in the early of 1980s. Finally the risk assessment process (risk identification, risk estimation and response) was generally known. *“Discussions on risk management emphasized quantitative analysis, some of which referred to the PERT(Programme Evaluation and Review Technique) type of triple estimates, and optimistic, mean, pessimistic and other more advanced new concepts”* (Merna and Al-Thani 2008: 40). Large companies such as BP and Norwegian Petroleum Consultants blazed a trail in risk management processes and adopted a lot of risk methods and techniques. They also developed Cost and Time Risk Analysis programs using probability distributions, time series and modeling. This period was also known as the decade in which risk response was considered a part of the risk process. Experts realized that risk identification and estimation were not sufficient for the prevention of the unexpected events. For instance, the cost and time of the different response scenarios need to be specified. In addition the secondary risks derived from the possible response scenarios as well as the remaining risks from every response scenarios should also be taken into consideration. *“Quantifying the results obtained will provide information which can be a valuable aid to the analysis”*(Merna and Al-Thani 2008: 41).

Ending with the period of 1990s it is noticed the reformation of the risk management. Authors stopped focusing on the quantity but on the quality of defining the risks and the solutions. New practices were established and innovative methods were applied. The risk management procedure started to emphasize on the holistic approach of the events. Team working and planning were the new trend for a more effective response to the risk. The technical and quantitative risk analysis was replaced with the understanding and improvement of risk management processes. *“Currently risk quantification and modeling techniques are seen as a way to increase both insight and knowledge about a project and as*

a way to communicate that information to the project team members and interest parties (stakeholders)” (Merna and Al-Thani 2008: 42).

2.3 The Risk Management Process

The fundamental steps of risk management process are: Identification, Analysis and Response.

2.3.1 Risk Identification

Identification consists of defining all possible risks may affect the smooth operation of the project. By the term “defining” meaning the detailed description of the risk, to what how it could be created and be expanded. The purpose is to identify potential risks that may affect both negatively and positively the operation of the business. The identification should answer three major questions; what can happen? How can it happen? Why could it happen? Identification also contains the gathering of information regarding the stakeholders as well as the collection of historical data of similar projects in order to predict the possible future hazards and potential risk events. Therefore it includes either the retrospective or the prospective risks. Retrospective risks are those which are easier to recognize and understand since they had occurred before. Such risks are accidents and incidents. Conversely, prospective risks are more difficult to be detected and concern risks that may happen in the future. According to a research from Arab Academy at Banking & Financial Sciences in Jordan in 2007, supervised by Dr. Lo’ a i A.Tawalbeh, the best procedure for an effective risk identification is to *“Select a risk identification methodology appropriate to the type of risk and the nature of the activity, involve the right people in risk identification activities and take a life cycle approach to risk identification and determine how risks change and evolve throughout this cycle”* (Kanona 2007: 27). Another risk identification technique is the SWOT analysis (Table 1) which determines either the strengths or the opportunities of the risks but their weaknesses and threats as well. The Diagram 1 below illustrates the risk identification procedure.

	Favourable	Unfavourable
Internal	<p>Strengths</p> <ul style="list-style-type: none"> • { What are your strengths? } • { What do you do better than others? } • { What unique capabilities and resources do you possess? } • { What do others perceive as your strengths? } 	<p>Weaknesses</p> <ul style="list-style-type: none"> • { What are your weaknesses? } • { What do your competitors do better than you? } • { What can you improve given the current situation? } • { What do others perceive as your weaknesses? }
External	<p>Opportunities</p> <ul style="list-style-type: none"> • { What trends or conditions may positively impact you? } • { What opportunities are available to you? } 	<p>Threats</p> <ul style="list-style-type: none"> • { What trends or conditions may negatively impact you? } • { What are your competitors doing that may impact you? } • { Do you have solid financial support? } • { What impact do your weaknesses have on the threats to you? }

Table 1: SWOT ANALYSIS (Najjaar, Yasseen & Small 2017: 37)

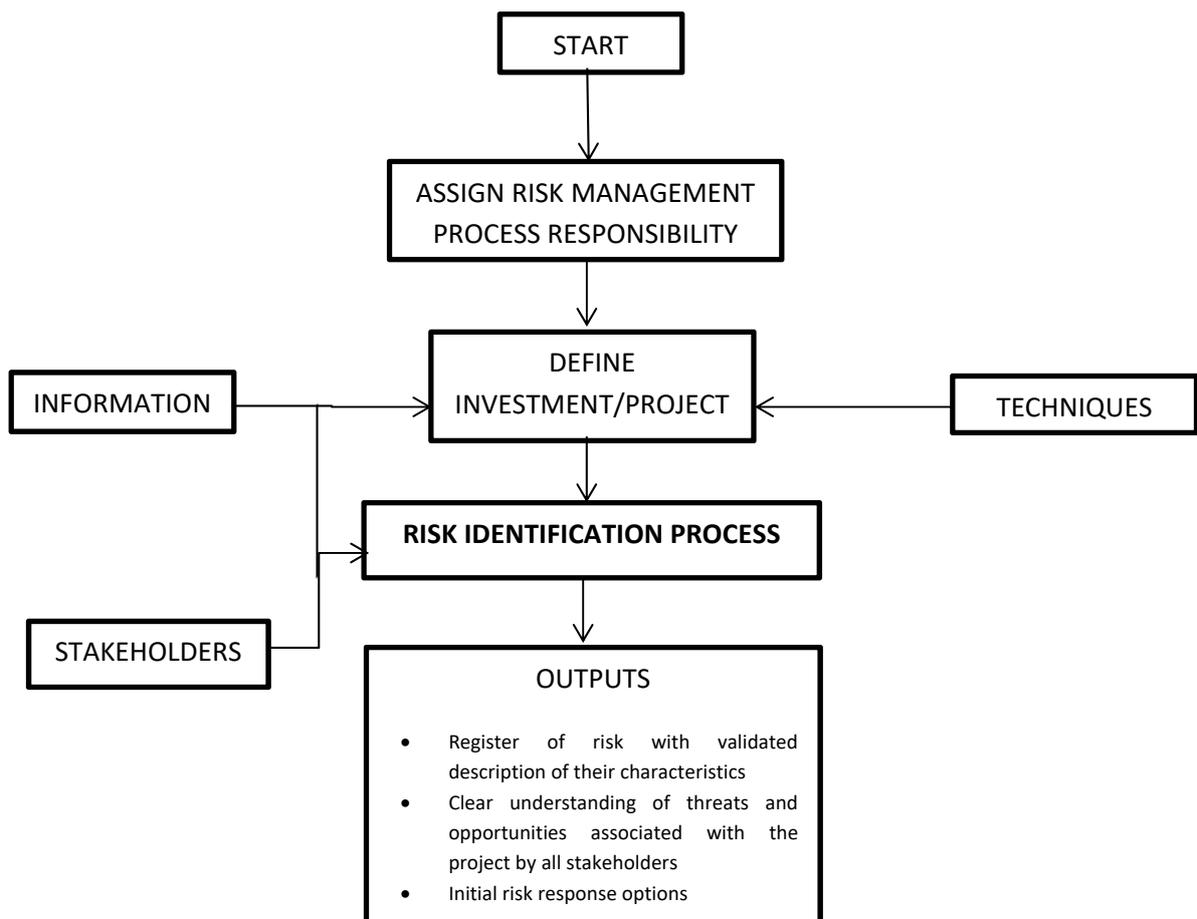


Diagram 1: Risk Identification Process (Merna and Al-Thani 2008: 50)

2.3.2 Risk Analysis

Analysis comprises of quantifying the range of the possible outcomes and tabulating both the opportunities that should be pursued and the threats that should be avoided in a list. Merna and Al-Thani (2008: 51) state that *“the risk quantification and analysis process should also document the sources of risk and risk events that the management team has consciously decided to accept or ignore as well as the individual who made the decision to do so”*. Risk analysis involves the weighing of the importance of the risk or set of risks for the organization and the investigation of their implications. *“Risk analysis and risk management can be divided into different steps. The iterative or incremental execution of these steps together with communication between the steps is the risk analysis/risk management process”* (Häring 2015: 13). Risk analysts should take into consideration three significant measures during the examination; the likelihood, the impact and the ranking of each risk. The assessing of the likelihood and the consequence of the risk occurring, helps measuring the probability and the frequency or severity of occurrence. The risk matrix indicates the level of importance depending on the risk rating; low, medium, high or extreme. *“Risk Analysis involves combining the possible consequences, or impact of an event with the likelihood of that event occurring. The result is the level of risk”*. (Kanona 2007: 29)

There are two methods of risk analysis; the qualitative and the quantitative. The first one contains evaluations that do not result in a numerical value. The application of the Probability - Impact Matrices as well as the judgement of an expert is necessary to infer accurate results. On the other hand quantitative risk analysis involves the use of computer models employing statistical data to conduct risk analysis. It requires the use of certain simulations such as the Latin Hyper Cube simulation and Monte Carlo simulation. The Diagram 2 demonstrates the risk analysis process.

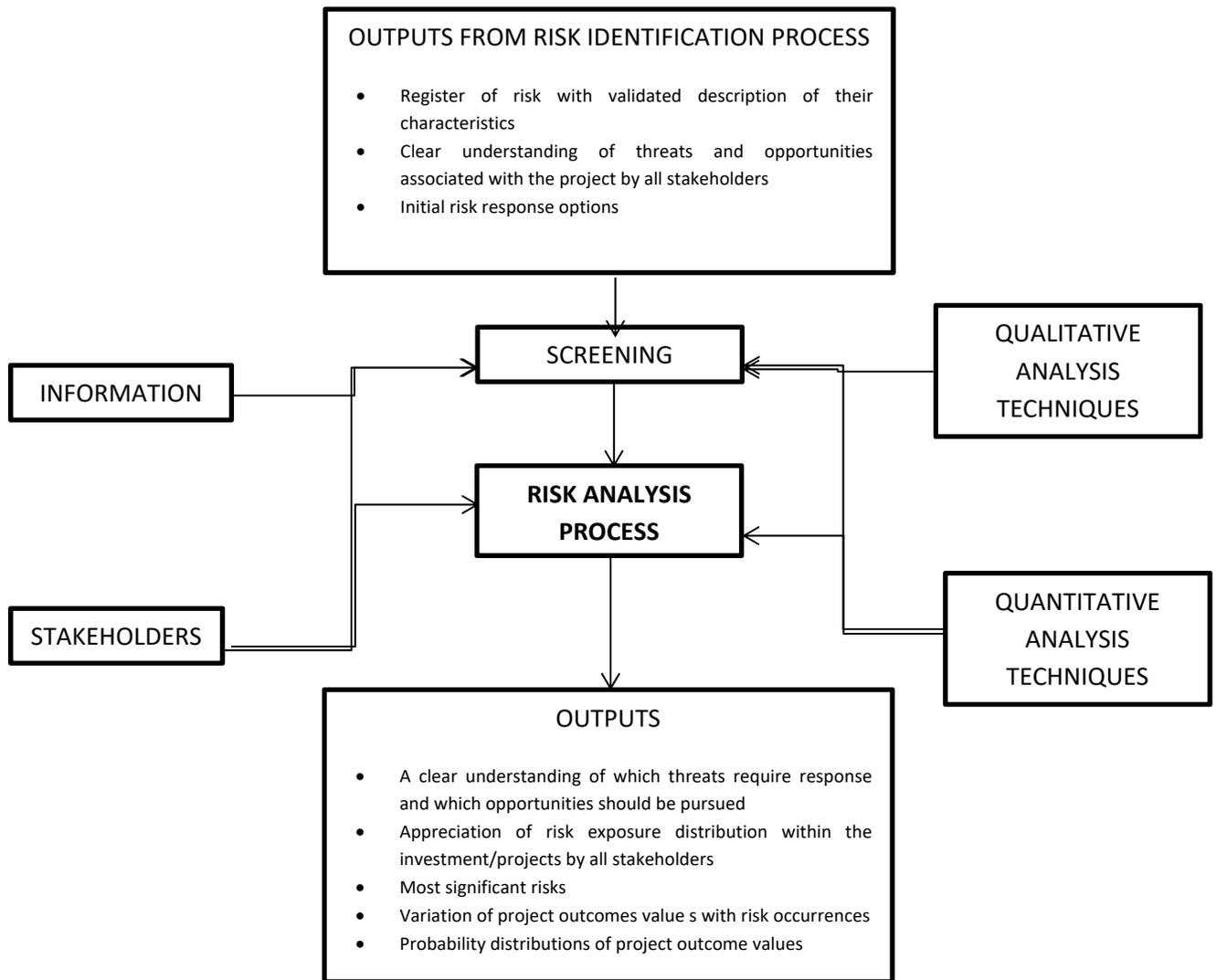


Diagram 2: Risk Analysis Process (Merna and Al-Thani 2008: 52)

2.3.3 Risk Response

Response refers to the actions or decisions made in order to mitigate -or increase- the possibility of risk. Figure 1.4 below shows the risk response process. After the analysis of all probable risks the appropriate activities should be scheduled either for avoiding the disasters or for raising the likelihood for a positive risk.

The enhancement steps for opportunities which lead to the optimization of the return can be accomplished following two fundamental ways; supporting business growth or supporting profitability. To support business growth the entity has to create a risk team which will be responsible to categorize risks depending from their severity. Every department will have a specific timeframe and tasks to complete according to the level of its risks. *“The risk team should work with line management, marketing, legal, operations, and technology representatives to establish and maintain a review process for*

vetting new business strategies and ideas. This review process brings the right people together to discuss key issues at an early stage.”(Lam 2014: 44). Supporting profitability simply means take into consideration the return of a transaction or decision made and try to increase it. To support cost-effectiveness a ranking of risks is required in order to differentiate the pricing of the products/transactions and therefore to have more profit. “Put simply, the idea is that the price for any product or transaction should reflect the cost of its underlying risks as well as more traditional costs. The cost of risk would obviously be higher for riskier transactions”. (Lam 2014: 45)

However, the immediate reactions to threats are usually achieved by applying one of the following risk strategies; risk control strategies or risk financing strategies.

Risk control strategies are separated into risk avoidance, risk reduction, risk prevention and risk diversification whether financial risk strategies into risk transfer and risk retention. Beginning with risk avoidance by definition is when the risk is avoided, in other words when the source of risk is eliminated by choosing other business projects rather than those which are exposed to risks. Risk reduction occurs either when the possibility of risk is decreased or its impact is lessened. *“The severity of injuries from falling objects on a building site, for example may be reduced by the compulsory wearing of hard hats, while the adoption of safer working practices can lessen the likelihood of objects falling”.*(Merna and Al-Thani 2008: 53) Risk prevention is when the business decides to stay out of troubles; it prevents the risks whether diversification is a strategy that requires diversifying the risks. For instance, if you have 100 000 000 dollars in gold that you need to transfer from port A to port B and each ship has an 70% chance to arrive without any damage at its destination and 30% chance to sink -and considering that you have an unlimited number of ships for doing it so- it is safer to use more than one ship. Therefore the possibility of losing everything is diminished because the risk is shared.

Moving on to financial risk strategies, risk transfer is the procedure of transferring risk to an associate or a counterparty of the project. Although the organization chooses a participant to be responsible for the risk management, the criticality of the risk remains the same. The doubts of making the decision to transfer the risk are derived from the question of who is the most suitable to transfer the risk and what is the cost of doing it.

Sometimes is better to retain the risk rather than to transfer, reduce or avoid it. The cost of risk retention is less than any other strategy. *“Ideally, retained risk should be that with which the organization’s core value-adding activities are associated (risk which the organization is most able to manage) as well as those risks which may be dealt with more costeffectively by the organization than external entities (since risk transfer and avoidance must necessarily come at a premium)”*.(Merna and Al-Thani 2008: 55)

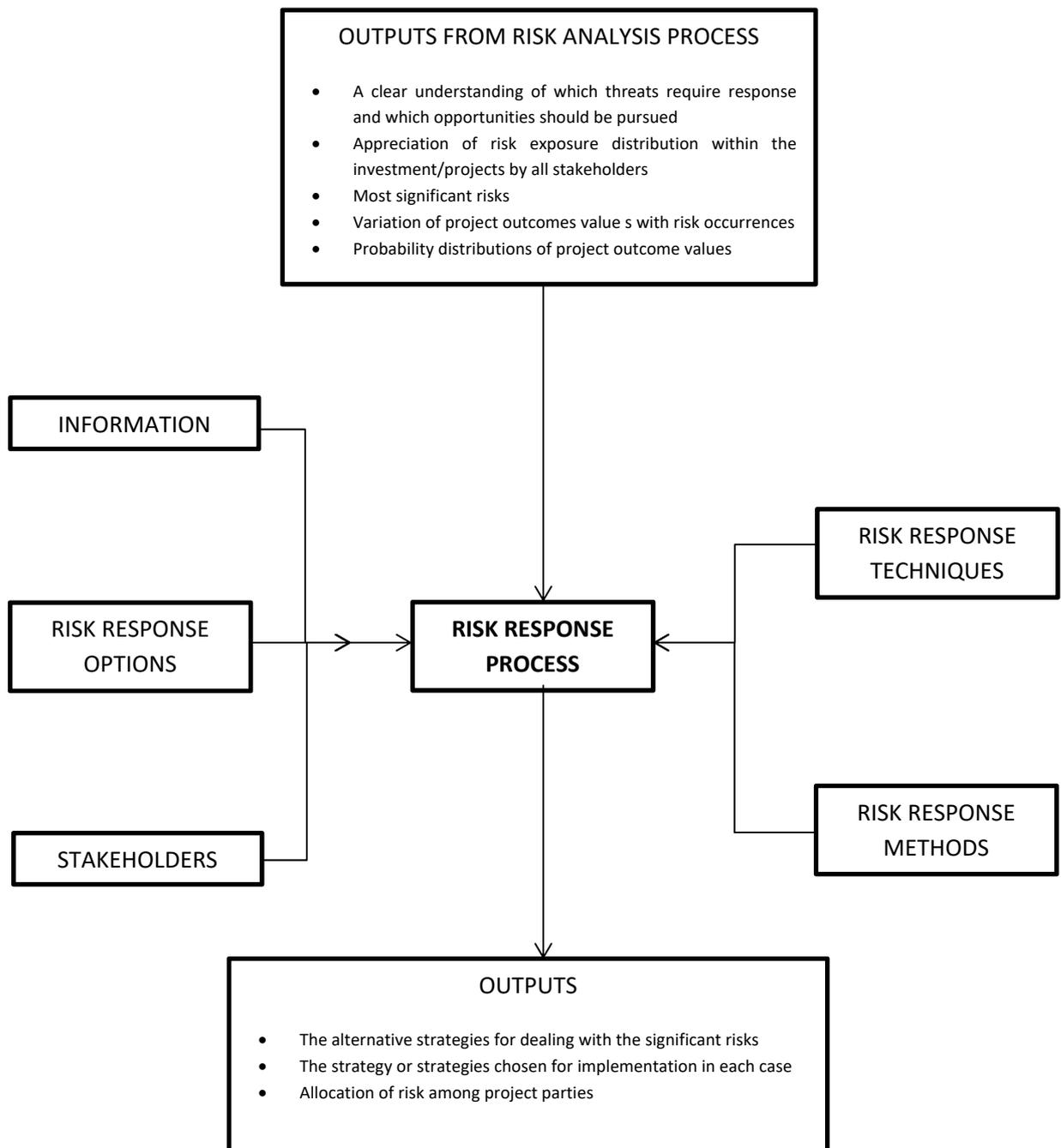


Diagram 3: Risk Response Process (Merna and Al-Thani 2008: 56)

2.4 The Risk Management Standards

The Risk Management framework and procedure are fulfilled with the risk management standards that play the role of supplement. They encourage innovation and provide solutions to global challenges. In a time of endless technological dangers, risk management standards act as a guideline that every organization can rely on.

Two of the many international standard-setting bodies are ISO (International Organization of Standardization) and COSO (Committee of Sponsoring Organizations). According to the official website of ISO *“ISO creates documents that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose”*.

Therefore every organization that holds the certification of ISO is considered that provides a high level of products or services. Its product or service has its own unique code number. ISO31000:2018 concerns Risk Management guidelines and principles required to be followed for a safer and more effective controlling of risk. *“Using ISO 31000 can help organizations increase the likelihood of achieving objectives, improve the identification of opportunities and threats and effectively allocate and use resources for risk treatment”*.

ISO 31000 is divided into three elements; its principles, framework and process. The principles provide a governance “template” for practicing effectively the risk management within an entity. Risk Management is not only considered as a part of decision making but it is also an integral part of organizational processes. It facilitates continual improvement and enhancement of the organization since it is interactive and responsive to change. The framework of ISO31000 is defined as a set of components and arrangements for implementing, reviewing and monitoring the risk management whether the process includes a systematic application of the policies, procedures and practices.

In contradiction with ISO, COSO refers only to the enterprise risk management and to the organizations’ fraud procedures and guidelines. Its official website notes that *“the Committee of Sponsoring Organizations’ (COSO) mission is to provide thought leadership through the development of comprehensive frameworks and guidance on enterprise risk*

management, internal control and fraud deterrence designed to improve organizational performance and governance and to reduce the extent of fraud in organizations". The COSO's framework is designed along three dimensions; the organizational objectives which are grouped as strategic, operational, reporting and compliance, the risk management components such as the procedural elements of risk management and the organizational entities within which risk management is applied.

Chapter 3

The Maturity in Risk Management – Risk Maturity Models

In the second chapter the term of maturity in Risk Management is well defined in order the readers to understand the real substance of its role in this field. A brief analysis of the risk maturity models -such as the Hillson's, Hopkinson's, Chapman's and AON's models- become the incentive and the inspiration of the design of the suitable risk maturity model for this research.

3.1 What Maturity is in Risk Management

Risk Maturity is currently a hot topic within the Risk Management discipline, being mentioned in various standards as well as being discussed at length in conferences across the globe. Maturity literally means the ideal condition or the satisfactory level which someone reaches after a period of time. According to the Cambridge Advanced Learner's Dictionary & Thesaurus *“maturity is the quality of behaving mentally and emotionally like an adult or a very advanced or developed form or state”* It also refers to maturity as *“the state of being completely grown physically”* or if it concerns the financial sector it refers to *“the time when an insurance agreement or investment becomes ready to be paid”*. Mettler (2011) also describes maturity as *“an evolutionary progression in the demonstration of a specific skill or in the achievement of an objective from the initial state to a desired final state”*. Therefore maturity in Risk Management means the acceptable level of risk which every organization is called to maintain and manage effectively so that to prevent any threat successfully. *“Mature organizations are the ones that are able to reduce noise and focus more effectively on truly high-risk concerns, choose cost-effective solutions for the risk management priorities, and execute reliably”* says Jack Jones, the Co-Founder and Chief Risk Scientist of RiskLens (Eide 2018).

Many companies hardly try to follow the myriad guidelines and regulations using checklists, reports and internal controls without focusing on what really matters; the strategic risks and the integration of various risk management activities. A recent research of Ernst & Young indicates that the risk management maturity is highly connected with the revenue and the EBITDA (Earnings before interest, taxes, depreciation, and amortization) of organizations. The survey demonstrates that the 20% top performing companies (from a risk maturity perspective) have higher revenue and generate almost three times the level of EBITDA in comparison with those in the bottom 20%. Hence the financial performance is also correlated with the risk management coordination, risk controls and risk awareness. The investment of each company in the advanced technological support of risk management process shows the level of its maturity and therefore either lose or gain the trust of its stakeholders.

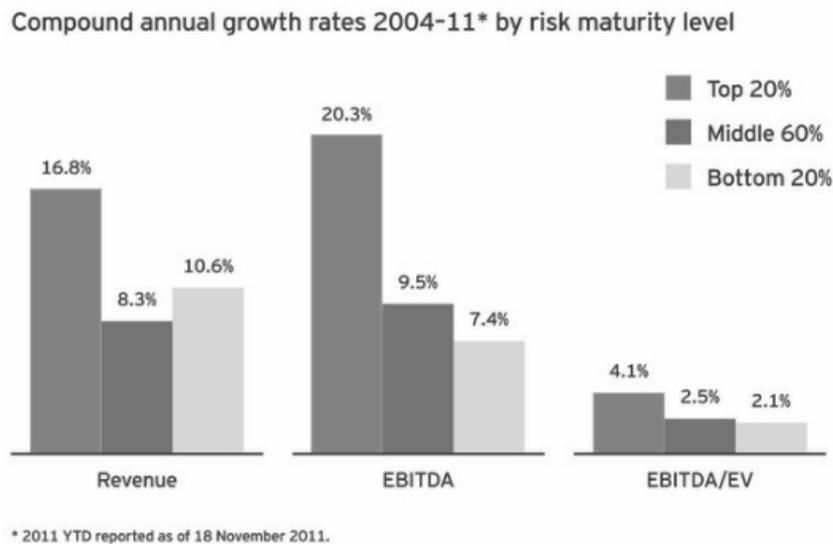


Diagram 4: Compound annual growth rates 2004-2011 by risk maturity level (Herrinton 2012)

3.2 Analysing Basic Risk Maturity Models

Norman Marks (2015), an Honorary Fellow of the Institute of Risk Management and a Fellow of the Open Compliance and Ethics Group supports that *“Risk management maturity models are an excellent way for organizations to see where they are, compare their current state to where they want and need to be if they are to derive full benefit and discuss the value and cost of further investment in risk management”*. He also specifies that *“A maturity model can help explain where you are. But it only has real value when it helps explain what you are missing. It has to be aspirational.”* Hence, a risk maturity model demonstrates the level (from a risk management view) in which the organization

is placed and which the ideal level to attain is, namely the target level. Typically a Risk Maturity Model has the format of a matrix. The levels of maturity are cross-referenced to the primary risk management practices. Some basic risk maturity models are described below in detail.

		Levels (sequence for developing practices)			
		Level 1	Level 2	Level 3	Level 4
Attributes (the prime risk management practices)	Attribute 1				
	Attribute 2		Competences		
	Attribute 3		(the attained or desired practices)		
	Attribute 4				
	Attribute 5				

Table 2: The Structure of a Risk Maturity Model (Wieczorek-Kosmala 2014: 139)

3.2.1 Model 1:

Hillson's Maturity Model (1997)

The first risk maturity model -which was an offshoot of the pre-existing capability maturity models-, was proposed by Hillson in 1997. Hillson's purpose was the provision of guidance to the organizations that wish to improve their target level of risk management. This model allows the entities to identify achievable goals for a better manage of risk and develop action plans for becoming more risk mature and increasing their risk capability. Therefore he initiated four levels of risk maturity which are described in ascending order as "naive", "novice", "normalized" and "natural".

Level One: Naive

An organization that is characterized as "Naive" is unaware of the necessity of existence of risk management. The company is threatened by any type of risk since there are no procedures and no structured approach for dealing with the uncertainty. The management regulations are repetitive with no attempt for improvement and adaptation in future threats.

Level Two: Novice

A novice entity understands the need of the risk management and tries to induct it in the organization in an experimental level. There are no official procedures and no formal or structured generic processes in place. *“Although aware of the potential benefits of managing risk, the novice organization has no effectively implemented risk processes and is not gaining the full benefits”*(Hillson 1997: 37).

Level Three: Normalized

A normalized organization applies the risk processes and risk regulations in a satisfactory level. It has a well-structured risk management plan and clear instructions for avoiding the unexpected events. Although there is a significant effort to follow all the risk procedures, the organization still misses to address all the requirements needed in order to be considered as one of the best in the risk management sector.

Level Four: Natural

To be ranked among the best entails to implement all necessary risk procedures into all projects of the organization. All the levels of the entity –from the officer to the CEO– embrace the risk maturity culture and realize its importance for the organization. However the risk concerns for the unexpected still exist. *“Risk information is actively used to improve business processes and gain competitive advantage. Risk processes are used to manage opportunities as well as potential negative impacts”*(Hillson 1997: 38).

Hillson emphasized on four perspectives for defining the level of risk management maturity. These are culture, process, experience and applications. According to Hillson the risk management system of the organization depends on these four categories.

	LEVEL 1 - NAIVE	LEVEL 2 - NOVICE	LEVEL 3 - NORMALISED	LEVEL 4 - NATURAL
DEFINITION	Unaware of the need for management of risk. No structured approach to dealing with uncertainty. Repetitive & reactive management processes. Little or no attempt to learn from past or to prepare for future.	Experimenting with risk management, through a small number of individuals. No generic structured approach in place. Aware of potential benefits of managing risk, but ineffective implementation, not gaining full benefits.	Management of risk built into routine business processes. Risk management implemented on most or all projects. Formalised generic risk processes. Benefits understood at all levels of the organisation, although not always consistently achieved.	Risk-aware culture, with proactive approach to risk management in all aspects of the business. Active use of risk information to improve business processes and gain competitive advantage. Emphasis on opportunity management ("positive risk").
CULTURE	No risk awareness. Resistant/reliant to change. Tendency to continue with existing processes.	Risk process may be viewed as additional overhead with variable benefits. Risk management only used on selected projects.	Accepted policy for risk management. Benefits recognised & expected. Prepared to commit resources in order to reap gains.	Top-down commitment to risk management, with leadership by example. Proactive risk management encouraged & rewarded.
PROCESS	No formal processes.	No generic formal processes, although some specific formal methods may be in use. Process effectiveness depends heavily on the skills of the in-house risk team and availability of external support.	Generic processes applied to most projects. Formal processes, incorporated into quality system. Active allocation & management of risk budgets at all levels. Limited need for external support.	Risk-based business processes. "Total Risk Management" permeating entire business. Regular refreshing & updating of processes. Routine risk metrics with constant feedback for improvement.
EXPERIENCE	No understanding of risk principles or language.	Limited to individuals who may have had little or no formal training.	In-house core of expertise, formally trained in basic skills. Development of specific processes and tools.	All staff risk-aware & using basic skills. Learning from experience as part of the process. Regular external training to enhance skills.
APPLICATION	No structured application. No dedicated resources. No risk tools.	Inconsistent application. Variable availability of staff. Ad hoc collection of tools and methods.	Routine & consistent application to all projects. Committed resources. Integrated set of tools and methods.	Second-nature, applied to all activities. Risk-based reporting & decision-making. State-of-the-art tools and methods.

Table 3: Hillson's Risk Maturity Model (Hillson 1997: 39)

3.2.2 Model 2:

Hopkinson's Maturity Model (2000)

Hopkinson developed two versions of maturity models; one applicable for a project environment and one for a business level. The second follows the same line with Hillson's model. Despite that he adopted the four levels of maturity described by Hillson, his model determine the maturity of a risk management process by evaluating it against six criteria. These attributes are the main difference between Hopkinson's model and Hillson's model. Although Hillson focused on the culture, process, experience and applications, Hopkinson preferred to give more attention into management, risk identification, risk analysis, risk control, risk review and culture.

The level of the risk maturity is determined by following a specific procedure. A series of questions are asked for each perspective. Then according to the level of each question's significance in the overall effectiveness in the risk management system, the reply counts for the relevant level of maturity. For example if an organization replies "ALWAYS" to a question that asks "how often new risks are identified in a timely manner" then the answer weights for the most mature level; the Natural level. However, Hopkinson (2000) supports that *"the overall assessment is considered to be only as high as the weakest score among the six assessments"* and explained that *"the rationale for this scheme of assessment is that the overall system for risk management is only as strong as its weakest area"*. For Hopkinson the most mature level of risk management -level 4- includes the features as described in the next page (Table 4).

<p>Management</p> <ul style="list-style-type: none"> • Board's risk management (RM) policy reported to shareholders • Management leads RM by example. Practical definition of "significant risks" • Practical definition of the risks to be borne • Clear RM channels of communication <p>Risk Identification</p> <ul style="list-style-type: none"> • All sources of risk considered, including strategic, financial, technological, resource, disaster, projects, operational and external • New risks identified in a timely manner • Unusual events investigated for risk • All employees can identify risks <p>Risk Analysis</p> <ul style="list-style-type: none"> • Consistent definition of probability • Consistent definitions of impact • Prioritisation influences agendas and promotes cost effectiveness • Widespread availability of RM expertise • Analysis traces risk source and secondary effects • Risk records retained on state of the art tools <p>Risk Control</p> <ul style="list-style-type: none"> • Risk control actions based on cost–benefit analysis after considering all strategies • Well-focused actions on individuals • Actions are consistently completed • Business continuity planning as appropriate <p>Risk Review</p> <ul style="list-style-type: none"> • Annual formal board review of RM effectiveness • Strategy for review of all risks maximises cost effectiveness • New information on significant risks is reported immediately • Board regularly review significant risks • Risk reports optimised for effectiveness <p>Culture</p> <ul style="list-style-type: none"> • Board's policy translated into management instructions understood by all employees • Atmosphere of mutual trust • Proactive risk management rewarded. Key managers have good RM skills and relevant experience in the core business

Table 4: Characteristics of Hopkinson's Risk Maturity Model- Level 4 (Hopkinson 2000)

3.2.3 Model 3:

Chapman's Maturity Model (2006)

Chapman created his own maturity model by studying first the previous two. Therefore he designed a model based on characteristics of both Hillson's and Hopkinson's models. Chapman's model has also four maturity levels with clearer and more informative labels; initial, basic, standard and advanced. Each level is against five attributes – culture, system, experience, training and management. Although he tried to construct his own model he mainly kept the most useful features of the two previous models and

added some new in order to improve and develop the model. The table (Table 5) below describes the characteristics of each maturity level in accordance with each perspective.

	LEVEL 1 - INITIAL	LEVEL 2 - BASIC	LEVEL 3 - STANDARD	LEVEL 4 - ADVANCED
OVERVIEW	<ul style="list-style-type: none"> Compliance only approach Risk appetite not defined No framework developed Risk profile not defined No senior management buy-in to RM as a decision tool 	<ul style="list-style-type: none"> RM established for business improvement Risk appetite defined Framework established Risk system established Risk profile defined 	<ul style="list-style-type: none"> RM built into routine business processes covering end-to-end production or delivery of services Benefits recognised at all levels of the organisation 	<ul style="list-style-type: none"> RM considered critical to achievement of the business goals Approach communicated to the organisation as a whole Risk appetite transparent Business seeks continuous improvement Proactive upside (opportunity) RM Sophisticated modelling techniques
CULTURE	<ul style="list-style-type: none"> RM established to meet the Combined Code, the Listing Rules and annual reporting Specific risk management roles not defined 	<ul style="list-style-type: none"> Risk exposure defined Roles and responsibilities defined Meeting structure defined Decision-making mechanisms established 	<ul style="list-style-type: none"> Pro-active approach to RM to improve business performance Central risk management function created High level risks and responses debated at the board on a regular cycle 	<ul style="list-style-type: none"> RM culture lead by the chief executive RM information used in decision making RM roles and responsibilities included in the induction process, job descriptions and performance appraisals Proactive enforcement of RM through employment contracts
SYSTEM	<ul style="list-style-type: none"> Risk strategy unclear Risk framework (and its constituent parts) embryonic 	<ul style="list-style-type: none"> RM framework under development OR or business continuity management not addressed Poor data collection and trend analysis 	<ul style="list-style-type: none"> RM strategy defined, relevant and practical RM framework developed OR and business continuity management frameworks being implemented 	<ul style="list-style-type: none"> RM strategy defined and kept under review RM framework developed and benchmarked against best practice
EXPERIENCE	<ul style="list-style-type: none"> Very limited understanding of systems, terminology or software 	<ul style="list-style-type: none"> Limited to small number of the audit committee and company secretary 	<ul style="list-style-type: none"> In-house core of experienced individuals in systems, modelling and response planning 	<ul style="list-style-type: none"> Risk awareness throughout the organisation plus external support
TRAINING	<ul style="list-style-type: none"> No training provided in-house or from external support 	<ul style="list-style-type: none"> Training undertaken by audit committee members 	<ul style="list-style-type: none"> Risk manager appointed Risk committee established 	<ul style="list-style-type: none"> Training and education programme provided to all business unit heads
MANAGEMENT	<ul style="list-style-type: none"> Management practices focussed on satisfying the Combined Code and the Listing Rules 	<ul style="list-style-type: none"> Economic capital allocated to Operational Risk Operational Risk management reactive Risks reviewed on a yearly basis 	<ul style="list-style-type: none"> Guidance on risk-reward balance provided to line management Early warning indicators established for OR Economic capital allocated to risk 	<ul style="list-style-type: none"> Guidance on risk-reward balance provided to line management Early warning indicators established for both OR and business context Reputational risk addressed

Table 5: Chapman’s Risk Maturity Model (Chapman 2006)

3.2.4 Model 4:

AON’s Maturity Model (2010)

According to AON (2010), one of the world’s leading risk advisor and insurance broker, “the path to enterprise risk management maturity requires a careful balance between corporate vision, stakeholder commitment and risk philosophy. Staying fully-informed and up-to-date with the latest industry trends is the best way to remain competitive and relevant in evolving global markets”. The five-stage ERM maturity model of AON was created in order to reveal how mature the organizations are in risk management and

show the significance of ERM implementation. It also indicates ERM's effect on harmonizing organizational culture and its capacity to be used proactively to equilibrate risk, opportunity and values.

The five stages of Risk Maturity with ascending order –from the lowest mature level to the highest- are “Initial”, “Basic”, “Defined”, “Operational” and “Advanced”. Although every level has its own fundamentals there is no a separative line. For instance, since each level of AON's maturity model is against nine attributes, an organization might be able to drive significant value through ERM in specific areas and in some others not. If these nine attributes -board-level commitment, dedicated risk executive in a senior level position, risk management culture that encourages full engagement and accountability, engagement of all stakeholders, transparency of risk communication, integration of risk information into decision-making, use of sophisticated quantification methods, identification of new and emerging risks and risk management focused on extracting value- are implemented in the highest level, the organization is considered as an advanced enterprise risk management organization. The hallmarks of an advanced ERM organization also include the enhancement of shareholder value, the optimization/reduction of total cost of risk, the strengthening of business resiliency and the increase of operational efficiency.

The features of each maturity scale are analyzed in the Table 6 below.

Scale:		
1.	Initial/ Lacking	Component and associated activities are very limited in scope and may be implemented on an ad-hoc basis
2.	Basic	Limited capabilities to identify, assess, manage and monitor risks
3.	Defined	Sufficient capabilities to identify, measure, manage, report and monitor major risks; policies and techniques are defined and utilized (perhaps independently) across the organization
4.	Operational	Consistent ability to identify, measure, manage, report and monitor risks; consistent application of policies and techniques across the organization
5.	Advanced	Well-developed ability to identify, measure, manage and monitor risks across the organization; process is dynamic and able to adapt to changing risks and varying business cycles; explicit consideration of risk and risk management in management decisions

Table 6: AON's Risk Maturity Model (AON 2010: 7)

3.3 Common Features and Differences between the Models

Comparing the four aforementioned models it is observed that they all follow a common line. Regardless of the number of levels and attributes that they consist of, the first and

last level represent the lowest and the highest level of risk maturity respectively. “Naive” (appeared in Hillson’s and Hopkinson’s model) and “Initial” (appeared in Chapman’s and AON’s model) denote an organization with no structured risk management processes and no official guidelines for unexpected events. There is no qualified personnel for addressing the relevant regulations and take the appropriate actions to manage the risks. *“It is assumed that at the first level an organisation simply does not manage risk. It is unaware of the need for risk management and the benefits it may bring. As a consequence, it does not develop a risk management framework. Even if any managerial steps are taken in this field, they are chaotic, ad-hoc and individually-driven”*(Wieczorek-Kosmala 2014: 142).

On the other side a “Natural” (appeared in Hillson’s and Hopkinson’s model) and an “Advanced” (appeared in Chapman’s and AON’s model) organization develops the ability to identify, quantify, handle and monitor risks. The risk management strategy is well-defined and is kept under review. The risk management framework is also developed and benchmarked against best practice. *“At the most mature level of risk management the management board and the key managers possess risk awareness, are able to learn from past experience, and continuously master the skills (including the external training). Additionally, the management board should conduct the effective risk reporting, combined with regular (periodical) review of risk (at least for the most significant risks)”*(Wieczorek-Kosmala 2014: 143).

Although there are some differences in the names and the number of perspectives, “culture” is included in each model, which validates its significance for the risk management.

Hillson (1997)	4 Levels:	4 Attributes:
	- Naive	- Culture
	- Novice	- Process
	- Normalized	- Experience
	- Natural	- Application
Hopkinson (2000)	4 Levels:	6 Attributes:
	- Naive	- Management
	- Novice	- Risk Identification
	- Normalized	- Risk Analysis
	- Natural	- Risk Control
		- Risk Review
		- Culture
Chapman (2006)	4 Levels:	5 Attributes:
	- Initial	- Culture
	- Basic	- System
	- Standard	- Experience
	- Advanced	- Training
		- Management
AON (2010)	5 Levels:	9 Attributes:
	- Initial /Lacking	- Board-level commitment
	- Basic	- A dedicated risk executive in a
	- Defined	senior level position.
	- Operational	- Risk management culture that
	- Experience	encourages full engagement and
	- Advanced	accountability.
		- Engagement of all stakeholders
		- Transparency of risk communication
		- Integration of risk information into decision
		making
		- Use of sophisticated quantification methods
		- Identification of new and emerging risks
		-Risk management focused on extracting value

Table 7: A comparison of levels and attributes of exemplary Risk Maturity Models (Wieczorek-Kosmala 2014: 141)

3.4 Risk Management in Primary Education – Policies and Practices

Risk management is also applied in Primary Education. There are many policies and practices concerning both the physical and the psychological health of students. Teachers' decisions, instructions and actions affect the children immensely.

A safe and positive environment is required for a more effective operation of the school curriculum. Falling ceilings and broken plumbing should be fixed in a timely manner. It is very important to make the students feel that the school "belongs to them" and they should care about it like they care about their home. The teachers should give the children the message that their well-being counts. *"Consistency and predictability are a part of safety; rules and procedures must be fairly and consistently applied, so that they are not regarded as capricious"*(Danielson 2002: 51).

The culture of the school also plays a significant role. Different spheres of student excellent merit recognition should be applied and a school culture that supports student learning should be promoted both within the classroom and in the school as a whole.

Other school policies such as attendance policies, discipline policies and homework policies are also implemented for a better coordination and healthier environment. *"Educators are well advised to re-examine the accepted ways of doing things at their schools. These practices will be familiar to both students and faculty, and if they contribute to a school's focus on learning, they should be retained. Practices that do not support student learning should be revised to ensure that they do, difficult though it may be to disrupt the status quo"* (Danielson 2002: 53).

Last but not least grading policies have the greatest potential to affect students' futures. They should have an informative and educational role, motivate students and make them realize the importance of learning and progressing. Communicating with parents is also a good practice to improve not only the relationship between the teacher and the student but also the relationship between the parent and the child. *"The adults involved must ensure that the policies they put in place reinforce their goals for students, reflect their beliefs about students and their learning, and are supported by research findings"* (Danielson 2002: 58).

RUBRIC FOR POLICIES AND PRACTICES AFFECTING STUDENTS			
	Poor	Basic	Exemplary
A Culture for Learning	The school has no culture for learning, or a negative culture. Students appear satisfied to "just get by."	Some of the school's practices reinforce the culture for learning; students have partially internalized this culture and some of them make a commitment to excellence.	School practices reinforce the culture for learning; students have internalized this culture and make a serious commitment to excellence.
Attendance Policies	Attendance and tardiness policies are rigid and punitive; no attention is paid to student learning or flexibility for individual situations. Students have had no opportunity to contribute to the development of the policies.	Attendance and tardiness policies are focused on maximizing attendance, but are only partially flexible for individual situations. Students have had some opportunity to contribute to the development of the policies.	Attendance and tardiness policies are focused on maximizing attendance and student learning, and are flexible and responsive to individual situations. Students have contributed to the development of the policies.
Discipline Policies	Standards of student conduct are arbitrary, and consequences for student infractions are punitive and harsh. Discipline policies are not well publicized and students have had no opportunity to contribute to their development.	Standards of student conduct and the consequences for student infractions are fairly reasonable. Discipline policies are publicly known and students have had some opportunity to contribute to their development.	Standards of student conduct are based on mutual respect, and consequences for student infractions are reasonable. Discipline policies are publicly known and students have contributed to their development.
Homework Policies	Homework policies and practices are rigid and not designed to promote student learning. Consequences of incomplete homework are punitive. Students have had no opportunity to contribute to the development of the policies.	Homework policies and practices are moderately flexible and attempt to promote student learning. Consequences for incomplete homework are fairly reasonable. Students have had some opportunity to contribute to the development of the policies.	Homework policies and practices are flexible and designed to promote student learning. Consequences for incomplete homework are firm but respectful. Students have contributed to the development of the policies.
Grading Policies	Student grades are awarded according to the bell curve; factors other than mastery of the curriculum, such as cooperation, are used to inflate poor grades; or grades are awarded to students based on the teachers' individual preferences and favoritism towards students.	Teachers decide grades according to a combination of factors that are poorly articulated and not well understood by students and parents. Grades reflect not only mastery of the curriculum, but also effort, amount of progress, and level of participation and cooperation.	Student grades reflect mastery of the curriculum, and do not reflect the standing of students relative to other students. Factors such as effort, amount of progress, and level of participation and cooperation are addressed separately on report cards.

Table 8: Policies and Practices affecting students (Danielson 2002: 59)

Chapter 4

The Research: Analysis and Interpretation of Empirical Results

The survey in the maturity in Risk Management in primary education regarding health and safety is being completed in this chapter. The whole procedure of the research is being detailed, described and well analyzed. The construction of the appropriate risk maturity model as well as the choice of the research methodology –which includes the design of the questionnaire and the acquisition of the answers- and the process towards the analysis of the empirical results compose and portray the picture of this study.

4.1 Subject of Research

The survey attempts to explore the maturity level in Risk Management in the primary education in Cyprus regarding health and safety. The Research is conducted with the purpose of understanding the current level of risk maturity of the country's primary schools as well as of setting up new arrangement in order to improve the risk management approach. For instance it studies in which level specific regulations and directives are applied in the primary schools as well as the level of the awareness of the schools regarding health and safety.

Using the appropriate Maturity Model, a satisfactory amount of data is collected in order the level of the maturity to be estimated. The maturity model is selected or constructed very carefully so that the results will be as accurate as possible. Therefore multiple attributes of Risk Management are studied to ensure the objectiveness and the correctness of the research.

Risk Management in the primary education is essential for the health and safety of our children. The aim of this research is to be a reliable indicator for the risk management maturity of the schools in order to take the necessary actions to progress and develop the risk processes.

4.2 The choice of the Risk Maturity Model and Why

For the risk maturity level estimation the appropriate risk maturity model is compulsory. By the term “appropriate” we mean a model that satisfies all the conditions in order to be a tool of assistance for getting the right results. Otherwise the outcomes will not be reliable. *“Risk Maturity Models are believed to provide a generally accepted framework of benchmarks useful in assessing the stage of risk management implementation. In an academic (theoretical) dimension, Risk Maturity Models are useful in understanding the degree of sophistication of the risk management process and practices, its reliability and effectiveness at each stage”* (Wieczorek-Kosmala 2014: 138)

As mentioned in previous chapters there are several maturity models such as the Hillson’s Maturity Model (1997), the Hopkinson’s Maturity Model (2000) and the Chapman’s Maturity Model (2006) which are the most well-known models. However, for this research a new maturity model was constructed in order to fulfill all the needs of the survey and that includes characteristics from both Hopkinson’s and Chapman’s models. The model was designed using the four levels of Chapman’s model (Initial, Basic, Standard and Advanced) and the five out of the six attributes of Hopkinson’s model (Risk Identification, Risk Analysis, Risk Control, Risk Review and Culture). The selection of the levels and attributes was made in accord with the risk management requirements of a primary school. Despite of all the mandatory fields which should be covered -so that the maturity model will be considered as valid- the simplicity and plainness of the model should also been taken into account. Besides, the weakest area of the risk management process determines the overall risk maturity level. The table (Table 9) below indicates the risk maturity model designed for this research.

Attributes/Levels	INITIAL	BASIC	STANDARD	ADVANCED
Risk Identification				
Risk Analysis				
Risk Control				
Risk Review				
Culture				

Table 9: Risk Maturity Model for this research

4.3 Research Methodology

The research methodology plays a significant role for acquiring the right data and therefore having accurate results. However, the research methodology depends on many factors such as the timeframe of the survey, the research field, the responders, the type of the data you want to collect and many others.

This survey was conducted using self-administered questionnaires. According to Saunders, Lewis and Thornhill (2009) *“Perhaps not surprisingly, the questionnaire is one of the most widely used data collection techniques within the survey strategy. Because each person (respondent) is asked to respond to the same set of questions, it provides an efficient way of collecting responses from a large sample prior to quantitative analysis”*. The questionnaire was also administered electronically using the Internet (Internet-mediated questionnaires) so that there will be no cost of printing. Moreover the electronic form of the questionnaire, made its completion smoother since it created a friendly environment for the responders.

On the other hand the design of a good questionnaire requires caution and preciseness in the construction of the questions. The querist is unable to go back to the responder and ask explanations for the answers. *“The design of your questionnaire will affect the response rate and the reliability and validity of the data you collect”*(Saunders, Lewis and Thornhill 2009). In order to maximize the trustworthiness of the outcomes, the careful design of individual questions, the clear and pleasing layout of the questionnaire as well as the lucid explanation of the purpose of the questionnaire should be taken into consideration during its construction.

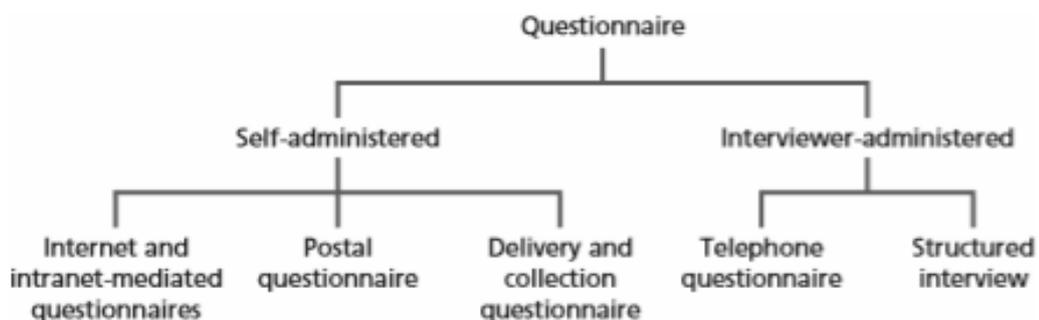


Diagram 5: Types of Questionnaires

4.4 Research Questions - Analysis of Empirical Results

The choice of questionnaire was influenced by a multiplicity of factors associated with the research questions and objectives and specifically the characteristics of the respondents, the significance of respondents' answers not being contaminated or distorted as well as the types and the number of questions needed to ask to collect the data. Similarly, the accessible resources affect the design of the questionnaire. As mentioned before the timeframe to complete the data collection and the availability of the respondents plays a decisive role for the survey.

Bearing in mind all these conditions, the questionnaire was designed in the Greek language since the respondents are all Greek or Greek-Cypriots. The way of analysis of the empirical results was effected through a combination of the questionnaire and the Risk Maturity Model. Particularly, for the estimation of the risk maturity level in the primary education regarding health and safety, five questions for each attribute of the selected maturity model were constructed. The levels of the risk maturity were represented by the numbers one to four (1-4) in an ascending order with the one (1) representing the "Initial Level" and the four (4) the "Advanced Level". Therefore an overall maturity level for every element was estimated by taking into consideration the mode level (highest frequency), which was indicated by the five answers. For example if the responders answered for the five questions referring to the first attribute 1, 2, 1, 4, 1 respectively, then it means that the overall level of maturity of the first attribute is 1, that is the Initial Level. However, the overall maturity level of the risk management is as high as the weakest level of all attributes. An extensive analysis for the estimation of the risk maturity level is described in the following subchapters (3.5 and 3.6).

The first valuation of the questionnaire was made by my supervisor, Mr Pandelis Ipsilandis. who made some suggestions and corrections for avoiding possible misconceptions. The second valuation was made through a pilot testing and therefore some new reforms and updates were made.

4.5 Presentations and Interpretations of the Results

During the process of the completion of the questionnaire, some limitations are being detected. Nevertheless they did not affect the overall results of the survey in a severe manner. The interpretation of the results of every question of the questionnaire is being analyzed in the next few pages.

4.5.1 Sample size and Confidence level

After the completion of the questionnaire from a sample size of 98 out of 331 responders the following answers are collected and interpreted in order to get reliable results. Acquiring this number of responders and with a confidence level of 80%, a margin of error of 5.45% is being achieved. However, with a confidence interval of 95%, a margin of error of 8.32% is being achieved. This is explained as a very good indicator of a sample size if the kind of population (only school's directors) is taken into consideration. The accomplishment of 5.45% margin of error with an 80% confidence level literally means that 80% is the level of certainty that the characteristics of the data collected will represent the characteristics of the total population and 5.45% is the accuracy for any estimation made from the sample.

4.5.2 Limitations of the Survey

Since the survey was effected through the completion of a self-administered questionnaires via the internet, some limitations of the survey were the web connections as well as the server providers that the responders used to complete the questionnaires. Fortunately, direct contact was maintained with the responders and some assistance was provided. A second limitation was the sample size. Although it was satisfactory enough to get accurate outcomes, a larger size would be preferable in order to have a larger confidence level –maybe a 95%- and a smaller margin of error.

4.5.3 Analysis of the Answers Given by the Questionnaire

The questionnaire consists of 30 questions out of which the first 5 concern information regarding the responder and the responder's current school.

4.5.3.1 General Information

Question 1: Gender

As it shown in the graph 50% of the responders were male and the other 50% female.

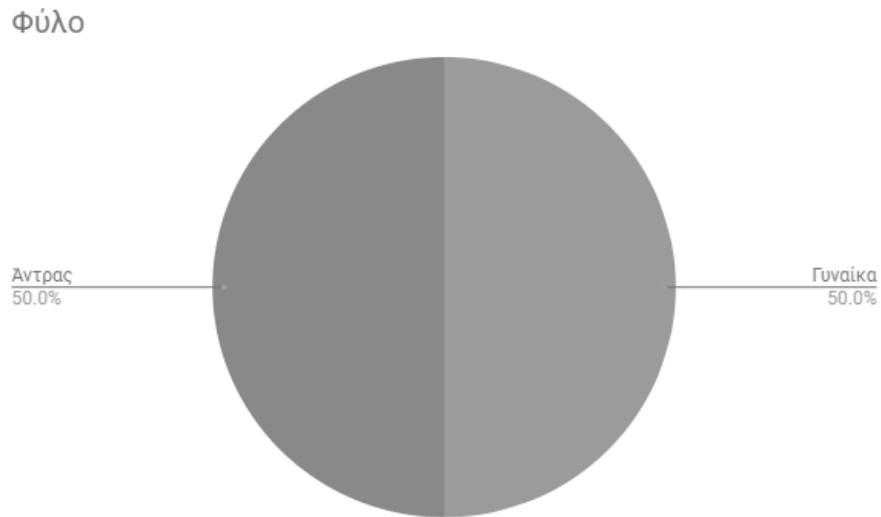


Diagram 6: Answers of Question 1 regarding the gender of the responders

Question 2: Age

The following graph indicates that 13.3 % of responders are under 46 years old, 24.5% are between 46 and 50 years old, 36.7% are between 51 and 55 years old, 24.5% are between 56 and 60 years old and a very small percentage of 1% are over 60 years old which seems to be a representative sample of the public schools' managers in Cyprus.

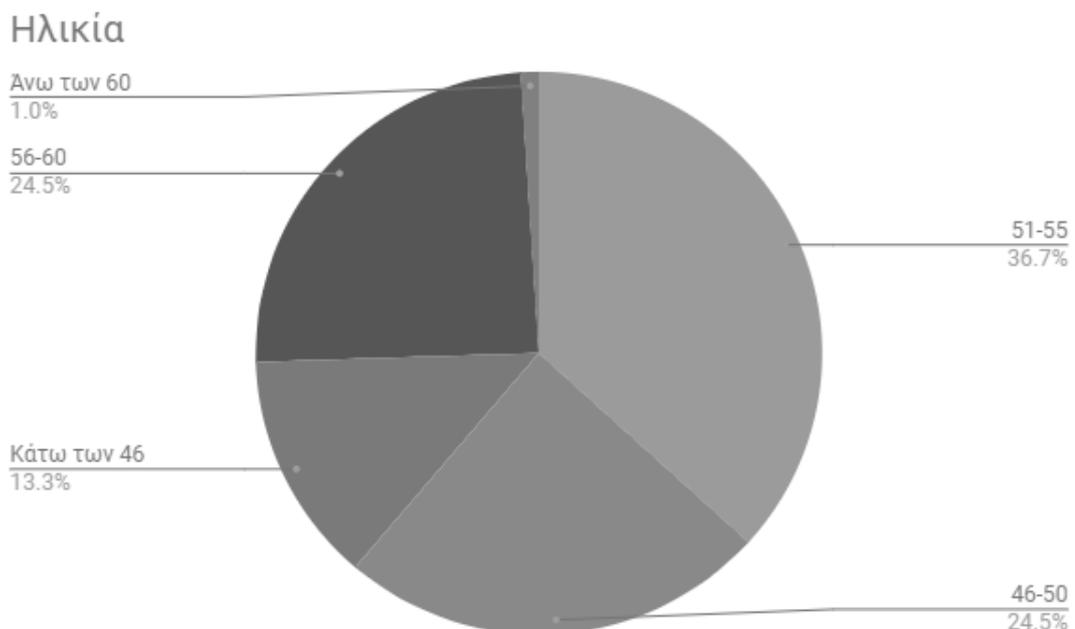


Diagram 7: Answers of Question 2 regarding the age of the responders

Question 3: Years of experience in the position of a manager

The pie illustrates that most of managers (45.9%) have between 6 and 8 years of experience in this position whereas 28.6% have more than 8 years of experience. Surprisingly, if the percentages of those who have fewer than 3 years of experience (10.2%) and those who have between 3 and 5 (15.3%) are added the new percentage is 25.5%, which is still lower than those who have over 8 years of experience. That means that most managers have enough experience to support their evaluation on the maturity in risk management regarding health and safety. In other words considering the aspect of subjectivity in the answers, it is more possible to be reliable.

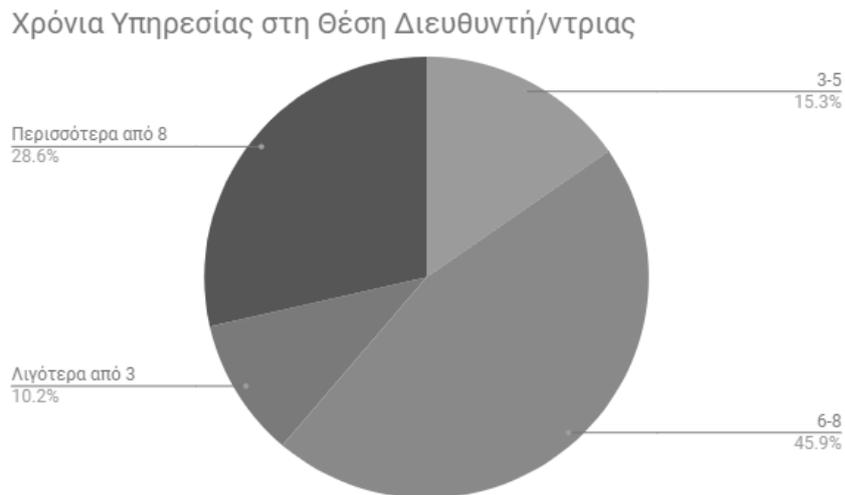


Diagram 8: Answers of Question 3 regarding the years of experience of the responders

Question 4: Town of the school

The sample contains responders from all the districts of Cyprus which confirms, one more time, its reliability. In practice a representative sample is the one chosen so that each population unit has the same possibility, or probability, of its selection in the sample.

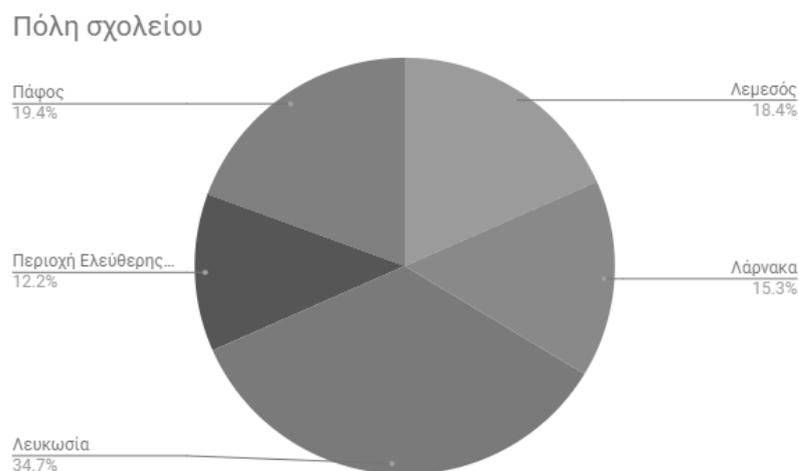


Diagram 9: Answers of Question 4 regarding the town of the school

Question 5: Number of students in the school

The graph demonstrates that the number of students in most primary schools is between 100 and 300 (41.8%). A percentage of 32.7% of schools have between 301 and 500 students while a quarter of the number of schools (25.5%) has fewer than 100 students. The sample does not include schools with more than 500 students.

It should be mentioned that someone would argue that the small schools are in a more convenient position in regards with the risk management than the large schools. Indeed, a small school has more control and a better inspection of the children. The manager is in the position to get in touch with every student and prevent any undesirable result. Nevertheless, the personnel are much less than the personnel in large schools concluding that the manager has additional responsibilities. In addition there are fewer assistants' managers in small schools –sometimes there is no one at all- and the number of periods of his/her teaching increases. Hence, the risk management of small schools is at an equal level with the large schools.

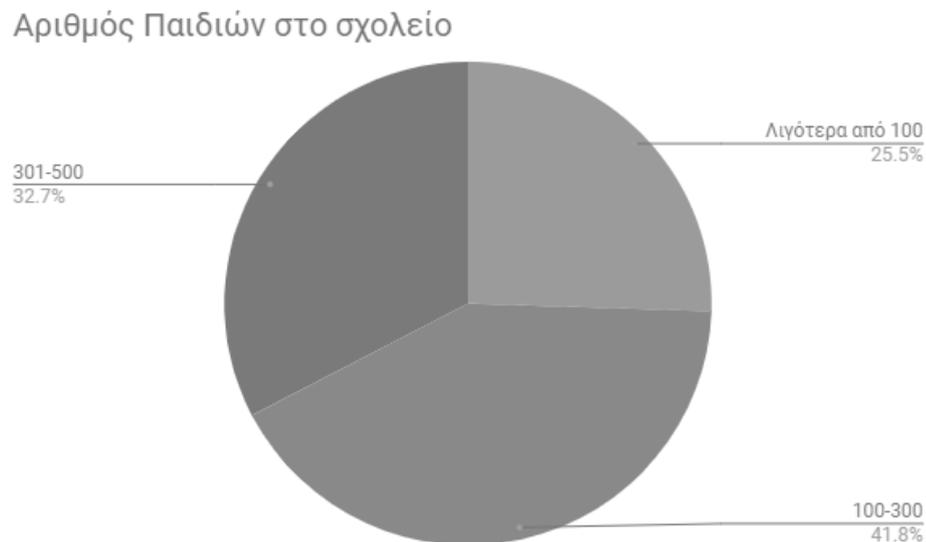


Diagram 10: Answers of Question 5 regarding the number of the children in the school

4.5.3.2 Attribute: Risk Identification

The following 5 questions (6-10) concern the attribute of the **Risk Identification**. The level of risk awareness in the schools as well as the ability to recognize any possible risk in the school are the main features which are being examined through these questions.

Question 6: On a scale from 1 to 4 (with 1 being the minimum and the 4 being the maximum) to what extent are you informed about the equipment, the materials and the substances used by the employees and third persons in the workplace (students/visitors)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό είστε ενημερωμένοι για τον εξοπλισμό, τα υλικά και τις ουσίες που χρησιμοποιούνται από τους εργαζόμενους και τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες);

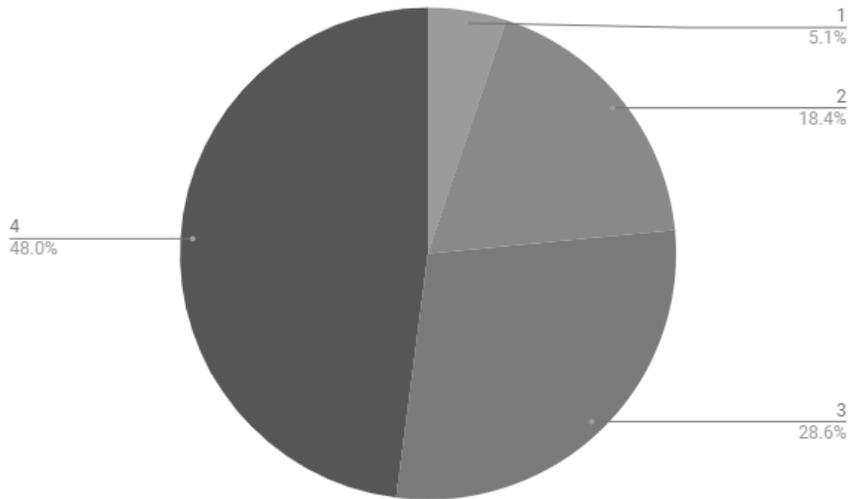


Diagram 11: Answers of Question 6 for the attribute of Risk Identification

Question 7: On a scale from 1 to 4 (with 1 being the minimum and the 4 being the maximum) to what extent are you informed about the tasks being carried out in each workplace, who work in each workplace, and the tasks performed (e.g. how and for how long)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό είστε ενημερωμένοι για τις εργασίες που εκτελούνται σε κάθε χώρο εργασίας, ποιοι εργάζονται σε κάθε χώρο εργασίας, καθώς και τα εκτελούμενα καθήκοντα (π.χ. πώς και για πόσο χρόνο εκτελούνται);

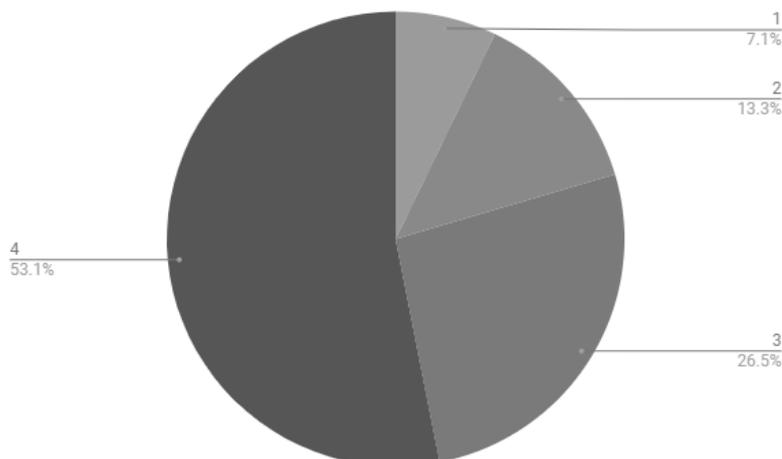


Diagram 12: Answers of Question 7 for the attribute of Risk Identification

Question 8: On a scale from 1 to 4 (with 1 being the minimum and the 4 being the maximum) to what extent are you informed about the risks which have already been identified, their sources, the potential consequences of the existing risks as well as the history of occupational accidents and illnesses?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό είστε ενημερωμένοι για τους κίνδυνους που έχουν ήδη αναγνωριστεί, τις πηγές τους, τις εν δυνάμει συνέπειες των υφιστάμενων κινδύνων καθώς και το ιστορικό εργασιακών ατυχημάτων και εργασιακών ασθενειών;

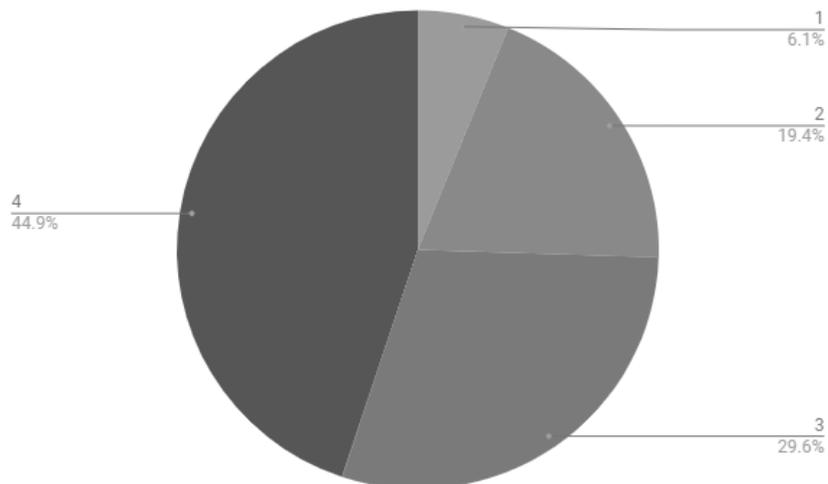


Diagram 13: Answers of Question 8 for the attribute of Risk Identification

Question 9: On a scale from 1 to 4 (with 1 being the minimum and the 4 being the maximum) to what extent are you informed about the safety measures that have been taken?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό είστε ενημερωμένοι για τα μέτρα προστασίας που έχουν ληφθεί;

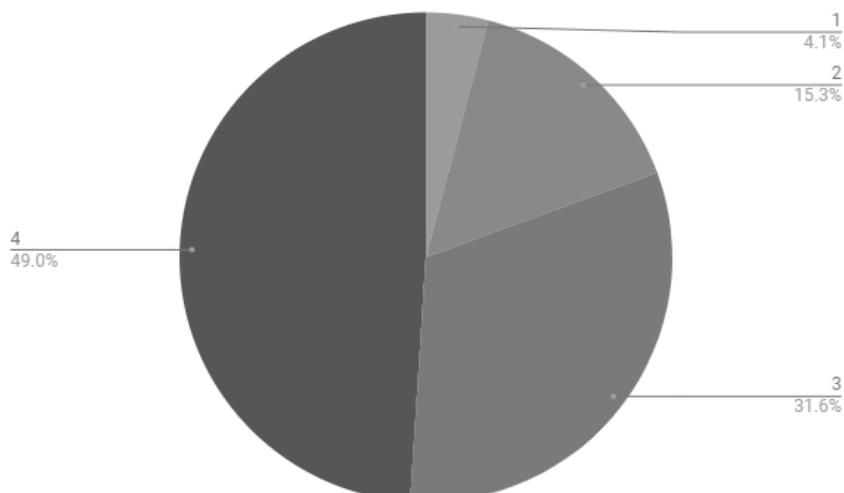


Diagram 14: Answers of Question 9 for the attribute of Risk Identification

Question 10: On a scale from 1 to 4 (with 1 being the minimum and the 4 being the maximum) to what extent are you informed about the legal and other workplace-related obligations?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό είστε ενημερωμένοι για τις νομικές και άλλες υποχρεώσεις που σχετίζονται με το χώρο εργασίας;

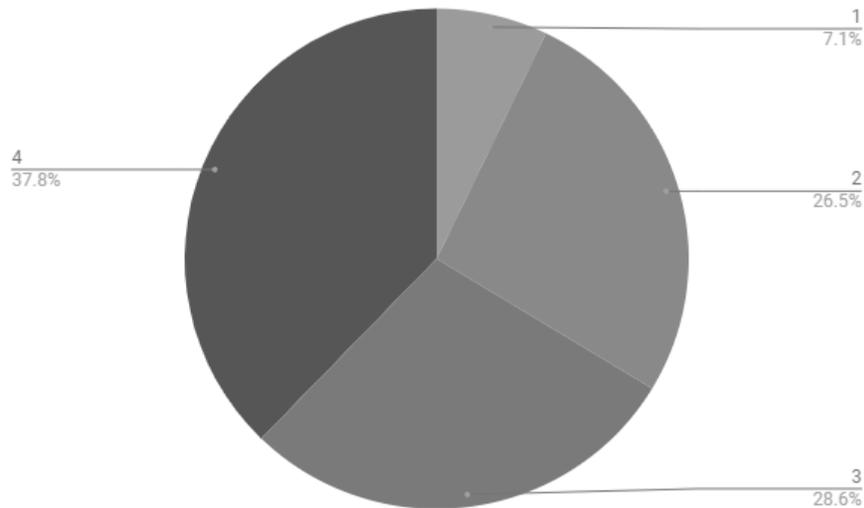


Diagram 15: Answers of Question 10 for the attribute of Risk Identification

As it is shown in the above graphs the managers are well prepared regarding the risks that may appear in the school environment. They are also well informed about the equipment and the supplies used by any member of the school either teachers, children or even a third person. Moreover, their qualified position allows them to detect the possible outcomes of an event. Therefore, the first attribute of the model –Risk Identification- peaks the advanced level in the scale since most responders evaluated the questions (6-10) as a “4”.

4.5.3.3 Attribute: Risk Analysis

The following 5 questions (11-15) concern the attribute of **Risk Analysis**. Their focus is on the deep analysis of the risks in order the undesirable results to be prevented and avoided by taking the appropriate measures.

Question 11: Primary school keeps an accident record for risk analysis for workers and third parties at work (students / visitors):

Το δημοτικό σχολείο τηρεί μητρώο ατυχημάτων για ανάλυση του κινδύνου για τους εργαζόμενους και για τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες):

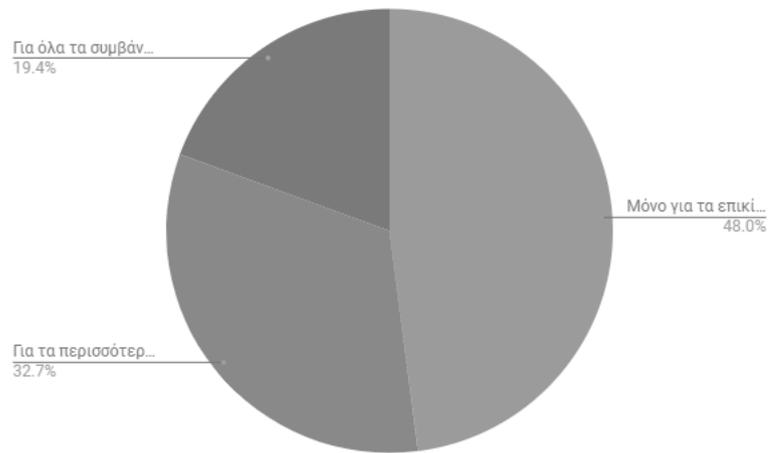


Diagram 16: Answers of Question 11 for the attribute of Risk Analysis

The pie illustrates that most schools (48%) keep an accident record only for the dangerous events while the 32.7% of schools keep for most of the events. A percentage of 19.4% keep record for all the events. Hence, the answer is classified at the “Basic Level” of the maturity model.

Question 12: Grading risk at school is calculated by assessing the severity and probability of each event. On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent do you consider the above proposal to be applicable?

Η διαβάθμιση του κινδύνου στο σχολείο υπολογίζεται αξιολογώντας τη σοβαρότητα και την πιθανότητα του κάθε συμβάντος. Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό θεωρείτε ότι εφαρμόζεται η πιο πάνω πρόταση;

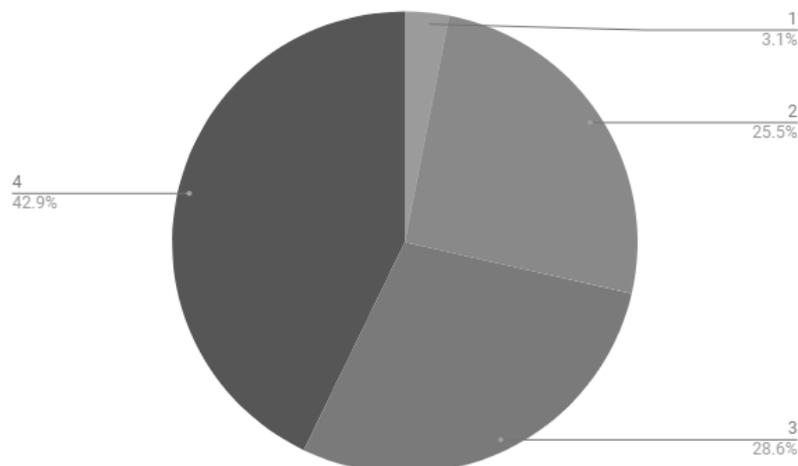


Diagram 17: Answers of Question 12 for the attribute of Risk Analysis

Question 13: On a scale from 1 to 4 (with 1 minimum and 4 maximum) to what extent do you consider that the perception of the concept of the severity of a risk is the same (consistency in the concept of perception) for workers and for third parties in the workplace students / visitors)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό θεωρείτε ότι η αντίληψη της έννοιας της σοβαρότητας ενός κινδύνου είναι η ίδια(συνέπεια στην αντίληψη) για τους εργαζόμενους και για τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/επισκέπτες);

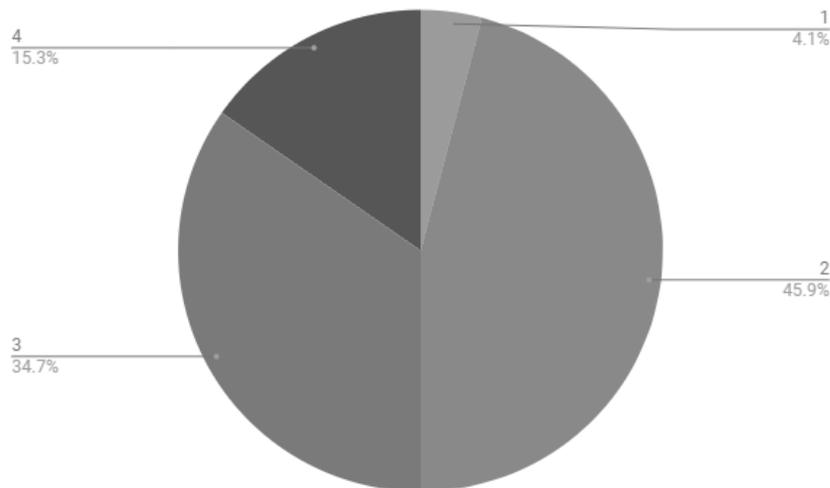


Diagram 18: Answers of Question 13 for the attribute of Risk Analysis

Question 14: On a scale from 1 to 4 (with 1 minimum and 4 maximum) to what extent do you consider that the perception of the concept of the probability of a risk is the same (consistency in the concept of probability) for workers and for third parties in the workplace students / visitors)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό θεωρείτε ότι η αντίληψη της έννοιας της πιθανότητας ενός κινδύνου είναι η ίδια(συνέπεια στην αντίληψη) για τους εργαζόμενους και για τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/επισκέπτες);

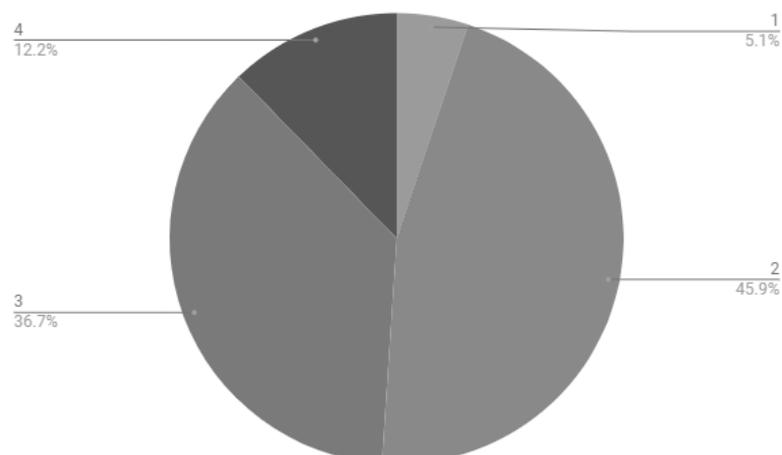


Diagram 19: Answers of Question 14 for the attribute of Risk Analysis

Question 15: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent are workers and third parties in the workplace (students / visitors) informed of the risk analysis and assessment?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι εργαζόμενοι και τα τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες) είναι ενημερωμένοι για την ανάλυση και αξιολόγηση κινδύνου;

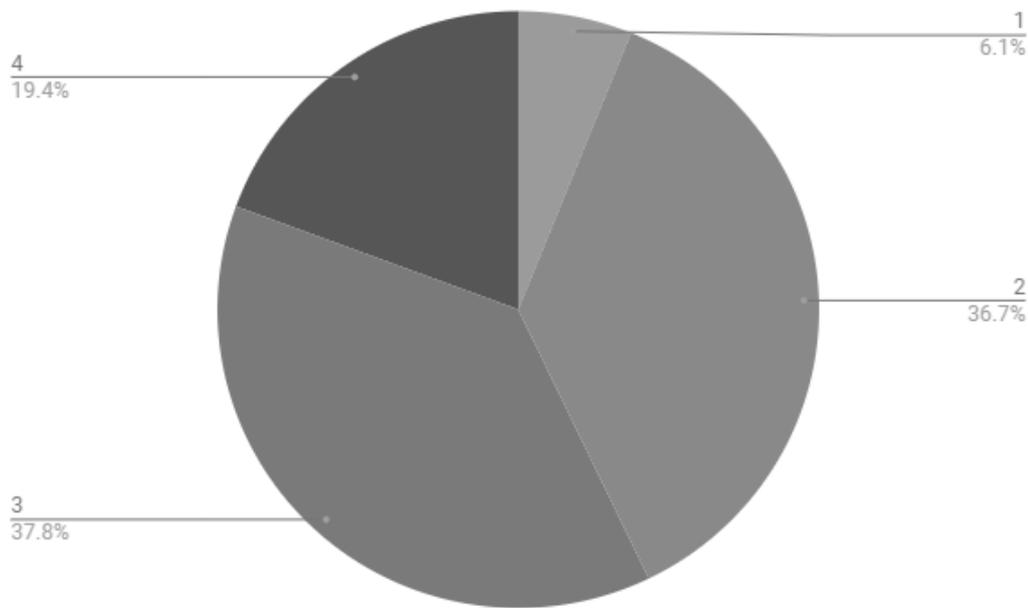


Diagram 20: Answers of Question 15 for the attribute of Risk Analysis

Analysing the results for the examination of the Risk Analysis in the schools regarding health and safety, it is observed that in the questions 11, 13 and 14 the level in Risk Management appears to be “Basic”. Nevertheless, in question 12 most responders answered “4” (42.9%) which overwhelmed the number of responders who answered “3” by a percentage of 14%. Finally in question 15 the responses between “2” and “3” are almost equal. Hence, the overall level for the attribute of Risk Analysis is considered to be “Basic Level”.

4.5.3.4 Attribute: Risk Control

The following 5 questions (16-20) concern the feature of **Risk Control**. The questions aim to discover the level of risk control in schools; how the qualified persons handle and regulate the threats and unexpected occasions and what measures have been taken.

Question 16: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent buildings housing work areas are structured, robust, durable and stable in proportion to their type of use?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό τα κτήρια που στεγάζουν χώρους εργασίας έχουν την ανάλογη με το είδος της χρήσης τους δομή, στερεότητα, αντοχή και ευστάθεια;

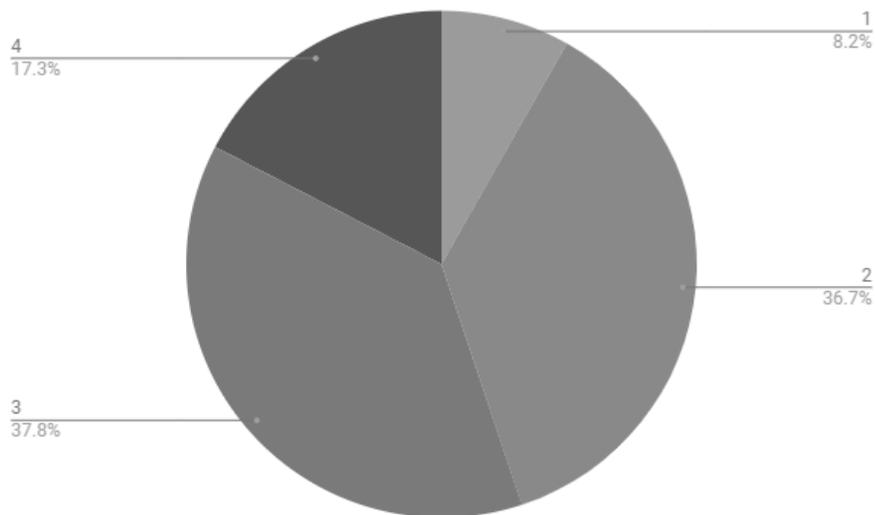


Diagram 21: Answers of Question 16 for the attribute of Risk Control

The above chart concerns the robustness, durability and stability of the buildings. Regardless the insignificant percentage of 8.2% of the answers, the fact that an amount of managers evaluate the question as “1”, created the need for deeper research in the subject. After a small investigation, it has been found that in a case of emergency – especially in regards to the safety of the children- the school Technical Services Department of the Ministry of Education is called to act. Fortunately, thanks to the immediate response of the department no incident referring to the safety of buildings has been recorded.

Therefore, the inconsiderable percentage of 8.2% probably refers to the structure of the buildings. Although the architecture of the schools has been changed throughout the years, the old schools kept their old inconvenient structure. However, the aforementioned department makes notable efforts to upgrade the structure of these schools.

It is also worth noting that this department carries out a lot of other projects such as the construction of additional teaching classrooms and laboratories/workshops, the construction of multifunctional halls, the construction of additional classrooms/ramps/lifts for children with special needs and the construction of additional rooms for secondary uses (canteens, nurseries, and toilets). Its responsibilities also include the functional redesigning according to approved building standards, and the redesigning and upgrading of electrical and mechanical services.

Question 17: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent emergency doors, escape routes and emergency exits are appropriately designed (depending on the use, equipment, workspace dimensions, maximum number people who may be in these places, etc.)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι θύρες κινδύνου, οι οδοί διαφυγής και έξοδοι κινδύνου είναι κατάλληλα σχεδιασμένες (ανάλογα με τη χρήση, τον εξοπλισμό, διαστάσεις των χώρων εργασίας, μέγιστο αριθμό ατόμων που μπορεί να βρίσκονται στους χώρους αυτούς κτλ);

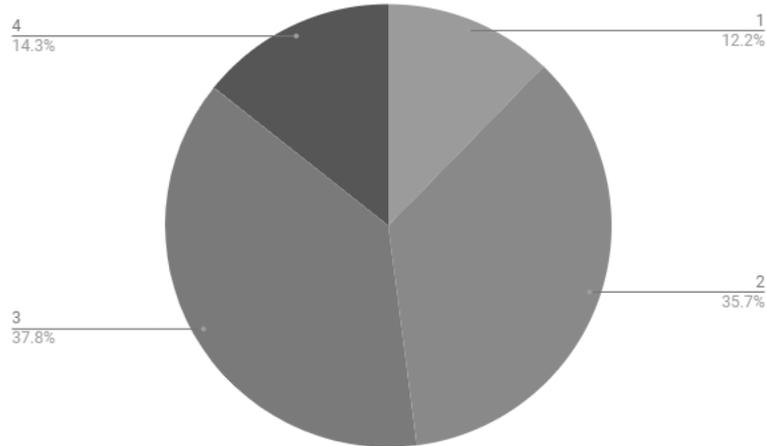


Diagram 22: Answers of Question 17 for the attribute of Risk Control

Question 18: On a scale from 1 to 4 (with 1 minimum and 4 maximum) to what extent the necessary measures are taken with regard to fire safety and evacuation of premises by staff and pupils, appropriate infrastructure is established and appropriate interconnections with competent external services (emergency plan)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό λαμβάνονται τα αναγκαία μέτρα όσο αφορά την πυρασφάλεια και την εκκένωση των χώρων από προσωπικό και μαθητές, οργανώνεται η κατάλληλη υποδομή και εξασφαλίζονται οι κατάλληλες διασυνδέσεις με αρμόδιες εξωτερικές υπηρεσίες; (σχέδιο έκτακτης ανάγκης)

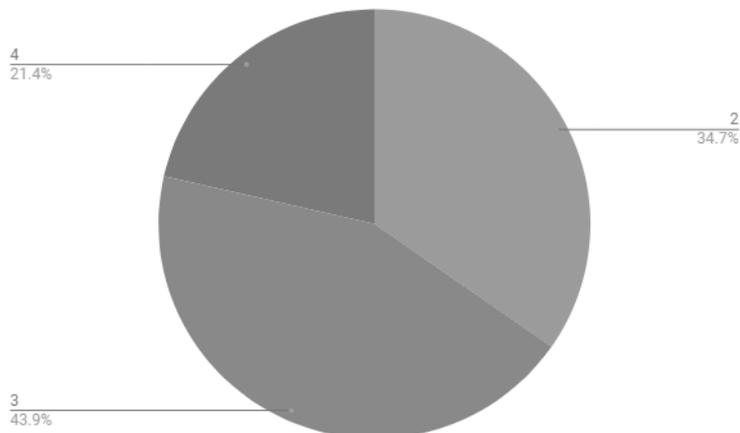


Diagram 22: Answers of Question 18 for the attribute of Risk Control

Question 19: In the primary school where I work:

Option 1: A person has been appointed responsible in the case of an accident

Option 2: There is a First Aid Box

Option 3: A person has been appointed responsible in the case of an accident and there is a First Aid Box

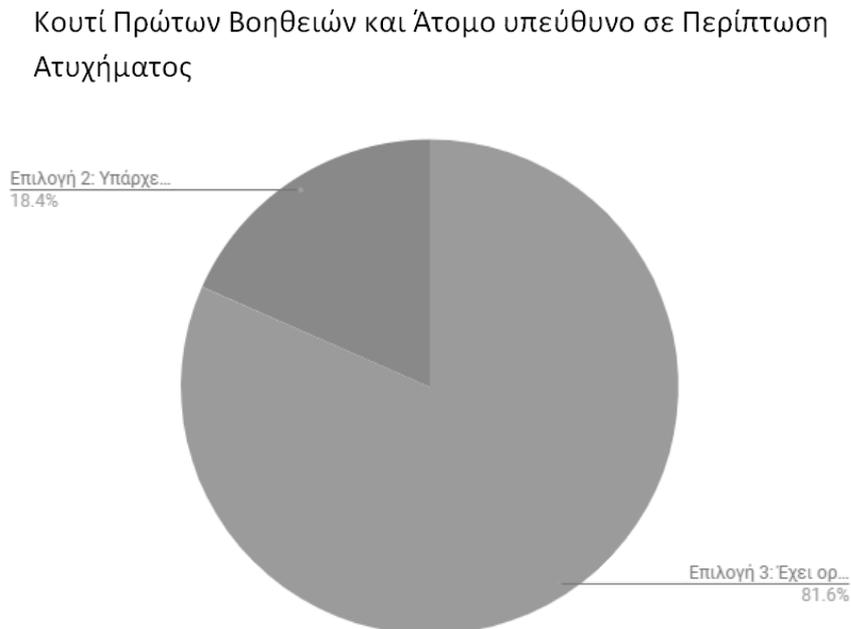


Diagram 23: Answers of Question 19 (part 1) for the attribute of Risk Control

The graph demonstrates that 18.4% of responders state that there is a First Aid Box, whilst the majority of the responders (81.6%) declare that a person has been appointed responsible in the case of an accident and also there is a First Aid Box. However, in order to arrive at a conclusion regarding the level of risk management further questions have been asked.

In the question if the First Aid Box (in option 2) is regularly checked and replenished whenever necessary 100% of the responders answered “YES”. On the other hand in the following question (regarding option 3), answers are varied.

If you chose Option 3 please select what is applicable:

1. The person responsible HAS the basic knowledge of First Aid (eg has attended a course, holds a valid first aid diploma, etc.) AND the First Aid Box is regularly checked and replenished whenever necessary
2. The responsible person DOES NOT HAVE the basic knowledge of First Aid (eg attended a course, holds a valid first aid diploma, etc.) BUT the First Aid Box is regularly checked and replenished whenever necessary

3. The person responsible HAS the basic knowledge of First Aid (eg attended a course, holds a valid first aid diploma, etc.) BUT First Aid Box is NOT checked regularly and is NOT replenished whenever necessary
4. The responsible person DOES NOT HAVE the basic knowledge of First Aid (eg has attended a course, is in possession of a valid first aid certificate, etc.) AND the First Aid Box is NOT checked regularly and is NOT replenished whenever necessary

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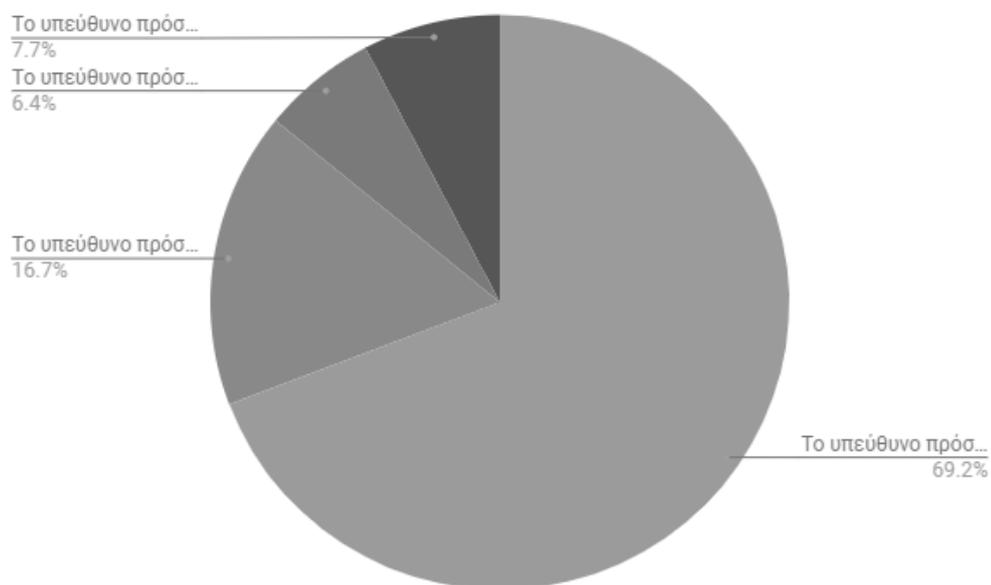


Diagram 24: Answers of Question 19 (part 2) for the attribute of Risk Control

As it shown in the pie 69.2% state that the person responsible HAS the basic knowledge of First Aid AND the First Aid Box is regularly checked and replenished whenever necessary, while a percentage of 16.7% declare that the responsible person DOES NOT HAVE the basic knowledge of First Aid BUT the First Aid Box is regularly checked and replenished whenever necessary. Moreover, 7.7% declare that the person responsible HAS the basic knowledge of First Aid BUT First Aid Box is NOT checked regularly and is NOT replenished whenever necessary and 6.4% declare that the responsible person DOES NOT HAVE the basic knowledge of First Aid AND the First Aid Box is NOT checked regularly and is NOT replenished whenever necessary.

Evaluating the above answers regarding question 19, the outcomes have been found optimistic. The results show that 56.47% of the schools are categorized in the “Advanced Level” in the maturity in Risk Management, 19.91% in the “Standard Level” 23.62% in the “Basic Level” and the percentage of 0% in the “Initial Level”.

Question 20: On a scale from 1 to 4 (with 1 minimum and 4 maximum), the extent to which the school has the appropriate sanitary facilities for washing and cleaning depending on the nature of the work and a sufficient quantity of drinking water at appropriate locations?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό το σχολείο διαθέτει τις κατάλληλες υγειονομικές διευκολύνσεις για πλύση και καθαρισμό ανάλογα με τη φύση των εργασιών καθώς και επαρκή ποσότητα ποσίμου νερού σε κατάλληλα σημεία εγκαταστάσεως

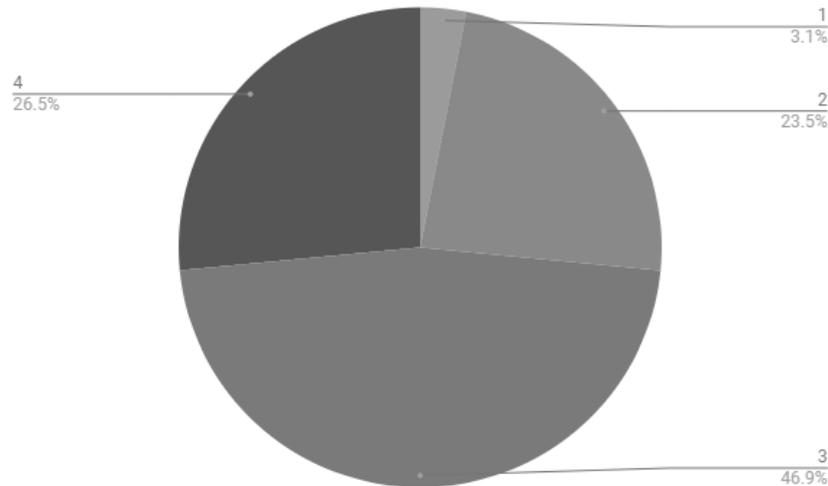


Diagram 25: Answers of Question 20 for the attribute of Risk Control

After the consideration of the above outcomes the Risk Management level in the Risk Control is considered as “Standard”. Although in some questions, such as in the questions 16 and 17, the number of the answers between the “Basic Level” and the “Standard Level” are pretty close to each other, the overall results shows that the level which corresponds to the attribute of Risk Control is the “Standard Level”.

4.5.3.5 Attribute: Risk Review

The following 5 questions (21-25) concern **Risk Review**. Some of the key points that are examined are if new information on significant risks is reported immediately, if board regularly reviews major risks and if risk reports are being optimized for effectiveness.

Question 21: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent are the planned actions evaluated periodically, is their implementation monitored and new actions and measures for prevention and protection are systematically planned?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι ενέργειες που έχουν προγραμματιστεί αξιολογούνται περιοδικά, ελέγχεται η υλοποίησή τους και προγραμματίζονται συστηματικά καινούριες ενέργειες και μέτρα πρόληψης και προστασίας;

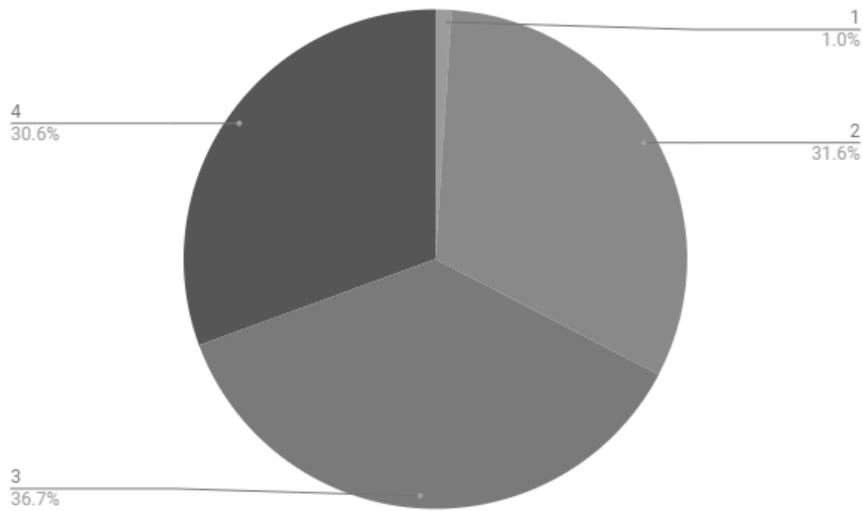


Diagram 26: Answers of Question 21 for the attribute of Risk Review

Question 22: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent is the risk assessment re-examined and revised when is necessary?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό η εκτίμηση κινδύνων επανεξετάζεται και αναθεωρείται ανάλογα με τις ανάγκες;

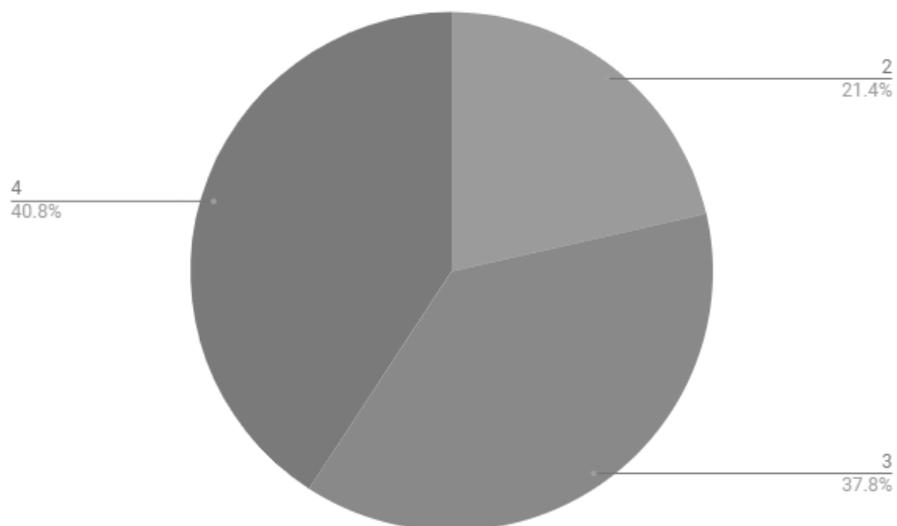


Diagram 27: Answers of Question 22 for the attribute of Risk Review

Question 23: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent an accident (or a near accident) investigation leading to injury or illness may cause changes to prevent similar accidents?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό η διερεύνηση ατυχημάτων (ή παρ'ολίγον ατυχημάτων) που οδήγησαν σε τραυματισμό ή ασθένεια μπορεί να προκαλέσει αλλαγές έτσι ώστε να προληφθούν παρόμοια ατυχήματα;

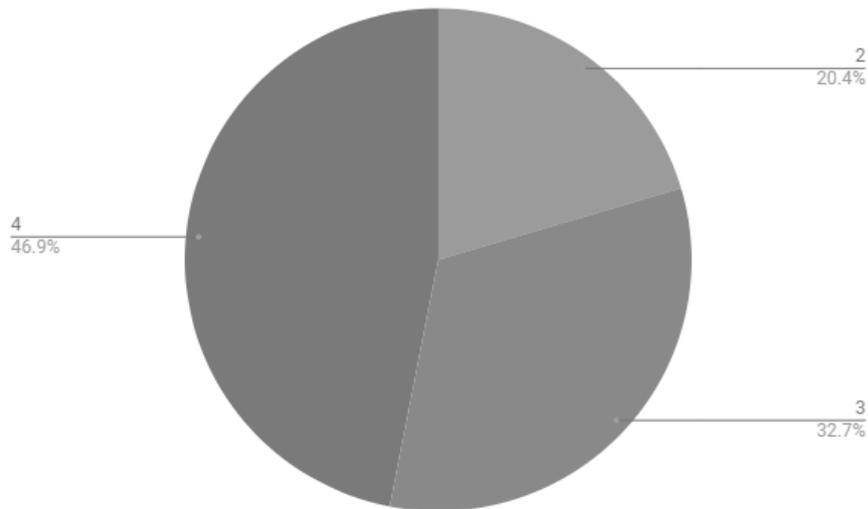


Diagram 28: Answers of Question 23 for the attribute of Risk Review

Question 24: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent are workplaces inspected to maintain and improve safety and health levels?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι χώροι εργασίας επιθεωρούνται για τη διατήρηση και βελτίωση των επιπέδων ασφαλείας και υγείας;

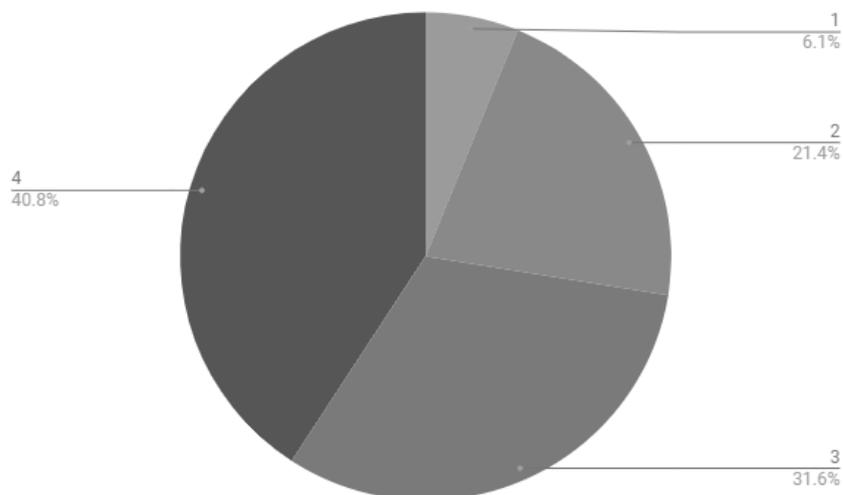


Diagram 29: Answers of Question 24 for the attribute of Risk Review

Question 25: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent are the results of the inspections recorded so that immediate corrective action is taken and communicated to staff and management?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό τα αποτελέσματα των επιθεωρήσεων καταγράφονται ώστε να λαμβάνονται άμεσα διορθωτικά μέτρα και κοινοποιούνται στο προσωπικό και τη διεύθυνση;

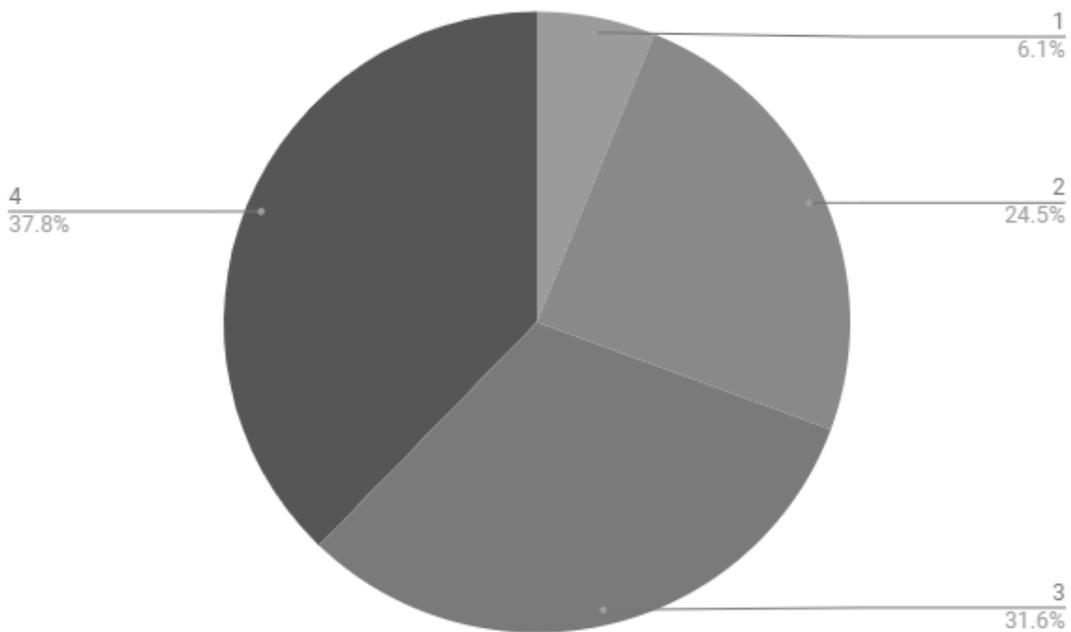


Diagram 30: Answers of Question 25 for the attribute of Risk Review

The results for the examination of Risk Review are encouraging. With the answer in question 21 as an exception, all the rest are evaluated as “4” (“Advanced Level”) which indicates that our school management gives a value in the risk review process.

4.5.3.6 Attribute: Culture

The last five questions (26-30) refer to the **Culture** of the working environment; how the workplace is structured and in what extend the risk awareness is promoted.

Question 26: On a scale from 1 to 4 (with 1 minimum and 4 maximum) to what extent workers and third parties at the workplace (students / visitors) are informed about first aid, fire safety, evacuation of premises in the event of a risk and for the workers responsible for implementing these measures?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι εργαζόμενοι και τα τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες) είναι ενημερωμένοι σχετικά με τις πρώτες βοήθειες, την πυρασφάλεια, την εκκένωση των χώρων σε περίπτωση κινδύνου και για τους εργαζόμενους που είναι υπεύθυνοι για την εφαρμογή των μέτρων αυτών;

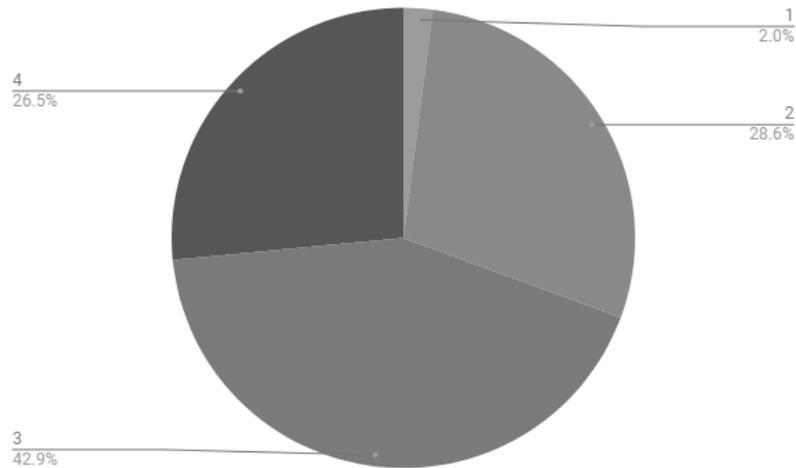


Diagram 31: Answers of Question 26 for the attribute of Culture

Question 27: On a scale of 1 to 4 (with 1 minimum and 4 maximum) to what extent workers and third parties in the workplace (students / visitors) are informed about the written risk assessment, the accident and hazardous incidents, as well as inspections of health and safety at work by the competent labor inspectorates?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι εργαζόμενοι και τα τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες) είναι ενημερωμένοι σχετικά με τη γραπτή εκτίμηση των κινδύνων, το μητρώο ατυχημάτων και επικίνδυνων συμβάντων, καθώς και τους διενεργούμενους ελέγχους των συνθηκών υγιεινής και ασφάλειας της εργασίας από τις αρμόδιες επιθεωρήσεις εργασίας;

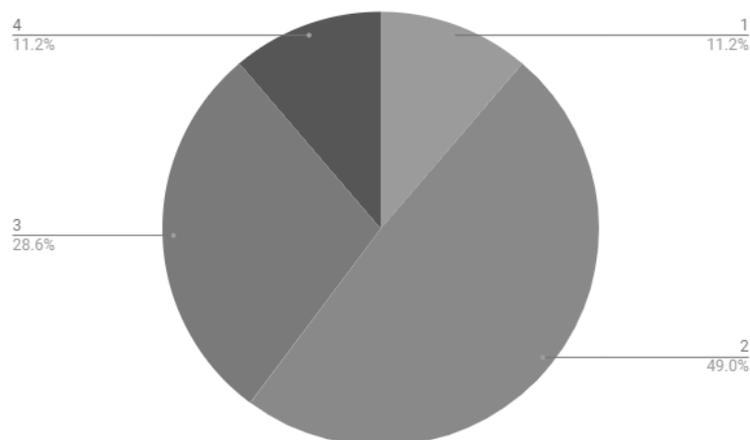


Diagram 32: Answers of Question 27 for the attribute of Culture

Question 28: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent workers and third parties at the workplace (students / visitors) are informed about new technological advances in the field of prevention (technical information)?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι εργαζόμενοι και τα τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες) είναι ενημερωμένοι σχετικά με τις νέες τεχνολογικές εξελίξεις στον τομέα πρόληψης (τεχνική πληροφόρηση);

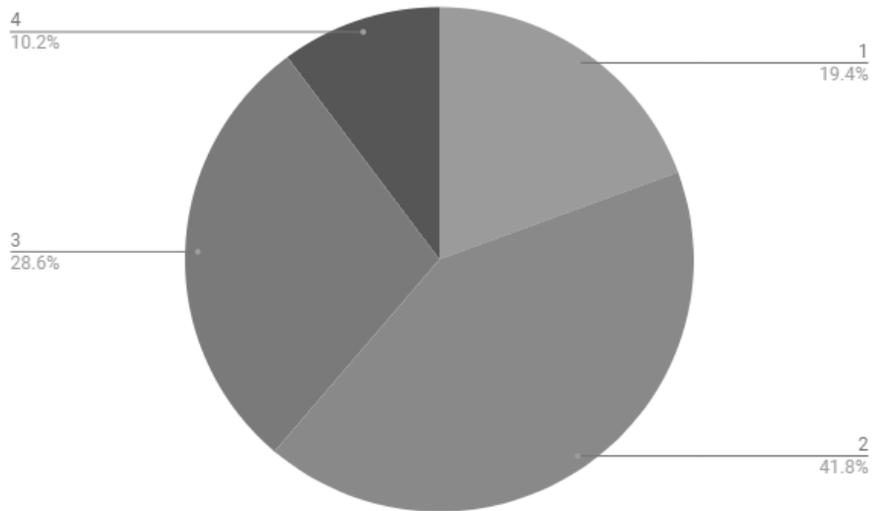


Diagram 33: Answers of Question 28 for the attribute of Culture

Question 29: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent are workers and third parties in the workplace (students / visitors) informed about the new practices and protection measures?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι εργαζόμενοι και τα τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες) είναι ενημερωμένοι σχετικά με τις νέες πρακτικές και μέτρα προστασίας;

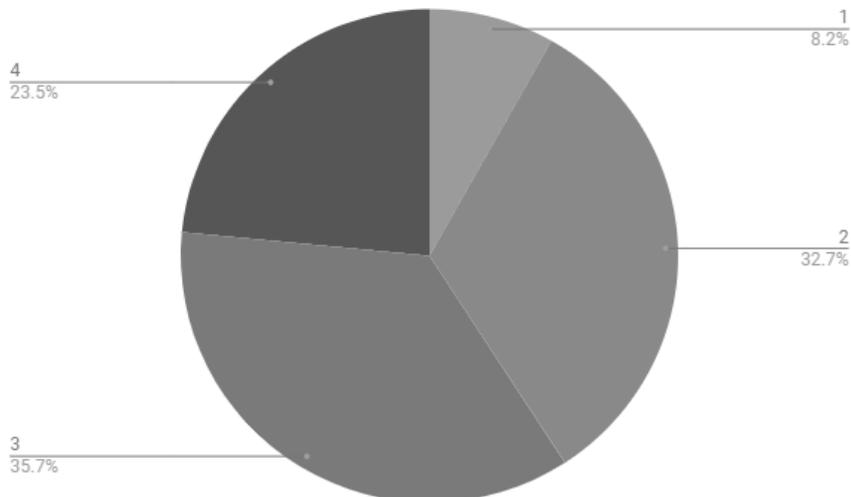


Diagram 34: Answers of Question 29 for the attribute of Culture

Question 30: On a scale from 1 to 4 (with 1 minimum and 4 maximum), to what extent are workers and third parties at the workplace (students / visitors) informed about the seminars, workshops and other that they can attend?

Με κλίμακα από το 1 μέχρι το 4 (με 1 το ελάχιστο και 4 το μέγιστο) σε ποιο βαθμό οι εργαζόμενοι και τα τρίτα πρόσωπα στο χώρο εργασίας (μαθητές/ επισκέπτες) είναι ενημερωμένοι σχετικά με τα σεμινάρια, τις ημερίδες κλπ που μπορούν να παρακολουθήσουν;

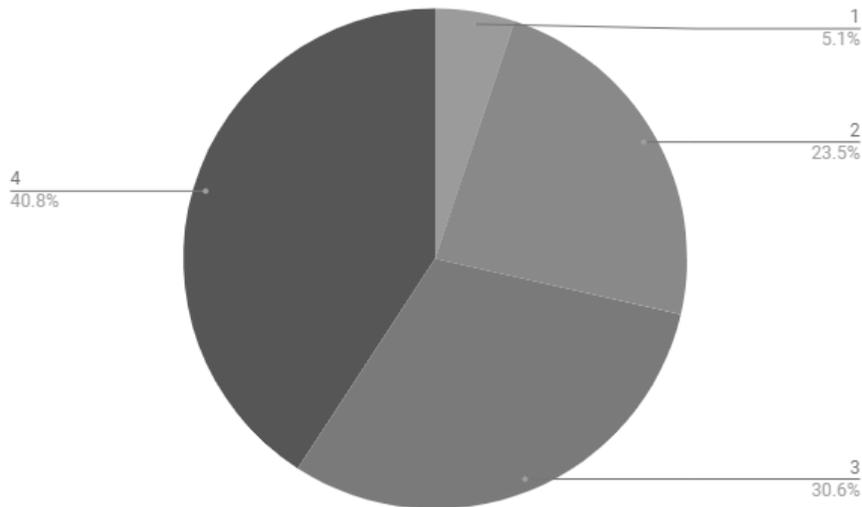


Diagram 35: Answers of Question 30 for the attribute of Culture

The answers regarding the Culture of the workplace are varied. While in the questions 26 and 29 the responses indicate that the level appears to be “Standard”, the level in the questions 27 and 28 appears to be “Basic”. The overall Risk Level (Standard”) is decided taking into consideration the answers in the question 30 which most of them are “4”.

4.6 Conclusions

Gathering and assorting all the above information the conclusions appear to be interesting. In the table (Table 10) below all the above results are shown.

Attributes/Levels	INITIAL	BASIC	STANDARD	ADVANCED
Risk Identification				√
Risk Analysis		√		
Risk Control			√	
Risk Review				√
Culture			√	

Table 10: Results from the 5 Attributes

Analyzing the outcomes it is observed that the Risk level of the most attributes is either “Standard” or “Advanced” meaning that risk awareness is not neglected. A serious emphasis is given on the health and safety of the children and important actions are being taken for the improvement and the provision of unexpected events.

However, according to Hopkinson (2000) *“the overall system for risk management is only as strong as its weakest area”*. Consequently, the overall risk level is considered to be “Basic” due to the results of the Risk Analysis. Despite of the high levels in the Risk Identification and Risk Review processes, the weakest area in the Risk Management in primary education in Cyprus is the Risk Analysis. Greater efforts and deeper investigations regarding the nature of the risks should be promoted. Furthermore, educational seminars and specialized programs may be organized by the government for all stakeholders for training and better understanding of the risk analysis.

Chapter 5

Epilogue

After this deep research on the maturity in Risk Management in primary education regarding health and safety, it is really important to put emphasis at the outcomes and take the appropriate actions. The vulnerable areas of Risk Management in schools should be taken into consideration so that to avoid unforeseen events and be prepared for the unexpected. Besides, this is the purpose of this thesis; to detect the risk management maturity level, come across with the problematic areas and therefore make efforts to improve and develop the educational system.

BIBLIOGRAPHY

About Risk Management What is Risk Management?. [online] Institute of Risk Management (IRM). Available at: <https://www.theirm.org/the-risk-profession/risk-management.aspx> [Accessed 30 Nov. 2018].

AON (2010). *Global Enterprise Risk Management Survey*. [online] Chicago: Aon Corporation, pp. 2-7. Available at: http://www.aon.com/attachements/2010_Global_ERM_Survey.pdf [Accessed 08 Apr. 2019].

Borge,D. (2001) *The Book of Risk* New York: Wiley

Chapman, C. (2006). Key points of contention in framing assumptions for risk and uncertainty management. *International Journal of Project Management*, 24 (4)

Chapman, R. (2012). *Simple Tools and Techniques for Enterprise Risk Management*. 2nd ed. Chichester: John Wiley & Sons Ltd

Danielson, C. (2002). *Enhancing Student Achievement: A Framework for School Improvement*. 1st ed. Danvers: ASCD (Association for Supervision & Curriculum Development)

Domenic, A. (2016). *Risk Maturity Models: How to Assess Risk Management Effectiveness*. London: Kogan Page

Edited by Strom,B., Kimmel,S., Hennessy,S. (2012) Risk Management. In: G.Dal Pan, S. Blackburn, and C. Karwoski, ed., *Pharmacoepidemiology*, 5th ed. Chichester: John Wiley & Sons.,pp. 505-532

Eide,K. (2018) *What's Risk management Maturity?.* [Blog] RiskLens. Available at: <https://www.risklens.com/blog/what-is-risk-management-maturity?fbclid=IwAR0KcFT4E5n07rFakWX20iPr6NDA5c6z8fH57nh7mYDc9MLUFB14XfLyTt0> [Accessed 20 Oct. 2018].

Häring, I. (2015) *Risk Analysis and Management: Engineering Resilience*. Singapore: Springer Science and Business Media

Herrinton, M. (2012) How Mature Is Your Risk Management?. *Harvard Business Review*, [online] Available at: <https://hbr.org/2012/06/how-mature-is-your-risk->

<manage?fbclid=IwAR2e70rz4NG1EEpER7AYnHiLq9rAh0YJfKjClag7cEPomFUbdT2xm5S77es>
[Accessed 20 Oct. 2018].

Hillson, D. (1997) Towards a risk maturity model. *The International Journal of Project and Business Risk Management*, Vol.1, No.1 Spring pages 35–45.

HM Treasury. (2004). *The Orange Book. Management of Risk-Principles and Concepts*. [pdf] Norwich: Crown. Available at: <https://www.gov.uk/government/publications/orange-book> [Accessed 30 Nov. 2018].

Hopkin,P. (2012). *Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management*. 2nd ed. London: KoganPage

Hopkinson, M. (2000). The Risk Maturity Model. *Risk Management Bulletin*, Vol.5, Issue 4, pp 25-29

Hillson, D. (2000) Benchmarking Risk Management Capability. *Proceedings of the 3rd European Project Management Conference*, presented in Jerusalem Israel, 12-14 June 2000.

ISO 31000- Risk Management [online] International Organization for Standardization. Available at: <https://www.iso.org/iso-31000-risk-management.html> [Accessed 20 Feb. 2019].

ISO Guide 73:2009 (ISO 31000) [online] International Organization for Standardization. Available at: <https://www.iso.org/standard/44651.html> [Accessed 30 Nov. 2018].

Kanona,R. (2007). The Risk Management Process [Power Point Slides]. Retrieved from <http://www.just.edu.jo/~tawalbeh/aabfs/iss6753/presentations/RMP.ppt>

Lam,J. (2014). *Enterprise Risk Management: from incentives to controls*. 2nd ed. Somerset: John Wiley & Sons

Marks, N. (2015). *World-Class Risk Management*. Kindle Edition

Marzano, R. (2003). *What Works in Schools: Translating Research into Action*. Danvers: ASCD (Association for Supervision & Curriculum Development)

Merna, T., & Al-Thani, F.F. (2008) *Corporate Risk Management*. New York: Wiley

Mettler, T. (2011). Maturity assessment models: a design science research approach. *Int. J. Society Systems Science*, [online] Vol. 3, Nos. 1/2, pp.81-98. Available at: <https://www.alexandria.unisg.ch/214426/1/IJSS0301-0205%2520METTLER.pdf> [Accessed 20 Feb 2019]

Najjaar,R., Yasseen,Y., Small,R. (2017). Risk Management [Power Point Slides]. Retrieved from <file:///C:/Users/%CE%9C%CE%B1%CF%81%CE%AF%CE%B1/Desktop/THESIS/articles/risk%20management%20process/Risk-Management-CPD-slides.pdf>

Reference. (n.d.) In: *Cambridge Advanced Learner's Dictionary & Thesaurus* [online] Available at: <https://dictionary.cambridge.org/dictionary/english/maturity> [Accessed 20 Feb 2019]

Risk Resource Exchange. [online] The Institute of Internal Auditors. Available at: <https://na.theiia.org/standards-guidance/topics/Pages/Risk-Resource-exchange.aspx> [Accessed 30 Nov. 2018].

Saunders, M., Philip, L. & Thornhill, A. (2009). *Research Methods for Business Students*. 5th ed. Essex: Pearson Education Limited

Welcome to COSO [online] COSO COMMITTEE OF SPONSORING ORGANIZATIONS OF THE TREADWAY COMMISSION. Available at: <https://www.coso.org/Pages/default.aspx> [Accessed 20 Feb. 2019].

We're ISO: we develop and publish International Standards [online] International Organization for Standardization. Available at: <https://www.iso.org/standards.html> [Accessed 20 Feb. 2019].

Wieczorek-Kosmala, M. (2014). Risk management practices from risk maturity model perspective. *Journal for East European Management Studies*, 19(2), pp.133-159