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

MASTER THESIS



Measuring Organizational Maturity in Risk Management
The Case of Greek Insurance Industry

Elpida Christoforou

**Academic Coordinator
Pandelis Ipsilandis**

May 2018

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Summary

The prime purpose of this paper is to provide a closer insight to the understanding, application and utility of Risk Maturity Models and the benefits of their implementation in an Organizational Level. In other words, how mature an organization is regarding to its needs and goals, as well as, regarding the risk management processes that an organization is already using. The first step to define the maturity of an organization is to understand what risk is and how risk management can provide the proper guidelines in order to mitigate or eliminate those risks. This analysis could help in understanding of the idea and the attributes taken into account in the assessment of risk management maturity.

Apart from, this paper aims to define the existing knowledge and literature review and present some of the most important risk maturity models. Risk Maturity models are discussed by presenting their structure and characteristics. There is an analysis of what maturity is, which are the levels and the attributes of every maturity model, and what are the information that maturity analysis can provide to an Organization or an Industry.

The next section is the research part. The objective is to implement a risk maturity model to Greek Insurance industry. The collection of the data was made through specially formed questionnaires, respectively to literature review. After data collecting, there is the analysis and the visual presentation of this data, according to risk maturity model and risk management practices.

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Chapter 1

Introduction

Nowadays, the increasing pace of change, makes it necessary to implement a specific set of guidance with the purpose of keeping up with every change that may occur or every new transition that happens, not only to the external but also to the internal environment of the organization. Uncertainty can influence all of an Enterprise's components, but if uncertainty can be characterized in terms of probability, it can provide information about risk (Tony Merna, Faisal F. Al-Thani, and Faisal F. Al-Thani, 2008). Risk and uncertainty are two meanings that are directly connected with each other. It is essential for an organization's operation to study and address the risks that may occur and be prepared to face them with the most efficient way, to come out with the minimum losses. Failure to properly understand and manage risk can be the root cause for an organizational crisis or disaster.

Risk is a situation in which someone, either an individual or an organization, or even a thing, is exposed to an uncertain future event, which could influence the organization's objectives. More specifically, risk is a possibility or threat of loss, or any other negative occurrence that is caused by either the external or the internal environment of a company, unless it is met with protective means. Risk can be a result of the actions that may occur, respectively to an organization, and come from various sources, such as environment, politics, economy or technology, or it could also be a combination of them.

Every risk is a different case and it should be managed in a different way. When talking about risks in the industrial field, there is mostly the threat of compromising a company's credibility, reputation, goals and workflow, while affecting the personnel in a psychological way. In an organization level, even the most simple decision could involve risk, and it is how the project was developed that provides the information which risks are worth taking or not. (Pritchard L. Carl, 2001).

Risks may come from various sources, such as choosing the right opportunity over another or missing a good opportunity to invest in a new project or a new market. The result of those actions is to have unexpected results. To define whether an event is "risky" or not, the project manager must figure out the potential effects of its risk by using his or her judgment (Pritchard L. Carl, 2001).

A type of a possible hazard could be uncertainty risk which could be consider as the most common risk an organization may face. Besides this, there is also a type of risk that comes from dangerous events that could harm physically or psychologically the members of an organization. Some examples of risk types could be credit risk, liquidity risk, market risk, legal risk, operational risk, systemic risk, loss of suppliers and consumers risk, risk by natural disasters. Every type of risk is a different possible hazard and a different situation that should be faced and examined separately. For any company to be able to avoid these risks, a new discipline was created, that allowed companies to protect themselves from the outcome of those events. That discipline is called Risk Management.

1.1. What is risk management

Risk Management has become an essential part of an organization's activities as it is considered a valuable tool for assessing and monitoring risk exposure, and for identifying potential risks in advance. Risk has a complex meaning. In order the

organization to create value of its entity, they must take risks as well as the organization has to manage its risk to protect its value. The risk management process is addressed mainly to support the growth of an organization. Risk Management is a vital tool as it reduces the overall level of uncertainty associated with the project and works better where the riskiness of an event could be quantified, analyzed, understood and planned (Cleden David, 2009). In a model version, risk management follows a defined sequence of formal activities.

Risk management is the practice of identifying and prioritizing the possible risks that an organization could face, and it can help managers to tailor their goals respectively to Organization's standards. There is a wide range of different definitions about what enterprise risk management is. One of them that was published by the organization named COSO. COSO is Committee of Sponsoring Organizations of the Treadway Commission. COSO definition about Enterprise Risk Management is "*Enterprise risk management is a process, effected by the entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within the risk appetite, to provide reasonable assurance regarding the achievement of objectives*" (COSO,2004).

The analysis that occur after the identification of the potential hazards, are a set of rules or frameworks, that indicates to an organization how to minimize, monitor and control the impact and the result of those unfortunate events. In order to mitigate risk, managers can use a combination of strategies. However, the most important step for them is to identify all the possible types of risk that the organization is exposed to and prioritizing them according to their needs and goals. Risk Management could also be reviewed as the deliberate actions, in order to reduce risk exposure to the events and to mitigate or eliminate the possible consequences of this event. So, it is important for risk managers to be able to cope with pressure and to locate risks before they happen, or, if this is deemed impossible, to mitigate them before those risks damage the

company. In order to have an effective risk management, all the levels of the organization need to be included in the process and give a proper feedback whenever it is necessary. As a result of the above, Risk management should be a dynamic process and not a static one as the changes of the organization's environment are rapid.

Risk Management practitioners can use a combination of strategies, such as transferring all or part of the treat to another party, to reduce the negative effects as much as possible. The benefits of Risk Management are a lot, if the organization decides to use it. The organization could be protected against the unforeseeable hazards and provide a greater support to the board of Directors if the application of Risk management is according to the its needs. Besides this, it can define the proper ways to deal with a risk, what are the actions that should be taken accordingly and in case of risk occurrence, what will be the possible impacts for the organization. This kind of management can increase the value and the reliability of an investment and provide a good feedback respectively to new available opportunities it the market. Moreover, it can be a handy tool in order to save cost and time as it easier to spot which projects have a misleading and, if they have to redesign the processes. But the most important part of Risk Management is the awareness of the organization about which are the risks and how to reduce the impact and the possible losses.

Risk management is nowadays highly related with decision making. Those two are highly related but they are not the same. In fact, risk management helps the decision-making procedure. To be precise, risk management is incorporated in decision making. That happened because, in every decision a company must take, there is a risk that follows. Decision makers must implement risk management in their process because they can be accounted for that decision, if it is wrong, or, if it does not comply with rules and relegations. In accordance to that, the core elements of risk managements apply in this case, along with elements of decision making. So, the process starts with identifying the risks in every decision, assessing the impact of those risks and

prioritizing them. Along with that, decision makers must manage these risks and review them before they agree that the decision is to be taken. At the end, the company's risk register is updated following the decision.

As all the procedures risk management have some limits. If the project manager does not fully understand the risks and the uncertainties that are not always susceptible, he or she may labor under the false impression that all the unknown factors are being addressed. Besides this, unless the organization provides unlimited resources, risk management is not possible to be applied in every project and every potential risk. It is only applied in risks that the project managers characterized as the greatest threats. If their judgment is faulty, risk management may be ineffective (Cleden David, 2009).

1.2. Risk Management Standards

To achieve in managing risks, companies implement certain standards. These standards help with making risk management easier, by seeking to establish a common point of view on frameworks, processes and practices, that are set and recognized by international standard bodies, and industry groups, such as ISO 31000:2009 (ISO, 2009), IRM/Alarm/AIRMIC 2002 ISO/IEC 31010:2009 (Jean Cross, 2017), COSO 2004 (COSO, 2004), which are some of the most commonly used standards implemented in risk management. These standards are constantly update since risk management is an ever-evolving discipline. It should be noted that even though these standards are normal voluntary, it greatly depends on the company if they want them to be mandatory or there is a clause in a contract.

As a result of the above, one of the most known organization that creates and publishes standards is the International Organization of Standardization, known as ISO, which

started its work back in 1947 in London. The Central Secretariat is located in Geneva and it is there that ISO system is “*coordinated activities to direct and control an organization with regard to risk*” (ISO 2009). It is easily noticeable that the initials of the organization spell IOS. And it is not the same for every language. So, the upper echelon of the organization decided that it was best to use a word that meant equal. Thus, they chose the word ISO which is derived from the Greek word isos which means equal. ISO is a non-governmental, independent organization, comprised of 161 national standard bodies. The members meet once a year in their central office, in Geneva, for a General Assembly, and decide the strategic objectives of the organization. Besides the General Assembly, exists the ISO council, which meets three times a year and is comprised of 20-member bodies, the ISO Officers and the Chairs of the Policy Development Committees, The Committee on Conformity Assessment (CASCO), The Committee on Consumer Policy (COPOLCO) and the Committee on support developing Countries (DEVCO). The ISO council reports to the General Assembly. Currently there are 999.999 ISO standards for every discipline, craft, technology, science and pattern that exists. Among them, there are some ISO standards that are used in risk management, such as ISO 31000 and ISO 31010, along with other standards as stated above.

ISO 31000 product is a database that helps organizations to define a set of principles and guidelines for an effective risk management to effectively identify and mitigate risks, a proper operation of an organization and project management. This product can help an organization to increase the likelihood of achieving their goals. These principles can be applied in different types of risk and can be used from a wide variety of organizational types, regardless the size, activity or location. With the right principles, this standard helps a business to define both positive opportunities and the negative consequences associated with risks and uncertainty (International Organization of Standardization, 2009). Figure 1. at the appendix provides the visual presentation of ISO 31000:2009.

ISO 31010 is a supporting product of ISO 31000 and it can provide techniques for risk assessment. Those techniques that are described in this model are used to analyze particular risks in accordance with ISO 31000. They also could help the organization to decide which option could be better under certain circumstances and why, as well as, to define the meaning of risk in every project and help them reduce risk outcomes (Jean Cross, 2017).

According to risk management, the process in ISO approach is about establishing the risk management context, risk assessment, risk treatment and monitoring and reviewing the process. The ISO model adds a level of communication and consultation at each stage of the process. Monitoring and review is considered one of the most important parts of checking each level of risk management process. Risk assessment aims at generating a comprehensive list of risks that might influence the achievement of an organisation's objectives, followed by an analysis of their consequences (risk analysis) and comparison with the criteria admitted in the establishment of risk management context (risk evaluation). Risk treatment is also an ongoing process. Among others, risk treatment aims at assessing whether the residual levels of risk are tolerable (assuming that residual risk is the risk that remains after the outcome of risk treatment) (ISO 2009:14 20).

1.3. Development of Risk management

The earliest concept of managing risk arose because of gaming. Thousands of years before, people in different ancient civilizations played games with dice and bones. Later on, as games evolved, and new games were created, like chess and checkers, people needed to manage risks that arose according to different moves that needed to be made (Dionne, 2013).

These civilizations created a plethora of divine beings and deities to either blame for misfortunes or thank for good luck. They gave “gifts”, such as crops and meat, or sacrificed bulls and cows, like the Ancient Greeks and the Romans, or even humans, like the Mayans to these “gods” to be in their favor so that they could wish for rain, to win a war, for the crops to be big and other wishes that helped them in their life. It can be said that this was some sort of risk avoidance. Though the Mayans disappeared, the Greeks and the Romans, and other civilizations living around the Mediterranean Sea, the Balkan Peninsula and East Asia, were able to persevere and evolve, by also evolving their language and beliefs. They were able to write “history”, like Herodotus, a Greek historian, and like Thales, the Greek philosopher, who, by using his observations and deductions, managed to predict an eclipse of the sun (Fraser J., Simkins B, 2010).

Although, the aforementioned great names and civilizations managed to evolve to even greater heights, they all still believed gods and deities had a part in their findings. There was a Greek historian that proposed that the gods should be removed as part of explaining events. That was Thucydides who found the gap between intention and event, and explained that expectation could be different from the outcome. He could be known as the father of risk management.

Pascal and Fermat, famous mathematicians in the 1600s created what is thought as the ancestor of modern probability theory, while corresponding about a game of chances (Devlin, 2008). Galileo and Dante (Maistrov, Kotz, 1974) also wrote about probability theories, which are important in risk management, due to the rise of games. Even insurance, that plays a big role in risk management, is said that came to life in Ancient Rome and other ancient civilizations (Dionne, 2013).

Risk management began to be studied after the end of WWII. More approximately, its origins are dated back in 1954 till 1964 (Dionne, 2013). Capital Asset Pricing Model (CAPM) was fully developed by the end of 1966, though theoretical models of modern risk coverage were published in the early 1970s by Fischer Black. CAPM is a mathematical model that it is used to calculate the return of any risky asset and it is used mostly in Financial management. The objective of this model is to help the investors about the potential risks and profitability of an investment they wish to make (Saeger, A et al, 2015).

One of the most known models in risk management that it was developed in the early 70's, is that of Black and Scholes. They were the first to propose a formula for the pricing of a derivative, an option. Their work was published in the Journal of Political Economy in 1973 (Georges Dionne, 2013). This model is a mathematical formula that it is used in option pricing. Option is the right that an investor has to buy or sell an asset, at specific period of time. There is a classification to those options and they called "American option", which can be used at any time before the expiration date, and "European options", which can be used only on specific future dates (Black, Scholes, 1973). Black-Scholes model gives an estimation of a price of an option and shows that every option has a unique price regardless of the risk and its expected return. The mathematical equation was developed under the assumption that the price fluctuation of the underlying security can be described by a diffusion process studied earlier (Ngai Hang Chan, and Hoi Ying Wong, 2015). Table 1. in the appendix, provides a brief description about other well-known maturity models.

After that, currency and interest rate swaps, along with over the counter options were used, due to the quick expansion of risk coverage derivatives. During the same year, the Chicago Board Options Exchange, or CBOE, was created. Its creation boosted the growth of options market. This also helped in generating liquid assets for market effectiveness.

In the 1970s, people started using derivatives as an instrument to manage insurable and uninsurable risk, which was further developed in the 1980s (Georges Dionne, 2013). Operational risk and liquidity risk management emerged in the 1990s, along with international regulation of risks (Fraser J., Simkins B, 2010). Many companies, including banks, made financial risk management their priority, thus revolutionizing the concept of risk management in the financial sector in the 1970s (Fraser J., Simkins B, 2010). This happened because of the various price fluctuations related to risk such as interest rates, stock market returns and exchange rates among others.

In the 1980s, several alternative forms of risk protection emerged, such as captives, meaning company subsidiaries that insure various risks and reinsure the largest ones risk, retention groups of companies in an industry or region that pool together to protect themselves from common risks and finite insurance, that is distribution of risks over time for one unit of exposure to the risk rather than between units of exposure, mostly due to the insurer's role being greatly questioned during the liability insurance crisis in the United States. These protections from various risks included captives, risk retention groups and finite insurance.

Risk management first had a department in a bank in 1987 (Georges Dionne, 2013). Due to high market volatility, the big US investment banks had to create risk management departments in the late 1980s.

JP Morgan created two best-known internal risk management models, RiskMetrics for market risks in 1994 and CreditMetrics for credit risks in 1997. When the RiskMetrics model was published, VaR, or Value-at-Risk was also beginning to be used as a risk measure. VaR is the maximum rate that a company can afford to lose during a span of time. This helps to ensure which is the optimal capital that is required to protect companies from losses, whether anticipated or not.

These tools are used as measuring instruments for calculating regulatory capital under Basel II and Basel III for banks. They were also used in the first big losses from misusing derivatives in 1994 and 1995 (Georges Dionne, 2013). After that, there were three credit risk crises that followed, the Asian crisis, the Russian crisis and the LTCM, or the Long-Term Capital Management collapse. And even though the Asian and Russian economy got back on their obligations, LTCM fell short on liquid assets for its obligations, thus leading to a default risk. Risk Management was made a corporate affair in the late 1990s, and that was when the position of CRO, Corporate Risk Officer, emerged.

Reaching to the 2000s and when various economic scandals and bankruptcies occurred from poor risk management, the Sarbanes-Oxley was introduced in the United States, which applied governance rules for companies (Georges Dionne, 2013). Furthermore, stock exchanges, such as the New York Stock Exchange (NYSE), also included risk management governance rules for listed companies.

Chapter 2

Risk Maturity

Across risk management functions in all organizations, regardless of their size, there has been an increasing concern of the way risk is understood and managed. Organizations nowadays pay more attention to risk management principles, than ever before. Nonetheless, it is questionable whether they implement it in a proper way. Risk maturity can provide the managers with information about how well risk management is implemented.

The definition of risk maturity has several perspectives. Organizational maturity conforms to the extend of measuring and controlling risks using methods respectively to risk management.

Risk maturity measures how an organization is capable to identify, evaluate and monitor risk across its environment. Risk maturity can also provide information about how well risk management is implemented on an organization. However, it is considered as a type of measurement on how an organization is aware of risk and to what level it is using Enterprise risk Management processes. As the changes, not only in the external, but also in the internal environment of an organization are a lot, by measuring organizational risk maturity, can help the Board of Directors to identify how easily the organization can adjust to changes and to have more specific reports through risk management procedures. Risk maturity is a measure which implies increasing

effectiveness over various and different characteristics of risk management in an organization's level.

But one of maturity's main characteristics is that it can relate to the current and the future state of an organization's development. The concept of risk maturity has had a great development for the past years.

The reason why it is important to measure organizational risk maturity is to be able to make a comprehensive evaluation of the performance against best practice criteria and best risk management elements. Apart from this, it is also used as a tool to identify areas of improvement and possible opportunities.

2.1. The importance of risk maturity

Risk maturity is important for an organization as it allows Risk practitioners to measure how well their frameworks are working and receive real time and up to date reports. Furthermore, another important aspect of Organizational Risk maturity is that it can measure the effectiveness and the quality of risk management process that the organization already uses. It is not easy for an organization to be able to get all the components of risk management implemented in the most proper way, in order to provide its members with the best value and the best results. So, there is the need to understand in which area an organization is mature, and in which area there is a need to take further actions.

By measuring risk maturity, an organization could make a comprehensive evaluation of the organization's performance respectively to its needs and criteria. It can also define risk management capabilities into organization's existing procedures. That is a

great aspect if the organization is described as mature. A less mature organization with no proper use of risk management can result in faulty choices and wrong decision-making process. Apart from this, Risk maturity can provide the organization with key opportunities which will bring the organization to a higher maturity level. The need to evaluate risk management practices at regular intervals can be considered as critical, in order to map against best practices and provide recommendation for improvement.

2.2. Levels of maturity and attributes

In every different risk maturity model, there is a scale of levels that is used to characterize the organization or the project from the most prepared, to those who do not use the risk management principles at all. Those levels that are used in risk maturity models define the quality of risk management in a progression scale. The number of levels is not the same for every maturity model. It is essential to note that every organization have different desirable levels of maturity.

The best alternative of those is the level in which the organization is defined as risk aware and acts proactive. Organizations that are at this level can give a most accurate feedback to the decision-making process through risk management.

On the other hand, the worst-case scenario, is when the members of the company have minimum awareness about the importance of risk management and as a result there is not any specific guidance about framework implementation. Another aspect of this level is the lack of operational risk management process that it can lead the company to face major losses. This could mean that the managers are not aware about the benefits of risk management assessment and practices and because of this, they do not consider it necessary to implement risk management in their organizations. There are

levels between the best and the worst alternatives. These levels refer to the progressive improvement and development of enterprise risk management framework.

The attributes that are used in risk maturity reflect the characteristics respectively to risk management and they are connected to risk management process, such as identification assessment, monitoring (Wieczorek-Kosmala, 2014). Attributes are different in every risk maturity model and they are defined on a scale of maturity levels each time. It is possible that an organization will reach different level of maturity in different attributes.

As a consequence of the above, when an organization belongs to a higher level, that means that the expected benefits of risk management procedures could be higher. Through identifying the levels of maturity of the different components or attributes of risk management, the members of an organization will be able to determine where to focus their effort and possibly provide more resources to that, and as a result to build risk management to a maturity level which they believe is the appropriate for their strategies and organizations risk profile. The maturity levels are used in Risk Maturity models as a measurement tool and are required in order to ensure that organizational risk maturity increases at a steady and sustainable rate, as well as, that risk management components are developed and implemented in a structured and logical order that allows the organization to integrate new elements into existing organizational process and operations.

Chapter 3

Risk Maturity Models

The strategic approach of risk management requires to properly conduct and implement risk management activities. Risk Maturity models are believed to be a generic and useful tool in assessing and supporting risk management procedures (Wieczorek-Kosmala, 2014)

Risk Maturity Model derives from the idea of Capability Maturity Model (CMM). CMM was developed to provide proper guidance to improve software development processes and is also used to evaluate and improve the way a software's process is managed and built. Capability Maturity model describes the processes in five stages or levels. Those five levels of process maturity have been defined as: initial, repeatable, defined, managed and optimized. Each one of Capability Maturity levels include a set of key processes, which are referred as goals, that, when satisfied, standardize a component of the process (Humphrey 1987). Risk maturity models use the idea of Capability Maturity Model respectively to risk management.

Risk Maturity models can be used in order to understand the degree of implementation of the risk management process and its reliability and effectiveness at every stage. There is a wide range of existing maturity models that can be used nowadays, such as People Capability Maturity models, Testing Maturity models, Analytics maturity models and Marketing Maturity models. The maturity models that are accordingly to Risk management practices are known as Risk Maturity models.

Risk maturity models can be used in order to define current practices regarding to risk management and how improvement may be achieved. Risk Maturity models are a valid tool, that organizations should use to support risk management procedure. This tool can measure the impact of each risk, respectively to an organization's goals. Moreover, Risk Maturity Models can be used from organizations that wish to improve their risk management and also the application of this kind of models can rate organizations against key competitors (Wieczorek-Kosmala, 2014). This benchmarking tool measures to what level an organization has implemented Enterprise Risk Management principles and practices. There are different models that can be implemented in a wide range of types of organizations. Most of them are using a combination of different levels of maturity combined with different attributes. Those attributes are connected with the content of the risk management process and practices that an organization should use.

A maturity model provides a means of characterizing the current level of risk management capability. There is a significant barrier which organizations could face. That is the lack of evidence showing the real matters and risk that the organization has to manage. This problem could be solved by using risk maturity dimensions. Based on the assessment results of a risk maturity model, the Board of directors can take appropriate actions and prioritize resources to improve the weak areas of the risk management implementation. The models described in the following sections, however, differ regarding the evaluation levels and the examined attributes in each one.

3.1. Hillson's risk maturity model

Dr David A. Hillson is an international risk management consultant with over twenty-five years of experience in the risk field. He is, also, an active member of the Global Project Management Institute and has received several awards in recognition of his risk management offers. He has written eleven major books on risk and over 100 published technical papers about risk and risk management. One of those papers is called 'Towards a Risk maturity model' and it has been published in the International Journal of Project and Business Risk Management in 1997. The paper describes a risk maturity model which consist of four levels of maturity.

3.1.1. Model's Description

According to Hillson, Risk management process is very important and there is a growing need to develop effective processes to help an organization identify and manage the risks and the uncertainty that they could face. In many cases the managers' expectations, respectively to risk management process, were unrealistic and there was no proper guidance of how it should be managed.

Hillson, at his risk maturity level approach, is referring to a set of frameworks consisted of four levels of maturity and how to improve and develop guidance in order to minimize risk exposure. The range of this model is in ascending order, from those organizations who do not use risk management to those where risk management is fully implemented.

The levels of Hillson's risk maturity models (Figure 2) are the following:

The first level is characterized as “Naïve” (Hillson, 1997). At this level belong the organizations that are not aware about the need of risk management, and they do not implement risk management principles in any of the organization’s procedures. The awareness about the treats is low and the frameworks about risk exposure do not exist. Apart form this, the managers do not think that it is necessary to be prepared for a future threat.

The second level is called “Novice” (Hillson, 1997). The organizations at this level are aware about how risk management could help them, but risk management frameworks are not implemented, and they are not fully protected from any possible risks.

The third level is the “Normalized” level (Hillson, 1997). Risk management routine is implemented on most or all the organization aspects and every day procedures and all the levels have knowledge about the benefits that they could have from this implementation, but there is a possibility that something will go wrong in some cases.

The fourth and last level is the “Natural” level (Hillson, 1997). The “Natural” risk organization is following a risk aware culture, the organization’s members act before the potential situation that may harm the organization, they also use risk processes in every level effectively. They also use risk procedures to gain the benefits of every potential event.

Those levels are measured in terms of four attributes that characterize the main activities according to risk management. Those attributes are culture, process, experience and application. Culture is about how an organization encounters risk and implements risk management procedures and how to act when a risk occurs. The

process attribute is how the risk management principles are used in the organization. More specifically, it is referred to the application of risk management into the organization's everyday operation and if there is a need of risk management external support of experts. Another attribute of this model is experience. Experience is referred to the knowledge of the employees of the enterprise about risk, how risk-aware they are, and how regularly the organization trains its staff about risk and risk management (Hillson, 1997).

The attributes that are used in this model, give the ability to the managers of an organization to define in which level of maturity they belong, and which is the weakest and the strongest attribute of risk management. These attributes are also defined better in a matrix (Olson, Wu, 2013). A matrix provides a two-dimensional characterization of risk, with the first dimension being the levels and the second the attributes. An attribute in level 1 has different characteristics than as we move to next levels.

3.1.2. Application and characteristics

Hillson's maturity model characteristics are used in several maturity models. There are plenty Risk maturity models that are used in the same maturity levels as this maturity model. It is also known that this model has provided information that most of the maturity models used as a guidance or a reference by different authors. One of these models is Risk Management Maturity Model which is proposed from the International Council on System Engineering INCOSE (2002). This model uses the levels of maturity's of Hillson's model along with an extension. (Serpella, Ferradab, Rubioa, Arauzoa, 2015)

It is known that this model was made for organizations that want to implement a structured risk management plan or to improve their existing approach of it. However,

it can help an organization to define its current level of maturity and identify the area that needs improvement and create strategies in order to develop or improve its maturity level. This model can be implemented in a wide range of organizations with different activities and different size. There are examples of implementation in construction industry. Besides this, this risk maturity model can be implemented at an industry level, but also at a business level or an organization's department.

The best advantage that an organization could gain from implementing this maturity model is the preliminary approach to generate a set of guideline and frameworks for assessing the risk management and define the needs and the weakest parts of it. However, this model is considered to be too general in the definition of the levels and the attributes that are used. (Serpella, Ferradab, Rubioa, Arauzoa, 2014)

3.2. Hopkinson's Maturity model

Hopkinson developed two versions of the risk maturity model. The first one is applicable for projects and the second is applicable on a business level. Through his risk maturity model, what he was trying to achieve was to establish a model that could provide information not only about the level of maturity that the organization is, but also to present the weakest element of the company and describe the steps required to reach the next levels. As a result of the above, this maturity model is not just a measuring tool, it could help the members of the organization to identify and prioritize the processes that could help the company to achieve their goals. Another prospective of this model is to benchmark the project risk management process and support an effective risk management.

Hillson stated about the project risk maturity model: “... is a must for project and business professionals who want to find out how to improve the risk management culture in an organization and determine what actions should be taken for that purpose. Project professionals can benefit from this book, analyzing their risk management maturity level, going through the assessment questions and generating his/her own action plan”

3.2.1. Model's Description

Hopkinson produced two different types of risk maturity models, one can be implemented at business level (Hopkinson, 2000) and one applicable to project management (Hopkinson, 2011). The main scope of this maturity model provides sets of frameworks and paths to development that can be implemented in every available project of an organization in order to mitigate the possibility of something going wrong.

The project Risk Maturity Model was developed to adapt Hillson's maturity levels to the projects as well. So, the levels of maturity are the same as Hillson's maturity model. Naïve, novice, normalized and natural.

The tool that is used in this model is the questionnaire. The prototype Project risk maturity model was based is 39 different questions. After the final adjustments the final proposal was composed of 50 questions. Those specific questions have 5 different option for answers. One for every level, Choice A is level 4 and choice D is level 1. The fifth choice in every question is the option “not applicable”. Every question with that answer is disregarded in the final calculation of the results. In other words, the question is neutralized.

He examined six different attributes of maturity, called perspectives. The attributes as they are referred to his book about project maturity level are stakeholders, Risk Identification, risk analysis, risk responses, project management and culture. The attributes at the Business risk maturity model are management, risk identification, risk analysis, risk control, risk review and culture (Chapman, 2013).

All 50 questions are made respectively to those project attributes. The results of each section can be viewed in bar charts and those bar charts reflect the levels of maturity. The overall result is at the point of where the weakest of the prospective is. This method could help us to identify where the biggest problem of risk management is and what is the most important part to begin with (Hopkinson,2011).

After the data selection and the implementation of this questionnaire, according to this model, the overall assessment is only as high as the weakest of the attributes that are used int this analysis (Wieczorek-Kosmala, 2014)

3.2.2. Application and characteristics

Hopkinson provides a comprehensive process to assess and improve the ability of an organization to manage risks. The tools and charts that he provides through his analysis could be useful to communicate the lack of risk management and the benefits of it to executives and Board of Directors.

Risk maturity model for Business can be used to assess the capability of a corporate risk management process. Hopkinson was not intended to provide just a measuring tool. Through his analysis he provides a structured pathway for improvement. Those

paths are not just states in which level of maturity a project or an organization is, but also describes the steps that are required to reach next levels.

The proper implementation of this models can ensure an improvement in project risk management and consequently the goals that are achieved in a way that is related to the needs of the organization. This model is structured as a matrix in which the levels of maturity are cross-referenced with those attributes reflecting the primary risk management practices. As a result, using this visual presentation is easier and simpler to understand in which level the organization belongs. This tool allows the user to evaluate the risk management implementation in any project and any organization

One of the differences at this model is, Hopkinson's model provides examples and case studies to every concept that he described, and there is an analysis in every question and every possible answer that he provides through the analysis.

3.3. AON's risk maturity model

AON Public Limited Company is a global service firm and was created in 1982 with the headquarters placed in London. The service that it is provided is about risk, retirement and health. AON Company has offices in approximately 120 countries and holds a big range of awards. AON empowers organizations to secure a better future through the solutions of their offer, about risk management and how to define a risk opportunity in order to increase organizational performance and growth, while its expert staff can provide organizations with new levels of financial security and possibility of growth.

By 2010, AON published the “Global Enterprise risk management survey”. As it is mentioned in the survey, the report is based on data collected from leading organizations around the world.

3.3.1. Model's Description

This risk maturity model is composed of five levels that are developed by practitioners. Those levels are Initial or Lacking, basic level, defined level, operational level, and finally advanced level (Wieczorek-Kosmala, 2014). The first level, which is called “initial” or “lacking”, is referred to the activities that does not use risk management or there is a limitation in using it. There is also the possibility to be used only to address specific risks and difficult occasions. Next level is referred as “Basic”. At this level, organization has a limited use and knowledge about the benefits of risk management and they do not manage or even monitor risks by using risk management principles. Next level, according to this model, is named “defined”. At this level, organization have the capability to understand the risk management principles and implement them in order to face major risks and protect the organization from them. There is also a use of techniques and policies across organization. As the scale goes on, there is the “operational” level. This level is characterized from consistency. There is a stability for all the risk managements actions, such as manage, monitor, and report risks. There is also a well-structured application of policies and techniques. The final level is called “advanced”, in which there is a well-developed program of risk management, that it has a structure and the ability to identify and mitigate a possible risk or hazard for the company. This level is also characterized from the use of risk management results in decision making procedure and there is also the ability of adjustment to changes of possible risks.

The model examines a set of nine attributes or “hallmarks” as they are referred to the analysis. The hallmarks of advanced enterprise risk management, according to AON’s

model are helping to identify how mature an organization risk management process is. The first one is referred as “Board-level commitment to ERM as a critical framework for successful decision making and for driving value”. This type of commitment is considered as critical for this risk maturity model and can help the organization to achieve a highest value. This can also provide to the Board of Directors more information about possible risks and hazards. Moreover, another Hallmark of this model, according to Aon’s “Global Enterprise risk management survey” is “Dedicated risk executive in a senior level position who drives facilitates the Enterprise Risk Management process”. Other attributes of this models are: “An ERM culture that encourages full engagement and accountability at all levels of the organization”. “Engagement of stakeholders in risk management strategy development and policy settings”. “Transparency of risk communication”. “Integration of financial and operational risk information into decision making”. “Use of sophisticated quantification methods to understand risk and demonstrate added value through management”. “Identification of new and emerging risks using internal data as well as information from external providers”. “A move from focusing on risk avoidance and mitigation to leveraging risk and risk management options that extract value” (AON,2010).

3.3.2. Application and characteristics

AON’s five stage risk maturity model can be used to help organizations benchmark their value in nine different attributes.

One of the major characteristics of AON maturity model offers is establishing effective risk communication and using the results of monitoring risks for decision making procedures. Another good aspect of this risk maturity model is that it refers to how necessary is the involvement of stakeholders in risk management activities.

The methodology that this model uses is a web-based survey with the support of AON Analytics and AON's specialists. This survey that can addresses both qualitative and quantitative risk issues. It can also provide feedback according to the hallmarks of this model, for organization risk management choices and procedures.

3.4. Common features and Differences of maturity models

The most common feature of those models is that they are used to characterize the risk management implementation at an organizational level. All of these models that are described above, are based on a continuous progression to higher and higher maturity levels and how an organization could move from one level to a higher one. Besides this there is not a recognition that the requirements of risk management may be different in every sector of an organization. With the effective use of this risk maturity models, an organization should be able to evaluate the risk in a better way, and a good implementation of risk maturity strategy could lead the organization a step closer to success. Another similarity between those models is that they are structured as a kind of matrix in which the levels of maturity are cross- referenced with the attributes of each model, in order to reflect the level of risk management practices. Moreover, All of those model have a use in an organizational level, as well as, an industry level. The only difference is that Hopkinson's maturity level has a use in projects as well.

Regardless of the structure of those models, the main purpose of these is highly similar. The general idea is to asset the current level of risk management practices in an organization and offer guidelines for improvement. There is the possibility to define in which aspects of an organization is a lack of risk management use, which parts of them

are more vulnerable in possible risk and provide guidance on how to fix those aspects and be more risk management compatible.

The major difference between those three models is that Hillson's and Hopkinson's maturity model are using attributes as a mean to characterize the level of maturity, in contrast with AON's model that it uses 'Hallmarks' that makes the definition of each one more specific and it makes it easier to justify every level's connection with them. There is also a difference between the number of attributes. Hillson's model has 4 attributes (Hillson, 1997), Hopkinson's model has six different attributes (Hopkinson, 2011) and AON's risk maturity model has nine different attributes (AON, 2010). Except from the differences of the attributes, there is also a difference in levels of maturity. Hillson and Hopkinson have the same levels, naïve, novice, normalized, natural (Hillson,1997). In addition to this, AON's risk maturity model have a five scale of risk maturity levels, which are initial or lacking, basic, defined, operational, advanced (AON, 2010).

Moreover, there is also a difference between the implementation of this model. Hillson's risk maturity model is simpler and does not provide a standard way to do the research of the levels of maturity. There is not a specific questionnaire or a specific program. It is too general. On the other hand, Hopkinson, provide 50 different questions, that have specific answers that the researcher should provide to those who want to implement this model. AON's methodology is a web-based survey. This model also provides us with the information about who should respond to the questionnaire, and more specifically, Risk managers, CROs, CFOs or maybe, someone from the treasury department of an organization (AON,2010).

Chapter 4

Research

“In much of society, research means to investigate something you do not know or understand.” -Neil Armstrong

As it can be seen from the literature review, Risk maturity models are a dynamic and critical tool, that can help an organization to define its level of maturity. This tool could help organization to be prepared to face the possible risk with minimum losses, and specify opportunities for the success of its objectives. But what about implementing one of those tools to an industry. What are the results? How aware are the boards of Directors about risk and risk management?

The Risk maturity model that will be implemented, throughout this research section, to a Greek Industry, is Hillson’s risk maturity model. The reason for selecting this model to be analyzed and implemented to an industry, is that it was the basis and the inspiration for the Risk management practitioners. In addition, Hillson’s maturity levels and thought process were used in a wide variety of different maturity models, such as Hopkinson’s maturity model. Apart from this, the other maturity models that are described at the literature review, are more complicated and they use specific tools and questionnaires. As a result, it will not be possible to create a new questionnaire, with a new structure and with the most important parts that should characterize every level. As Hillson’s risk maturity model was one of the first, it is a good idea to see how a model that was conducted in 1997, is able to implement in an industry that follows today’s standards and today’s risks.

The industry that Hillson's maturity model will be implemented is Greek Insurance Industry. This field is connected with the idea of what risk is and what could be risks results. Risk that may occur in Insurance industry could lead an organization even to bankruptcy or to financial disaster as the economic impact and reputation loss are very important for these organizations.

The presented research provides an analysis of the benefits of Hillson's risk maturity model when it is implemented at the Insurance industry.

4.1. Research objective

The objective, that should be achieved through this analysis, is to define how well the Insurance companies implement the risk management principles and frameworks. This analysis should provide information of how important it is for these organizations to be risk mature and what are the characteristics that they should adjust in order to be more safe and prepared. Moreover, another objective that should be achieved is that this research is a deeper understanding of what enterprise risk maturity is and how a risk maturity model could help an organization to understand the result of its risk management use in practice.

4.2. Insurance Industry overview

It is known that the first insurance policies were issued in the early of 18th Century and took place in London. In the late 19th Century, Insurance policies had become more known worldwide and available to those who could afford that.

One of the first industries that embraced the need for a more systematic and organized approach of risk management practices in Greece, is the Insurance Industry. The Hellenic Association of Insurance companies (HAIC) has 51 members nowadays, representing over 95% of Greek market (EAEE). The subject of Insurance Companies is directly connected with the risk. The difficulty of fully understanding the risk to which insurance companies are exposed to, has led to the need of implementing new and improved measurements. This is a result of the particular form of those organizations as well as the instability of the economy, that lead those organizations to develop risk frameworks or improve those they had. The result of these conditions was the establishment of an operational framework in order to monitor and review the industry's practices, which is known as "Solvency II". That framework was also incorporated to the Greek Law at Greek National Paper in 2016, so the Insurance Industry is obliged to use that Framework. The main scope of "Solvency II" is, first of all, customers protection of possible risks. This framework is described from a wide range of qualitative and quantitative requirements, based on the fields and risk management practices. As a result of the above, Insurance Industry is obliged to use risk management principles and practices.

The reason this industry is used to implement Hillson's risk maturity model is to define how well these organizations are implementing risk management, as well as, because of the nature of the business they must do. What are their attitudes about risk management and how important is for them and how well prepared they are to face a

possible hazard that may influence their entity. How risk mature Insurance Industry is and how they use risk management.

4.3. Research Methodology

The method that was used to for the research was structured questionnaires, according to the needs of Hillson's Maturity model.

In order to have better and more accurate results, two different questionnaires were used. One questionnaire, for the Headquarters of the insurance industry companies (figure 3 in the appendix), which is the main data and the main analysis. This questionnaire was divided in five sub-categories. The first section was four questions about the structure of the organizations. The other four sections were accordingly to Hillson's risk maturity attributes, culture, process, experience and application. Every one of those section had six different questions.

As the number of Companies in Greek Insurance field is rather limited, but plenty of branch offices of those enterprises, it was wise to adjust the main questionnaire (Figure 3 in the appendix) and create a second one, suitable for the branch offices. This questionnaire (figure 4 in the appendix) is considered as additional material, that could provide information, mostly regarding the experience and the culture of the employees and employers, and in insurance organizations. The second questionnaire was divided in three parts. The first one includes three questions about general information of the branch office. The other two sections contain seven different questions for culture and experience respectively.

The questionnaires were created by using Google Forms, which is a web platform. Moreover, Organizations received an email, which was containing a brief presentation of who I am and what was the scope of the email, as well as, the link to the questionnaire and a reference to confidentiality, as all the answers are anonymous and were used only for the scope of this research. The main elements are repeated at the beginning of

the questionnaire. The first section included the general information of the organization.

The rating Scale that is used is Likert scale method in order to measure the risk management maturity of Insurance industry. I have combined in the design of the questionnaire 1 to 4 items (1. Strongly disagree, 2. Disagree, 3. Agree and 4. Strongly agree). The reason why the scale is from 1 to 4, that is because Hillson's Risk maturity model has only four levels of maturity. Apart from this, this scale enforces the sample to answer the questions positively or negatively, to be a part of the research and not have the possibility to be neutral to any of the statement. The questionnaire was the first step to gather all the required information according to Hillson's maturity model.

The next step after collecting the data was to import the results to an excel sheet, in order to be easier to handle and easier to understand. The excel sheets that I use for my analysis can be found in the appendix. The tool that I used to make the pies and the charts is Power BI. This is a Microsoft analytics tool that and can provide an ad hoc analysis.

4.4. Data Collection

Data collection was done through questionnaires that have been sent to the appropriate organization department via Email. The total number of Greece Insurance organization may be 51, but an amount of those are members of the same organization. An example of this is the organization Interamerican. This organization has 3 different business that work together with the same principles and under the same Foreign mother Company. So, the sample of questionnaire was less than 51. The final recipients of the main questionnaire (Figure 3) were 33. From those questionnaires 29 of them

have finally respond to the main questionnaire, which is considered as the final sample. That represents an 87% response rate of the sample selected. The data provided from this questionnaire is included it table.2, table.3, table.4, table 5 and table 6 in the appendix.

The second questionnaire (figure 4), which addresses additional information, was sent to 123 recipients and 97 of them were respond to this questionnaire. The data provided from this questionnaire is included in table7, table 8 and table 9 in the appendix.

Chapter 5

Research Results

The results of the research were very useful to understand what is really happening to Insurance industry in accordance to risk management implementation, and the final result could give us the information about the level of maturity at this field.

The results for every answer that is at the questionnaire that was send to the Head Offices (Figure 3), have been included to my research analysis, each one separately. There is also a visual presentation for each one. The x-axis has been filled with the possible answers that the sample had in order to select one each time. And the y-axis is the percentage of the grand total of the answers for every question separately.

5.1. General Information of sample

The first section of the questionnaire (figure 3) was the general information of the organizations. It includes the necessary information about the origin of the Organization, the size, the number of branches, and the years of operation. That information could help us to categorize the results of the data collected according to the research outcome from the prospective of Hillson's maturity model.

The Following Diagram provides the general information about the sample.

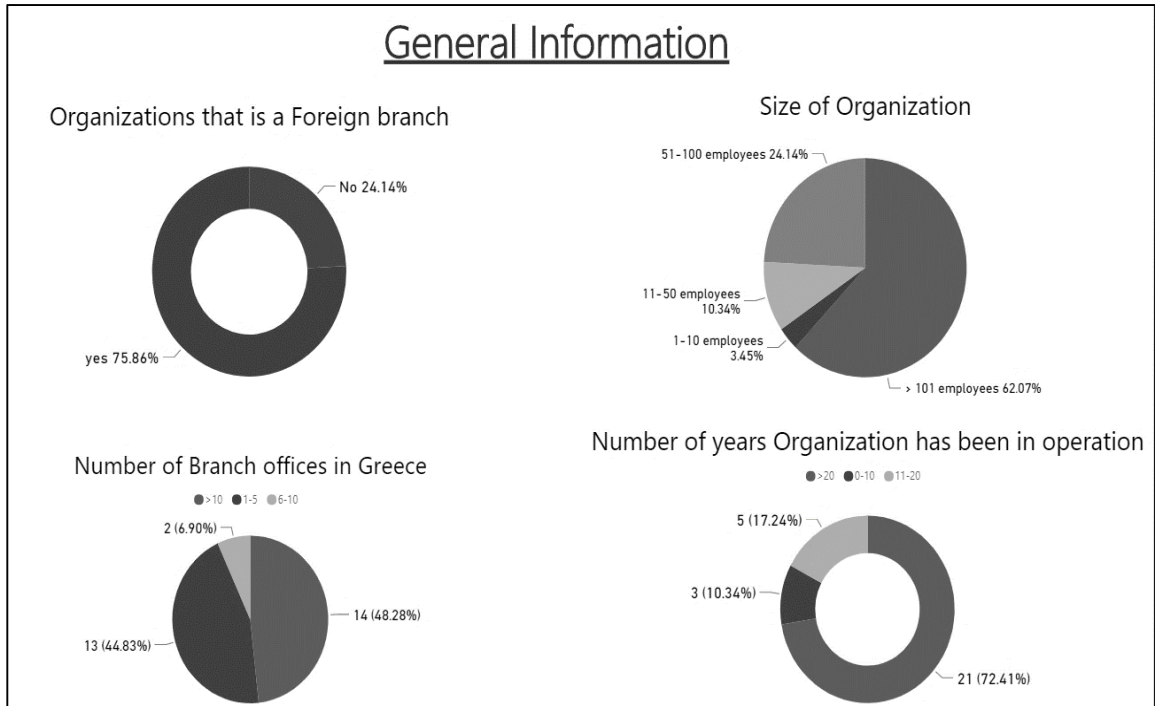


Figure 3. General information of the sample

The data that provides the results of this section is included at table 2 in the appendix. Firstly, about the origin of Insurance organization, 75% of those organizations in Greece belongs to a foreign organization. Most of the organizations, such as Allianz, NN, AXA, are Foreign Branches in Greece and most of the are funded from a foreign contributor.

Organizations that is a Foreign branch

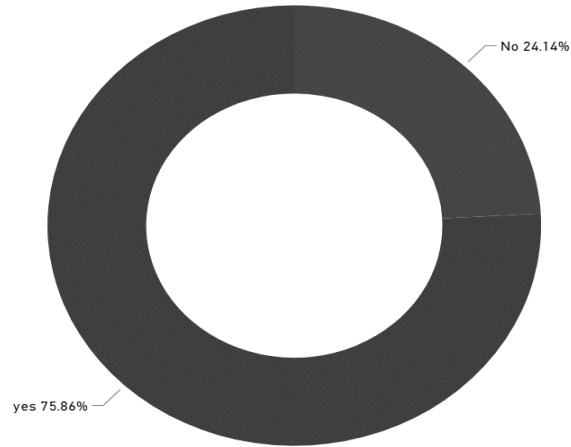


Figure 4. How many organizations are foreign branches

From the total of 29 answers only 7 of them are Geek organizations that their share capital is from a Greek investor.

The biggest part of the sample, 62.07% of the Insurance organizations, employ over 101 employees.

Size of Organization

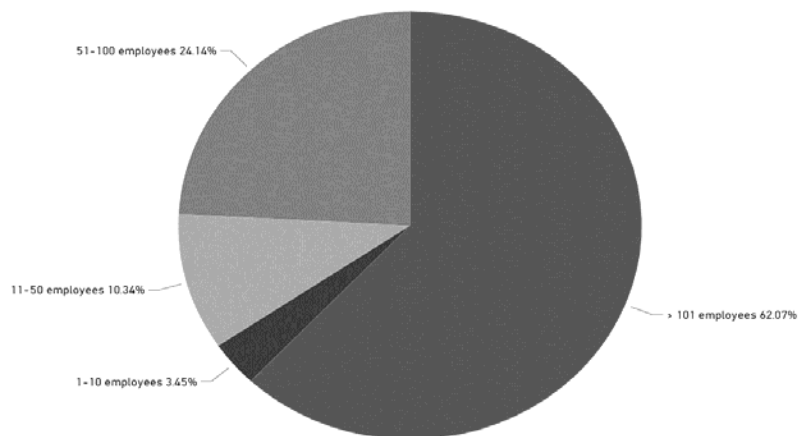


Figure 5. The size of the organization

As we can see from the visual presentation (highlighted areas), it is worthy to note that 48.28% of the data collected have answered that they belong to a foreign organization and they employ more than 101 employees.

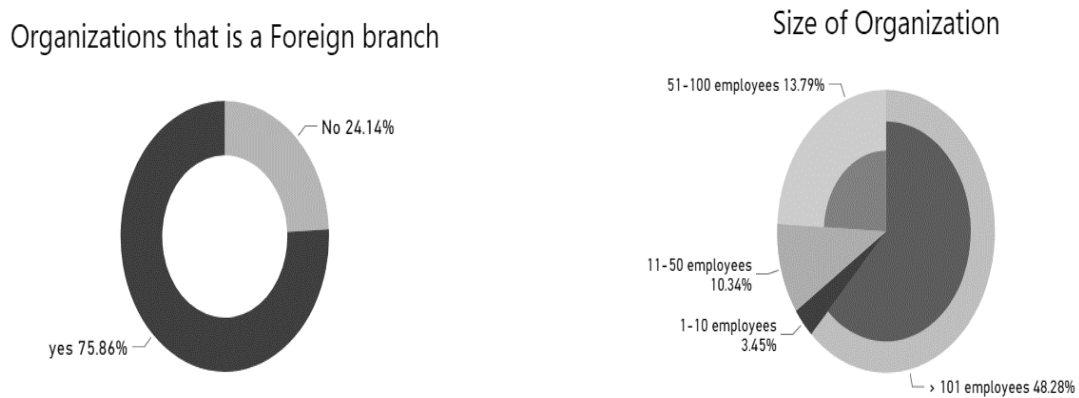


Figure 6. Size of organizations only for the Foreign Branches

In addition to the above information, approximately 49% of the total sample have more than 10 branch offices all over Greece. The biggest organizations, those who have more than 101 employees and more years in operation, are the biggest part of this percentage. That means that those insurance industries have bigger reputation and bigger part of the market.

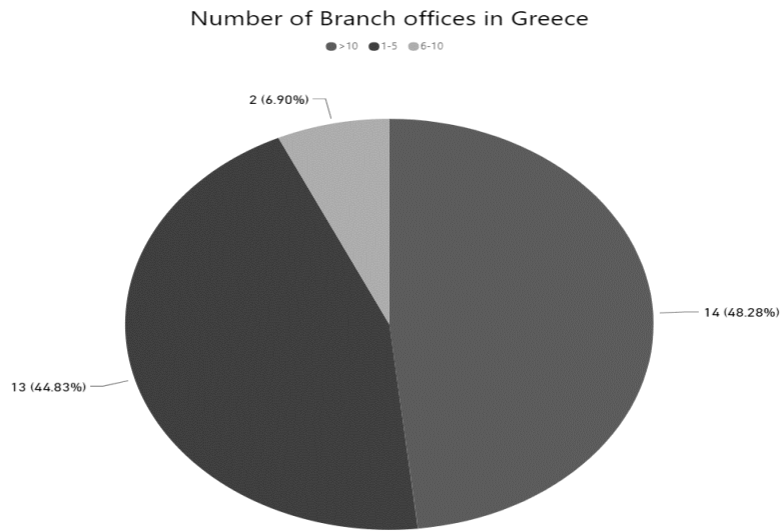


Figure 7. Number of branch offices in Greece

Most of the organization that operates nowadays in Greece, have a lot of experience as we can identify from the sample's answers about how many years the organization has been in operation.

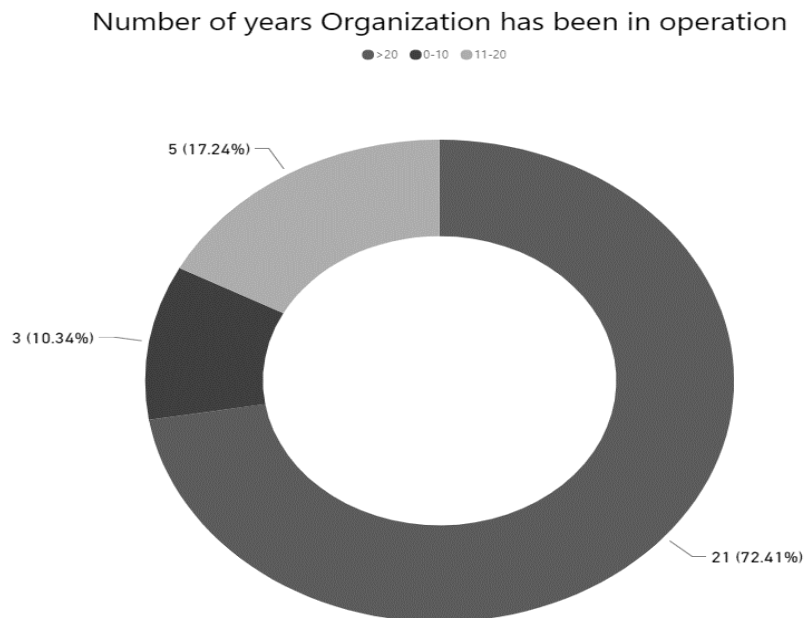


Figure 8. Years that organizations have been in operation

As a result of the above the biggest part of the Insurance Industry are Foreign branches that have a lot of years in operation and employ above 101 employees. That means that this industry is a big part of Greek's Labor market and against their risk nature, they are able to survive through years.

5.2. Risk culture

One of the four attributes of Hillson's risk maturity model is Culture. How the Organizational culture is combined with risk management. Culture was the first part of my main questionnaire and one of the parts of my second questionnaire that was intended to be answered by Organizations' Branch offices in Greece. The following graphic presentation is showing the answers of each question according to risk maturity levels. The data that provides the results of this section is included at table 3 in the appendix

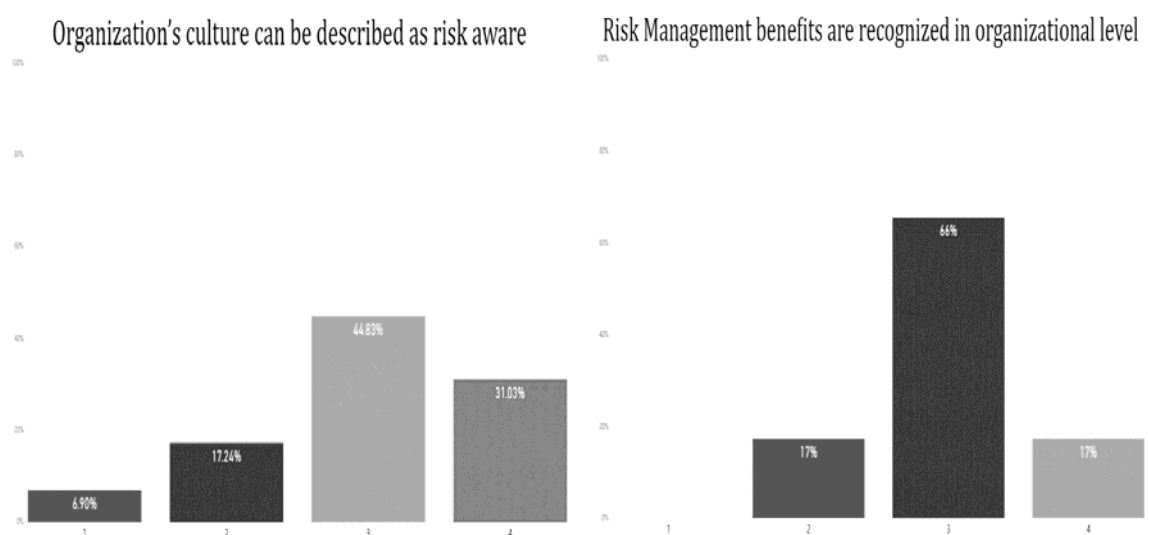


Figure 9. Organizational culture Charts and answers about risk management benefits

More than half of the managers that took part in my research agreed that organizational culture is risk aware, and a bigger percentage of them agreed that risk management's benefits are recognized, and its good aspects are known to all the levels of their organizations. It is significant to note that there is a big part of those organizations that agreed, that organizations that are risk aware, strongly agreed with this state. That means that the board of directors is aware about what risk management can provide to their organizations and as we can see of the above chart, they involve in risk management procedures. Only 4 organization of my sample disagree about the existence of upper management involvement is risk procedures.

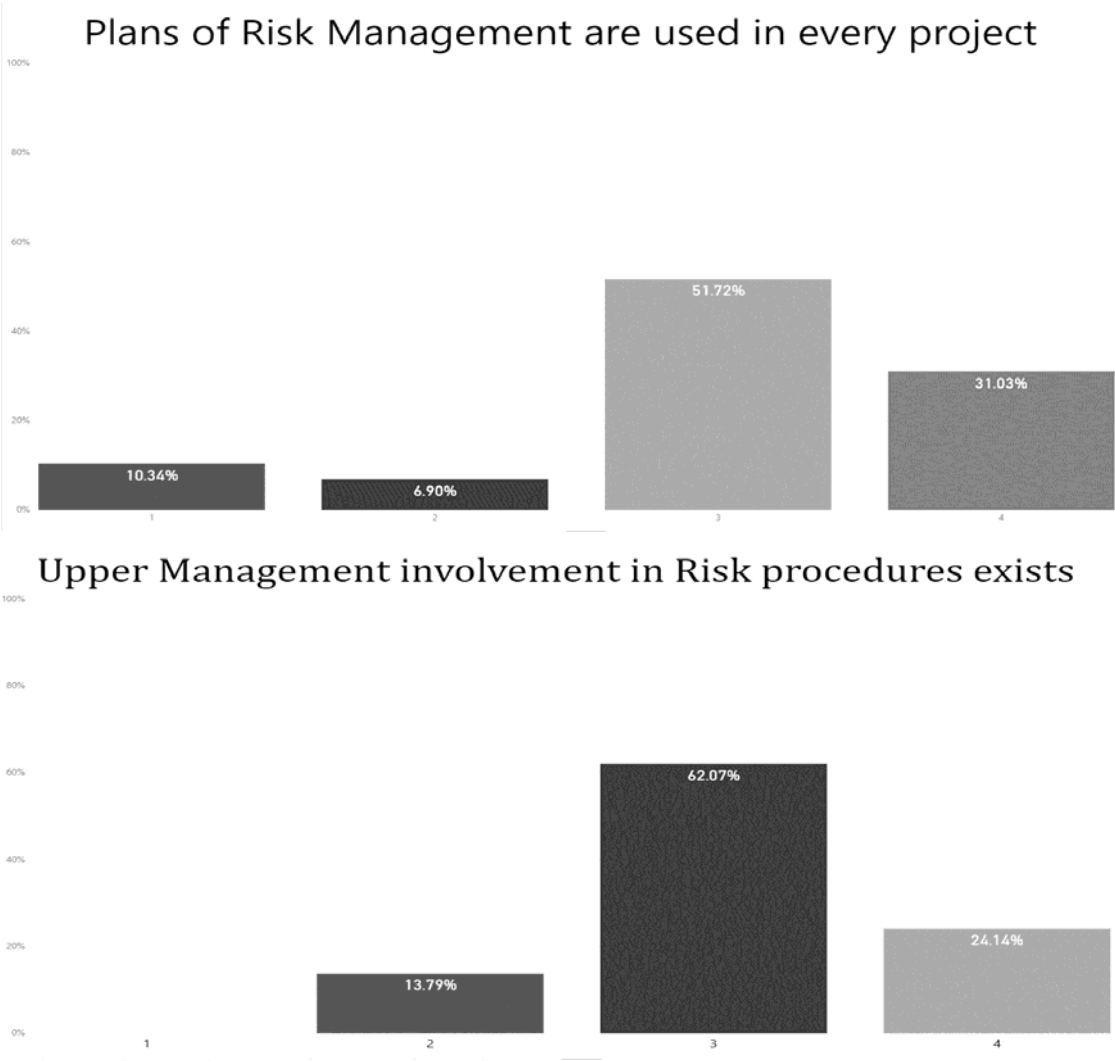
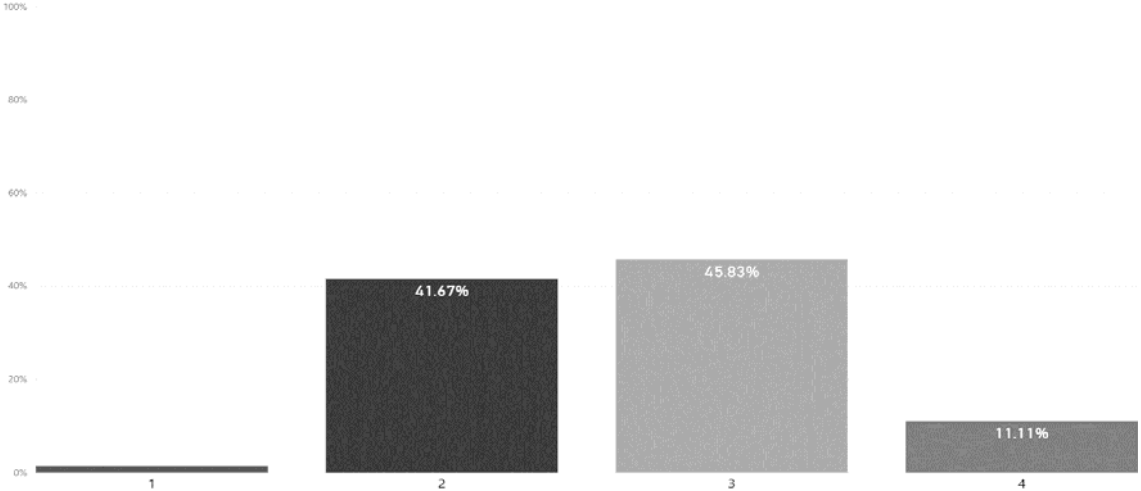


Figure 10. Risk management in projects and the Upper management involvement

The last two questions of the first part of my main questionnaire were how an organization adjusts to possible changes, and if they act proactively to a risk.

There is a receptive to change culture and continuously improvement



Tendency to act proactively to risk

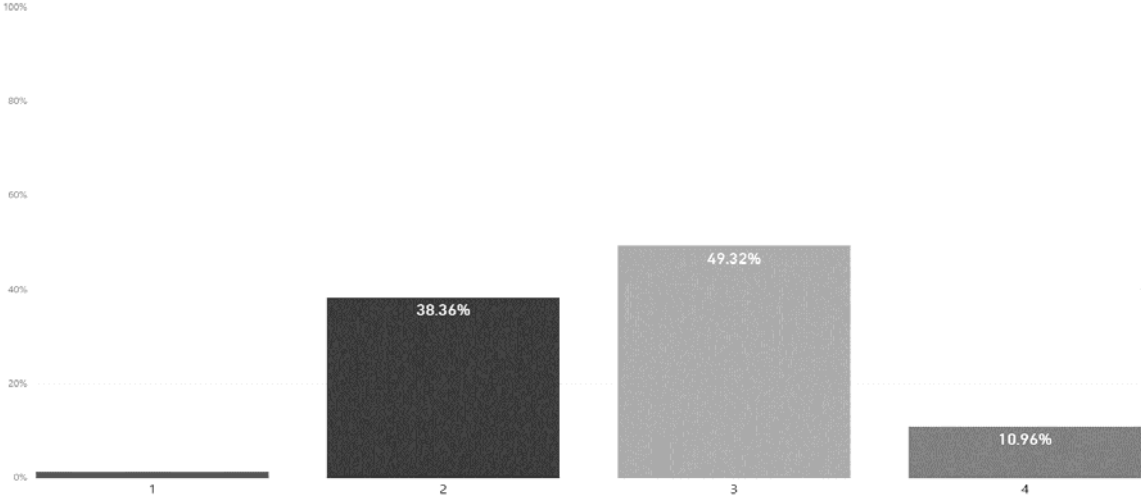


Figure 11. Receptive to change culture and the tendency to act proactively to risk

As we can identify, most of the Organizations agreed with both of those two states. But, there is a part of Insurance industry that describes their culture as unreceptive to changes. As we live in a country that faces an Economic crisis, the changes are a lot and the possible risk are more than enough to lead an Enterprise even to bankruptcy. The

tendency to act proactively, before an uncertain event takes place, is of major importance in order to protect an organization.

The results of the second questionnaire (Figure 4) that was applied to the Branch offices of the industry do not have many changes as the Head offices. Head Offices culture are applied in Branch offices level. That is why the answers of the branch offices about the risk culture were similar with the main questionnaire answers. The data that provides the results for the branch offices' risk culture analysis is included at table 8 in the appendix

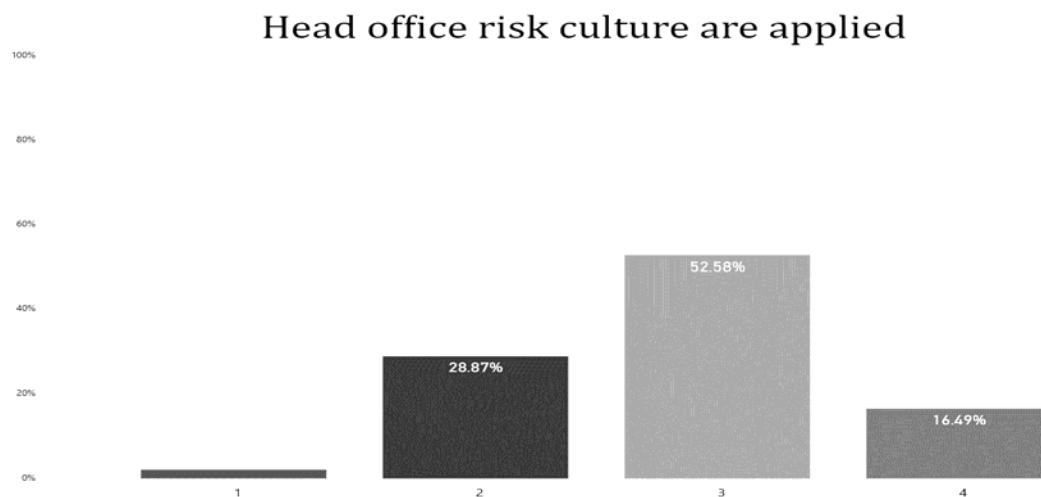


Figure 12. Risk culture in Branch Offices

More than the half of the branch offices described their culture as risk aware, as well as, they recognized the benefits of risk management in all the levels of their operations. An outcome of this secondary questionnaire is that Head offices involve in branches operation about risk and risk management.

One of the differences at the outcome of this questionnaire was the plans that are used in risk management.

Plans of Risk Management are used in every project

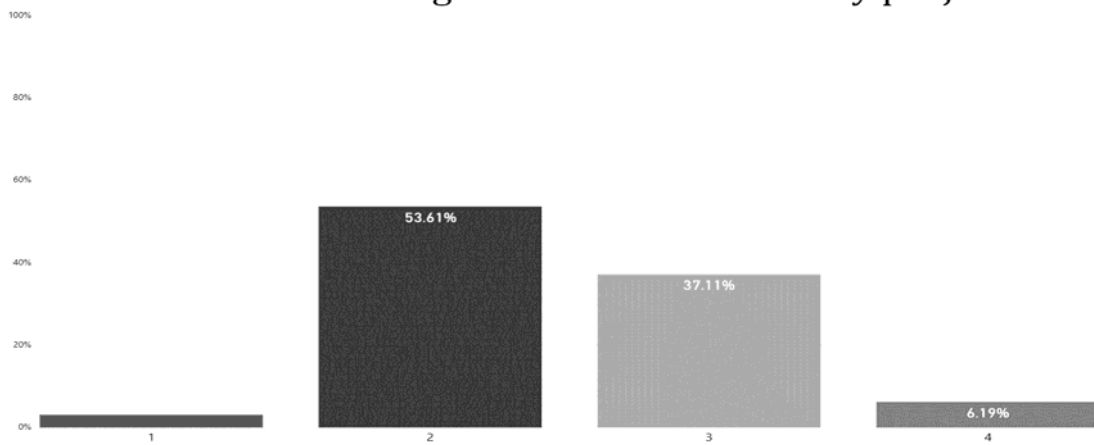


Figure 13. Plans that are used in every project in Branch offices

As we can see of the above graphic presentation 53% of branch offices does not use risk management plans in every project. That could be a result of the size of this offices. Most of these offices have a small number of employees and as a result the projects are not a lot or there is no time and money to implement risk management principles to every plan.

The problem of the adjustment of changes are bigger in a Branch office level. The revenues and the funds at the level of a small office are not that much to cover the new improvements and to follow up with the possible changes every time.

There is a receptive to change culture and continuously improvement

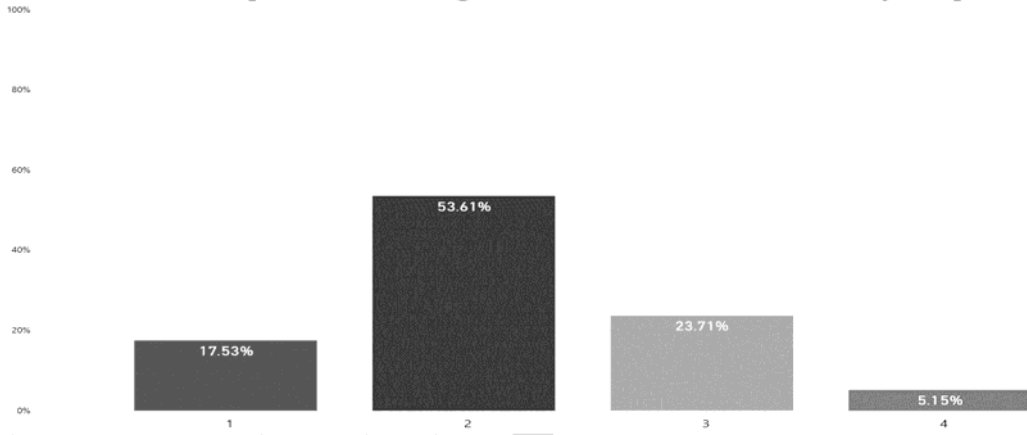


Figure 14. Receptive to change culture and continuously improvement in Branch Offices

5.3. Process

Process is another part of Hillon’s risk maturity model. This attribute characterizes how risk management process is used in organizational level. As Insurance industry is obliged to use risk management policies, there must be specific processes to be protected from risk. The data that provides the results of this section is included at table 4 in the appendix.

The answers that I received at this section allowed me to understand that there are systemized processes that are applied in most of the projects. This is a good aspect of the industry, as more than the half of the Organizations agreed that they use risk management process in projects.

Systemized processes of risk management are applied in every project

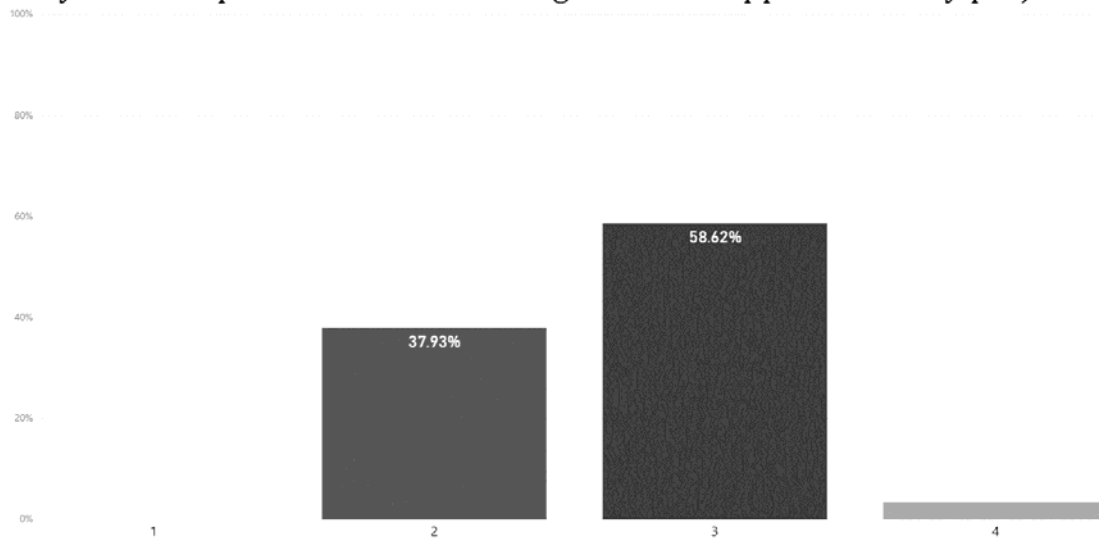
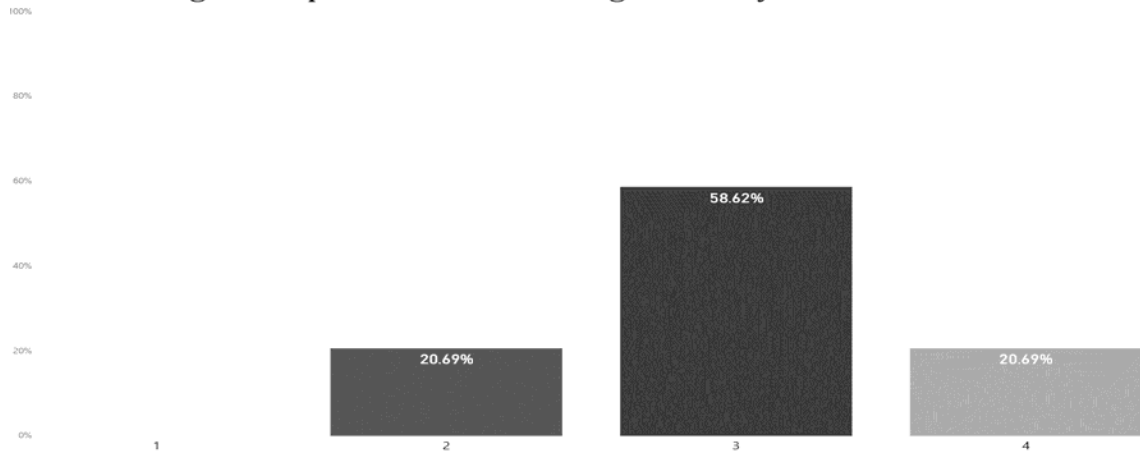


Figure 15. Head offices' answers about systemizes processes of risk management

The biggest part of this industry monitors their processes on a daily basis in order to be up to date and have better results by using risk management. They also update the process in order to be more compatible with the needs of the Organization and adjust their processes in order to be more protected from possible risks.

Risk Management process is monitoring on a daily basis for better results



There is a regular refreshing and updating process according to the needs of the organization

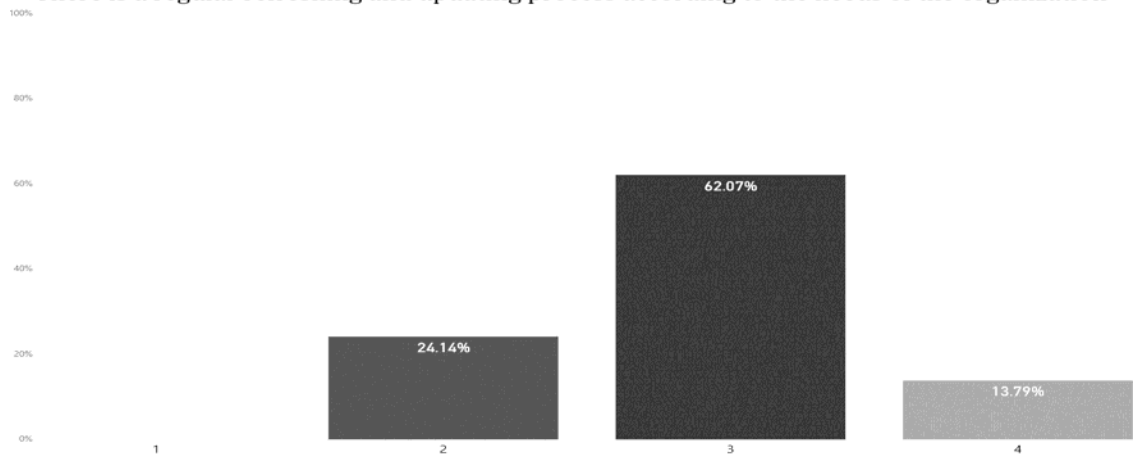


Figure 16. Risk management process about monitoring and updating according to the need of the organization

According to the sample and the data that I have collected from the answers received, more than 75% of the sample stated that there is no need of external support by risk management experts. Most of those organizations are using in-house team of experts that they are experienced, so the need of external support is low.

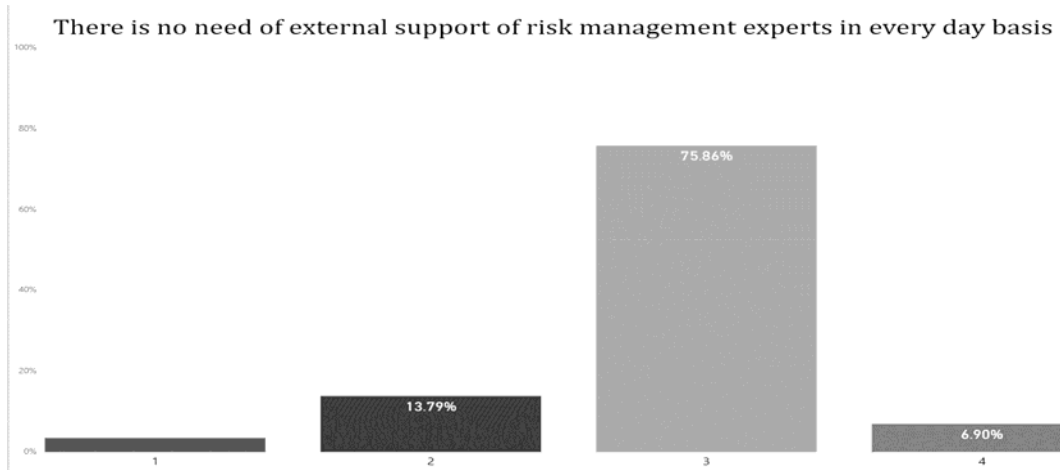


Figure 17. The need of external support in Head offices

Apart from the above, Insurance organizations agreed that they use risk metrics in every day procedures in order to get a feedback of how to improve their risk management practices in Organizational level.

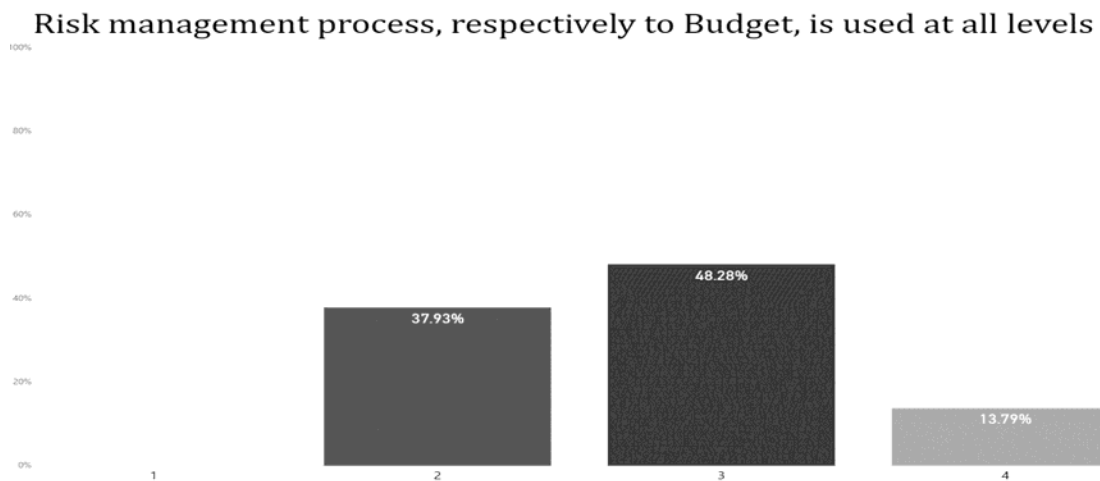
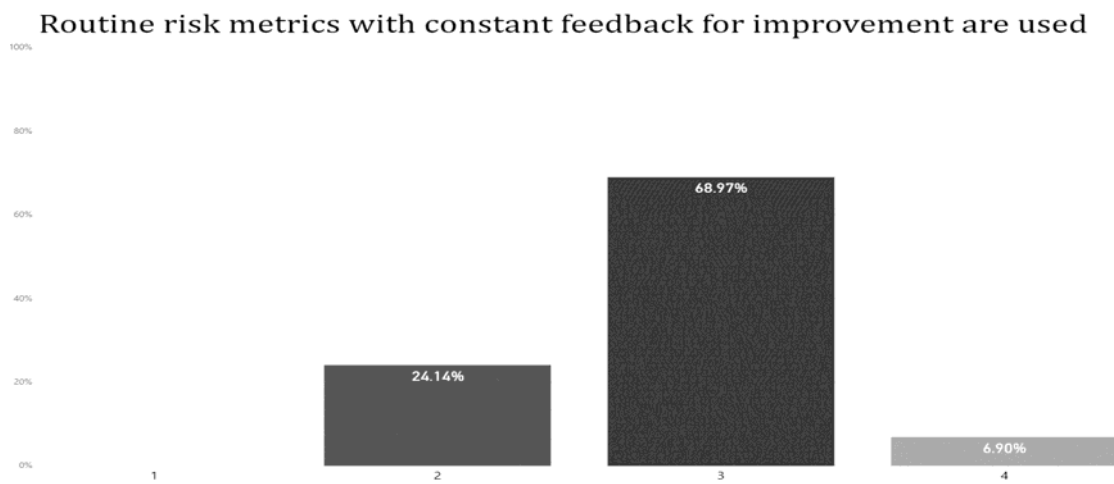


Figure 18. Routine risk metrics and about risk management respectively to Budget

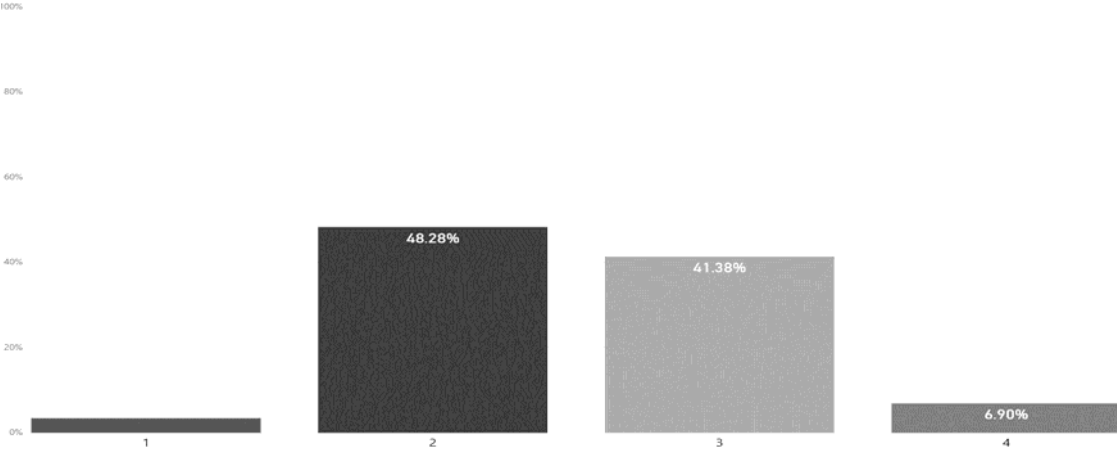
5.4. Experience

Experience is an important attribute that Dr. Hillson analyze to his paper. Hiring experienced employees in risk management, can provide the organization with a competitive advantage in the industry. If the member of risk management team is experienced in this field, it could be easier for them to detect a possible risk and find the way to eliminate it. Besides this, this team can also provide the organization with

more secure choices. The data that provides the results of this section is included at table 5 in the appendix

The results of this questionnaire about experience was not that impressive. 48% of the total disagreed that all the employees know what risk and the principles of risk management is, and only 41% of them are using the basic skills and knowledge of risk management to their ordinary working environment.

All the employees are aware about risk and the basic principles of risk management



All the employees are using the basic skills of risk management

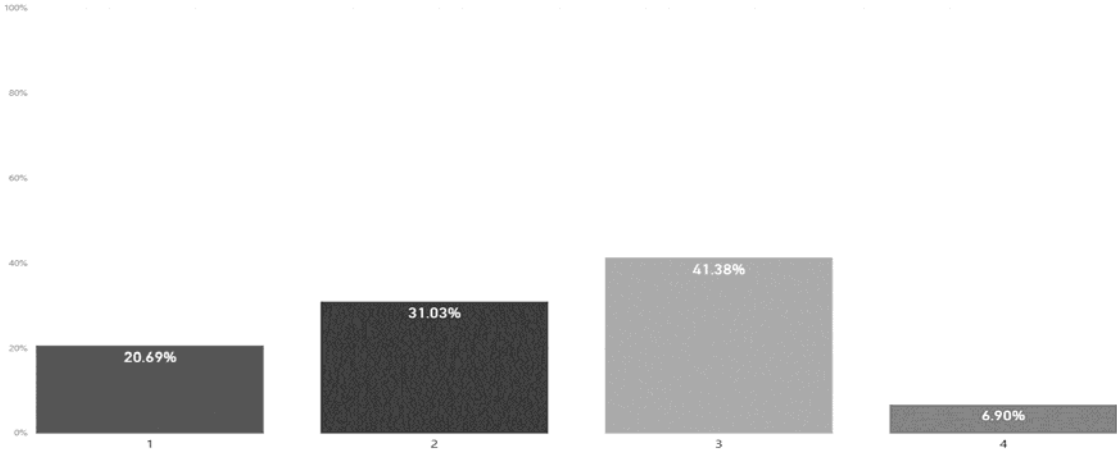


Figure 19. Awareness of the employees about risk and the use of basic skills of risk management from the employees

Due to financial crisis, Enterprises are not always able to train their staff according to risk trends. This could also be resulting from Greek economy being unstable and there are a lot of changes that occur in the internal or the external environment of our country. As a consequence of the above, 41% of the total sample disagrees with the statement “There is a formal and in a regular basis training of employees about ‘risk trends’”.

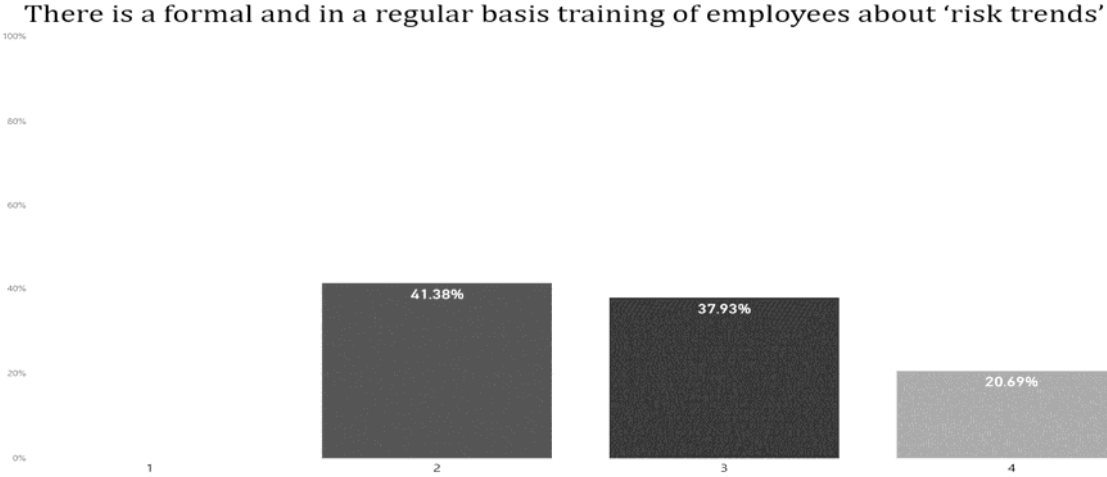


Figure 20. Training of employees about ‘risk trends’

65% of the organizations have an in- house core of experts. This is connected with the need of external support. As the organizations have their own team of experts the need of external support exists but it in a lowest level. It is important for this type of organizations to have them in- house team to handle every possible situation at the time that risk occurs. This is more direct and effective rather than the external support.

There is an in-house core of experts that handles risk

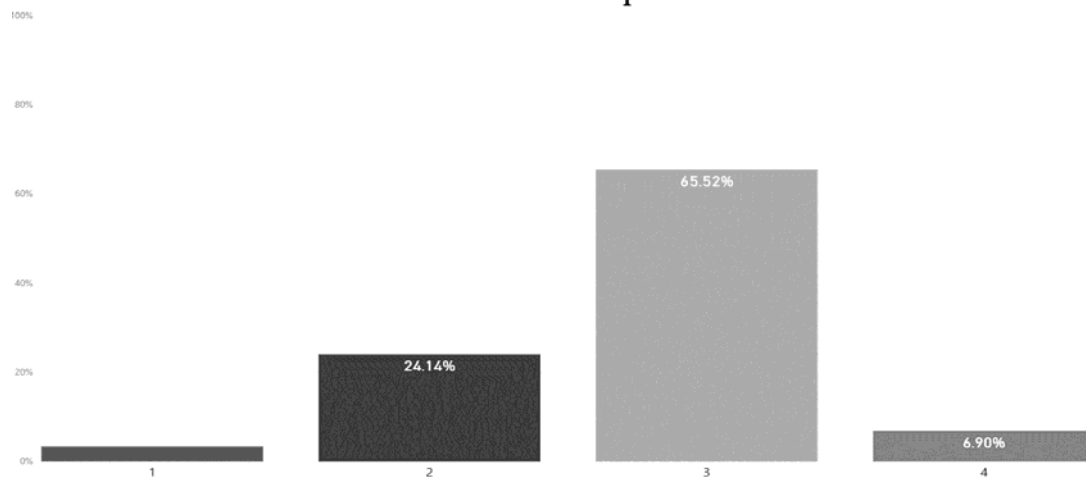


Figure 21. Existence of in-house core of experts

The specialization that Greek employees have, respectively to risk management, is not that much. Most of the Insurance organizations are using internal auditors to do this job and as a result their subject is different from Risk management. This could be defined from the answers that was received at the question if risk management team is capable to develop tools and processes, always respectively to risk management.

The answers that was received from the data collected were shared in half. Half of them agreed and half of the disagreed about it. As well as most of them, 50% disagree that the use of risk management experience could be a part of risk management process.

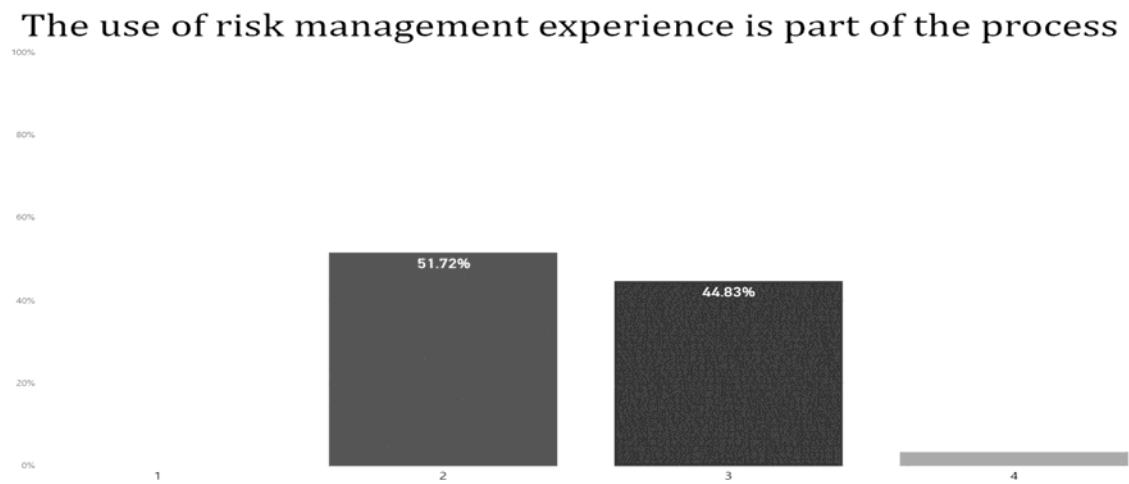
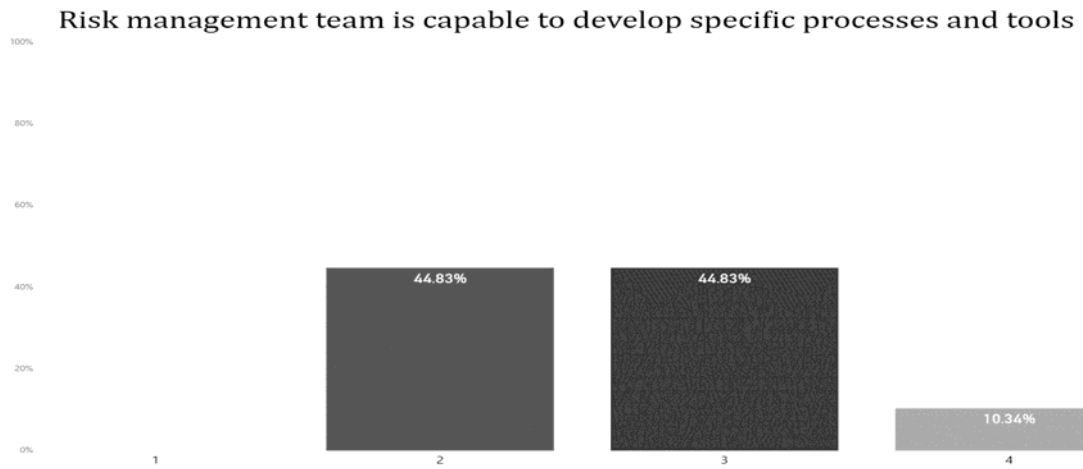


Figure 22. Risk management team capability to develop tools and processes and the use of risk management as a part of a process

The data that was collected from the second questionnaire (figure 4 in the appendix), that is provided in table.9 in the appendix, follows the same steps about experience as the Head Offices. It is remarkable that the sample is shared between level 2 and level 3.

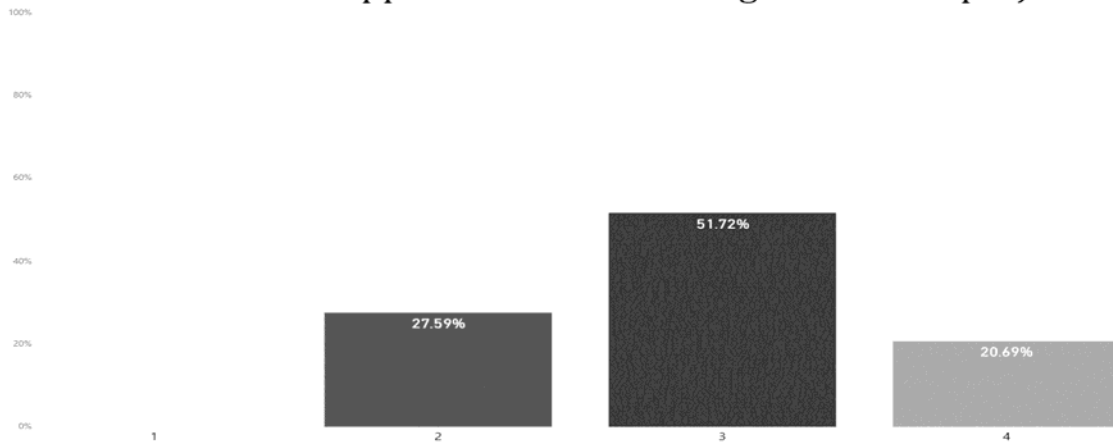
It is obvious that the lack of experience is something that the organization at this field should be worry about.

5.5. Application

The application of risk management is of high importance and meaning for Insurance Organizations. That is because this industry has to apply a set of guidance respectively to the Greek Law and authorities. The answers that are collected and are used in this section analysis are table 6 in the appendix.

More than 50% of the grand total of the sample states that the application of risk management frameworks and practices are applied to most of the projects and procedures.

Formal structured application of risk management to all projects



Risk ideas are applied to all of the organization procedures

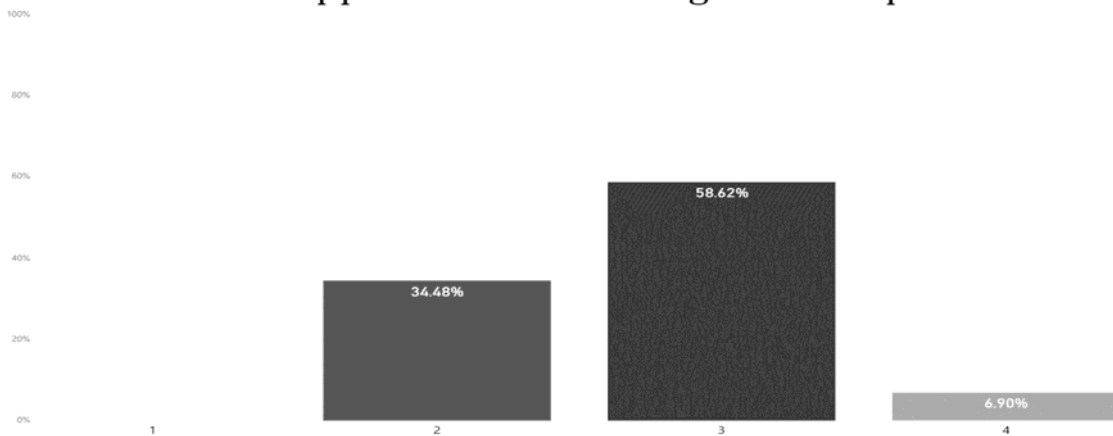


Figure 23. Formal structured application of risk management to projects and the application of risk ideas

41% of the sample has dedicated organizational resources, while approximately 55% use risk management tools and techniques in an ordinary basis. As Most of the organizations are foreign Branches, in most of the cases, the resources were provided from their mother company.

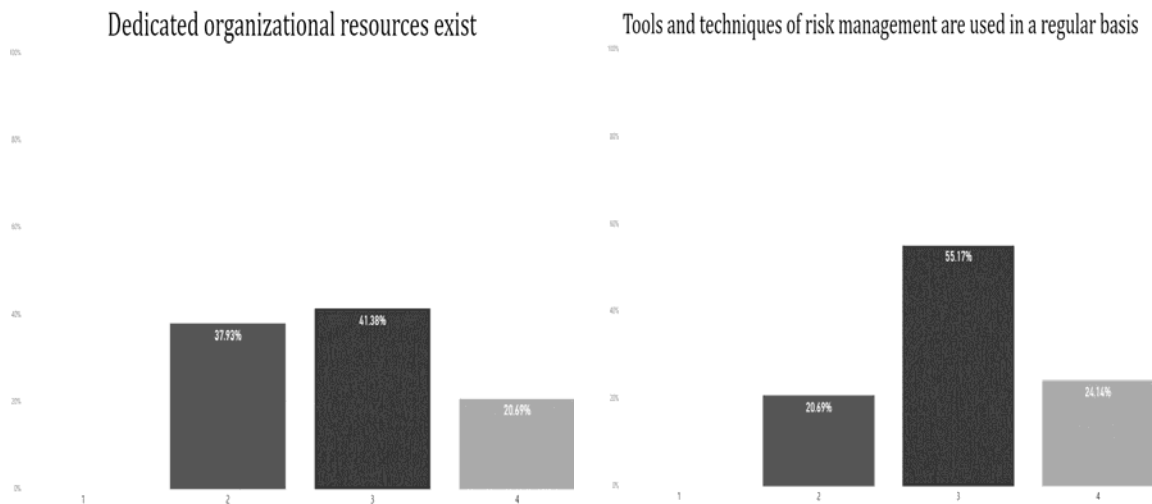


Figure 24. Dedicated organizational resources and about tools and techniques of risk management that are used

A great percentage of these organizations have adjusted their reports according to risk management thoughts. But, the most important part of an organization is the decision-making procedures. As the 55% of them are using information about risk in decision making.

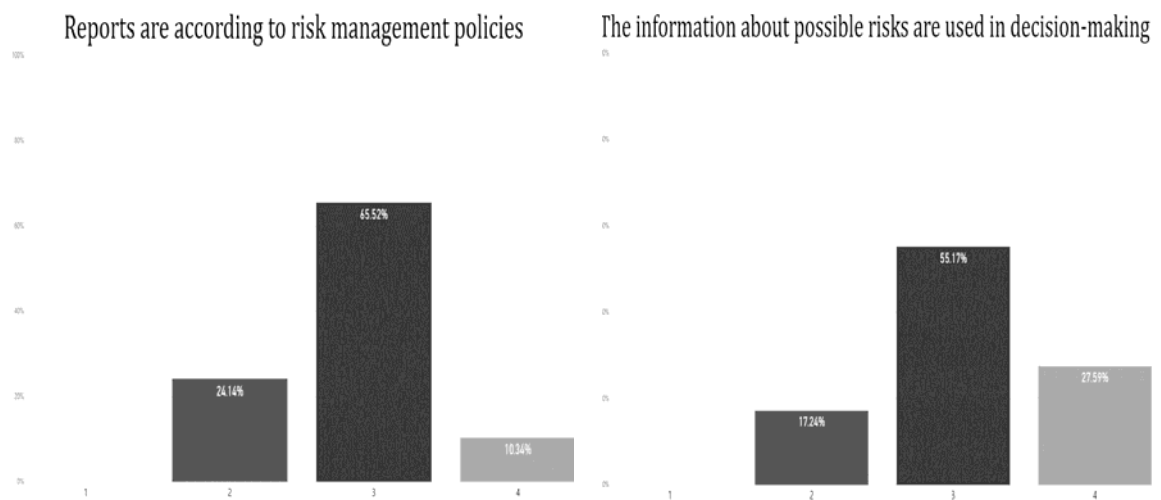


Figure 25. The use of risk management into reports and about the use of the information of risk management in decision- making

5.6. Maturity level analysis

The implementation of Hillson’s risk maturity model give as the final level of maturity, which is the level of how well Insurance industry is using Risk management Frameworks and principles.

My final results that are collected from the sample are presented to the below dashboard:

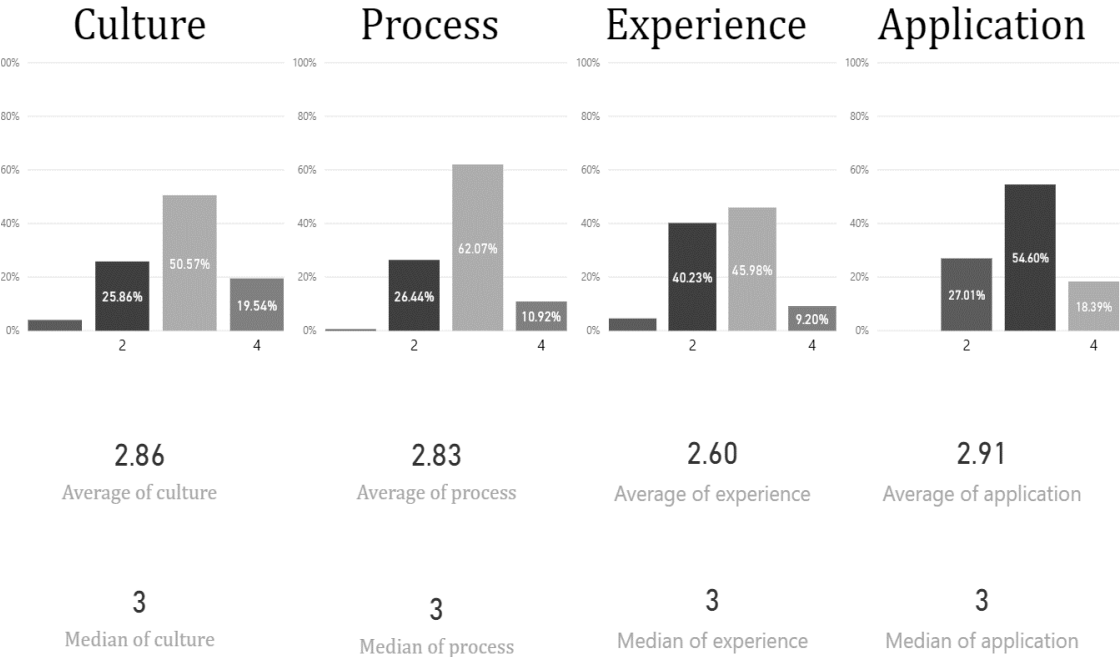


Figure 26. Final results about the data collected of Head Offices

The following diagram is the total results in Branch offices:

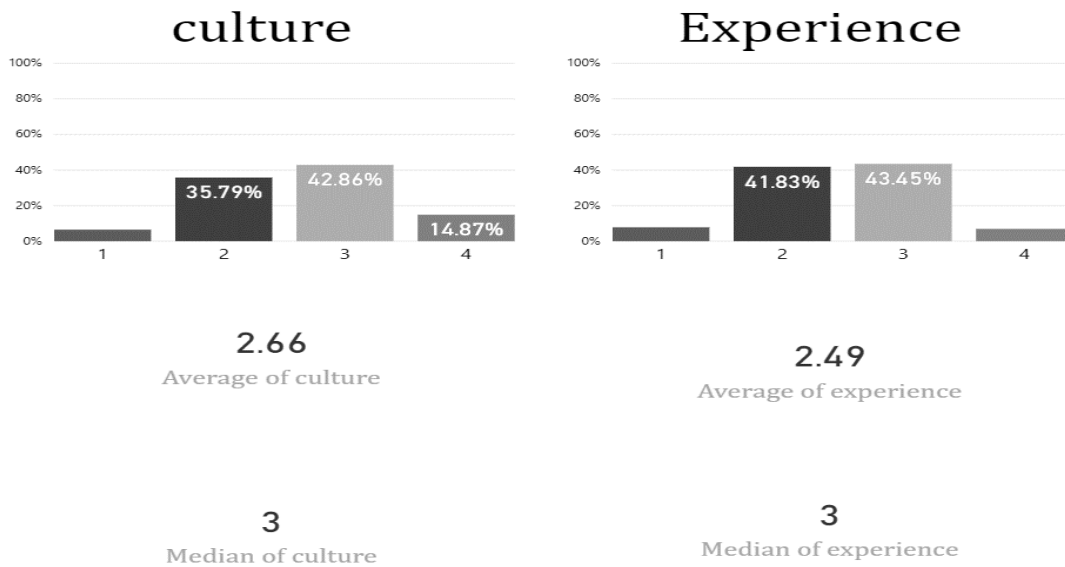


Figure 27. Final results about the data collected of Branch Offices

Insurance industry could be described to be at level 3, which referred as “Normalized”. At this phase, “Normalized” level, there is a clear evidence that risk management is being effective to most of the organization procedures and in all the relevant areas. Apart from this, a culture of risk management is widely known across the organization and the opportunities of using risk management are accepted.

Benefits of risk management are recognized and used in organizational level and they are used in most of their projects. There is a receptive to change culture at the head offices, but this element cannot be found at the branch offices as the results were opposite. A part that is impressive about risk management culture implementation, is that Head offices, having a specific culture in mind, influences the branches to follow the same principles as they do. However, Upper management take part in the procedures of risk management to ensure that approaches for addressing risk are being developed, as well as implemented in all relevant areas.

Greek Insurance organizations that exist in this field have a lower formal structured process that they follow in every day basis. One of the most important part of risk management is the monitoring procedure. At this field, this process is implemented and is used in order to provide information of how well risk management is implemented and if there are any adjustments that should be made. Organizational processes are well established, and the appropriate resources and tools are allocated. That means that there is formalized risk management process that are used in most or in every process.

Experience is the attribute that has the lowest value in this research. Most of the organizations have a in- house core of experts, so there is no need of the external support, but there is a lack experience staff that an organization can hire. It is normal for enterprises that have the most year presence in Greece, to be more experienced in risk management. The lack of experience can be seen also from the results in branch office's questionnaire. Most of the times, training an employee is not enough by itself. There should the possibility to use those techniques in practice by using specific tools.

Application have the best score from the questionnaire. The application of risk management practices is in a very good level as there are tools and techniques that are used in order to help the organization to achieve it goals. It is very important to use the results and the information of risk management implementation in decision-making procedures and through this acknowledge to help the managers of the organization to make the most appropriate options.

can provides the opportunity to increase awareness for a large portion of the organization.

5.7. How to move to the next level

As the research part and the visual presentation of the result has been finished, the final declaration is that the organizations that exists in this field, are according to Hillon's maturity model (Hillson,1997) at level 3 which is called "Normalized".

Through the analysis of this field, the use of risk management and risk management principles are used in most of the organization parts and the application and monitoring is a routine procedure for those Organizations.

But, as the scale of Hillson's maturity levels goes on, there is one more level after the "Normalized". There is always to possibility for further improvement, with the purpose to move from level 3 to level 4 which is called "Natural" (Hillson, 1997), in order to receive all the benefits of risk management principles. In level 4, which is the final level of this model, the organization could be able to manage all the procedures of risk management and monitor risks as a second- nature.

In order Insurance industry to be able to move from level 3 to level 4, it has a lot of work to do, as it is the most difficult transaction. That is because, Insurance industry organizations that belongs to level 3, is possible to believe that their implementation of risk management is fully compliance and there is no need to make any further adjustments or to take any further action. Besides this, the result of the data analysis has shown that a large amount of enterprises has in-house team of experts and the need of external support is low. This is a good aspect of the field, but it could mislead their choices. The procedures that they have design and implement in the organizational structure could be treated as the best option with no need of adjustments, and as a result they will not be able to have an objective judgement with their practices, and as

consequence, the owners will never notice the possible changes for a better risk management guideline. Moreover, the lack of budget and resources could result in the stability of the risk management tools that may cause the system to be out of date.

The first characteristic that Insurance organization have to re- think about is the experience of the staff the hire and the training programs that Organization owners provide to their staff. This attribute is the lowest of the field, and as there is much of experienced staff in labor market that are risk management experts, the Owners of those organizations have to re - think about the money they spend in training their staff and ensure that experience is a part of risk management process. Apart from this, in order to move on to the next level, Insurance organizations should invest to new tools, new methods and measurements that could exist. They have to think how to provide a more complete risk management framework to their organizations and how this could provide more information in decision making procedure. Finally, another attribute that is good to increase, if these organizations want to move on, is risk culture. A possible option could be to encourage their staff to think how to prevent a risk from occurring and what benefits those risk could provide them.

Certainly, it is very important, and that Greek Insurance industry is characterized at this level of maturity. The biggest part of this success is due to the fact that Insurance Organizations are obliged by the law to use a set of specific processes and adjust their reports, accordingly to risk management. However, the lack of risk management experience could be fatal for the field, and this situation could push the Organizations to take wrong choices. Insurance organization, as they have to face various risks every day, it could be easy for them to make a wrong choice and, as a consequence, to move backwards to level 2. So, it is very important for them to protect what they have achieved until today and upgrade and rethink about the attributes that are in the lowest levels which are experience and process.

Chapter 6

Conclusion

Nowadays, as we live in a world that changes in a very fast pace and it is full of possible risks and crisis, the best option for an organization is to be prepared to face those risks and be aware of the effects of those risks, to define which risks are worthy to take, respectively to organization's goals. The sort history of risk management has shown how important it is for organizations. The environment in which organization operates is rapidly becoming more and more complex every day due to Major technological changes and the constant changes int the business scenario.

Chinese Symbols for risk consist of two symbols, one for danger and one for opportunity. That means that we should see the bright side of the possible risks and use them as an advantage for a company. Risk is a situation that should be managed in a very specific way in order to take what is good from it, and the knowledge to go through with all those changes. So, it is important for the organization's operation to understand what risk is, what are the good aspects of risks and how to protect an organization from risk exposure. Organizations who are serious about what continuous improvement can provide to them, review their plans properly to see what they can learn from them and use the knowledge of the past to improve their future.

A helpful tool that can be implemented in an organization is Risk maturity models. Risk Maturity models provide a set of indicators and characterize them according to the levels of maturity. Risk maturity models compares practices and process in order to

identify the possible area of improvement. Surely, organizations that are more mature have a better advantage and a bigger share in the market nowadays. This important tool could help the owners of an organization to define their needs and develop strategic risk management plans, use the knowledge of the past from improving the future and gain as much as experience as they could in order to be ready to eliminate any possible hazard.

There is always the possibility for further improvement, in every field, in every situation that an organization or an individual could face. The uncertainty and the stability is not an option, in order to improve and get a better future for everyone.

Chapter 7

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Chapter 8

Appendix

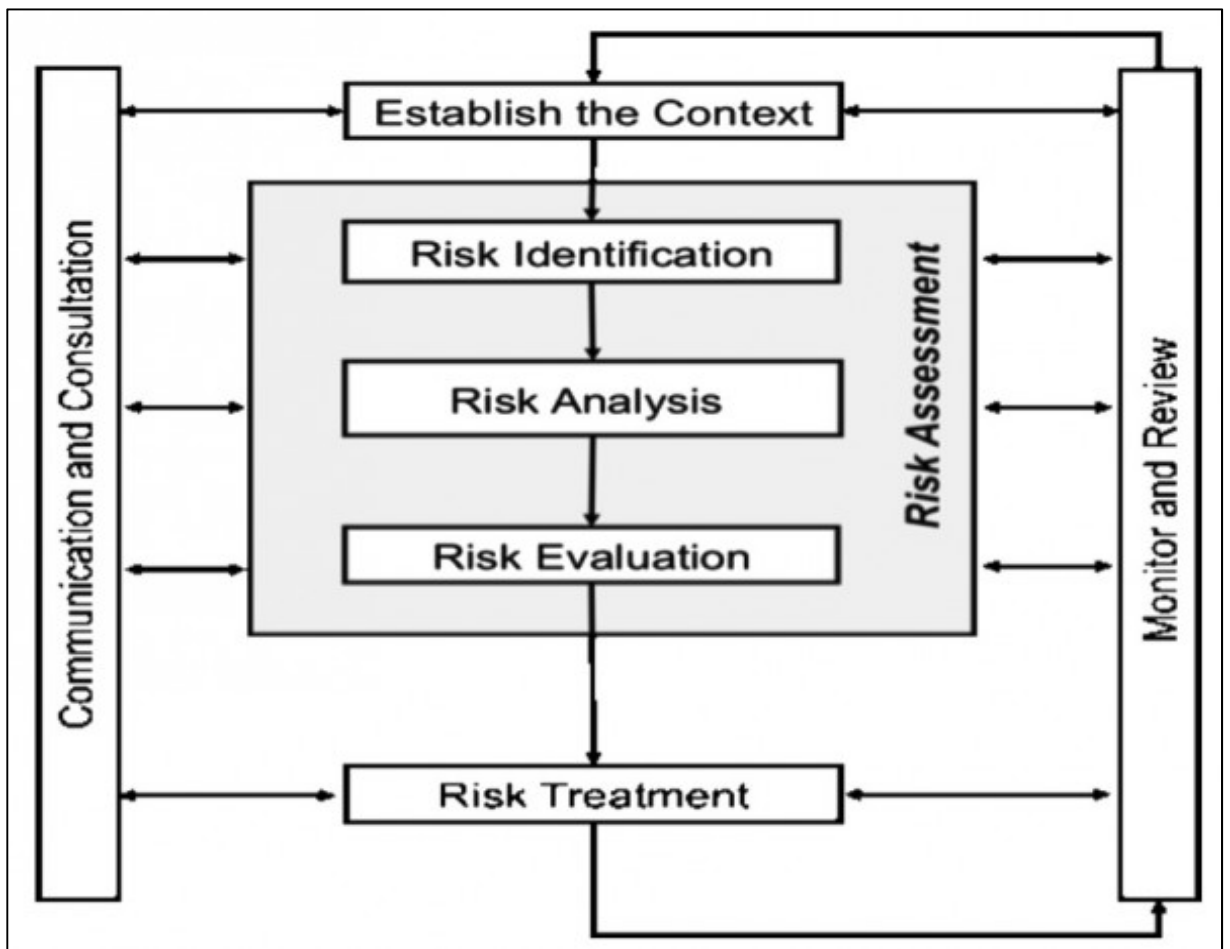


Figure 1. ISO 31000. Retrieved from: <https://www.iso.org>

| Name | Year | Brief Description |
|--|------|---|
| Black-Scholes | 1973 | Estimation of a price of an option and shows that every option has a unique price regardless of the risk and its expected return |
| VaR (Value-at-Risk) | 1987 | A measure of the risk of loss for investments. It estimates how much a set of investments might lose with a given probability, given normal market conditions, in a set time period such as a day |
| SEI's Continuous Risk Management (CRM) model | 1996 | Pay attention at all stages of risk identification and management, risk management, it is divided into five sections repeated cycle: identification, analysis, planning, tracking and control. |
| IEEE risk management standards | 2009 | It defines the risk management process is a continuous process, which systematically describe and manage the software development life cycle, including the following activities: planning and implementation of risk management, managing project risk list, risk analysis, monitoring risk, address risk, assessing risk management process |

Table 1. Risk Management Models

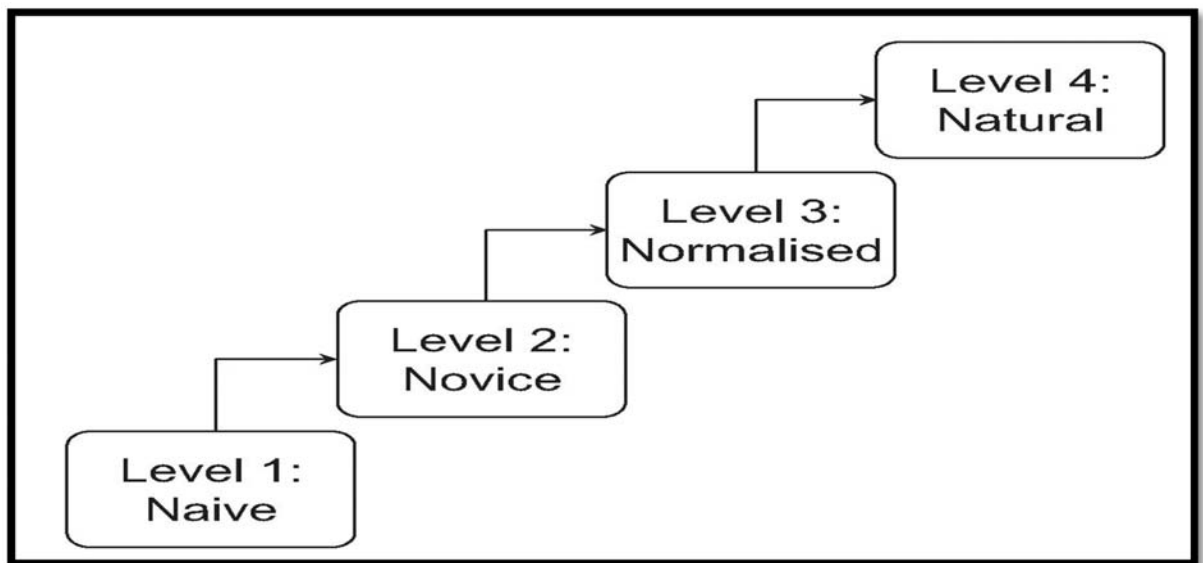


Figure 2. Hillson's levels of maturity (Hopkinson,2011)

Risk Maturity Model questionnaire

Dear Sir or Madam,
 Thank you in advance for your time for answering my questionnaire. Your answers are very important for my research respectively to risk management procedures and risk maturity models. The data collected from your answers will be used for research purposes only. All your answers are confidential and anonymous.
 Please answer all the questions included in the most appropriate way.

Kind regards,
 Elpida Christoforou
 MSs Student
 Program: Enterprise Risk Management

| General Information | Answers |
|--|--|
| 1. Is your Organization a Foreign branch? | 1.Yes 2.No |
| 2. Size of organization | 1. 1-10 employees 2. 11-50 employees 3. 51-100 employees 4. > 101 employees |
| 3.Number of Branch offices in Greece | 1. 1-5 2. 6-10 3. >10 |
| 4.Number of years Organization has been in operation | 1. 0-10 2. 11-20 3. >20 |

| Culture | Answers |
|---|--|
| Please rate the following statements in a scale from 1 to 4, according to your Organization's Risk Management Culture | |
| 1. The organization's culture can be described as risk aware | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 2. Risk Management benefits are recognized in organizational level | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 3. Plans of Risk Management are used in every project | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 4. Upper Management involvement in Risk procedures exists | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 5. There is a receptive to change culture and continuously improvement | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 6. Tendency to act proactively to risk | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

| Process | Answers |
|---|--|
| Please rate the following statements in a scale from 1 to 4, according to your Organization's Risk Management Process | |
| 1. Systemized processes of risk management are applied in every project | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 2. Risk Management process is monitoring on a daily basis for better results | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

| | |
|--|--|
| 3. There is a regular refreshing and updating process according to the needs of the organization | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 4. There is no need of external support of risk management experts in every day basis | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 5. Routine risk metrics with constant feedback for improvement are used | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 6. Risk management process, respectively to Budget, is used at all levels | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

| Experience | Answers |
|--|--|
| Please rate the following statements in a scale from 1 to 4, according to your Organization's Risk Management experience | |
| 1. All the employees are aware about risk and the basic principles of risk management | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 2. All the employees are using the basic skills of risk management | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 3. There is a formal and in a regular basis training of employees about 'risk trends' | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 4. There is an in-house core of experts that handles risk | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 5. Risk management team is capable to develop specific processes and tools | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 6. The use of risk management experience is part of the process | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

| Application | Answers |
|---|--|
| Please rate the following statements in a scale from 1 to 4, according to your Organization's Risk Management application | |
| 1. Formal structured application of risk management to all projects | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 2. Risk ideas are applied to all of the organization procedures | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 3. Dedicated organizational resources exist | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 4. Tools and techniques of risk management are used in a regular basis | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

| | |
|---|--|
| 5. Reports are according to risk management policies | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 6. The information about possible risks are used in decision-making | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

End of questionnaire
Please submit your answers

Figure 3. Questionnaire of risk maturity model for Head Offices.

Risk Maturity Model questionnaire (Branches edition)

Dear Sir or Madam,
Thank you in advance for your time for answering my questionnaire. Your answers are very important for my research respectively to risk management procedures and risk maturity models. The data collected from your answers will be used for research purposes only. All your answers are confidential and anonymous.
Please answer all the questions included in the most appropriate way.

Kind regards,
Elpida Christoforou
MSs Student
Program: Enterprise Risk Management

| General Information | Answers |
|--|--|
| 1. Is your Branch belongs to Foreign organization? | 1.Yes 2.No |
| 2. Size of Branch office | 1. 1-10 employees 2. 11-50 employees 3. 51-100 employees 4. > 101 employees |
| 3.Number of years Organization has been in operation | 1. 0-10 2. 1-20 3. >20 |

| Culture | Answers |
|---|--|
| Please rate the following statements in a scale from 1 to 4, according to your Organization's Risk Management Culture | |
| 1. The Branch's culture can be described as risk aware | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 2. Risk Management benefits are recognized in office level | 1. Strongly Disagree 2. Disagree |

| | |
|--|--|
| | 3. Agree 4. Strongly Agree |
| 3. Plans of Risk Management are used in every project | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 4. Head offices involvement in Risk procedures exists | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 5. There is a receptive to change culture and continuously improvement | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 6. Tendency to act proactively to risk | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 7. Head office risk culture are applied | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

| Experience | Answers |
|--|--|
| Please rate the following statements in a scale from 1 to 4, according to your Organization's Risk Management experience | |
| 1. All the employees are aware about risk and the basic principles of risk management | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 2. All the employees are using the basic skills of risk management | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 3. There is a formal and in a regular basis training of employees about 'risk trends' | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 4. head office provide with in-house experts of risk management | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 5. Risk management team is capable to develop specific processes and tools | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 6. The use of risk management experience is part of the process | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |
| 7. Head Office provides with training programs | 1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree |

End of questionnaire
Please submit your answers

Figure 4. Questionnaire of risk maturity model for Branch Offices.

| General Information | | | | |
|---------------------|---|-------------------------|---------------------------------------|---|
| A/A | 1. Is your Organization a Foreign branch? | 2. Size of organization | 3. Number of Branch offices in Greece | 4. Number of years Organization has been in operation |
| 1 | No | > 101 employees | >10 | >20 |
| 2 | No | 51-100 employees | 1-5 | 11-20 |
| 3 | No | 51-100 employees | 1-5 | 0-10 |
| 4 | No | > 101 employees | >10 | >20 |
| 5 | yes | > 101 employees | 1-5 | >20 |
| 6 | yes | > 101 employees | >10 | >20 |
| 7 | No | 51-100 employees | 6-10 | >20 |
| 8 | No | > 101 employees | 1-5 | >20 |
| 9 | No | > 101 employees | 1-5 | >20 |
| 10 | Yes | > 101 employees | 1-5 | 11-20 |
| 11 | Yes | 51-100 employees | >10 | >20 |
| 12 | Yes | 11-50 employees | 1-5 | 0-10 |
| 13 | Yes | 51-100 employees | >10 | >20 |
| 14 | Yes | 51-100 employees | >10 | 11-20 |
| 15 | Yes | > 101 employees | 1-5 | >20 |
| 16 | Yes | > 101 employees | >10 | >20 |
| 17 | Yes | > 101 employees | >10 | >20 |
| 18 | Yes | 11-50 employees | 1-5 | 11-20 |
| 19 | Yes | 1-10 employees | 1-5 | 0-10 |
| 20 | Yes | > 101 employees | >10 | >20 |
| 21 | Yes | > 101 employees | >10 | >20 |
| 22 | Yes | 11-50 employees | 1-5 | >20 |
| 23 | Yes | > 101 employees | 1-5 | >20 |

| | | | | |
|----|-----|------------------|------|-------|
| 24 | Yes | > 101 employees | >10 | >20 |
| 25 | Yes | > 101 employees | >10 | >20 |
| 26 | Yes | 51-100 employees | 6-10 | 11-20 |
| 27 | Yes | > 101 employees | 1-5 | >20 |
| 28 | Yes | > 101 employees | >10 | >20 |
| 29 | Yes | > 101 employees | >10 | >20 |

Table 2. Data collected from the answers of General information of Head offices

| A/A | Culture | | | | | |
|-----|--|--|---|---|--|--|
| | 1. The organization's culture can be described as risk aware | 2. Risk Management benefits are recognized in organizational level | 3. Plans of Risk Management are used in every project | 4. Upper Management involvement in Risk procedures exists | 5. There is a receptive to change culture and continuously improvement | 6. Tendency to act proactively to risk |
| 1 | 2 | 2 | 3 | 3 | 3 | 2 |
| 2 | 4 | 3 | 2 | 2 | 2 | 3 |
| 3 | 2 | 2 | 1 | 2 | 2 | 2 |
| 4 | 3 | 3 | 3 | 2 | 3 | 3 |
| 5 | 4 | 3 | 4 | 3 | 3 | 2 |
| 6 | 3 | 3 | 3 | 3 | 4 | 3 |
| 7 | 3 | 4 | 3 | 3 | 1 | 2 |
| 8 | 3 | 3 | 4 | 3 | 3 | 3 |
| 9 | 1 | 3 | 3 | 2 | 2 | 2 |
| 10 | 3 | 3 | 3 | 3 | 3 | 3 |
| 11 | 3 | 2 | 3 | 3 | 2 | 2 |
| 12 | 2 | 2 | 2 | 3 | 2 | 2 |
| 13 | 3 | 3 | 4 | 3 | 3 | 2 |
| 14 | 3 | 4 | 3 | 3 | 2 | 2 |
| 15 | 4 | 4 | 4 | 4 | 3 | 3 |
| 16 | 1 | 3 | 3 | 4 | 3 | 3 |
| 17 | 3 | 3 | 1 | 4 | 2 | 2 |
| 18 | 2 | 3 | 3 | 3 | 2 | 2 |
| 19 | 2 | 2 | 3 | 3 | 2 | 2 |
| 20 | 3 | 3 | 4 | 3 | 2 | 4 |

| | | | | | | |
|----|---|---|---|---|---|---|
| 21 | 4 | 3 | 4 | 4 | 4 | 3 |
| 22 | 3 | 4 | 4 | 4 | 2 | 3 |
| 23 | 4 | 3 | 4 | 3 | 2 | 1 |
| 24 | 4 | 3 | 3 | 3 | 2 | 3 |
| 25 | 3 | 3 | 3 | 4 | 2 | 2 |
| 26 | 3 | 3 | 1 | 3 | 3 | 4 |
| 27 | 4 | 3 | 3 | 3 | 3 | 3 |
| 28 | 4 | 4 | 4 | 4 | 2 | 2 |
| 29 | 4 | 3 | 3 | 3 | 3 | 3 |

Table 3. Answers about risk Culture of Head offices

| | Process | | | | | |
|-----|---|--|--|---|---|---|
| A/A | 1. Systemized processes of risk management are applied in every project | 2. Risk Management process is monitoring on a daily basis for better results | 3. There is a regular refreshing and updating process according to the needs of the organization | 4. There is no need of external support of risk management experts in every day basis | 5. Routine risk metrics with constant feedback for improvement are used | 6. Risk management process, respectively to Budget, is used at all levels |
| 1 | 3 | 4 | 3 | 3 | 3 | 3 |
| 2 | 2 | 2 | 3 | 3 | 3 | 2 |
| 3 | 2 | 2 | 2 | 2 | 3 | 2 |
| 4 | 3 | 4 | 3 | 3 | 2 | 3 |
| 5 | 3 | 3 | 2 | 3 | 3 | 3 |
| 6 | 3 | 4 | 4 | 3 | 3 | 4 |
| 7 | 2 | 3 | 2 | 3 | 3 | 2 |
| 8 | 3 | 3 | 3 | 3 | 3 | 3 |
| 9 | 3 | 3 | 4 | 3 | 3 | 4 |
| 10 | 2 | 3 | 4 | 4 | 4 | 2 |
| 11 | 2 | 2 | 2 | 3 | 2 | 2 |
| 12 | 2 | 2 | 2 | 1 | 2 | 2 |
| 13 | 3 | 2 | 3 | 2 | 2 | 3 |
| 14 | 3 | 3 | 3 | 3 | 4 | 3 |
| 15 | 3 | 3 | 2 | 2 | 2 | 3 |
| 16 | 3 | 3 | 4 | 4 | 3 | 3 |
| 17 | 2 | 3 | 3 | 3 | 3 | 2 |

| | | | | | | |
|----|---|---|---|---|---|---|
| 18 | 2 | 3 | 3 | 3 | 3 | 2 |
| 19 | 2 | 2 | 3 | 3 | 3 | 2 |
| 20 | 3 | 4 | 3 | 3 | 3 | 4 |
| 21 | 4 | 3 | 3 | 3 | 3 | 4 |
| 22 | 3 | 4 | 3 | 3 | 3 | 3 |
| 23 | 2 | 3 | 3 | 3 | 2 | 2 |
| 24 | 3 | 3 | 2 | 3 | 2 | 2 |
| 25 | 3 | 4 | 3 | 3 | 3 | 3 |
| 26 | 2 | 3 | 3 | 2 | 3 | 3 |
| 27 | 3 | 3 | 3 | 3 | 3 | 3 |
| 28 | 3 | 3 | 3 | 3 | 3 | 3 |
| 29 | 3 | 3 | 3 | 3 | 3 | 3 |

Table 4. Data collected from the answers about Risk process of Head offices

| Experience | | | | | | |
|------------|---|--|---|---|--|---|
| A/A | 1. All the employees are aware about risk and the basic principles of risk management | 2. All the employees are using the basic skills of risk management | 3. There is a formal and in a regular basis training of employees about 'risk trends' | 4. There is an in-house core of experts that handles risk | 5. Risk management team is capable to develop specific processes and tools | 6. The use of risk management experience is part of the process |
| 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| 2 | 2 | 2 | 3 | 1 | 3 | 3 |
| 3 | 2 | 2 | 3 | 3 | 3 | 2 |
| 4 | 3 | 3 | 3 | 2 | 3 | 3 |
| 5 | 3 | 2 | 3 | 3 | 2 | 2 |
| 6 | 4 | 3 | 4 | 3 | 4 | 4 |
| 7 | 3 | 2 | 2 | 3 | 2 | 2 |
| 8 | 2 | 3 | 2 | 2 | 2 | 3 |
| 9 | 2 | 1 | 2 | 3 | 2 | 3 |
| 10 | 3 | 3 | 3 | 3 | 4 | 3 |
| 11 | 2 | 1 | 3 | 2 | 3 | 3 |
| 12 | 2 | 2 | 2 | 3 | 2 | 2 |
| 13 | 4 | 3 | 2 | 3 | 2 | 3 |
| 14 | 3 | 3 | 4 | 4 | 3 | 3 |
| 15 | 3 | 1 | 4 | 3 | 4 | 3 |
| 16 | 2 | 2 | 2 | 2 | 2 | 2 |

| | | | | | | |
|----|---|---|---|---|---|---|
| 17 | 3 | 2 | 2 | 3 | 3 | 2 |
| 18 | 2 | 3 | 3 | 3 | 3 | 2 |
| 19 | 2 | 1 | 3 | 3 | 2 | 2 |
| 20 | 3 | 3 | 4 | 3 | 3 | 3 |
| 21 | 3 | 4 | 3 | 3 | 3 | 3 |
| 22 | 3 | 4 | 4 | 4 | 3 | 3 |
| 23 | 3 | 3 | 2 | 3 | 3 | 2 |
| 24 | 2 | 3 | 4 | 3 | 3 | 3 |
| 25 | 2 | 2 | 2 | 2 | 2 | 2 |
| 26 | 3 | 3 | 2 | 3 | 3 | 2 |
| 27 | 2 | 3 | 3 | 3 | 2 | 2 |
| 28 | 2 | 1 | 3 | 2 | 2 | 2 |
| 29 | 2 | 1 | 2 | 3 | 2 | 2 |

Table 5. Data collected from the answers about experience of Head offices

| | Application | | | | | |
|-----|---|---|---|--|--|---|
| A/A | 1. Formal structured application of risk management to all projects | 2. Risk ideas are applied to all of the organization procedures | 3. Dedicated organizational resources exist | 4. Tools and techniques of risk management are used in a regular basis | 5. Reports are according to risk management policies | 6. The information about possible risks are used in decision-making |
| 1 | 3 | 2 | 3 | 3 | 3 | 3 |
| 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| 3 | 2 | 2 | 3 | 2 | 2 | 2 |
| 4 | 4 | 3 | 3 | 3 | 3 | 3 |
| 5 | 2 | 3 | 3 | 3 | 3 | 3 |
| 6 | 3 | 2 | 4 | 3 | 3 | 3 |
| 7 | 3 | 2 | 2 | 3 | 3 | 2 |
| 8 | 3 | 3 | 3 | 2 | 3 | 3 |
| 9 | 3 | 3 | 2 | 3 | 2 | 4 |
| 10 | 2 | 3 | 4 | 4 | 4 | 3 |
| 11 | 4 | 2 | 2 | 3 | 2 | 3 |
| 12 | 3 | 3 | 2 | 3 | 3 | 3 |
| 13 | 2 | 2 | 3 | 3 | 2 | 4 |
| 14 | 4 | 2 | 3 | 2 | 4 | 3 |
| 15 | 4 | 2 | 3 | 4 | 4 | 4 |
| 16 | 3 | 3 | 3 | 4 | 3 | 4 |

| | | | | | | |
|----|---|---|---|---|---|---|
| 17 | 2 | 3 | 4 | 3 | 3 | 3 |
| 18 | 2 | 2 | 3 | 4 | 3 | 4 |
| 19 | 2 | 3 | 2 | 2 | 2 | 2 |
| 20 | 3 | 3 | 4 | 3 | 3 | 4 |
| 21 | 3 | 4 | 3 | 3 | 3 | 3 |
| 22 | 4 | 4 | 2 | 3 | 3 | 4 |
| 23 | 3 | 3 | 3 | 2 | 3 | 2 |
| 24 | 4 | 2 | 4 | 3 | 3 | 4 |
| 25 | 3 | 3 | 4 | 3 | 3 | 3 |
| 26 | 2 | 3 | 2 | 2 | 2 | 2 |
| 27 | 3 | 3 | 2 | 4 | 3 | 3 |
| 28 | 3 | 3 | 2 | 4 | 2 | 3 |
| 29 | 3 | 3 | 2 | 4 | 3 | 3 |

Table 6. Data collected from the answers about risk application of Head offices

| General Information | | | |
|---------------------|--|--------------------------|--|
| A/A | 1. Is your Branch belongs to Foreign organization? | 2. Size of Branch office | 3.Number of years Organization has been in operation |
| 1 | No | 11-50 employees | >20 |
| 2 | Yes | 1-10 employees | 0-10 |
| 3 | Yes | 11-50 employees | >20 |
| 4 | No | 1-10 employees | >20 |
| 5 | Yes | 11-50 employees | >20 |
| 6 | Yes | 11-50 employees | 11-20 |
| 7 | Yes | 1-10 employees | >20 |
| 8 | Yes | 11-50 employees | >20 |
| 9 | No | 11-50 employees | 11-20 |
| 10 | No | 1-10 employees | 0-10 |
| 11 | No | 11-50 employees | 0-10 |
| 12 | Yes | 11-50 employees | 0-10 |
| 13 | Yes | 1-10 employees | >20 |
| 14 | Yes | 11-50 employees | >20 |
| 15 | Yes | 11-50 employees | 11-20 |

| | | | |
|----|-----|------------------|-------|
| 16 | Yes | 11-50 employees | 0-10 |
| 17 | Yes | 11-50 employees | >20 |
| 18 | Yes | 11-50 employees | >20 |
| 19 | No | 1-10 employees | >20 |
| 20 | Yes | 1-10 employees | >20 |
| 21 | Yes | 11-50 employees | 11-20 |
| 22 | Yes | 11-50 employees | 0-10 |
| 23 | Yes | 11-50 employees | 11-20 |
| 24 | Yes | 1-10 employees | 11-20 |
| 25 | Yes | 11-50 employees | 11-20 |
| 26 | Yes | 11-50 employees | 0-10 |
| 27 | Yes | 51-100 employees | >20 |
| 28 | Yes | 1-10 employees | >20 |
| 29 | Yes | 11-50 employees | 11-20 |
| 30 | Yes | 1-10 employees | >20 |
| 31 | Yes | 11-50 employees | >20 |
| 32 | Yes | 11-50 employees | >20 |
| 33 | Yes | 11-50 employees | 11-20 |
| 34 | Yes | 1-10 employees | 11-20 |
| 35 | Yes | 1-10 employees | 0-10 |
| 36 | Yes | 11-50 employees | 11-20 |
| 37 | Yes | 11-50 employees | 11-20 |
| 38 | Yes | 11-50 employees | 11-20 |
| 39 | Yes | 51-100 employees | 0-10 |
| 40 | Yes | 11-50 employees | >20 |
| 41 | Yes | 11-50 employees | >20 |
| 42 | Yes | 51-100 employees | 11-20 |
| 43 | Yes | 1-10 employees | >20 |
| 44 | Yes | 1-10 employees | 11-20 |
| 45 | Yes | 11-50 employees | 0-10 |
| 46 | Yes | 11-50 employees | >20 |
| 47 | Yes | 11-50 employees | >20 |
| 48 | Yes | 11-50 employees | >20 |
| 49 | Yes | 11-50 employees | 11-20 |
| 50 | Yes | 1-10 employees | 11-20 |
| 51 | Yes | 1-10 employees | >20 |
| 52 | Yes | 11-50 employees | >20 |
| 53 | Yes | 11-50 employees | 11-20 |
| 54 | Yes | 11-50 employees | >20 |

| | | | |
|----|-----|------------------|-------|
| 55 | No | 11-50 employees | >20 |
| 56 | Yes | 11-50 employees | 11-20 |
| 57 | Yes | 51-100 employees | 0-10 |
| 58 | No | 51-100 employees | >20 |
| 59 | Yes | 1-10 employees | >20 |
| 60 | Yes | 1-10 employees | >20 |
| 61 | Yes | 1-10 employees | >20 |
| 62 | Yes | 51-100 employees | 11-20 |
| 63 | No | 51-100 employees | >20 |
| 64 | No | 1-10 employees | >20 |
| 65 | No | 51-100 employees | >20 |
| 66 | Yes | 51-100 employees | >20 |
| 67 | Yes | 51-100 employees | 11-20 |
| 68 | Yes | 51-100 employees | 11-20 |
| 69 | Yes | 1-10 employees | >20 |
| 70 | Yes | 51-100 employees | >20 |
| 71 | Yes | 51-100 employees | 11-20 |
| 72 | Yes | 1-10 employees | 0-10 |
| 73 | Yes | 1-10 employees | 0-10 |
| 74 | Yes | 1-10 employees | 0-10 |
| 75 | No | 1-10 employees | 11-20 |
| 76 | Yes | 51-100 employees | 0-10 |
| 77 | Yes | 1-10 employees | 0-10 |
| 78 | Yes | 51-100 employees | >20 |
| 79 | No | 51-100 employees | 11-20 |
| 80 | Yes | 51-100 employees | 11-20 |
| 81 | Yes | 51-100 employees | 0-10 |
| 82 | Yes | 1-10 employees | >20 |
| 83 | Yes | 1-10 employees | >20 |
| 84 | No | 1-10 employees | 11-20 |
| 85 | Yes | 1-10 employees | >20 |
| 86 | Yes | 51-100 employees | 11-20 |
| 87 | No | 51-100 employees | 0-10 |
| 88 | Yes | 1-10 employees | 0-10 |
| 89 | Yes | 1-10 employees | >20 |
| 90 | Yes | 1-10 employees | 11-20 |
| 91 | Yes | 51-100 employees | 11-20 |
| 92 | Yes | 1-10 employees | 0-10 |
| 93 | Yes | 1-10 employees | >20 |

| | | | |
|----|-----|------------------|-------|
| 94 | Yes | 1-10 employees | 11-20 |
| 95 | Yes | 51-100 employees | >20 |
| 96 | Yes | 1-10 employees | 11-20 |
| 97 | No | 1-10 employees | 0-10 |

Table 7. Data collected from the answers of General information of Branch offices

| A/A | Culture | | | | | | |
|-----|--|--|---|---|--|--|---|
| | 1. The Branch's culture can be described as risk aware | 1.2. Risk Management benefits are recognized in office level | 3. Plans of Risk Management are used in every project | 4. Head offices involvement in Risk procedures exists | 5. There is a receptive to change culture and continuously improvement | 6. Tendency to act proactively to risk | 7. Head office risk culture are applied |
| 1 | 3 | 3 | 3 | 2 | 3 | 3 | 2 |
| 2 | 3 | 2 | 2 | 3 | 2 | 2 | 3 |
| 3 | 2 | 3 | 2 | 4 | 3 | 2 | 3 |
| 4 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| 5 | 2 | 2 | 2 | 4 | 2 | 2 | 3 |
| 6 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| 7 | 3 | 3 | 2 | 4 | 2 | 3 | 3 |
| 8 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| 9 | 2 | 1 | 3 | 4 | 2 | 2 | 1 |
| 10 | 3 | 1 | 2 | 3 | 2 | 3 | 2 |
| 11 | 3 | 1 | 2 | 2 | 1 | 3 | 3 |
| 12 | 2 | 2 | 2 | 4 | 2 | 2 | 4 |
| 13 | 4 | 3 | 2 | 4 | 2 | 3 | 3 |
| 14 | 2 | 3 | 3 | 3 | 2 | 4 | 3 |
| 15 | 3 | 2 | 3 | 4 | 3 | 2 | 3 |
| 16 | 2 | 3 | 3 | 3 | 2 | 2 | 3 |
| 17 | 3 | 2 | 3 | 4 | 2 | 2 | 3 |
| 18 | 3 | 2 | 3 | 4 | 2 | 2 | 3 |
| 19 | 3 | 2 | 3 | 3 | 1 | 2 | 2 |
| 20 | 3 | 3 | 2 | 4 | 2 | 3 | 3 |
| 21 | 2 | 3 | 3 | 4 | 3 | 2 | 3 |
| 22 | 2 | 3 | 2 | 4 | 3 | 3 | 3 |
| 23 | 3 | 3 | 3 | 4 | 3 | 4 | 3 |
| 24 | 3 | 3 | 4 | 4 | 3 | 1 | 3 |
| 25 | 4 | 3 | 4 | 4 | 3 | 4 | 3 |

| | | | | | | | |
|----|---|---|---|---|---|---|---|
| 26 | 3 | 3 | 3 | 3 | 2 | 1 | 2 |
| 27 | 3 | 3 | 3 | 3 | 2 | 1 | 3 |
| 28 | 3 | 2 | 1 | 4 | 2 | 2 | 3 |
| 29 | 4 | 3 | 4 | 4 | 3 | 1 | 4 |
| 30 | 3 | 3 | 1 | 3 | 3 | 3 | 4 |
| 31 | 3 | 2 | 3 | 4 | 2 | 2 | 2 |
| 32 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| 33 | 4 | 2 | 4 | 4 | 2 | 3 | 4 |
| 34 | 4 | 2 | 4 | 4 | 2 | 2 | 4 |
| 35 | 2 | 2 | 1 | 4 | 2 | 2 | 2 |
| 36 | 3 | 2 | 2 | 3 | 2 | 2 | 4 |
| 37 | 3 | 2 | 2 | 4 | 3 | 3 | 4 |
| 38 | 3 | 2 | 2 | 4 | 3 | 1 | 3 |
| 39 | 1 | 3 | 4 | 4 | 2 | 2 | 3 |
| 40 | 1 | 2 | 3 | 2 | 1 | 2 | 2 |
| 41 | 3 | 3 | 3 | 4 | 3 | 1 | 2 |
| 42 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |
| 43 | 4 | 4 | 3 | 4 | 2 | 4 | 2 |
| 44 | 2 | 3 | 2 | 4 | 3 | 3 | 3 |
| 45 | 1 | 3 | 2 | 3 | 2 | 2 | 3 |
| 46 | 3 | 3 | 2 | 4 | 1 | 2 | 3 |
| 47 | 2 | 3 | 2 | 4 | 3 | 3 | 3 |
| 48 | 2 | 3 | 2 | 3 | 2 | 1 | 3 |
| 49 | 3 | 3 | 2 | 4 | 2 | 3 | 3 |
| 50 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| 51 | 2 | 3 | 2 | 4 | 2 | 2 | 3 |
| 52 | 2 | 3 | 2 | 3 | 2 | 2 | 4 |
| 53 | 3 | 3 | 2 | 4 | 2 | 2 | 4 |
| 54 | 2 | 3 | 2 | 3 | 1 | 3 | 3 |
| 55 | 2 | 1 | 3 | 3 | 2 | 3 | 2 |
| 56 | 3 | 3 | 2 | 4 | 3 | 2 | 3 |
| 57 | 1 | 2 | 2 | 4 | 1 | 2 | 3 |
| 58 | 2 | 2 | 2 | 3 | 2 | 3 | 2 |
| 59 | 2 | 2 | 2 | 4 | 1 | 3 | 2 |
| 60 | 2 | 2 | 2 | 4 | 2 | 2 | 2 |
| 61 | 3 | 2 | 2 | 4 | 2 | 3 | 2 |
| 62 | 3 | 4 | 2 | 4 | 4 | 3 | 4 |
| 63 | 3 | 2 | 3 | 3 | 1 | 3 | 2 |
| 64 | 2 | 3 | 3 | 3 | 1 | 3 | 1 |

| | | | | | | | |
|----|---|---|---|---|---|---|---|
| 65 | 3 | 2 | 3 | 3 | 2 | 3 | 2 |
| 66 | 3 | 2 | 2 | 4 | 2 | 3 | 2 |
| 67 | 4 | 4 | 3 | 4 | 4 | 4 | 3 |
| 68 | 4 | 4 | 3 | 3 | 2 | 3 | 4 |
| 69 | 2 | 3 | 2 | 3 | 2 | 3 | 3 |
| 70 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| 71 | 3 | 4 | 3 | 3 | 3 | 2 | 3 |
| 72 | 2 | 2 | 2 | 3 | 1 | 3 | 2 |
| 73 | 1 | 2 | 2 | 3 | 1 | 2 | 4 |
| 74 | 2 | 2 | 2 | 3 | 1 | 3 | 4 |
| 75 | 2 | 2 | 2 | 3 | 2 | 3 | 2 |
| 76 | 2 | 3 | 3 | 4 | 1 | 3 | 3 |
| 77 | 1 | 3 | 3 | 3 | 2 | 3 | 2 |
| 78 | 4 | 2 | 2 | 4 | 2 | 3 | 3 |
| 79 | 2 | 1 | 2 | 2 | 1 | 3 | 2 |
| 80 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| 81 | 1 | 2 | 2 | 3 | 2 | 3 | 3 |
| 82 | 4 | 3 | 2 | 3 | 3 | 3 | 2 |
| 83 | 3 | 3 | 2 | 3 | 2 | 3 | 2 |
| 84 | 2 | 2 | 3 | 3 | 1 | 3 | 2 |
| 85 | 3 | 3 | 2 | 4 | 2 | 4 | 2 |
| 86 | 3 | 3 | 3 | 4 | 4 | 3 | 3 |
| 87 | 3 | 3 | 2 | 3 | 1 | 3 | 2 |
| 88 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| 89 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| 90 | 4 | 3 | 3 | 1 | 4 | 2 | 4 |
| 91 | 4 | 3 | 3 | 4 | 3 | 2 | 3 |
| 92 | 1 | 2 | 3 | 4 | 2 | 2 | 3 |
| 93 | 3 | 3 | 2 | 4 | 2 | 3 | 3 |
| 94 | 4 | 3 | 3 | 4 | 2 | 2 | 4 |
| 95 | 3 | 3 | 2 | 3 | 2 | 3 | 3 |
| 96 | 4 | 3 | 3 | 4 | 4 | 2 | 3 |
| 97 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |

Table 8. Data collected from the answers about risk culture of Branch offices

| | |
|--|------------|
| | Experience |
|--|------------|

| A/A | 1. All the employees are aware about risk and the basic principles of risk management | 2. All the employees are using the basic skills of risk management | 3. There is a formal and in a regular basis training of employees about 'risk trends' | 4. head office provide with in-house experts of risk management | 5. Risk management team is capable to develop specific processes and tools | 6. The use of risk management experience is part of the process | 7. Head Office provides with training programs |
|-----|---|--|---|---|--|---|--|
| 1 | 2 | 2 | 2 | 3 | 2 | 3 | 2 |
| 2 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |
| 3 | 2 | 2 | 2 | 2 | 3 | 2 | 2 |
| 4 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| 5 | 3 | 2 | 2 | 3 | 3 | 3 | 2 |
| 6 | 3 | 3 | 2 | 3 | 2 | 2 | 2 |
| 7 | 2 | 2 | 2 | 3 | 2 | 1 | 3 |
| 8 | 2 | 2 | 2 | 3 | 1 | 1 | 3 |
| 9 | 2 | 3 | 2 | 3 | 2 | 2 | 2 |
| 10 | 2 | 3 | 2 | 3 | 2 | 2 | 2 |
| 11 | 2 | 4 | 2 | 2 | 2 | 2 | 2 |
| 12 | 1 | 2 | 3 | 4 | 2 | 2 | 3 |
| 13 | 3 | 3 | 3 | 3 | 1 | 2 | 3 |
| 14 | 2 | 1 | 1 | 2 | 1 | 2 | 3 |
| 15 | 3 | 2 | 3 | 3 | 2 | 2 | 2 |
| 16 | 1 | 2 | 3 | 2 | 2 | 3 | 3 |
| 17 | 2 | 1 | 1 | 3 | 2 | 3 | 4 |
| 18 | 2 | 1 | 1 | 2 | 2 | 3 | 4 |
| 19 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| 20 | 2 | 2 | 2 | 3 | 2 | 3 | 3 |
| 21 | 3 | 2 | 3 | 3 | 2 | 2 | 3 |
| 22 | 2 | 3 | 3 | 2 | 2 | 2 | 4 |
| 23 | 3 | 2 | 4 | 4 | 3 | 3 | 3 |
| 24 | 4 | 3 | 3 | 4 | 3 | 3 | 3 |
| 25 | 4 | 3 | 3 | 4 | 3 | 3 | 3 |
| 26 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| 27 | 2 | 2 | 2 | 2 | 2 | 2 | 4 |
| 28 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |
| 29 | 4 | 3 | 3 | 4 | 2 | 3 | 2 |
| 30 | 2 | 2 | 3 | 3 | 2 | 2 | 4 |
| 31 | 2 | 2 | 3 | 3 | 3 | 3 | 4 |

| | | | | | | | |
|----|---|---|---|---|---|---|---|
| 32 | 3 | 3 | 3 | 3 | 3 | 2 | 4 |
| 33 | 4 | 3 | 4 | 3 | 2 | 3 | 2 |
| 34 | 4 | 3 | 4 | 3 | 2 | 3 | 2 |
| 35 | 1 | 3 | 2 | 3 | 2 | 2 | 1 |
| 36 | 3 | 2 | 4 | 3 | 3 | 3 | 2 |
| 37 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| 38 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 39 | 1 | 2 | 2 | 4 | 3 | 2 | 1 |
| 40 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| 41 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| 42 | 2 | 3 | 3 | 3 | 1 | 3 | 3 |
| 43 | 1 | 1 | 2 | 3 | 2 | 2 | 4 |
| 44 | 3 | 2 | 3 | 2 | 1 | 3 | 4 |
| 45 | 1 | 3 | 3 | 4 | 3 | 2 | 3 |
| 46 | 1 | 1 | 2 | 3 | 2 | 3 | 3 |
| 47 | 1 | 1 | 2 | 3 | 2 | 2 | 3 |
| 48 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 49 | 2 | 2 | 2 | 2 | 1 | 2 | 4 |
| 50 | 3 | 2 | 2 | 2 | 1 | 3 | 4 |
| 51 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| 52 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| 53 | 2 | 2 | 2 | 2 | 2 | 3 | 4 |
| 54 | 2 | 2 | 3 | 3 | 1 | 2 | 3 |
| 55 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| 56 | 3 | 3 | 2 | 2 | 2 | 3 | 4 |
| 57 | 1 | 2 | 3 | 3 | 2 | 3 | 3 |
| 58 | 3 | 3 | 3 | 2 | 3 | 2 | 3 |
| 59 | 3 | 3 | 2 | 3 | 1 | 1 | 3 |
| 60 | 2 | 2 | 2 | 2 | 1 | 2 | 3 |
| 61 | 2 | 2 | 3 | 2 | 2 | 2 | 3 |
| 62 | 2 | 3 | 3 | 3 | 2 | 3 | 3 |
| 63 | 3 | 3 | 3 | 2 | 3 | 2 | 3 |
| 64 | 3 | 3 | 3 | 4 | 3 | 3 | 3 |
| 65 | 3 | 3 | 3 | 4 | 3 | 2 | 4 |
| 66 | 1 | 1 | 2 | 2 | 1 | 2 | 2 |
| 67 | 2 | 3 | 3 | 4 | 2 | 3 | 3 |
| 68 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| 69 | 2 | 2 | 3 | 2 | 2 | 2 | 2 |
| 70 | 2 | 2 | 2 | 2 | 1 | 1 | 2 |

| | | | | | | | |
|----|---|---|---|---|---|---|---|
| 71 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| 72 | 2 | 2 | 3 | 3 | 2 | 3 | 3 |
| 73 | 2 | 2 | 3 | 4 | 3 | 3 | 3 |
| 74 | 3 | 2 | 3 | 4 | 2 | 3 | 4 |
| 75 | 3 | 3 | 3 | 4 | 3 | 3 | 4 |
| 76 | 2 | 2 | 2 | 3 | 2 | 3 | 4 |
| 77 | 3 | 2 | 2 | 3 | 2 | 3 | 4 |
| 78 | 3 | 3 | 3 | 2 | 2 | 2 | 3 |
| 79 | 3 | 3 | 3 | 3 | 4 | 4 | 3 |
| 80 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| 81 | 2 | 4 | 2 | 3 | 2 | 3 | 4 |
| 82 | 2 | 2 | 3 | 2 | 1 | 2 | 3 |
| 83 | 2 | 2 | 3 | 3 | 2 | 3 | 3 |
| 84 | 2 | 2 | 3 | 2 | 3 | 3 | 2 |
| 85 | 1 | 1 | 2 | 3 | 2 | 3 | 3 |
| 86 | 3 | 2 | 2 | 3 | 4 | 2 | 3 |
| 87 | 2 | 2 | 3 | 4 | 3 | 3 | 2 |
| 88 | 1 | 2 | 3 | 3 | 2 | 3 | 4 |
| 89 | 3 | 3 | 3 | 3 | 2 | 4 | 3 |
| 90 | 3 | 2 | 2 | 3 | 1 | 2 | 3 |
| 91 | 3 | 3 | 1 | 2 | 1 | 2 | 3 |
| 92 | 2 | 2 | 2 | 3 | 2 | 3 | 3 |
| 93 | 2 | 2 | 2 | 3 | 1 | 2 | 3 |
| 94 | 2 | 3 | 2 | 2 | 1 | 2 | 3 |
| 95 | 1 | 1 | 3 | 2 | 2 | 3 | 3 |
| 96 | 2 | 3 | 2 | 2 | 1 | 2 | 3 |
| 97 | 2 | 2 | 3 | 4 | 3 | 3 | 3 |

Table 9. Data collected from the answers about experience of Branch offices