

# **A Model for Due Diligence Analysis of Non-Financial Risks and their Management**

**– The DANFiRM Model**

*Johan Norén*  
*Niclas Åhnberg*

**Department of Fire Safety Engineering and Systems Safety  
Lund University, Sweden**

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**Brandteknik och Riskhantering  
Lunds tekniska högskola  
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**Authors/författare:**

Johan Norén  
Niclas Åhnberg

Civilingenjörsprogrammet i riskhantering, Lunds Tekniska Högskola

**Tutors/handledare:**

Ulf Paulsson, Lund University  
Magnus Willemo, Aon Sweden AB  
Sara Stigson, Aon Sweden AB

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**Abstract**

This master thesis presents a qualitative model for performing a due diligence analysis of non-financial risks and their management, the DANFiRM model. The model includes a thinking process and a working procedure for identifying and evaluating the current non-financial risk exposure at the target enterprise and further required measures for altering risk exposure and risk management activities to meet the purchasing enterprise's demands. The outcome of the analysis offers an overview of the risks, and further required measures, that threaten the strategic or profit goals of the acquisition. It could be used as an instrument in the negotiation process in connection to an acquisition. The model is based on background information from literature and interviews with representation from seven major enterprises.

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Brandteknik och Riskhantering  
Lunds tekniska högskola  
Lunds universitet  
Box 118  
221 00 Lund

brand@brand.lth.se  
<http://www.brand.lth.se>

Telefon: 046 - 222 73 60

---

Department of Fire Safety Engineering  
and Systems Safety  
Lund University  
P.O. Box 118  
SE-221 00 Lund  
Sweden

brand@brand.lth.se  
<http://www.brand.lth.se/english>

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Malmö 25-10-2007

Niclas Åhnberg

Johan Norén



## Summary

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In 2006, enterprises worldwide spent over \$3.3 trillion on mergers and acquisitions (M & A). Despite an increasing interest, available statistics indicate that acquirers have less than a 50-50 chance of being successful in reaching the objectives of their ventures. Because of this and the increasing complexity of M & A, a due diligence analysis becomes even more important.

Due diligence was developed from a financial aspect and the main focus is still put on financial risks even though the scope has widened to other areas such as legal and commercial. By broadening the scope to include non-financial risks and their management, the due diligence will give a more complete picture of the target enterprise's risk exposure. A global analysis of these aspects is a quite new and unexplored area, and at present there is no common standard, model or best practice in the area.

One of the enterprises who have highlighted the importance of incorporating non-financial risks and their management into the scope of M & A is Aon Sweden, which is the sponsor of this thesis. The objective of the work with this thesis is to develop a qualitative model for performing a due diligence analysis of non-financial risks and their management, the DANFiRM model. The target group for using the model is major industrial enterprises, active in Sweden, which have an established risk management function within their organization and perform M & A on a regular basis.

In order to meet the objective of this thesis it is important to know; how can the model fit with the working process and purpose of the due diligence process designed as a whole; what information is worth seeking in order to get a satisfactory knowledge on the target enterprise's non-financial risks and their management; how to obtain, analyze and evaluate the information in a feasible way.

The main sources of background information for the development of the DANFiRM model are; literature studies of different risk categories, risk management options, M & A, due diligence and insurance theory; interviews with risk managers at major enterprises, active in Sweden, to gain empirical information about how major enterprises perform, or would like to perform, a due diligence analysis of non-financial risks and their management.

The DANFiRM model includes a thinking process and a working procedure for identifying and evaluating the current non-financial risk exposure at the target enterprise and further required measures for altering risk exposure and risk management activities to meet the purchasing enterprise's demands. The evaluation is based on existing policies and control documents at the purchasing enterprise.

The outcome will be a prioritized list of present non-financial risks and offers an overview of the risks that threaten the strategic or profit goals of the acquisition. The list will contain information on the respective severity of the different risks and measures that will have to be taken. The outcome could be used as an instrument in the negotiation process in connection to an acquisition. It can affect the contract price, dividing of liabilities and/or the exclusion of certain parts of the target enterprise.

The thesis also contains a developed working procedure for developing an appropriate insurance program in conjunction with the use of the DANFiRM model, which can be used by insurance brokers. The area is of special interest with regards to Aon Sweden's line of business.

The model is flexible and with a few modifications it would probably be usable for further areas of application such as financial risks and other kinds of target enterprises. Further work that needs to be done is foremost validation and testing of the DANFiRM model.

## Sammanfattning

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År 2006 spenderade företag världen över mer än 3.3 biljoner USD på företagsförvärv (M & A). Trots ett ökande intresse visar tillgänglig statistik att oddsen för de köpande företagen att lyckas med sina mål med förvärvet är sämre än 50-50. På grund av detta samt den ökande komplexiteten hos M & A blir due diligence analysen allt viktigare. Due diligence är i dessa sammanhang en kartläggning av målföretagets risker samt en verifiering av dess status.

Due diligence har utvecklats från ett finansiellt perspektiv och även om detta har vidgats, till att även inkludera andra discipliner, såsom legal och miljö, så ligger fokus fortfarande på de finansiella riskerna. Genom att bredda perspektivet till att inkludera icke-finansiella risker och deras hantering kan due diligence analysen ge en mer komplett bild av målföretaget och dess riskexponering. En övergripande analys av dessa risker och deras hantering är ett relativt nytt område och det finns för närvarande ingen gemensam standard, modell eller best practice.

Aon Sweden, som finansierat examensarbetet, är ett av de företag som har uppmärksammat vikten av att undersöka de icke-finansiella riskerna och deras hantering vid ett företagsförvärv. Målet med examensarbetet är att utveckla en kvalitativ modell för en due diligence analys av icke-finansiella risker och deras hantering, DANFiRM modellen. Målgruppen för användandet av modellen är stora företag, verksamma i Sverige, som har en etablerad risk management funktion inom organisationen och förvärvar företag på en regelbunden basis. DANFiRM modellen är avgränsad till förvärv av produktions- och distributionsenheter.

För att uppnå målet med examensarbetet är det viktigt att veta; hur modellen passar in i det övergripande syftet och arbetsprocessen för due diligence analysen; vilken information som är värd att undersökas för att skapa sig en tillfredsställande kunskap om målföretagets icke-finansiella risker och deras hantering; hur informationen insamlas, analyseras och utvärderas på ett lämpligt och genomförbart sätt.

Huvudkällorna till bakgrundsinformationen för utvecklandet av DANFiRM modellen är; litteraturstudier av olika riskkategorier, risk management, M & A, due diligence och försäkringsteori; intervjuer med risk managers på stora företag, verkande i Sverige, för att skaffa empirisk information om hur stora företag utför, eller skulle vilja utföra, en due diligence analys av icke-finansiella risker och deras hantering.

DANFiRM modellen innehåller en tankeprocess och en arbetsprocedur för att identifiera och värdera den nuvarande icke-finansiella riskexponeringen hos målföretaget samt ytterligare åtgärder som krävs för att motsvara det köpande företagets krav. Värderingen grundar sig på det köpande företagets existerande policys och styrdokument.

Resultatet av analysen kommer att vara en prioriterad lista över aktuella, icke-finansiella risker och erbjuder en översikt över de risker som hotar de strategiska eller vinstdrivna målen med förvärvet. Listan kommer att innehålla information om hur pass allvarlig respektive risk är samt de ytterligare åtgärdernas kostnad och svårighetsgrad. Resultatet kan användas som

ett instrument vid förvärvets förhandlingsprocess. Det kan påverka priset, ansvarsfördelningar och uteslutandet av vissa delar av målföretaget i kontraktet.

Examensarbetet innehåller även en utvecklad arbetsprocedur för att skapa ett lämpligt försäkringsprogram som kan användas i samband med användandet av DANFiRM modellen. Modellen är tänkt att användas av försäkringsmäklare och området är av speciellt intresse med tanke på Aon Swedens bransch.

Modellen är flexibel i sin utformning och med smärre justeringar skulle den förmodligen kunna tjäna fler användningsområden. Framtida arbete som behövs är främst testande och ytterligare validering av DANFiRM modellen.

## Definitions

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The following definitions are used in this thesis:

**Risk:**

*The danger of a random event negatively affecting the ability to achieve an objective.  
(Hamilton, 1996)*

**Non-financial risk:**

*Risk that is not associated with tax, currency, interest rates, inflation, credit, derivatives or other issues that typically are connected solely to a finance department.*

**Risk management:**

*The enterprise's combined effort to identify, evaluate and manage risk to be within its risk appetite.  
(COSO, 2004)*

**Due Diligence:**

*To identify, organize, and, to the extent possible, quantify risk – not eliminate it – in order to assist acquisition negotiators and investment committee decision makers.  
(Pagliari, 1995)*

**Due diligence analysis of non-financial risks and their management:**

*The process of identifying, organizing and evaluating the target enterprise's non-financial risk exposure and how it correlates with the purchasing enterprise's views on risk appetite and risk management. The process also includes investigating the efforts and business profit impact implied for the target enterprise in order to correspond to the purchasing enterprise's ideals.*

**The DANFiRM Model:**

*The model for due diligence analysis of non-financial risks and their management, which is developed for this thesis. DANFiRM is an acronym of **D**ue diligence **A**nalysis of **N**on-**F**inancial **R**isks and their **M**anagement.*



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# 1 Introduction

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*This chapter explains the motivation and aims of the thesis.*

This thesis is the final part of the Master of Science in Risk Management and Fire Safety Engineering program at Lund University in Lund, Sweden. It has been written in collaboration with the Department for Fire Safety Engineering and Aon Sweden AB.

## 1.1 Background

In 2006, enterprises worldwide spent over \$3.3 trillion on mergers and acquisitions (M & A) and the trend is pointing upwards (Worthen, 2007). M & A has in recent years become a natural part of ordinary business life of major enterprises and the majority of the acquisitions are performed for gaining growth and increased market power (Kim & Nofsinger, 2007).

Despite the large interest, experience and amounts involved in M & A, acquisitions, mergers, or divestitures don't always give satisfactory results. Available statistics indicate that acquirers have less than a 50-50 chance of being successful in reaching the objectives of their ventures (Pritchett, 1997). The low success rate indicates that there are many stakeholders, such as banks, investors, shareholders, managers, public enterprises, communities, who would benefit from new instruments to secure the achievement of M & A objectives.

As M & A becomes increasingly complex, a due diligence process becomes even more important. Today the danger is not that enterprises fail to do due diligence, but that they fail in doing it well (Perry & Herd, 2004). The purpose of due diligence is to identify, organize and evaluate risks inherent in the target enterprise in order to assist decision makers in conjunction with M & A. In concision it means that the purchasing enterprise collects and analyzes information, such as contracts, agreements, cash flow and management, at the target enterprise to secure that the information is correct, accurate and properly disclosed (Steinberg, 2002). As the process of due diligence turns over great values over a limited timeframe it is important to be systematic when evaluating the risks in the target enterprise (Sevenius, 2003).

Due diligence was developed from a financial aspect and the main focus is still put on financial risks even though the scope has widened to other areas such as legal and commercial. Focusing only on the traditional disciplines within the due diligence process will not give a complete picture of the target enterprise. By broadening the scope to include non-financial risks and their management, the due diligence will give a more complete picture of the target enterprise's risk exposure. In a survey among 600 finance executives in large enterprises around the world, the largest portion of respondents chose supply chain exposures as the top risk to their primary revenue driver (Brannen & Cummings, 2005). One of the more striking examples of when the non-financial risks should have been investigated more carefully was ABB's acquisition of Combustion Engineering in 1990. The acquisition resulted in claims for occupational injuries due to use of asbestos during the 60's and 70's and the final cost was estimated to be between BSEK 15-20 (Dagens Nyheter, 2003).

In early years risk management was primarily focused on risk treatment activities and particularly on insurance. The scope has widened and risk management is nowadays a more natural part of an organization's management. One of the reasons for incorporating risk management in more and more activities and not relying solely on insurance is that *"for every £1 of costs recoverable through insurance, another £5 to £50 are added to the final bill through a variety of other losses"* (Reason, 1997). Data analyses from recent acquisition program assessments have shown that organizations embracing risk management throughout the entire product life cycle of M & A have more successful processes (Evans, Segura & Doherty, 2005).

Due diligence of non-financial risks and their management is a quite new and unexplored area, which in recent time has become a subject that attracts much interest (Hollyday, 1995). But at present there is no common standard, model or best practice in the area. In FM Global's study of 500 finance executives, merger and acquisition activity was among the top 5 risk management challenges through 2009 (FM Global, 2006).

One of the enterprises who have highlighted the importance of incorporating non-financial risks and their management into the scope of due diligence is Aon Sweden, which is a global insurance brokerage. Some of its risk management consultants have participated in risk surveys in conjunction with acquisitions and the enterprise has published an extensive article on non-financial risks and their management to investigate when acquiring an enterprise. Their M & A group have also brought attention to the need for standardized working procedures when creating an appropriate insurance solution in conjunction with an acquisition.

## **1.2 Purpose and Objectives**

The purpose of this thesis is to contribute to the general knowledge on how to add value to the M & A process through incorporating non-financial risks and their management in the due diligence analysis.

The objective is to develop a qualitative model for performing a due diligence analysis of non-financial risks and their management.

The model for performing a due diligence analysis of non-financial risks and their management is a tool which should be able to complement the traditional due diligence process by answering the following questions:

- Does the target enterprise face major non-financial risks and which are they?
- Is there a risk management function to deal with these risks at the target enterprise and which risk management measures are taken?
- Given the risk exposure, do the strategies for risk management at the target enterprise seem satisfactory to the purchasing enterprise or are there areas which need further attention?

- Approximately, how difficult would it be to align the target enterprise with the purchasing enterprise's view on risk management and what would the business profit impact be?

### **1.3 Problem Statement**

A number of questions need to be resolved in order to meet the objective of this thesis.

- How is the due diligence process designed as a whole and what are its purposes and objectives?
- On what grounds do major enterprises, active in Sweden, generally appraise a target enterprise and are non-financial risks and their management among these grounds?
- How to obtain, analyze and evaluate important information on the target enterprise's non-financial risks and their management in conjunction with an acquisition?
- What information is most important and worth seeking in order to get a satisfactory knowledge on the target enterprise's non-financial risks and their management?

How to create appropriate insurance programs in conjunction with an acquisition is of special importance for insurance brokers. With regards to the Aon Sweden's line of business this subject will here be paid extra attention.

- How should a working procedure for developing an appropriate insurance program in conjunction with an acquisition be designed?

### **1.4 Specifications and Delimitations**

#### **1.4.1 Aon Sweden AB**

This thesis is written in collaboration with Aon Sweden AB. Aon Sweden is a part of the Aon Corporation, which is one of the world's largest providers within the areas of risk management services, insurance- and reinsurance brokerage, human capital and management consulting, and specialty insurance underwriting. Aon Sweden employs about 160 professionals and has offices in Stockholm, Gothenburg and Malmö. (Aon, 2007)

#### **1.4.2 Target group**

The target group for this thesis are people working with M & A processes and due diligence analyses in different organizations and risk managers with interest in the area. To make the thesis interesting and usable for the broad spectra of possible readers it contains a thorough description of the different theories used in the thesis.

#### **1.4.3 Delimitations**

Due to available time, available enterprises and persons to interview and the authors' lack of knowledge within certain areas, the following delimitations are made for this thesis:

- The M & A situation is seen from the purchasing enterprise's perspective.
- The due diligence process is only analyzed if it concerns non-financial risks and their management.

- The thesis does not provide guidance on whether a specific risk or risk management strategy is inappropriate.
- The developed model for due diligence analysis of non-financial risks and their management is meant to be used in conjunction with acquisitions.
- The developed model for due diligence analysis of non-financial risks and their management is focused on acquisitions of production- and distribution enterprises.
- The target group for using the model is major enterprises, active in Sweden, which have a established risk management function within their organization and perform M & A on a regular basis.

## **1.5 Disposition**

The contents of the chapters in the report are described below to help the reader to see and follow the main thread of the thesis. The disposition is illustrated in Figure 1.

### **Chapter 1 – Introduction**

This chapter explains the motivation and aims of the thesis.

### **Chapter 2 – Methodological Issues**

This chapter discusses the method used in this thesis and how it corresponds to the demands from methodological and scientific theories.

### **Chapter 3 – Underlying Theory**

This chapter is based on already existing knowledge and aims to give an understanding of the central notions and theories that underlie the result of this thesis.

The chapter starts with defining risk, non-financial risk, risk management and due diligence. The reason is to be able to define due diligence analysis of non-financial risks and their management.

The chapter continues with giving the reader a brief orientation of different categories of risks that may be investigated when using the model for due diligence analysis of non-financial risks and their risk management. The orientation of risks is followed by an explanation of risk management strategies and the relationship between different related terms.

The chapter also gives an introduction to the role of M & A in today's business life, its purpose, objective and process. The due diligence process and its role in the M & A process is thereafter described.

The chapter finishes with describing the principles of insurance in order to provide background information to how a working procedure for developing an appropriate insurance program in conjunction with an acquisition should be designed?

#### **Chapter 4 – Empirical Data from Performed Interviews**

This chapter presents the result from the interviews with representatives from major enterprises, active in Sweden, which perform M & A on a regular basis. After an introduction of the enterprises involved, there is a synopsis of the respondents' views on M & A, due diligence, risk management and due diligence of non-financial risk and their management.

#### **Chapter 5 – The Developed DANFiRM Model**

This chapter describes the developed model for a due diligence analysis of non-financial risks and their management, the DANFiRM model, and the way the model is intended to add value to the due diligence process. It also describes the working procedure for developing an insurance program in conjunction with an acquisition and how it relates to the DANFiRM model.

#### **Chapter 6 – Evaluation of the DANFiRM Model**

This chapter evaluates and discusses the validation of the DANFiRM model. It is discussed whether the model meets its requirements, whether it could be considered to add value to the due diligence process and its feasibility.

#### **Chapter 7 – Conclusions**

This chapter contains a discussion about how the questions in the problem statement is answered, how the thesis objective is met and whether this is sufficient to fulfill the purpose of the thesis. The chapter also contains a discussion about the potential use of the result and suggestions of further work.

#### **Appendices**

The appendices contain suggestions on important non-financial risks that should be considered and information worth seeking in order to get a satisfying knowledge on a target enterprise's non-financial risks and their management. They also contain the questionnaire used at the interviews and an illustration of the outcome of an accomplished analysis.

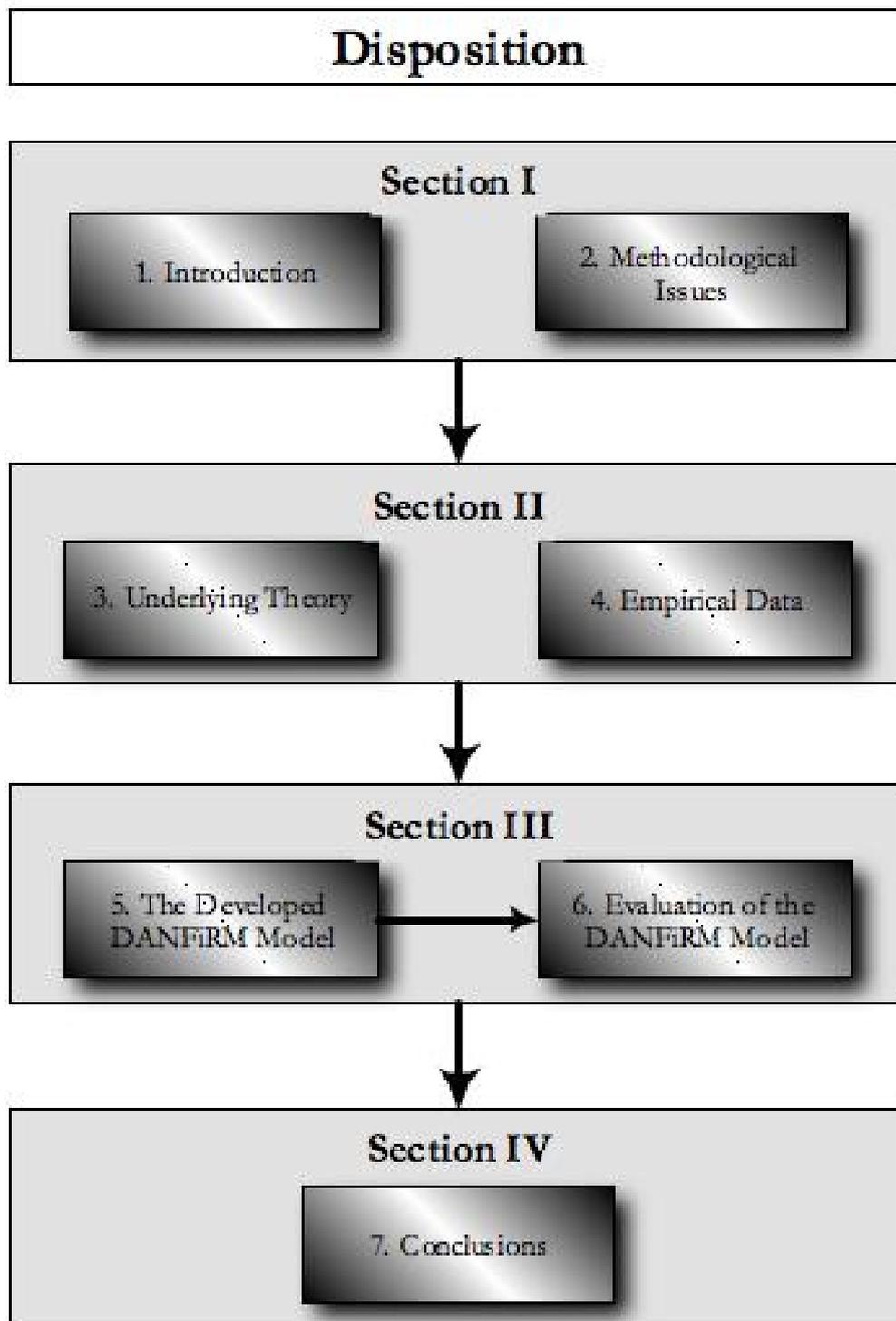


Figure 1. Illustration of the thesis disposition.

## 2 Methodological Issues

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*This chapter discusses the methods used in this thesis and how they correspond to the demands from methodological and scientific theories.*

### 2.1 Scientific Methods

There is a difference between methodology and method; methodology refers to the principles of logical and philosophical nature that different methods are based on and method generally means the practical scientific work procedure (Paulsson, 1999).

In order to make it possible for other persons to replicate and evaluate the working process used in a thesis, it is necessary to give a description of the method used (Backman, 1998). When choosing a working method it's important to ensure that the method is suitable for the accessible material, questions and hypotheses made for the thesis (Ejvegård, 2003). A scientific method could be viewed as a systematic way of investigating the reality.

There are primarily two different methodical approaches – qualitative and quantitative approach. A qualitative approach has mainly an understanding purpose and will not concentrate on whether the gathered information has a general validity. The primary task is to gather information from different sources to gain a deeper understanding of the investigated problem and to describe the holistic view and connections within (Holme & Bernt, 1997). Backman (1998) also describes a qualitative approach as the individual's interpretation of their reality and to be viewed as a subjective assessment. A quantitative approach is a more structured and formalized process and is based on systematic examinations. The purpose of a quantitative approach is to describe and explain a phenomenon (Holme & Bernt, 1997).

This thesis is written from a qualitative approach. The chosen approach is based on the limited amount of information within the subject, the secrecy around M & A and subjective assessment when performing a due diligence analysis. The thesis is mainly based on interviews with costumers to Aon Sweden AB and personal opinions are inevitable, something which has influenced the chosen approach.

### 2.2 Scientific Procedure

An important aspect to consider is what scientific procedure to use when approaching the problem stated in the thesis. How essential facts are gathered and used will influence the result of the work (Ejvegård, 2003).

The scientific procedures used in the thesis to achieve its objectives are the following:

<b>Description</b>	An account is made of how major enterprises, active in Sweden work or would like to work with due diligence analysis of non-financial risks and their management and how M & A teams at insurance brokers develop an appropriate insurance program in conjunction with an acquisition.
<b>Case study</b>	The interviewed enterprises were considered to be representative for most major enterprises, active in Sweden. A majority of the respondents are risk managers who were chosen to represent the interested parties of a due diligence analysis of non-financial risks and their management. Insurance brokers developing an appropriate insurance program in conjunction with an acquisition are represented by the two main experts at Aon Sweden AB.
<b>Comparison</b>	Comparing different enterprises' thoughts, ideas and working processes concerning due diligence and risk management gave comprehension of important aspects to consider when developing a due diligence analysis of non-financial risks and their management.

### **2.3 Reliability, Validity and Objectivity**

All parameters, measurement instruments and investigation methods have to be reliable and valid to be usable and suitable for the objective of the thesis. If these aspects are not fulfilled, the result will have no or a low scientific value (Ejvegård, 2003).

#### **2.3.1 Reliability**

Reliability states the trustworthiness and usefulness of a measuring instrument and the unit of measurement (Ejvegård, 2003). When the reliability is high, the same experiment, performed by different people at different time, will give the same result (Paulsson, 1999).

To ensure a high reliability throughout the thesis, interview technique has been studied and the interview questions have been analyzed to secure unambiguity. Unambiguous questions will prevent the answers to depend on the prevailing circumstances and the way the interviewer asks the questions. Naturally the opinions and ideas of the respondents will sometimes change over time.

#### **2.3.2 Validity**

Validity states in what extent you really measure what is intended to be measured (Ejvegård, 2003 and Paulsson, 1999).

The interviews were performed face to face and questions asked were unambiguous and relevant, which increased the validity of the interviews. Open communication during the interviews made it possible for the respondent to develop thoughts and statements and

minimize the risk for misinterpretation. At the majority of the interviews, both authors were present and the interviews were recorded to ensure that no essential information or facts were left behind. As the structure, content and working procedures of the enterprises varied, the answers had to be related to their context.

After the interview, a draft was sent to the respondent to ensure that the quotes were right and to give the respondent an opportunity to clarify and add information if something was wrong or misinterpreted.

A validation of the developed model for due diligence analysis of non-financial risks and their management was made with risk managers at two enterprises that were not previously involved in developing the model and with employees within Aon Sweden AB.

### **2.3.3 Objectivity**

To gain an academic level for the thesis, it is important to ensure a high objectivity when collecting information. An objective result is free from individual opinions and values (Björklund & Paulsson, 2003).

As the main empirical information comes from interviews, it is difficult to gain a result free from subjective values. When primarily only one person from every contributing enterprise has been interviewed his/her view will represent the whole enterprise. This is important to have in mind when drawing conclusions.

To minimize the risk of the result to reflect extreme views, representation from several enterprises has been interviewed to increase the objectivity.

## **2.4 Interview Method**

An interview is characterized by different forms of questionings, where actual meetings, telephone conversations and e-mail are included (Björklund & Paulsson, 2003). Irrespective of the method used the interviewer will have direct contact with the respondent and the answers will hence be directly or indirectly affected by the interviewer (Lantz, 1993). It is therefore important to understand the effect a chosen interview method will have on the result.

There are different ways of performing an interview, and the interview's form can be divided into different structural groups depending on purpose, context and set up (Lantz, 1993);

#### **Open interview**

An open interview allows the respondent to widely develop their opinions concerning an overall topic to achieve a broad understanding.

#### **Directed open interview**

A directed open interview is primarily focused on specific areas of concern. The result tends to be more thorough and the respondent is given few possibilities to ramble.

<b>Semi-structured interview</b>	A semi-structured interview will not have a subject of interest defined in advance and the questions will be formulated during the interview.
<b>Structured interview</b>	A structured interview has all questions defined before the interview and they are asked in a predetermined order. The structured interview gives the respondent only one specific way to respond.

The primary data in this thesis is collected through directed open interviews. Directed open questions were used during meetings and gave the respondents an opportunity to share their experiences within areas of concern. To gain as much information as possible and due to the authors' limited knowledge in certain areas, the respondents was offered to speak freely but some related questions were constructed during the meeting in order to fill in possible gaps. Telephone interviews and e-mail contact were used to complement and clarify facts gathered from the meetings.

## ***2.5 Primary and Secondary Data***

The collected data in this thesis consists of two different types; primary and secondary data. New data, collected with the purpose of being used in a specific project is classified as primary data. One example is information gathered through interviews (Björklund & Paulsson, 2003). A requirement for primary data is that no previous documentation exists and that the data is important when creating understanding for an individual project or when developing a model (Björklund & Paulsson, 2003).

Secondary data are collected from existing documentations and it is essential to be aware of the fact that the information can be angled in some direction (Ejvegård, 2003). The chosen working method can also contribute to an incomplete foundation of the literature (Björklund & Paulsson, 2003).

## ***2.6 Sources***

The main sources of information for this thesis are; literature studies, interviews with risk managers of major enterprises, which are active in Sweden and familiar with risk management and due diligence; and discussions with tutors at Aon Sweden and Lund University.

The following enterprises have participated in the development of the model for due diligence analysis of non-financial risks and their management.

- Atlas Copco
- Ericsson
- Hexagon
- Saab
- Scania
- Enterprise Alpha

One of the participating enterprises doesn't want to have its name printed in the report and is called Enterprise Alpha.

Some of the respondents preferred that information collected through the interviews should not be traceable to their enterprise when presented. To preserve the respondents' anonymity, no enterprises' name will be mentioned in the synopsis in chapter 4. However the transcripts from the interviews are available to the tutors and examiner of the thesis.

The two enterprises validating the DANFiRM model were:

- Gambro
- Securitas

A short description of the involved enterprises is to be found in chapter 4.

## **2.7 Evaluation of Sources**

Information collected through interviews should always be examined critically. There are many impediments involved when handling the information, such as subjectivity of the respondent and different ways of interpreting collected data (Ejvegård, 2003).

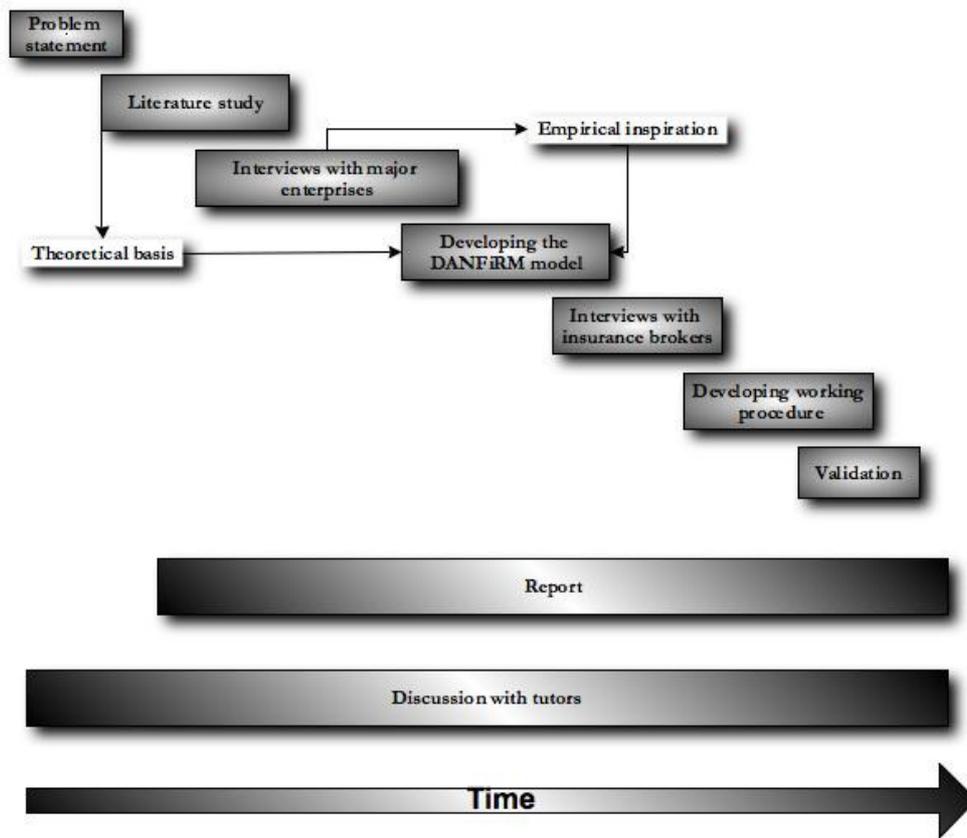
When the thesis has an assigner, in this case Aon Sweden, and the foundation of empirical information derives from employees at the assigner it may contribute to a certain bias in the collected data. Since all of the contributing enterprises are or have been clients of Aon Sweden, this may implicate different obligations and loyalties, which in extension will limit their objectivity.

The amount of literature concerning risk management and due diligence is limited which makes it hard to formulate a nuanced theory founded on literature alone. The DANFiRM model has therefore been founded mainly on data collected through interviews.

It should also be mentioned that the reference literature in this thesis has been in both Swedish and English. When using Swedish literature, translations have been made and thereby incorrect choices of English words may have occurred.

## **2.8 Working Method**

As mentioned before, this thesis has a qualitative approach due to the limited amount of information within the subject, the secrecy around M & A and the subjective assessment when performing a due diligence. To fulfill the purpose and objectives of the thesis and to ensure a high scientific level, a structured working process has been used. The process is chosen with regard to available time, delimitations for the thesis and that the primary source of information is gathered from interviews. The working process is illustrated in Figure 2.



**Figure 2.** Schematic figure of the working process used to fulfill the purpose and objectives of the thesis.

**Problem statement** – The objective for this thesis is *how to develop a qualitative model for performing a due diligence analysis of non-financial risks and their management* and was defined after discussions with tutors at Aon Sweden and Lund University.

**Literature study** – To gain comprehension and collect knowledge about different risk categories, risk management, M & A, due diligence and insurance theory a literature study was performed. Books, articles, guidelines and frameworks were studied. The literature study was a theoretical basis for the development of the DANFiRM model.

**Interviews with major Swedish enterprises** – To gain information about how major Swedish enterprises perform, or would like to perform, a due diligence analysis of non-financial risks and their management six interviews were carried out. The primary questions which needed to be answered were:

- How is the due diligence process designed as a whole and what are its purpose and objectives?
- On what grounds do major enterprises, active in Sweden, generally appraise a target enterprise and are non-financial risks and their management one of these grounds?

- How to obtain, analyze and evaluate important information on the target enterprise's non-financial risks and their risk management in conjunction with an acquisition?
- What accessible information is most important and worth seeking in order to get a satisfying knowledge on the target enterprise's non-financial risks and their management?

The interviews were empirical inspirations for the development of the DANFiRM model.

**Discussions with tutors** – Discussions and meetings with the tutors at Lund University and Aon Sweden were held during the entire work to gain necessary practical information about developing the DANFiRM model.

**Developing the DANFiRM model** – From the information gathered from literature studies, interviews and discussions with tutors a model for due diligence analysis of non-financial risks and their management was developed to add value to the M & A process as a whole.

**Interviews with insurance broker** – In order to gain information about how to develop insurance program in conjunction to an acquisition, interviews were performed with the managing director and the project manager at Aon Mergers & Acquisitions Group.

**Developing working procedure** – The development of a working procedure for creating an insurance program in conjunction to an acquisition was partially based on the results of the DANFiRM model.

**Validation** – To validate the DANFiRM model, its usability and content was discussed in interviews and with tutors.

**Report writing**– The thesis was written during the entire working period to ensure that no important information was lost.



## 3 Underlying Theory

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*This chapter is based on already existing knowledge and aims to give an understanding of the central notions and theories which underlie the result of this thesis.*

### 3.1 Basic Concepts and their Definitions

This part of the chapter aims to describe the main concepts used in the thesis. In general the definitions have been chosen are the ones that best represent the literature on the subject and the views with which this thesis has been written.

#### 3.1.1 Defining Risk

There is no commonly accepted definition for the term risk either in the sciences or public understanding (Renn, 1998 and COSO, 2004). The term risk is used in varying contexts, in many senses and from different aspects.

Around 1980, Kaplan & Garrick (1981) made an effort in making precise the notion of risk. A qualitative definition of risk was described as the combination of the possibility of some kind of loss or harm and the degree of probability of such harm. They also gave a more refined definition on the quantitative risk, the answers to the three questions “what can happen?”, “how likely is that that will happen?” and “if it does happen, what are the consequences?”. The definition of risk being consequence times probability is sometimes heard but as Kaplan and Garrick (1981) pointed out, a small consequence with a high probability is not always equivalent with a large consequence and low probability.

The idea that risk only refers to negative consequences is not universally accepted. In the International Organization for Standardizations’ (ISO/IEC) guide for vocabulary used in their standards, risk is defined as the combination of the probability of an event (a set of circumstances) and its consequences (ISO/IEC, 2002). An event can have several consequences, both of positive and negative nature (COSO, 2004 and ISO/IEC, 2002). It may sometimes be difficult to determine what characteristics are necessary to label an outcome as “adverse” or “desirable” (Renn, 1998). If a risk were to be considered only to be the possibility of an “adverse” outcome it would therefore be dependent on what is valued (Renn, 1998). This raises the question of what is valued at an enterprise. The purpose of every entity is to create value for their stakeholders (COSO, 2004), which means achieving the enterprise’s objectives, such as maximization of profits.

Many enterprises also value the safety of the employees, surrounding population and the environment. The reasons for these concerns are inter alia legislation, culture, indemnifications and reputation, all of which can have negative economical impacts if not attended to (Renn, 1998).

When defining risk in the corporate world, this thesis uses Hamilton’s (1996) description of risk “*Risk is the danger of a random event negatively affecting the ability to achieve an objective.*”

The reason for choosing this definition is because the thesis deals with risks within the corporate world and an enterprise's ability to achieve its objective of an acquisition.

### **3.1.1.1 Non-Financial Risk**

In this thesis non-financial risk is defined as *risk that is not associated with tax, currency, interest rates, inflation, credit, derivatives or other issues that typically are connected solely to a finance department.*

An exact definition of the term has not been found, but has been written to specify the areas which are excluded from the scope of this thesis.

### **3.1.2 Defining Risk Management**

Just like there is no universal definition of risk, there is also a variation of the meaning of risk management. The notion risk management was created in the 1950's in USA. The reason was low capacity among the insurance companies, which led to high insurance premiums and increasing malcontent among the large industrial clients. The market went from insurances with high premiums and low excess to lower premiums and higher excess. Some enterprises also started to form captive solutions where an affiliate enterprise was created whose purpose was to insure the parent enterprise's risks. This led to a need for a risk manager whose task it was to find effective ways of reducing the cost of risk through various security measures and solutions for insurance and captive (Hamilton, 1996). The idea of risk management first came to Sweden in the 70's, where the insurance market was an oligopoly market where foreign actors were forbidden.

A risk manager is sometimes referred to as the person responsible for the insurance solutions within the enterprise, but this is only part of the managing of risks (Hamilton, 1996). In Hamilton's view the goal for risk management at an enterprise is to minimize the total cost of risk.

In ISO/IEC's guide for vocabulary, risk management is defined as "*coordinated activities to direct and control an organization with regard to risk*" (ISO/IEC 2002). Opportunities can be realized and threats averted by effective risk management.

One of the more prominent frameworks for risk management within the corporate world is presented by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2004). In their framework, Enterprise Risk Management is defined as "*a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives*". As this definition says, risk management is not an activity solely performed by the risk manager as it also includes personnel, routines and systems in all parts of the enterprise.

In this thesis risk management is defined as *the enterprise's combined effort to identify, evaluate and manage risk to be within its risk appetite.* Evaluating risks includes prioritizing and weighing against opportunities and profit. The definition is founded on ISO/IEC's and COSO's view of risk management.

### **3.1.3 Defining Due Diligence**

Due diligence has in recent years become an established component in the processes of M & A. Prior to any merger, acquisition or divestiture the management of an organization must perform a survey to be able to answer the question if the target enterprise is suitable or not.

Due diligence has an old history and was first used in the Roman legislation. The historical meaning was equivalent to a legal norm; you should act cautiously. The modern use of the term due diligence has its origin from the American security laws. These laws enforce strict liabilities on those who assist in a process. American courts elaborated some exceptions to these liabilities in certain cases where the parties behaved responsibly and met disclosure standards. This standard of care was called due diligence. (Duffy, 1995)

Due diligence was unusual in Sweden until the beginning of the 1990's, but took a quick turn when foreign enterprises began to acquire Swedish ones. At the same time, there was a reformation of the Swedish security legislation which also conducted to introducing due diligence to the Swedish business community. The new legislation made it easier for joint-stock enterprises to choose whom information should be given to (Hård, 1995).

Today the term due diligence means in concision that the purchasing enterprise collects and analyzes information about the target enterprise and secures that the information is correct, accurate and properly disclosed (Steinberg, 2002). Due diligence is a standardized audit process to study, inspect and benchmark different business opportunities (Sevenius, 2003).

More formal definitions of due diligence found in the literature are among others the following:

*“Due diligence is the complete investigation and analysis of a target company that will be acquired or merged by another company”* (Rankine, 2001)

*“The purpose of due diligence is to identify, organize, and, to the extent possible, quantify risk – not eliminate it – in order to assist acquisition negotiators and investment committee decision makers”* (Pagliari, 1995)

The definition by Rankine is perhaps more global as it implies securing the correctness of the information and investigating all angles of the acquisition. However, the definition is used in this thesis is the one made by Pagliari (1995). The definition specifies that due diligence is about dealing with the risks involved and to assist negotiators and investment committee decision makers which the result of the thesis is focused on.

### **3.1.4 Defining Due Diligence Analysis of Non-financial Risks and their Management**

There is no common definition of due diligence analysis of non-financial risks and their management found in the literature. As a result, the following definition is derived from the definition of non-financial risk, risk management and due diligence and will be used in this thesis:

*The process of identifying, organizing and evaluating the target enterprise's non-financial risk exposure and how it correlates with the purchasing enterprise's views on risk appetite and risk management. The process also includes investigating the efforts and business profit impact implied for the target enterprise in order to correspond to the purchasing enterprise's ideals.*

Due diligence of risk management will be used synonymously with due diligence analysis of non-financial risks and their management throughout this thesis to simplify the reading.

### 3.2 Categories of Risk

An enterprise can face a myriad of risks and the frequency of both manmade and natural disasters has increased in recent years (Krell, 2006). The reasons for the increase are among others technological advances, progressing globalization and the extension of the supply chains (Krell, 2006). The risk categories are divided between risks within production and outside production. In order to get the risks organized, they will be discussed by categories, see in Table 1. The table also include supply chain management which has become an increasing part of risk management. The categories of risks are mainly based upon Hamilton's (1996) "circle of risks".

**Table 1.** Categories of risk from Hamilton (1996) supplemented with the categorization of supply chain risks described by Artebrandt et al. (2003).

<b>Within production</b>				
<b>Property</b>	<b>Environment</b>	<b>Staff</b>	<b>Criminal acts</b>	<b>IS/IT</b>
Fire, water	Leakage	Injuries	Theft	Interruption
Natural disaster	Emissions	Stress	Fraud	Hacking
Lack of maintenance	Contamination	Benefit obligations	Industrial espionage	Information theft
Intangible assets		Kidnapping	Sabotage	Virus
<b>Outside production</b>				
<b>Political</b>		<b>Liability</b>	<b>Financial and Marketing</b>	
Expropriation		Product liability	Currency	
Nationalization		Building responsibility	Credit	
Terrorism		Data	Interest rate	
New laws		Environment	Trading agreements	
Embargo		Contracts	Changed competition	
Political strikes and violence			Derivatives	
<b>Supply chain</b>				
Supply side		Internal	Demand side	

#### 3.2.1 Property Risks

The most severe consequence of destroyed property is often not the value of the property itself but the business interruption it may lead to (Hamilton, 1996). Business interruptions can lead to lost incomes during the interruption period and to lost market shares. The consequence, and hence the risk, increases with the difficulty of allocating production to alternative locations.

Property risks are relatively easy to transfer as well as the risk for interruption during a certain time, but the risk of lost market shares is nearly impossible to transfer<sup>1</sup>. Risks concerning key machinery breakdown due to poor maintenance can also be difficult to

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<sup>1</sup> Magnusson Tranarp, J., Strategic Account Manager, Aon Sweden AB, Stockholm 18-06-2007

transfer and can cause considerable negative business impact if it takes long time to repair or replace<sup>2</sup>. Good physical conditions of the machinery, scheduled repairs and routines for vital equipment are therefore favorable to inspect.

The most common risks to consider are fire and hazardous material. They may not only cause damage to property but pose a threat to the safety of the employees. Fire protection is regulated by building codes in most western countries for personal safety reason. But many enterprises choose to have higher protection than the local regulations require in order to protect employees and important equipment<sup>3</sup>.

It is important to pay attention to all containers containing liquid in any form. A small leakage over time can have as great impact on property and environment as a complete rupture (ÖCB, 1999). The protection against fire and water is advisable to inspect at site and depends on both physical protection and safety routines.

The risk for natural disasters such as hurricanes, earthquakes and landslides depend on the geographical location. The location of vital production or warehouse units may therefore be worth looking over. The potential of landslides and particularly subsidence is dependant on the underlying soil, rains, slope and nearby water courses<sup>4</sup>.

Intangible assets such as patents may not be destroyed by an accident but can expire and the content may be used by others in countries where the patent is not valid or to make piracy copies. The validity and use throughout the world may therefore be important to consider (Hamilton, 1996). If the patents are imperfectly protected or found invalid, the property right will have evaporated. The risk that a patent will be declared invalid is substantial as roughly half of all litigated patents are found to be invalid (Chang, 2007).

Sometimes the ownership of business units or surroundings can be of interest. Equipment may be placed in buildings, which the target enterprise doesn't own or in buildings on leased land. In these cases, it might be important to investigate tenants and leasing contracts<sup>5</sup>.

### **3.2.2 Environmental Risks**

Possible exposure to environmental risk and liability has been called the single most worrisome part of the due diligence process for many corporate acquirers (Graev, 1999). In many ways, environmental hazards can prove to be the most treacherous because of their long tail in time and relative uncertainty (Calabrese, 2002). The purchasing enterprise may be responsible for cleaning contaminations in land or buildings left by the previous owner. If there are no environmental impairment insurances or warranties given by the selling party, the responsibility and cost of contingent decontaminating in the future lies at the purchasing enterprise (Calabrese, 2002). It is therefore important to investigate what the previous owners have produced and whether their activities involved any kind of material that can require sanitation.

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<sup>2</sup> Magnusson Tranarp J., Strategic Account Manager, Aon Sweden AB, Stockholm 18-06-2007

<sup>3</sup> Hagersten B., CEO, Lansen Insurance, Linköping, 26-06-2007

<sup>4</sup> Larsson R., Professor, Swedish Geotechnical Institute, Linköping, 20-08-2007

<sup>5</sup> Berg K., Insurance broker, Aon Sweden AB, on telephone, 15-08-2007

The presence of hazardous substances is not the only aspect of importance when determining whether there is a risk of contamination. The way the material is dangerous, quantities involved, handling and storage are important factors as well (Hamilton, 1996).

Where a spillage can end up is also important when considering the risk of third party damage and economic repercussions. Adjacent population, watercourses or sensitive environment in the proximity seriously increases the risk<sup>6</sup>. These last factors also affect the enterprise's future possibilities to get their licenses for hazardous material expanded and/or prolonged. Present emissions, releases and usage of hazardous materials should be compared to the limits of permission, especially if the strategic objective of an acquisition is to expand in the future.

Apart from the economic incentive of controlling environmental risks the legislative demands are high in western countries. In the EU, the directive Seveso II requires a quantified risk analysis and a safety report. The report should contain verification that a plan for prevention of major hazards has been prepared and that a safety management system has been established to implement the plan. The management system's task is to verify that safety and reliability is an integrated part of the design, construction, operation, maintenance, storage, equipment, communication and service systems influencing the major hazards at the installation (SRSA, 2007).

The first condition for success in an enterprise's environmental safety effort is to ensure that all employees are well informed of rules and regulations of relevance (Hamilton, 1996). Some sort of checklist to be able to comply with the authorities demands for reporting, application for licenses, permits, maintenance on purification plant/equipment, internal education, information and external information to media should be implemented.

### **3.2.3 Staff Related Risks**

Good working environment is crucial for producing high quality products and services. The psychosocial environment can often be just as important as the physical one. Bad environment causes discomfort and occupational injuries among the employees. This in turn creates increased absence, staff turnover and disruptions in production and a negative spiral. The risk of strike also depends on the working environment and conditions. Most of the western countries have strict labor laws, such as the Occupational and Safety act in Sweden. (Hamilton, 1996)

Four factors have shown to have a direct importance for the quality of the production, staff turnover and absence. These are that all employees understand their role, have the required authority, take their responsibility and that everybody improves their competence (Hamilton, 1996). These aspects are not easily investigated and objectively measured. However, budget for further education/training and clear, documented distribution of responsibility are indicators that can be investigated.

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<sup>6</sup> Stenström E., EHS Manager, Swedwood International AB, on telephone, 02-08-2007

A major cost for an enterprise is the commitments to pension and benefit plans. Some enterprises actually have greater pension funds than they have turnover<sup>7</sup>. Terminated benefit and pension plans may sometimes be very costly and time consuming for participants who cannot be located or for whom data is missing. However, the major risks of future costs are hidden and frozen benefit plans that cannot be altered and stretch over a long period of time (Calabrese, 2001).

The result and value of many enterprises depend on management and knowledge. The value of the enterprise can be seriously diminished if key personnel choose to leave. Key personnel include management figures, research personnel and technical experts<sup>8</sup>.

### 3.2.4 Criminal Act Risks

Criminal acts with business or safety impact include theft, embezzlement, burglary, sabotage, extortion and violence. Naturally, the risk varies depending on the line of business and the geographic location. (Peltin, 1999).

Workplace violence occurs most commonly where employees have contact with the public, particularly in the exchange of money; work alone or in small numbers; work late at night or early in the morning; work in high-crime areas; guard valuable property; have a mobile workplace, such as cab drivers, police and transit workers do; or work with unstable or volatile people (Peltin, 1999). To prevent workplace violence, an important step is to create a culture of 'zero tolerance' for violence or threats of violence. Some employers place anti-violence messages directly in personnel and safety policies (Peltin, 1999).

When it comes to security against theft and sabotage common measures are surveillance, lighting, burglary alarms, access levels, fencing and guards<sup>9</sup>. Theft of goods is a significant risk for many enterprises. According to some observers, loss estimates from cargo theft range from \$ 10 billion to \$ 30 billion a year world wide. However, this figure does not capture the indirect costs associated with theft such as lost sales, production downtime and missed deliveries (Andersson, 2007). Although money can be saved through discovering theft, it could also affect the perceived quality of the management if organized and widely spread.

In the 90's insider crime became the crime with the highest business impact. It is therefore important to have established routines and a functioning internal documentation concerning money, data and goods (Hamilton, 1996). It is also of great importance that the executives set a leading example when setting reasonable wages and using the enterprise's resources. Employees are more inclined to disloyal behavior when they do not feel a personal support and appreciation of their work (Hamilton, 1996). In a recent survey of gainfully employed across the UK, 60 % of the respondents admitted to theft of confidential documents, customer databases, business contacts and sales leads from their employer (Twentyman, 2007). Other surveys shows that in 70 % of data-theft cases the guilty parties are shown to be enterprise insiders and that the attitude among employees is more important than technology (Twentyman, 2007).

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<sup>7</sup> Westlund M., Senior Consultant, Aon Sweden AB, Stockholm, 17-04-2007

<sup>8</sup> Halén H., CFO, Hexagon AB, Stockholm, 18-06-2007

<sup>9</sup> Lindhé G., Manager, ARS Risk Management, Aon Sweden AB, Malmö 04-10-2007

### **3.2.5 IS/IT Risks**

Through a well functioning Information System/Information Technology (IS/IT) security, an enterprise is protected from getting information lost, altered or fallen into the wrong hands. IT security can be defined as maintaining the confidentiality, integrity and availability of an enterprise's information assets and ensuring compliance with legal, contractual and regulatory constraints (White, 2007).

IT-security concerns not only the enterprise and its employees but also their suppliers, customers and the public. It is very important for highly automated operations and supply chains with "just in time" philosophy which are vulnerable for interruptions in the information system (Hamilton, 1996).

To avoid interruptions in IS/IT, several systems can be set to perform the same task and information can be stored at multiple locations. Computer centrals should have multiple connections for data communication and power supplies to reduce the risk of interruptions (Hamilton, 1996).

IT risks potentially raise liability issues (White, 2007). Confidentiality is especially important for enterprise's handling sensitive information from customers or research material. Mitigation or elimination of IT security exposures should have a high priority, particularly at technology based businesses (White, 2007). Routines for information handling, passwords, firewalls encryption et cetera are therefore important. Due to the rapid technological advances, threats that were unheard of before will arise. Audits are necessary to keep up with such changes to address them competently and timely (Pinnero & Eli, 2007). Policies for IT-security and an appointed IT-manager should exist within the enterprise to be able to control these risks (Hamilton, 1996).

### **3.2.6 Political Risks**

Although foreign direct investments offer a great deal of opportunity for profit, risks associated with operations in unfamiliar and potentially hostile environments are also greater (Dugan, 1999). This is particularly true for investments in developing countries and countries with political instability (Hamilton, 1996). The situation and conditions for trade and industry can change dramatically over a short period of time. Enterprises with foreign owners are more often targets for political changes (Hamilton, 1996). An enterprise investing abroad cannot foresee all political risks if it is not well-familiar with the country's political culture and history. These political risks can have very severe impacts on an enterprise's operations. Risk management has therefore become an essential part of successful operations in countries where politic actors can change conditions dramatically for foreign enterprises (Dugan, 1999).

Insurance coverage can be very important for "over seas investment" (Dugan, 1999). There are many insurers which cover a broad spectrum of political risks. Sweden's Export Credits Guarantee Board (EKN), whose task is to protect Swedish exporters from losses related to export contracts, is one example (EKN, 2007). EKN and OECD have public lists of countries and their risk class for public, banking and corporate credit takers. For risks concerning business environment and policy risks, the best risk treatment is organizational planning and knowledge on the political environment. Pre-entry planning with a risk

assessment, strategy and contingency plans should exist for high risk areas. Some enterprises choose to outsource the risk assessment to agencies with regional political risk expertise (Dugan, 1999).

Loss of property through sudden or gradual expropriation, confiscation, or nationalization is considered to be one of the most apparent political risks (Dugan, 1999). Catastrophic events also include political risks, which can affect the operation of foreign firms in a country. The common denominator for these events is politically related violence and includes civil strife, racial and ethnic discord, international conflict, war, systematic failure and terror acts (Dugan, 1999). In the context of modern conflicts, nepotism is often a contributing cause of grievance and conflict (Collier, 2000). Kuznar & Frederick (2006) have also found that step wise distributions of wealth and power in a country (often affected by nepotism) is a strong contributor to social unrest among groups who has much to gain and little to lose from a societal change. Civil war and other acts of violence are rare but can bring about substantial damages to property and losses due to disruptions in production. Examples where this has happened are civil strifes in former Yugoslavia and Indonesia resulting in destroyed infrastructure, worsened economical conditions for foreign enterprises and large amounts of lost revenue. (Dugan, 1999)

Changes in business environment include risks related to government corruption, labor strife, elections and the judicial system (Dugan, 1999). Corruption can result in unfair competition for contracts and difficulties with licenses, imports and exports. In certain countries, labor confederations are closely connected to political parties resulting in nation wide strikes, which the enterprises can do nothing to cease.

Political processes generally affects foreign enterprises indirectly through shifts in public policies such as tax reforms, monetary policy or regulations limiting foreign initiatives in certain sectors (Dugan, 1999). Economic crisis and change in monetary policies can force governments to devalue the domestic currency which usually leads to drastically increasing interest rates, flight of liquid assets, worsened economy and lower revenues (Dugan, 1999). Other concerns are prohibitions of exchanging domestic currency for hard currency or transferring local currency abroad, price freeze or control of produced goods and refusal of renewing licenses for import and export. Exchange or transfer of local currency periodically with short intervals and negotiating agreements with the current government in issues as infrastructure, property rights and tax incentives can therefore be advisable (Hamilton, 1996). An enterprise with strong interests in a country should strive towards best possible relations with the regime in power without offending the opposition or deviating minorities (Dugan, 1999).

### **3.2.7 Liability Risks**

An enterprise can be held responsible for causing many types of damages to others, damages that could lead to litigations and indemnities. As mentioned earlier, environmental impact, safety and health are some of these areas. Other types of damages where an enterprise can be held responsible are failure of delivering satisfactory products and services or loss and improper handling of customer data. Perhaps the potentially most costly liability is product liability, which could lead to product recalls, punitive and compensatory indemnities (Ross, 2006).

Product liability in the form of punitive and indemnities is primarily a risk in the USA but the passage of product liability and product safety laws has recently expanded significantly both in the EU and all around the world (Ross, 2006). The General Product Safety Directive from 2004 stipulates that manufacturers and distributors in the EU have to monitor the safety of products released and report product risks. Executives can be prosecuted for hiding safety problems, government contracts can be suspended and certificates lost, something that Mitsubishi Fuso had to experience in Japan. The publicity in these cases and the spoiled reputation of the enterprise and its executives can be more significant than the liability claim itself. (Ross, 2006)

How safe a product needs to be in a certain country is not an easy question especially if it's sold in many countries. A foreign country may have stricter standards but a customer will many times not pay for the extra safety if none of the competitors have it. It is important to analyze earlier claims and how these matters have been handled historically in different countries to understand the liability risk within a country<sup>10</sup>.

### **3.2.8 Financial and Marketing Risks**

Financial risks contain aspects such as; inflation; credit given to and from the enterprise; improper speculations in derivatives; fluctuation in currency value, interest rate and derivatives (Hamilton, 1996). As mentioned before, financial risks lie outside the scope of this thesis.

Marketing risks concern inter alia market fluctuations, trading agreements, raw material prices, brand name and competition. These aspects usually have great impact on the achievement of an acquisition's objective<sup>11</sup>. Interviews show that marketing risks are usually analyzed before a due diligence analysis takes place and that a purchasing enterprise who intends to use the acquired enterprise as a complement to its existing operations is normally well aware of the market situation. Brand name risks have close connections to crisis management as the brand name can be substantially damaged if a crisis is handled the wrong way.

### **3.2.9 Supply Chain Risks**

In a survey among 600 finance executives in large enterprises around the world, the largest portion of respondents chose supply chain exposures as the top risk to their primary revenue driver (Brannen & Cummings, 2005).

There are few enterprises today that produce a complete product. Most enterprises are part of one or several integrated supply chains which means that interruptions can rapidly have severe consequences not only for the individual enterprise but for the entire supply chain (Paulsson, 2007). One of the more striking examples of a business interruption propagating through the supply chain is the ten minute fire which substantially lowered the production capacity at a single source supplier to Ericsson. Ericsson estimated that their profit was reduced by more than SEK 1.8 (Paulsson, 2007). "In many cases, customers are demanding

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<sup>10</sup> Wallén R., Project Manager, Mergers & Acquisitions, Aon Sweden AB, Stockholm, 22-08-2007

<sup>11</sup> Miger K., Group Risk & Insurance Manager, Securitas AB, Stockholm, 25-09-2007

to see proof that a business is ready for trouble before they will award it a major contract or place a company within its supply chain of manufacturing” (Schwartz, 2003).

Many of the risks described earlier in this chapter can create disturbances in the supply chain. The most severe consequence of destroyed or stolen property is often, as mentioned before, not the value of the property itself but the business interruption it may lead to (Hamilton, 1996). In highly automated production and ordering systems IS/IT risks are strongly linked to supply chain risk. Except for internal risks in the enterprises own operations supply chain risks also include risks at the supply side and the demand side (Artebrandt et al, 2003). Trading agreements and legal contracts with key customers, logistic enterprises and suppliers along with their respective risks also affect the supply chain (Paulsson, 2007).

Except for loss of production capacity, goods can be delayed, sent to the wrong place or be damaged during transport (Paulsson, 2007). The logistic solution of an enterprise is therefore worth addressing when analyzing the enterprises risk exposure<sup>12</sup>. Logistic solutions include amount and location of storages, days of inventory and alternative routes for transport.

The total cost of an interruption comprises of both direct costs in lost revenue and indirect costs in lost market shares (Reason, 1997). The consequences of a business interruption become severe when the customers level of tolerance is lower than the combined time of the interruption, delivery and days of inventories<sup>13</sup>.

Increased competition between enterprises and different supply chains has lead to new trends affecting the supply chains and their risks. Some examples are; Single, or dual sourcing where the number of suppliers are minimized due to cost-effectiveness; lean-production where stock-levels and time slacks are reduced to maximize the use of resources; the concentration of production to fewer factories. The trends mentioned above lead to potentially higher consequences of an interruption at a single site. However, new technology to increase control of the supply chain and easier border crossing helps to control the vulnerabilities. (Paulsson, 2007)

The DRISC (Disruption Risks in Supply Chains) model for supply chain risk management developed by Paulsson (2007) suggests a number of generic risk handling methods, see Appendix D – Risk Handling Methods for Supply Chain Risks Proposed by Paulsson.

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<sup>12</sup> Paulsson U., Tutor, Lund University, Lund, 19-10-2007

<sup>13</sup> Börjesson M., Risk Consultant., Marsh AB, Malmö, 12-09-2007

### **3.3 Risk Management**

As mentioned earlier, when defining risk management there are numerous different notions and terms associated with risk management. Although there are different related frameworks developed and enterprises don't embrace the same one, the ideas and thoughts behind them are similar or at least related. To understand risk management, the role of the risk manager has to be declared.

#### **3.3.1 Risk Manager**

The risk manager is commonly a central figure that coordinates the management of risks. The primary task is to make sure that the other managers have the possibility to identify and manage risks that concerns their field of responsibility<sup>14</sup>. How the risk management is organized varies between enterprises depending on risk exposure, risk management strategies and what kind of activities the enterprises have and what technologies they use (Rasmussen & Svedung, 2000). In many organizations the risk manager's main task is to optimize the insurance program. Sometimes the risk manager is not even an employee at the enterprise and the function has been outsourced.

#### **3.3.2 Related Terms**

The frameworks and notions discussed in this chapter are risk management according to International Electrotechnical Commission (IEC), Avesta Risk Management (ARM), management systems, The Committee of Sponsoring Organizations of the Treadway Commission (COSO), and Business Continuity Management (BCM).

##### **3.3.2.1 IEC, ARM and the Risk Management Process**

As mentioned earlier in this thesis, IEC (2002) defines risk management as coordinated activities to direct and control an organization with regard to risk. According to the application guide for risk analysis of technological systems presented by IEC (1995), the process of risk management includes several elements. The process incorporates; initial identification and analysis of risk; evaluation of its tolerability and identification of potential risk reduction options; selection, implementation and monitoring of appropriate control and reduction measures (IEC, 1995). The elements of risk analysis, risk assessment, implementing and monitoring preventive and mitigating measures are found in practically all descriptions of risk management.

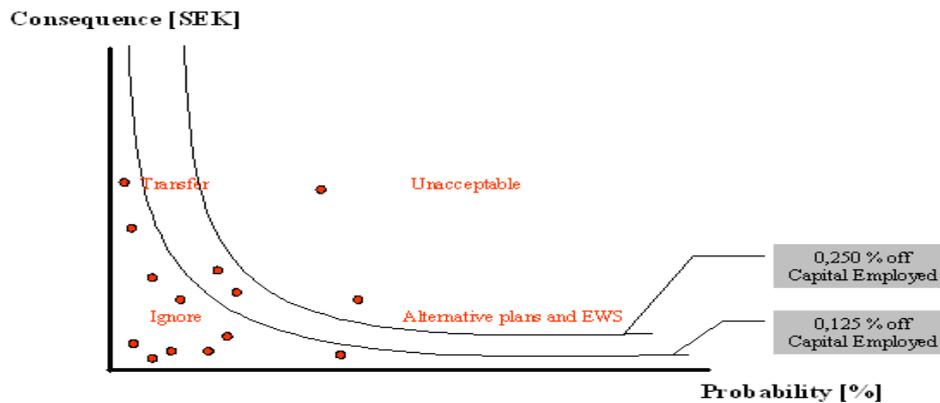
In 2002, IEC extended the application area of risk management from dealing solely with physical damage to being a part of the broader management of organizations. IEC also added risk communication to the notion of risk management and noted that risk treatment not only includes measures to reduce risk, but also avoiding, transferring and retaining risk (IEC, 2002).

What treatment to use can be decided by making a risk portfolio. An example of a risk portfolio with recommended methods of risk treatment is described in Figure 3. In the figure each dot represents a risk with determined consequence and probability. Low risks can be ignored, risks with high consequence and low probability are often transferred to an

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<sup>14</sup> Grahn I., Chairman SWIRMA AB, Lund, 24-01-2007

insurance, medium risks should have risk mitigating strategies and high risks are unacceptable which can mean withdrawing from project<sup>15</sup>.



**Figure 3. Example of a risk portfolio with recommended methods of risk treatment<sup>16</sup>.**

ARM is a hands-on method for analyzing and controlling risk in order to get a production without disruptions. Risk analyses are only valid for a limited time and both IEC and ARM define the risk management as an on-going process. Since the world is constantly changing, risk analyses need to be updated and the process of risk management needs to be continuous or at least iterative<sup>17</sup>.

Risk management is often described as a coordinated and integrated part at many levels of an enterprise. In order to effectively and continuously perform a risk management process according to IEC (2002), organizational pre-requisites need to exist. Risk analyses need background information such as knowledge of alarming incidents or conditions and experts on different areas need to be included in the process. The enterprise's attitude towards risk needs to be established in order to make adequate risk assessments and risk policies. Implementation, controlling and communication of risk should also be organized and systematic (Akselsson, 2006). One way to make sure that these organizational pre-requisites are in place is to use a management system.

### 3.3.2.2 Management Systems

Management system is a concept most commonly applied to environmental, safety and quality management (Kemikontoret, 1997) but is also used in areas such as economy and security. In a broader sense, management system is a formalized system for making an organization more effective in terms of achieving its goals (Brorsson & Almgren, 2006). Although many enterprises do not have a formal management system, the ideas behind them or elements in it can still be found.

Abrahamsson & Magnusson (2004) see management systems as important elements of managing risk and a potential strategic framework for risk management, even though

<sup>15</sup> Svensson B., Group Risk Manager Eon, Lund, 16-01-2007

<sup>16</sup> *ibid*

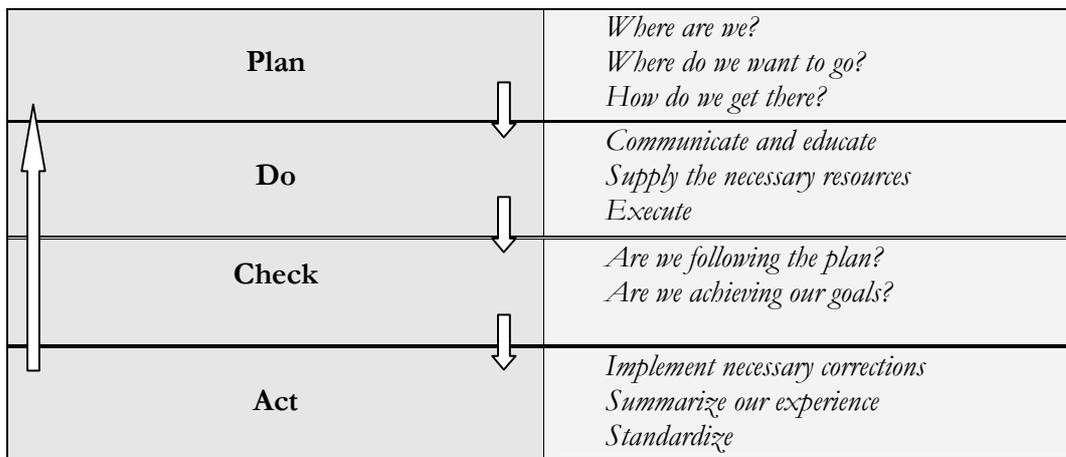
<sup>17</sup> *ibid*

management systems for other areas such as environment and quality also contain risk assessments and implementation to avoid costly events. Jansson<sup>18</sup> shares these views and defines a risk management system as a “formalized process for coordinated activities used to control and manage an organization with regards to its risks”.

In a management system the following parts are analyzed, determined and communicated; legislation requirements; policies; the enterprise’s objectives; action plans; organizational structure; responsibility distribution; education and routines<sup>19</sup>. Some variations of used terms exist between different standards but they are similar in their content.

Some important aspects of management systems are the attitude, participation and awareness among the employees and if they fail, so does the management system. A major problem with a management system is all the paperwork it demands and that it has a potential of becoming a document lying in a cupboard instead of being a living process<sup>20</sup>. It is also important that sufficient resources are allocated in order to implement the system and secure the enterprise to be certified. However the certification should not be the main reason to implement a management system (Kemikontoret, 1997).

Deming’s cycle, also known as the PDCA-cycle, is a central notion in all management systems (Brorson & Almgren, 2006 and Akselsson, 2006). The PDCA- cycle, see Figure 4, is a model for constant improvements through four components, Plan, Do, Check and Act.



**Figure 4. The components of the PDCA-circle (Akselsson, 2006, Pg. 67).**

The four components are described on following page.

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<sup>18</sup> Jansson T., Fire Safety Consultant, P&B Brandkonsult AB, Lund, 06-02-2007

<sup>19</sup> ibid

<sup>20</sup> ibid

- **Plan** - consists of answering the questions of what the current situation is, setting policies, goals and plans of action to achieve the policies.
- **Do** - consists of translating the policies and plans of action into practical routines, distributing responsibility, and communicating the goals, policies and routines to the employees, education and executing.
- **Check** - consists of measuring the results through audits.
- **Act** - consists of summarizing the experiences, revising policies and implementing corrections.

### 3.3.2.3 Enterprise Risk Management

The elements of the risk management process according to IEC (1995 and 2002) and management system are also found in COSO's framework for Enterprise Risk Management (ERM). The components of ERM according to COSO (2004) are similar to the ones in a management system but with the difference that there is a risk management process, similar to the one described by IEC. In ERM policies are set from the objectives and risk analyses where as in a management system the objectives are set from the policies. Another difference is that a management system is often applied to a specific subject such as environmental issues while ERM is a wide concept integrated in all issues leading to risks and opportunities (COSO, 2004). In Figure 5, a schematic view of ERM according to COSO is described.

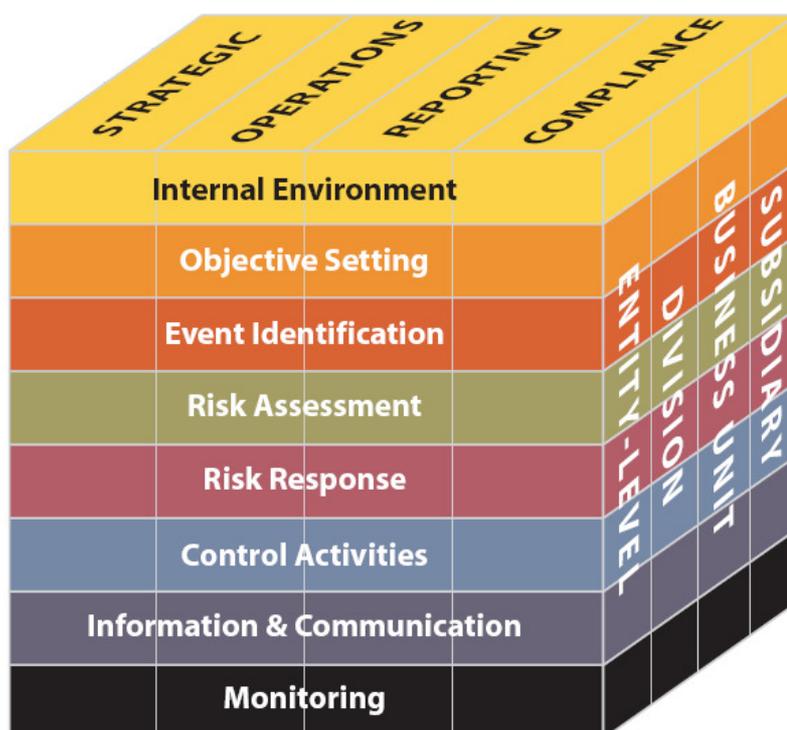


Figure 5. COSO's depiction of the relationships between an enterprise's objectives and the components of risk management in form of a cube (COSO, 2004, Pg. 5).

The ERM framework is geared to achieving an entity's objectives, set forth in four categories:

- **Strategic** – high-level goals, aligned with and supporting its mission
- **Operations** – effective and efficient use of its resources
- **Reporting** – reliability of reporting
- **Compliance** – compliance with applicable laws and regulations.

The ERM processes should be applied to all levels of the entity, from subsidiary, business unit, division to entity level to achieve the entity's objectives.

The ERM framework consists of eight components, which are briefly presented hereunder. Risk management is only effective if all eight components are present and functioning properly (COSO, 2004).

- Internal environment is basically the attitude the enterprise and its employees have towards risk. It includes management philosophy and inherent values at the enterprise.
- Objectives are set and aligned with the enterprise's mission and attitude towards risk. According to COSO, objectives must exist before the management can identify events that can affect its achievement.
- Internal and external events affecting achievement of an entity's objectives are identified and distinguished between risks and opportunities. Opportunities are channeled back to the management's strategy or objective setting processes.
- During the risk assessment both likelihood and impact of risks are used as a basis for determining how they should be managed.
- The risk response can be divided into avoiding, accepting, reducing, or sharing risk in accordance with the entity's risk tolerances and risk appetite. Risk appetite is the amount of risk an enterprise is willing to take in their business life.
- As a part of the control activities, policies and routines are established and implemented to help ensure that the risk responses are carried out effectively.
- In order for the process to work, there has to be effective communication, flowing down, up, and across the entity. Relevant information has to be identified, captured, and communicated in a form and timeframe that enable employees to carry out their responsibilities.
- The process is monitored through ongoing management activities, separate evaluations and necessary modifications are made. ERM is not strictly a serial process, but a multidirectional, iterative process in which almost any component influences another.

### 3.3.2.4 Business Continuity Management

If an organization can be considered to be so complex that all relevant events cannot be identified, then there are reasons to shift focus towards what should be protected rather than the sources of risks. If attention is focused on what can be harmed and how to build resilience against the possible consequences, the enterprise may become more robust (Hallin et al., 2004). The reasons for business disruptions may not even be under the organization's control.

How an organization acts after a disturbance strongly affects the extent of the damage and whether the situation evolves into a disaster (Elliott et al, 2002). Business continuity management (BCM) is particularly concerned with developing organizational resilience allowing an organization to survive the loss of operational capability (BCI, 2007). BCM is to be viewed as a subset to a larger risk management strategy (Krell 2006). As risk management focuses on risk sources that may cause all kinds of potentially hazardous events and how to prevent these, BCM focuses on the processes after a sudden event causing significant business disruption and how to get back to ordinary business (BCI, 2007). The difference between risk management and BCM is described in Table 2.

**Table 2.** The differences between Risk Management and BCM (BCI, 2007)

	<b>Risk Management</b>	<b>Business Continuity Management</b>
<b>Key Method</b>	Risk Analysis	Business Impact Analysis
<b>Key Parameters</b>	Impact & Probability	Impact & Time
<b>Type of Incident</b>	All types of events – through usually segmented	Events causing significant business disruption
<b>Size of Events</b>	All sizes (costs) of events – through usually segmented	For strategy planning – Survival threatening incidents only
<b>Scope</b>	Focus primarily on management of risks to core business objectives	Focus mainly on incident management mostly outside the core competencies of the business
<b>Intensity</b>	All from gradual to sudden	Sudden or rapid events (through response may be appropriate if a creeping incident becomes severe)

Some literatures about BCM and risk management do not distinguish between the terms crisis management, contingency planning and business continuity planning. All of the terms are sometimes described as the process of creating a generic ability to respond to crisis events (Borodzicz, 2005). A crisis is strongly linked, not only to technical and hardware systems, but also to social characteristics (Elliott et al., 2002). Crisis communication, both internal and external, is therefore vital for the management ability (Thelander, 2007).

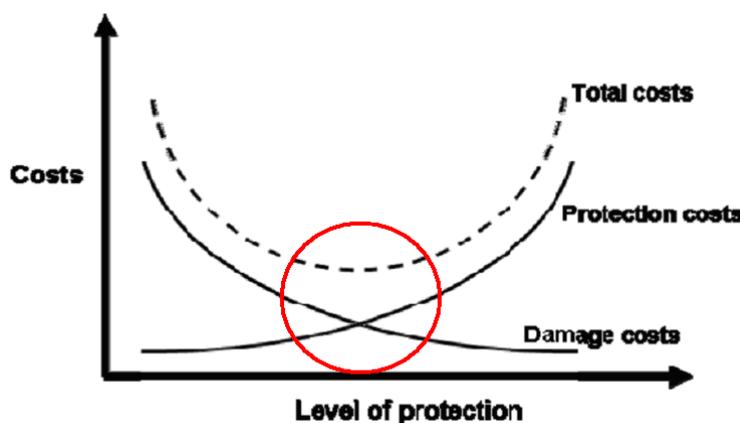
Plans developed within BCM deal with three principle areas, the emergency phase at site, the communication directly after a crisis and how to regain production<sup>21</sup>. Plans for the emergency phase involve issues such as evacuation of personnel and saving valuable assets and equipment. Crisis communication plans mainly involve keeping or restoring public and customer relations to govern the organization. To ease public relations an organization needs a bank of public goodwill to fall back on (Lau, 1987/1988). Business continuity planning is the part of BCM which deals with the restoration of production and sales (Krell 2006).

One of the key goals of BCM and BCP is to restore production and deliveries in a reasonable time. The reasonable time depends on the customers' patience<sup>22</sup> and when an enterprise is part of a supply chain it is important to consider the impact on the supply chain as a whole<sup>23</sup>. Supply Chain Risk Management is a framework which incorporates both risk management and BCM of disruption risks in the supply chain (Paulsson, 2007).

### **3.3.3 Advantages and Disadvantages of Risk Management**

When making risk reducing investments the intention should be to minimize the total cost of risk (Nystedt, 2000). However, protection costs money, both working hours and physical investments. This means that apart from performing risk management in an effective manner it is necessary to keep the protection at an appropriate level.

Total cost of risk can be seen as the sum of the cost of protection and damage costs. The cost of protection can be seen as the sum of risk retention costs, risk transfer premiums, and administrative risk management costs (Nystedt, 2000). If an enterprise has an effective risk management, damage costs decrease as the resources spent on protection increase. There is always a point where too much resources are used on risk management in comparison to the potential damage of the risk itself. The level of protection should be optimized so that the total cost of risk is minimized, see Figure 6.



**Figure 6. Total cost of risk. The level of protection should be optimized so that the total cost of risk is minimized (Nystedt, 2000, Pg. 9).**

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<sup>21</sup> Willemo M., Senior Risk Consultant, Aon Sweden AB, Tutorial meeting, Stockholm 20-05-2007

<sup>22</sup> Börjesson M., Risk Consultant, Marsch AB, Malmö, 12-09-2007

<sup>23</sup> Paulsson U., Paulsson U., Tutor, Lund University, Lund, 19-10-2007

COSO (2004) stresses the ability to reduce operational surprises and losses, aligning risk appetite and strategy but also the ability to enhance risk response decisions, managing cross-enterprise risks, seize opportunities and improving deployment of capital to be benefits of a well functioning risk management. According to a study performed by Aon (2006) on 235 clients, the perceived benefits of risk management investments are foremost:

- More informed decisions on risk taking/risk retention
- Improved internal controls
- Lower total cost of insurable risk premiums, retention costs and risk management costs
- Improved standards of governance
- Improved business strategy
- Improved returns on investment
- Reduced compliance costs
- Improved shareholder value

The disadvantages of risk management are primarily that an enterprise can become too cautious. Risk retention costs and administrative risk management costs can grow to become disproportionate to the potential damage costs (Nystedt, 2000). If the result of risk management is not perceived or used by the organization to create value, it is likely to merely take up valuable time and resources. Fully integrated enterprise risk management can require more resources than it is worth<sup>24</sup>. Also if an enterprise focuses too much on its risks, it may become too cautious and rigid in its strategic and operational decisions and hence missing out on potential profits (Pablo, Sitkin & Jemison, 1996). Risk management is not a core business and should not be performed disproportionately to its potential value<sup>25</sup>.

### **3.4 Introduction to Mergers and Acquisitions**

Mergers and acquisitions (M & A) have in recent years become increasingly frequent and is nowadays a part of the ordinary business activity in several major Swedish enterprises. It is the Swedish traditional industry that does the majority of the M & A activities and the lion's share of the transactions is border-crossing (Sevenius, 2003). M & A is often associated with an enterprise purchasing all shares of an enterprise quoted on the stock exchange (Sevenius, 2003). However, most of the acquisitions, mergers or divestitures are with unlisted enterprises or with subsidiary enterprises.

The Swedish M & A processes and structure have evolved from the Anglo-American way of doing M & A, founded on the American security laws, and they are similar in regard to method of working, motives, and trends. However, M & A is not a straight-forward operation. Due to research and prevailing situation, the shape and content of an M & A

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<sup>24</sup> Svensson B., Group Risk Manager Eon, Lund, 16-01-2007,

<sup>25</sup> *ibid*

varies from time to time. The chosen purpose, along with available time, wherewithal and competence, will also influence what approach an enterprise chooses to take in the M & A process and what kind of analyses that are necessary to carry out (Sevenius, 2003).

A simplistic definition of mergers and acquisitions made by Sevenius (2003), translated into English, is “*when an enterprise purchases an enterprise from an enterprise*”. (In Swedish: “*när ett företag köper ett företag av ett företag*”).

The definition is rather a platitude but describes what M & A are all about. From the definition emerges that relations between different parties involved in the processes are important. The parties involved are primarily the purchasing enterprise, the selling enterprise and the target enterprise, but also advisers, stakeholders and surrounding community play important roles in the M & A process. All the different relations have to be seen as processes that makes it possible to move from ideas and plans to implementations and result (Sevenius, 2003).

In the competitive and aggressive economy of today, M & A have been accepted as a strategic option to reach the enterprise’s strategic goals (Harvey & Lusch, 1998). Much attention is focused on the price of the deal, potential synergies and cultural integrations. Boren & Flood (1999) mean that although less attention is paid to how liabilities are addressed, it is an equally critical factor for the success or failure of a transaction. Harvey & Lusch (1995) share these ideas and mean that M & A need to present a more fully developed picture of the potential benefits and liabilities in the acquisition, merger or divestiture. Harvey & Lusch (1998) also mean that M & A will continue to grow and improve due to the availability of acquisition capital, relatively low cost of capital, maturing of industries and the expansion of the international marketplace.

### **3.4.1 The Mergers & Acquisitions Process**

In order to accomplish a well performed acquisition, merger or divestiture there is a need to be prepared and to have a holistic view of risks and opportunities within the transaction. The process of M & A should be seen from a process thinking view and Sevenius (2003) defines three different phases; the transaction-, transformation- and integration phase. Each phase holds different instruments that will help the investigating enterprise to collect and analyze the most truthful information possible before an acquisition, merger or divestiture.

#### **3.4.1.1 Strategic Phase**

The strategic phase consists of activities that lead to a good position prior to an M & A and the establishment of contact with vendors. Strategic analyses of potential target enterprises should be done to define the objectives of an M & A. There should also be a clear definition of the motive for acquirement and what value the target enterprise is meant to create for its new owner (Sevenius, 2003). Harvey and Lush (1998) share the view that the M & A process in the strategic phase should identify the primary motivation for an acquisition, merger or divestiture but it should also be put across to the M & A team in an early stage to ensure that the purchasing enterprise’s objectives are understood.

There are a number of different theories to explain why an enterprise wants to acquire, merger or divestiture another enterprise. Some of the common theories are listed below. (Arnold, 2005)

**The efficiency theory** – M & A is viewed as a strategic plan and executed to attain financial, operational or managerial synergism between the purchasing and target enterprise.

**The market power theory** – The primary motivation for M & A is the control of a specific market or a reduction of competitors in a market as well as between suppliers. Sevenius (2003) describes this motivation as a horizontal and vertical acquisition and points out the synergic benefits and cost reductions that hopefully arises.

**The valuation theory** – M & A is based on information that is “better” than the ordinary information in the general marketplace and gives an advantage in business and hence creates value.

**The process theory** – M & A is viewed as an outcome of strategic planning and is the logical outcome of corporate strategies.

**The raider theory** – M & A is viewed as a process of purchasing an enterprise, immediately breaking it down into smaller units and selling them off. Sevenius (2003) describes this theory as a hostile M & A.

**The disturbance theory** – M & A is viewed as a strategy to keep competitors off-balanced relative to the existing balance-of-power within a specific market.

#### **3.4.1.2 Transformation Phase**

The transformation phase is about transferring information from the target and vendor enterprises to the purchasing enterprise. It is in this phase a due diligence process takes place and provides the purchasing enterprise with an as correct view as possible of the target enterprise. The due diligence process aims to compare the target enterprise with the objectives of the M & A. If the due diligence analysis gives a good result, the responsibility distribution for issues such as taxation must be investigated and elucidated in order to prepare for a transaction between the concerned parties (Sevenius, 2003). A holistic view is necessary in order to secure that mergers and acquisitions do not fail to poor synergy, bad timing, incompatible culture and off-strategy decision-making (Perry & Herd, 2004). The phase ends with the establishment of a contract of sales where guiding principles for the acquisition, merger or divestiture are determined (Sevenius, 2003).

#### **3.4.1.3 Integration Phase**

The last phase in an M & A process is the integration phase which begins after the deal is closed. It's in the integration phase the real work begins to acculturate the two divisions. Different enterprises are to fuse, routines are to be co-coordinated and actions are taken to establish value preserving activities. (Sevenius, 2003)

### **3.5 Due Diligence Analysis**

The due diligence analysis is where a purchasing enterprise's expectations and the real conditions at a target enterprise are compared to each other. The analysis is meant to guarantee that the information about the target enterprise is correct, accurate and properly disclosed (Steinberg, 2002). The expectation on the target enterprise comes foremost from the strategic analysis made in the strategic phase in the M & A process (Sevenius, 2003).

There are several kinds of due diligence analyses and the most common ones are financial and legal (Sevenius, 2003). Due to increased requirement from lenders and environmental liability issues the framework of due diligence has expanded. The impetus of the modified pre-requisites has led to the application of due diligence to the areas of operation, environment, management, marketing, and system information. Sometimes the term commercial due diligence is used as a generic term for operational, management and marketing due diligence (Sevenius, 2003). There has also been a development towards focusing on tangible as well as intangible assets of the target enterprise in order to collect the required information. The intangible assets are both in the enterprise's internal and external environment (Harvey & Lusch, 1995). Although the financial and legal due diligence searches for obstacles in the historical analysis, the primary task is to examine assets, liabilities and future projected growth scenarios after the acquisition in order to secure future increase in values for the purchasing enterprise (Sevenius, 2003).

A short review of different kinds of due diligence analyses is introduced below. The information comes from Harvey & Lusch (1995).

**Commercial due diligence** – is performed to discover signals that may precede changes in economic, social or strategic areas. The following aspects may be analyzed during the commercial scanning:

- How business and industry correlates to performance
- Impact on the commercial life in the business area
- Competitor profile and strategic positioning of the target enterprise
- Commercial opportunities and risks within the business area
- Management philosophy and it's robustness
- Organizational structure
- Personnel assessment with focus on key executives and attitude toward a potential acquisition

**Legal due diligence** – is performed to ensure that all legal matters are in good condition. The following aspects are usually analyzed during a legal due diligence:

- Basic organizational matters concerning liability
- Ownership of securities
- Banks and borrowing agreements
- Financial history
- Historical and ongoing litigations
- General regulatory data
- Real and personal property
- Intellectual property rights
- Contractual management issues
- Labor contracts and their history

**Financial due diligence** – aims to collect and analyze divergences that can have an effect on the target enterprise's valuation. The following areas are usually analyzed during a financial due diligence:

- Income- and balance-sheets from recent years
- Audit systems
- Internal control programs
- Cash flows and key number analyses
- Budget plans
- Accounting principles

To be able to get the holistic view of an M & A, the due diligence analyses should also consider analyzing the non-financial risks and their management. Risk management can play a valuable role since it is part of several aspects of an enterprise's operations. A risk manager should be in an ideal position to help to identify potential problems (Hollyday, 1995). Evans, Segura & Doherty (2005) stress the importance of incorporating risk management in the entire due diligence process. They mean that proven best practices should be applied to address specific risks, and that historical lessons learned should be used to improve future performance.

### **3.5.1 Due Diligence Process**

There is a series of issues that have a direct impact on the due diligence process and Harvey & Lusch (1995) categorize these issues into time restriction, cost constraints and situational factors. The quality of the result from a due diligence analysis is dependent on these factors. However, the result also depends on how the due diligence team was put together, what technique/procedure was used and if an appropriated sequence of audits to collect desirable data was performed (Harvey & Lusch, 1995).

#### **3.5.1.1 Due Diligence Team**

The process of due diligence is carried out by a team whose members have expertise in several areas. Steinberg (2002) discusses in detail into how the team should be composed and means that the team may include members from different disciplines such as; financial, tax, risk management, IS/IT, human resources, environmental, legal, actuarial, operations and sales. The members are usually employees of the acquiring enterprise or external consultants from agencies that are specialized in a specific discipline.

#### **3.5.1.2 Due Diligence Procedure**

The procedure used when performing a due diligence analysis is quite similar independent of the approach of due diligence (Sevenius, 2003). In the literature there is only a slight difference between published procedures. However, it should be noted that a due diligence analysis is specific for every occasion and has to be designed with the objectives for the acquisition and available time and wherewithal in mind.

Steinberg (2002) means that the due diligence should be accomplished in four steps; identification, analysis, report and follow up. Sevenius (2003) has a similar approach but with the addition that there should be a pre-phase with preparation before starting the due diligence analysis. Sevenius' method is summarized below.

#### **Preparation**

The motive and objectives for the acquisition have to be stipulated and concretized so the purpose of the due diligence analysis is appropriate for the given conditions. It is also important to inform and clarify so that the due diligence team understands the objectives of the acquisition and focuses on the right things. In most cases a letter of intent, determining the conditions for the analysis, is established between the vending and purchasing enterprise

#### **Data Collection**

Collecting data is the initial stage of making contact between the due diligence team and the target enterprise. The first step is to send a written information request list to the target enterprise and specify what information the team wants to access. The information request list is often based upon the target enterprise's business and the motives and objectives for the acquisition. The information request list is in practicality a list of documents and data that the team needs to investigate and employees to interview in order to get a first impression of the condition of the target enterprise. The information is handed over in a secure data room, which is usually established at the target enterprise or in virtually created rooms.

### **Data Analysis**

When most of the desired data is collected, the due diligence team starts to analyze the accessible information. The information usually has to be completed with interviews with employees such as key personnel and executives at the target enterprise to get a complete picture.

### **Reporting**

The due diligence is concluded with a report to the decision makers at the purchasing enterprise. The observations are summarized in a written report or presented viva voce.

Presented information consists of observations and discrepancies from the purchasing enterprise's expectation and recommendations. There should also be a list of areas that have been excluded due to lack of information or other limitations such as time or wherewithal. It is important to keep the presentation short and rich in information to satisfy the decision-maker's requirements.

### **Follow-up**

The follow-up phase begins after the acquisition is accomplished and aims to evaluate the due diligence process and the result of it. This phase should be viewed as an opportunity to obtain important feedback and enhance the competence of the involved parties.

## **3.5.2 Result from the Due Diligence Process**

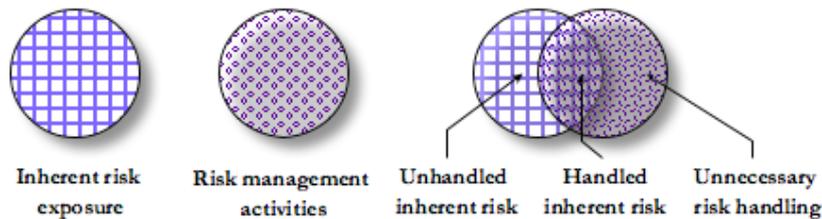
The result from a due diligence analysis can be used in several ways. The result will particularly show risks that exist within the target enterprise and conduce to determining the contract price and warranties of the contract of sale. It will also work as an important implement for further decision making and as support in negotiating in conjunction to an acquisition. (Sevenius, 2003)

The result also makes it possible to gain a deeper understanding of the target enterprise and its business area which in the prolongation will facilitate the integration of the target enterprise in the purchasing enterprise's organization after an acquisition (Harvey & Lusch, 1995).

## **3.6 Risk Management and Due Diligence**

Due diligence of risk management has in recent years become a subject that attracts much attention (Chapman & Ward, 2004). It is a quite new and unexplored area and theoretical models for due diligence of risk management are scarce. However, some authors (Hollyday, 1995, Calabrese, 2002 and Steinberg, 2002) have written about the subject in papers that suggest a working process and contents of a due diligence of risk management. Their view of due diligence of risk management involves analyzing all of the target enterprise's risk exposures in order to determine what level of loss control and what insurance coverage that is required. A list of aspects to consider is presented in Appendix C – Due Diligence Checklist Proposed by Steinberg.

Paulsson<sup>26</sup> has created a model to describe the risk and risk management situation at an enterprise. According to Paulsson can this model be applied when performing a due diligence of risk management. The model is described in Figure 7; an enterprise generates a certain amount of inherent risk exposure and this exposure is partially covered by risk management activities. Since it is almost impossible to match these, two discrepancies arise. The first discrepancy is risks that lack coverage and the other is unnecessary risk handling where resources are unjustifiably spent.



**Figure 7. Paulsson's model to describe the risk and risk management situation at an enterprise. The two figures rarely have the same shape or size.**

### **3.7 The Principles of Insurance**

Insurance is the far most used risk management measure today and have worked as an instrument for risk transferring for a long time (Mattsson, 2000). For a large number of enterprises and organizations, purchasing insurance from an outside insurer is the most reliable way to ensure funds to pay for major losses (Blinn et al., 1996). Without insurance the individual enterprise has to carry all risk by itself. Transferring the risk and thereby reducing the uncertainty will make it economically feasible to perform some activities that would otherwise be considered too risky to undertake.

Blinn et al. (1996) mean that insurance is not only a risk transferring measure, it is also a risk financing technique and a legal contract. By this, the scope of insurance should be viewed from a broader perspective and be seen as an instrument for pooling and transferring loss exposure between organizations and a legal way of financing recovery from losses.

In spite of the advantages of insurance, it is important to have in mind that the risk of being exposed to a damage or loss does not disappear just because an enterprise has an insurance program. Insurance can create a false feeling of safety and insured enterprises will be less aware of risk (Hamilton, 1996). Another aspect to consider is so called hidden costs i.e. costs for damages and losses which can not be covered by insurance or have been overlooked when designing the insurance program. Some examples of hidden costs are loss of market shares after a business interruption or loss of goodwill (Hamilton, 1996).

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<sup>26</sup> Paulsson U., Assistant Professor, Lund University, Lund, 20-05-2007

### **3.7.1 Law of Large Numbers**

The fundamental idea of insurance is to pool a large number of independent risks and utilize the law of large numbers. The law is a statistical relationship that indicates averages based on large amount of data from past experience and tend to be the average of future events, if the underlying conditions remain constant (Blinn et. al., 1996). When analyzing a pool of a large number of independent risks, expected value of the outcome can be calculated with a high precision, in spite of the fact that the insured objects has a high variance in their expected losses (Hörngren & Viotti, 1994). Even with large amounts of data on actual loss experience, an insurance company cannot perfectly predict the insureds future. There are primarily two significant limitations for the law of large numbers that have to be considered (Blinn et al., 1996). First there is a chance that actual losses for a specified period of time will not follow the past pattern due to statistic variation or faulty assumptions of the past pattern. Second, and most important, underlying conditions may not stay the same and loss experience might change so that the future no longer matches a repetition of the past.

### **3.7.2 Attitude Towards Risk and Expected Utility Theory**

To understand the way insurance spreads risk and the role it has in business life, individual attitude toward risk and expected utility theory have to be illustrated. Anthropological theories suggest that individuals are guided by their culture in their choice between risk avoiding and risk accepting strategies. But also the magnitude of a potential loss and group dynamic have an impact on the decision of the individual (Outreville, 1998).

The assumption of risk aversion in the utility theory implies that individuals would most prefer to avoid situations with high-loss risks. Because of this, individuals and enterprises will be risk averse when it comes to decisions concerning major amounts and this is one of the main aspects why insurance is the leading risk transferring instrument of today (Hamilton, 1996). The notion of utility is an important aspect to understand risk averse in terms of economy. Mattsson (2000) describes utility as a scale measuring the attractiveness of a consequence or the degree of satisfaction to the individual.

Insurance can be analyzed within the expected utility theory. The theory states that when a decision maker chooses between risky or uncertain scenarios a comparison of their expected utility values should be done, i.e. the weighted sums obtained by adding the utility values of different outcomes multiplied by their respective probabilities (Mattsson, 2000). The insurance industry offers a mechanism to reduce uncertainties posed by potential accidental losses, a subscribing insurance implies a yearly sacrifice (loss of utility) but will lead to a smaller loss of utility compared to the expected loss of utility for an enterprise without insurance. If the expected utility associated with buying insurance is greater than the expected utility of not buying insurance, a rational individual will buy insurance (Outreville, 1998).

### **3.7.3 Advantages and Disadvantages of Insurance**

There are both benefits and costs associated with insurance. Benefits could be viewed as loss control activities and the primary of these are indemnification, reduction of uncertainty, funds of investment, and aid to smaller businesses (Blinn et al., 1996). However, insurance also generates direct and indirect costs that can have an impact on the development of optimal contracts and affect the allocation of risks (Outreville, 1998).

#### **3.7.3.1 Indemnity**

One of the direct benefits is the indemnity to the one suffering from unexpected losses. The guarantee consists of compensation in monetary terms or financial benefits for an insured enterprise when an accident or loss has occurred. The indemnity will restore, or at least compensate for a part of the loss and move the unfortunate enterprise closer to their former economical position (Blinn et al., 1996).

Mattsson (2000) also calls attention to the society's gain when looking on indemnity. Insured persons or organizations are restored faster to production and by this tax revenue will increase and the country be enhanced in wealth.

#### **3.7.3.2 Reduction of Uncertainty**

Insurance has the advantage to work as a pre-loss instrument by eliminating the insured's risk, uncertainty and adverse reaction toward risk (Outreville, 1998). There are several benefits from reducing risk for the insured. Eliminating the insured's uncertainty will in the long run almost eliminate the physical and mental stress caused by the worry associated with the insured risks. Another benefit is that insurance also reduces uncertainty and inefficiency for enterprises in the use of existing capital and labor, by making the uses potentially more rewarding (Blinn et al., 1996).

Blinn et al. (1996) describe how reduction of uncertainty also encourages accumulation of new capital. Potential investors are less likely to hesitate, economical planning periods are prolonged, credits are generally extended and fewer resources are hoarded when an enterprise has a well covering insurance program. Insurance therefore results in a more optimal production and efficient price levels and price structures (Blinn et al., 1996).

#### **3.7.3.3 Funds of Investments**

As there is a constant inflow of new capital to the insurance market it will be unnecessary for insurers to liquidate all existing assets to pay insured's claims. This will generate more funds available for investment and gain the financial world and in a wider sense the society (Blinn et al., 1996).

#### **3.7.3.4 Aid to Small Enterprises**

Insurance also encourages competition. Without insurance small enterprises would be less competitive against large enterprises, assume more and higher risks and would make them less attractive for investment (Blinn et al., 1996).

### 3.7.3.5 Adverse Selection

Adverse selection is an important aspect to consider in conjunction to insurance and will create costs for the insurance company. This anti-selection is a phenomenon when a potential buyer of insurance has prior-knowledge on the risk that the insurer does not have. There will then be asymmetric information between the two parties (Hörngren & Viotti, 1994). It is impossible or very expensive for an insurer to differentiate low risks from high risks and if the price is fixed to a value, this will attract only enterprises or persons whose risk is higher than average. In prolongation adverse selection will lead to a reduced insurance consumption for low risks and a fix premium will not cover the expected loss (Outreville, 1998).

From insurance companies' point of view, the danger of adverse selection lies in the possibility of misclassifying a certain risk or policyholder. To protect themselves, insurance companies add policy provisions to the contract (i.e. exclusion of some specific perils, monetary or time deductibles) and use selection procedures to put their costumers in different categories with different premiums (Outreville, 1998).

### 3.7.3.6 Moral and Morale Hazard

Moral hazard is a condition when insureds will intentionally cause a loss or increase its severity (Hörngren & Viotti, 1994). It could also be viewed as increase in expected frequency of a loss (Outreville, 1998). Some unscrupulous enterprises will perhaps profit by causing an insured loss, making unwarranted claims, charging excessive fees for services or gaining large awards in liabilities claims. This will generate a higher cost than expected and has to be taken into account when defining the insurance premium (Blinn et al., 1996).

In close connection to moral hazard exists morale hazard, which is a condition that causes an individual to be less careful because of the elimination of the uncertainty concerning financial consequences of a risk (Outreville, 1998). Some individuals do not deliberately seek to cause a loss, but because of their insurance protection, they will take more chances than they would if they had no insurance (Blinn et al., 1996).

## 3.7.4 Premium and Excesses

All kinds of insurances contain premium and excess. A premium is an amount paid by the enterprise to get a desired insurance protection and should be viewed as the price for the insurance protection. When defining insurance premium there are several aspects to consider and the procedure differs between different areas of insurance. It is primarily based on expected maximum loss and loss frequency (Hamilton, 1996). Loss frequencies are divided into different areas under a certain period of time and are benchmarked against the line of business (Hamilton, 1996). Other aspects for the insurance companies to consider are bailiwick, geographical dispersions, current assets, the enterprise's financial balance, proprietorship or specified terms or exceptions in the agreement of insurance<sup>27</sup>.

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<sup>27</sup> Wallén R., Project Manager, Aon Mergers & Acquisitions Group, Stockholm, 21-08-2007

To reduce the yearly premium, most enterprises choose to have excess. The aim of excess is to handle losses from damage beneath a specified level within the enterprise (Hamilton, 1996). The primary motive for excess is to reduce administrative costs for the insurance company as the numbers of small damages are large and the costs for compensation are significant. It is especially the handling cost of each loss that is out of proportion compared to other costs concerning a loss. In addition, excess also has loss prevention impacts in motivating enterprises to work proactive and keep losses at a low level (Hörngren & Viotti, 1994).

To determine the excess, the enterprise's management sets an upper boundary which states either a maximum that can not be exceeded during a specified period of time or a maximum amount for each damage occasion. In Sweden, excess is it usually defined as a percent of a price base amount (Hamilton, 1996). If the excess is high, the premium will be low and vice versa.

### **3.7.5 Business Insurance**

As mention earlier in this chapter, the primary aim of insurance is to protect the insured enterprise's business and assets. To gain a high protection, a business insurance program is developed individually depending on the enterprise's risk exposure. Business insurance will cover diverse areas such as property loss, liability loss and consequential loss. Regardless of the business insurance's design, there are three general components in the program; liability insurance, property insurance, and business interruption insurance (Renmar, 2003).

- **Liability insurance** –protects the enterprise against claims arising out of their premises or their operations on or off the premises. Product liability which covers losses arising in conjunction with the enterprise's manufactured items exists within the concept of liability insurance. Professional liability insurance to cover malpractice liability claims also exists. (Outreville, 1998)
- **Property insurance** – protects the enterprise in case of property damage due to fire, water, theft, robbery, et cetera (Hamilton, 1996).
- **Business interruption insurance** – or consequential loss insurance, is mostly connected to property insurance and aims to protect against losses in elongation to property damage (Hamilton, 1996). The insurance can also cover business interruption that emanates from interruption in the supply chain outside the enterprise<sup>28</sup>. The coverage is primarily of loss connected to income from interrupted operations plus additional expenses due to continuing expenses and expenses to maintain some operations (Outreville, 1998). The duress of the maximum time insured has to be determined and optimally correspond to the time it takes to regain production and market share<sup>29</sup>.

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<sup>28</sup> Öhgren U., Account Executive, Aon Sweden AB, Malmö, 18-09-2007

<sup>29</sup> Magnusson Tranarp J., Strategic Account Manager, Aon Sweden AB, Stockholm, 18-06-2007

Besides these general forms of insurance, there are specified insurance such as:

- **Directors and officers liability insurance** – covers damages from misconduct of high executives through recklessness, bad faith or negligence (Wolters Kluwer, 2007).
- **Automobile insurance** – covers damage to vehicles or liability coverage for bodily injuries and damages to property that arises from operating a vehicle (Wolters Kluwer, 2007).
- **Marine cargo insurance** – protects the enterprise from loss or damage to goods in transport (Wolters Kluwer, 2007).
- **Crime insurance** – protects the enterprise from physical damage or disappearance of assets through criminal acts (Wolters Kluwer, 2007).



## **4 Empirical Data from Performed Interviews**

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*In this chapter the result from the performed interviews with representatives from major enterprises, active in Sweden which perform acquisitions on a regular basis, is presented.*

### **4.1 Selection Principles**

The selection of enterprises has been made among Aon Sweden's customers and the criteria was that the enterprises should have a risk management function and had made a significant number of acquisitions, divestments or mergers during the past years. The enterprises also had to be active in Sweden.

Interviews have been performed with representation from six enterprises, and primarily with their risk managers and in one case with the chief financial officer during the summer of 2007. Each interview has taken about one and a half hours and all interviews except two have been recorded. An interview guide with 50 questions has been used and can be found in Appendix E – Interview Questionnaire. Focus has been on how major enterprises perform or would like to perform a domestic or international due diligence of risk management in conjunction to an acquisition.

### **4.2 Introduction of the Enterprises**

The following enterprises have provided background information to the development of the DANFiRM model and are described briefly hereunder. The two enterprises, Gambro and Securitas, validating the model are also described.

#### **Atlas Copco**

The Atlas Copco Group, founded in 1873, is a global industrial group of enterprises. The Atlas Copco Group manufactures products on 68 production sites in 20 countries. Revenues for 2006 totaled BSEK 50 and the group has about 25,000 employees. (Atlas Copco, 2007)

The Atlas Copco Group develops and manufactures industrial tools, compressed air equipment, construction and mining equipment, assembly systems, and offers related service and rental. The products are sold and rented under different brands through a worldwide sales and the service network reaches 150 countries. (Atlas Copco, 2007)

#### **Ericsson**

Ericsson dates back to 1876 and the parent enterprise is Telefonaktiebolaget LM Ericsson AB. Over 1,000 networks in 140 countries utilize their network equipment and 40 percent of all mobile calls worldwide are made through their network systems. (Ericsson, 2007)

Ericsson is a global provider of telecommunications equipment and related services to mobile and fixed network operators. Through the Sony Ericsson Mobile Communications joint venture they also offer a range of mobile devices. Ericsson invests heavily in R & D and has a comprehensive intellectual property portfolio containing over 20,000 patents. (Ericsson, 2007)

### **Gambro**

Gambro was founded in the 1960's and has more than 7,000 employees. The Gambro group has production facilities in 11 countries, sales subsidiaries in more than 40 countries and sales in more than 100 countries. (Gambro, 2007)

Serial-production of single-use artificial kidneys and dialysis machines began in 1967 and during the last three decades, M & A have helped to broaden Gambro's range of products and services. Gambro is a global leader in developing and supplying products, therapies and services for both in-center and home dialysis, as well as for blood purification in intensive care units. (Gambro, 2007)

### **Hexagon**

Hexagon was founded in 1992. The group has about 8,000 employees in 30 countries and net sales in 2006 of about BSEK 15. (Hexagon, 2007)

Hexagon is a global technology group with strong market positions within measurement technologies and polymers. Over the years Hexagon has been formed by a number of divestitures of non-core businesses and several strategic acquisitions. Hexagon has between the years 2001 - 2007 acquired more than 30 enterprises worldwide. (Hexagon, 2007)

### **Saab**

Saab, Svenska Aeroplan Aktiebolaget, was founded in 1937. Sales under 2006 amounted to about 20 BSEK. (Saab, 2007)

When Saab was founded, its primary aim was to meet the need for a domestic military aircraft industry in Sweden. Saab also produced cars from 1940 - 2000 when Saab Automobile was sold to General Motors. Today Saab consists mainly of aviation, space and defense industries in which there have been acquisitions since 2000. (Saab, 2007)

### **Scania**

Scania was founded in 1891. It has about 28,000 employees and in addition about 20,000 people working in Scania's independent sales and service organization. Scania has operations in Europe, Latin America, Asia, Africa and Australia. (Scania, 2007)

Scania is a large manufacturer of heavy trucks and buses as well as industrial and marine engines. The enterprise also markets and sells a broad range of service-related products and financing services worldwide. (Scania, 2007)

### **Securitas**

Hälsingborgs Nattvakt, which later merged with Securitas alarm, was founded in 1934. The group has its headquarters in Stockholm and sales under 2006 of about 60 BSEK. Securitas has about 200,000 employees in more than 30 countries. (Securitas, 2007)

The Group is organized into two specialized guarding divisions, and one specialized division for cash handling services such as transportation of valuables. The enterprise began expanding abroad in the late 1990's and M & A have ever since played an important role in the business plan. (Securitas, 2007)

### **Enterprise Alpha**

Enterprise Alpha was founded in the beginning of the 20th century in an Anglo-American country. Net sales during 2006 exceeded 100 BSEK, it has more than 100,000 employees and has operations worldwide.

The enterprise offers services and products in IT, software, engineering and management. In Sweden M & A are made every week and is a natural part of their business plan.

## **4.3 Synopsis from Performed Interviews**

A summary of the performed interviews are presented below. To preserve the respondents' anonymity, no names of the enterprises will be mentioned in the synopsis.

### **4.3.1 M & A and Due Diligence**

- The majority of the respondents have policies defining the performance and working processes when carrying out an M & A.
- Needed competence and areas to consider during a due diligence are not stipulated in policies concerning M & A according to the respondents.
- All respondents have defined desirable enterprises to acquire in their business plans and it is either the Chief Executive Officer or an acquisition team that identifies relevant enterprises to investigate.
- All respondents consider due diligence to be a natural and essential part of the M & A process and some kind of due diligence is always performed regardless of the conditions of the M & A.
- The majority of the respondents see due diligence as a process to reach the enterprises' strategic goals, ensure the quality of the target enterprise and to create value in the M & A process.
- The due diligence team's composition depends on prevailing circumstances and the target enterprise's commercial operations. Areas of concern are primarily legal, financial and marketing, but the respondents also analyze IS/IT, logistics, and environmental aspects when members of the due diligence team consider it to be required. Some of the respondents analyzed risk management in conjunction with an acquisition.
- Secrecy, available time and wherewithal are aspects that all respondents have called attention to in conjunction to a due diligence. Information is sometimes released gradually at different access points to ensure that less serious buyers do not gain too much information. The process is fairly expensive and available time varies but is usually between 1-3 months. However these aspects are not a major problem. The team is kept small to minimize the risk of insider trading or information leaking out to the public. Another aspect to consider is whether the due diligence takes too long

time to effect. If it takes too long time, it can occasionally lead to changing conditions for the acquisition and the target enterprise might no longer be interested due to the purchasing enterprise's business plans.

- All respondents described the communication within the due diligence team as open and equal for everyone. Information is available for all members in virtually or physical data room and there are checkpoints during the process to synchronize the procedure and to share important information.

### **4.3.2 Risk Management**

- The purpose of risk management differs between the respondents, but one overriding aspect is that risk management should be a support function to ensure a safe production and make it possible to focus on the core business. Other purposes with risk management are; to categorize and give priority to different risks and in extension be able to balance risk and opportunity; work as a foundation to develop an effective insurance program; manage the enterprise's captive and to secure owners' and group interest.
- Most of the risk managers' main task is to assist other functions within the enterprise with their risk management activities. This can be through creating tools for analyses or standards for grading and calculating risks. A majority of the respondents pointed out that they do not own any risks themselves, but should assist the risk owners. A few respondents focused only on insurance when talking about risk management and mentioned that they may use external expertise when dealing with technical risk management.
- The characteristic of a well functioning risk management is described as a close communication within the enterprise, understanding of different divisions and their needs of risk treatment activities. Another aspect that some respondents pointed out was the competitive advantage that could arise. One respondent called attention to the importance of stable cash flows to measure the level of risk management within an enterprise.

### **4.3.3 Due Diligence of Risk Management**

- Three out of the respondents perform or have performed some kind of due diligence of risk management. However, the majority would like to do it if models existed and were established by the board of directors. Risk managers today often have to justify and gain acceptance for their involvement in new activities and the decision is taken by the board of directors and expressed in a policy or corporate governance guide.
- A due diligence of risk management complements other due diligence processes in different ways. All respondents described aspects such as:
  - Creating an overview of risk to consider
  - 
  - Creating a prioritizing list and to catch up risk aspects so that they are not forgotten after a completed acquisition

A few respondents also saw the complement of due diligence of risk management as:

- Being a source of inspiration
  - Creating synergy effects to other areas in the due diligence process by opening up new lines of thought concerning risk exposure and ways of performing a due diligence analysis
  - Working as a support function for the due diligence team leader
  - Merely an effective way of managing insurance solutions
- The value created by a due diligence of risk management is according to the respondents; gain of a better decision basis for the acquisition, influence the contract price, gain a clearer assignment of responsibilities and a better control of risk transferring strategies.
  - A majority of the respondents thought that the same procedures should be used for due diligence of risk management as for other kinds of due diligence. A few respondents thought that the working procedure should be based upon the same premises as a management system audit and include site surveys and interviews with key personnel at the target and vendor enterprise.
  - Areas to consider during a due diligence of risk management are according to the respondents all within the traditional areas of due diligence. However, it is only from a holistic view that all important aspects could be identified and analyzed. A few respondents mean that the risk manager does not need to participate operational in the due diligence process, but should assist in creating a list of aspects to address and discuss in the end of a due diligence process based on the target enterprise and the purpose of the acquisition.
  - Areas where the risk manager should be responsible were according to the respondents: physical protection and technical surveys, natural disasters, analysis of insurance program, mapping supply demands and in some cases even political risks.
  - Factors that justify a due diligence of risk management were by some respondents when there are large uncertainties about the target enterprise and its geographical area, acquisition of key units producing critical components for the internal supply chain and in countries with strict liability. Other respondents meant that an analysis always is entitled and is a proactive way to deal with risks.
  - When benchmarking the result from a due diligence of risk management all respondents said that judging should be from the purchasing enterprise's policies concerning risk treatment, such as loss prevention policy and insurance policy. One respondent used key performance indicators to benchmark the result from a due diligence of risk management. The respondents also mentioned that prevailing policies should represent the purchasing enterprise's risk appetite and be continuously updated.

- All respondents pointed out different aspects to analyze when performing a due diligence of risk management. These are i.e. innovation, competence, age distribution, working culture, risk management routines, contract of insurance, history of incidents, suppliers and supply chains. When performing site surveys, the purchasing enterprise's ordinary checklists should be used to ensure that needed information is gained.
- The respondents had not come across any major problems when performing a due diligence of risk management, but a majority could see problems arising from available information and that information may be missing at the target enterprise. One respondent said that it could sometimes be hard to obtain certain requested information when its importance was not stressed.
- Persons to interview during a due diligence of risk management are i.e. chief financial officer, purchasing manager, logistic manager, head of production, maintenance personnel, but also neighbors and former insurance brokers. A majority of the respondents pointed out that interviewed persons should depend on the purpose of the acquisition and the target enterprise's line of business.
- A majority of the respondents thought that the result from a due diligence analysis should be presented on a power point slide with some sort of color code. They saw color code as an accessible way of presenting a large amount of information at the same time and to create an overview. All of the respondents thought that it is important to prioritize between the risks and the mitigating measures they require in order to aid decision makers and further work after an acquisition. The most important information should be presented first in order to maintain the decision makers' interest. Most respondents stressed the importance of presenting the cost of further risk mitigating investments. Negative and positive aspects should according to some respondents be presented in one-liners.

## 5 The Developed DANFiRM Model

*This chapter describes the DANFiRM model and the way it is intended to add value to the due diligence process. The chapter also describes the working procedure for developing an insurance program in conjunction with an acquisition and how it relates to the DANFiRM model.*

The development of the DANFiRM model is founded on the accomplished literature study described in chapter 3 and the performed interviews with enterprises described in chapter 4. The literature study has worked as a theoretical basis and the interviews an empirical inspiration for the model.

### 5.1 The Role of Risk Management in Due Diligence

A due diligence process can be viewed as a risk management activity as it identifies areas that can cause undesired risk exposure and unexpected negative business profit impact in the event of acquirement. However, due diligence of risk management according to the DANFiRM model does not aspire to be synonymous with due diligence but to be a part of the overall due diligence process, see Figure 8. It is meant to be a support function and complement to the other more established disciplines in the overall due diligence and provide a prioritized overview of the non-financial risks and their management.

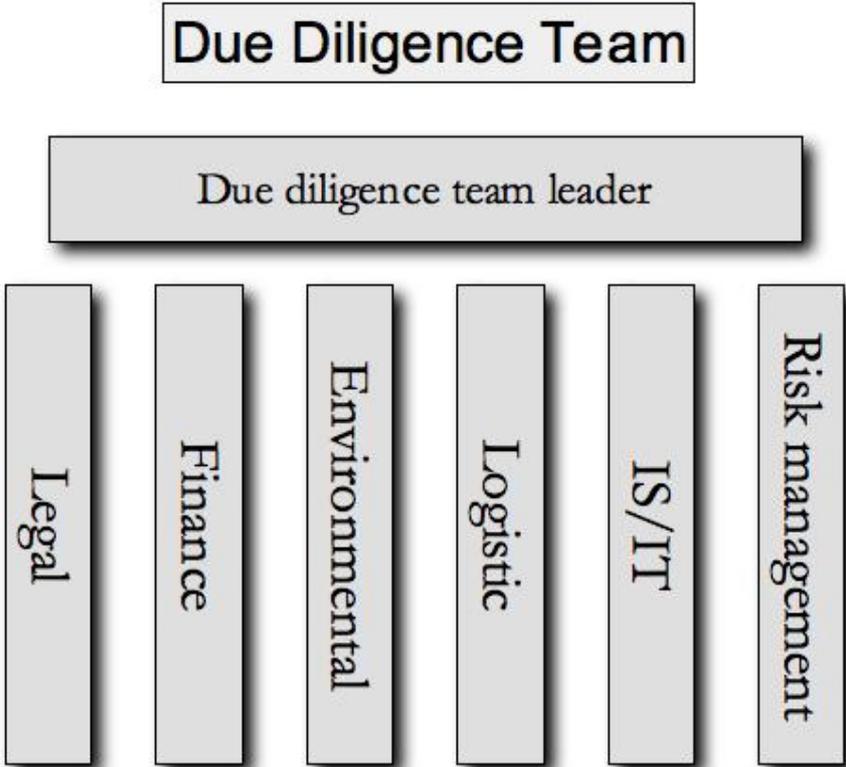


Figure 8. Example on a due diligence team’s composition and risk management’s role in the team.

In a due diligence team, the risk manager has its own areas of responsibility such as risk for physical damage, internal dependencies within the supply chain, estimating maximum losses, insurance and historical claims. But the risk manager has also the knowledge to help the due diligence team to look at risk from a broader perspective and act as a source of inspiration and information to the other team members. For example; there may be legal requirements of risk management activities or internal dependencies may show that certain legal agreements are of extra importance; the financing of risks requires information on different risk treatment options; rearranging logistics may have implications on the total risk exposure.

## **5.2 Field of Application and Prerequisites**

The DANFiRM model is focused on acquisitions of production- and distribution enterprises and is from the purchasing enterprise's point of view.

The user of the DANFiRM model needs to be familiar with in risk management policies and prevailing business structure at the purchasing enterprise.

## **5.3 Model Description**

The DANFiRM model is described in four steps; first the objective and benefits; the model structure and the process; the working procedure which describes how due diligence team should work to perform the essential parts of the progress; finally the model and its components is described in further details.

### **5.3.1 Outcome and Benefits**

The DANFiRM model is created to give a holistic, integrated view when analyzing non-financial risk exposure and mitigating efforts taken within the target enterprise.

The outcome offers an overview of the risks that threaten the strategic or profit goals of the acquisition and will be a prioritized list of present risks. The list will contain information on the respective severity of the different risks and the measures that will have to be taken in order to correspond to the purchasing enterprise's risk appetite and policies for risk management.

The model takes into account that every acquisition is unique in terms of contents of the target enterprise as well as the strategic goals, present risks and preferences of the purchasing enterprise. In addition to imminent investments that will have to be made, the process may reveal exposures, which can affect the target enterprise's business profit in the future.

The outcome could be used as an instrument in the negotiation process in connection to an acquisition. It can affect the contract price, dividing of liabilities and exclusion of certain parts of the target enterprise; if the need for further risk mitigation investments is high and have major business profit impacts, the result may affect the contract price; the outcome illuminates areas of concern where issues of how to divide the liabilities or risk transferring activities between the parties should be raised; high risks may affect the decision of excluding certain parts of the target enterprise.

Risk management can be given a jump start. By learning how the target enterprise deals with its risks, knowledge is gained on the quality of management and status of the enterprise as a whole. In continuation of these aspects, the DANFiRM model may give competitive advantages and will make it easier for the purchasing enterprise to focus on the core business. The result can also be used for creating a prioritized list of further measures to be implemented after the acquisition.

### 5.3.2 Model Structure

The structure of the DANFiRM model is based on the working process for risk management described by IEC/ISO (1995 and 2002), the model developed by Paulsson (2007), see Figure 7, the due diligence process described by Sevenius (2003) and the definition of due diligence analysis of non-financial risks and their management made in chapter 3.1.4.

The interviews have given information on how to appraise, present and use the result of a due diligence of risk management. During the interviews the importance of some keywords have also emerged that have been taken to heart; communication; respect for other people's competence; a favorable attitude toward risk management in the organization.

The overall process for the DANFiRM model is described below and illustrated in Figure 9:

- Prior to the analysis of a target enterprise, the assignment has to be defined, planned and prioritized according to the objective of the acquisition.
- Identify and estimate the inherent risk exposure at the target enterprise.
- Identify current risk management functions at the target enterprise.
- Evaluate the current risk exposure; what non-financial risks lack satisfying risk treatment; what risks that do have satisfying treatment; what risk management functions will no longer be required after the acquisition.
- Identify required measures for altering risk exposure and risk management activities to meet the purchasing enterprise's demands.
- After each task, check whether the process should continue, if further information is needed or the process should be aborted due to alarming risk exposure.
- Evaluate the required changes in risk treatment and estimate what business profit impact they will have.
- Sum up and communicate the results to decision makers.
- After the analysis, Revise the process and content of the analysis before the next acquisition.

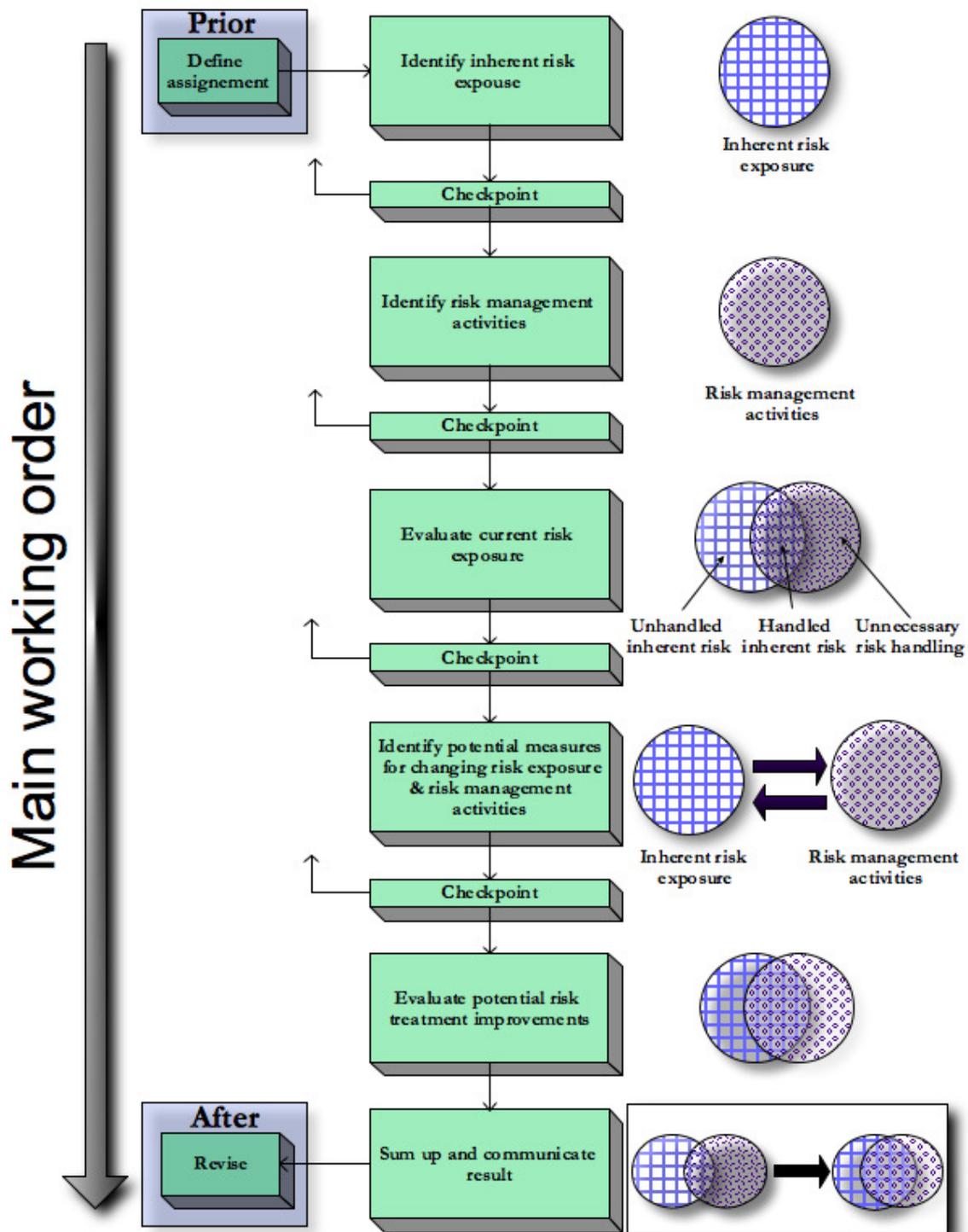


Figure 9. Schematic figure illustrating the structure of the DANFiRM model.

### 5.3.3 Working Procedure

The process of the DANFiRM model should be accomplished gradually and the developed working procedure is described below.

#### Prior to analysis

##### Step 1 – Policy

Ensure that the due diligence process is defined and that there is a group wide policy describing its shape and content.

##### Step 2 – Ensure awareness

Ensure that potential due diligence team leaders know which aspects of risk that should be addressed during a due diligence process and when a due diligence of risk management is called for. Clarify in what way the DANFiRM model can be of value.

#### During process

##### Step 3 – Plan and prioritize

The due diligence team together: Determine which risks are relevant and worth addressing. Prioritize between the risks and agree on the criteria for judging and grading the risks. Determine who is responsible for addressing the different issues.

##### Step 4 – Request information

Make a list of documents that the target enterprise should provide, employees preferable to meet and which sites to inspect.

##### Step 5 – Create understanding

From the information given in the data room: Create an understanding of the target enterprise, its risks and the aspects of risks and risk management that has fallen under the team member's assigned responsibility to address.

##### Step 6 – Communicate

Pass on information that other team members could use (and vice-versa) and have an open dialogue. This dialogue/discussion should go on for the entire due diligence process.

##### Step 7 – Survey Sites and Interview

Visit the sites and interview the persons listed in step 3 in order to complement the understanding of the target enterprise's risks and mitigating measures.

##### Step 8 – Checkpoints

Make a quick assessment of whether the process should be aborted, if further information about the target enterprise is required or if the process should progress to the next step.

**Step 9 – Summarize and evaluate**

The due diligence team together: Summarize and evaluate the current risk exposure and add the new risks which have been discovered during the process to the list. Identify and evaluate required measures for altering risk exposure and risk management activities.

**Step 9.5 – Propose insurance program**

Draft a new insurance program if needed.

**Step 10 – Report**

Make a presentation of the results.

**After the analysis**

**Step 11 – Revise**

About six months after the acquirement: Check which of the investments and other changes listed in step 9 that have been made and what effects that have been seen. It is also important to make a follow up on which risks and aspects of risks that should complement the list of risks to consider before performing the next due diligence of risk management.

### **5.3.4 Deeper Explanation**

To explain and illustrate the DANFiRM model some aspects will be clarified in further detail.

#### **5.3.4.1 Communication**

Communication is one of the important aspects to consider when using the DANFiRM model. There has to be a well-functioning communication within the due diligence team and the communication has to be open, plain and not exclude any member. It is only possible to take a holistic, integrated view of the target enterprise and to reach a satisfying result by involving all team members. It should be the team leader that has the main responsibility for the communication within the team.

Information should be available for all team members in virtual or physical data room and the checkpoints during the working procedure are meant to synchronize and to share important information within the team.

#### **5.3.4.2 Time and secrecy**

Available time to examine the target enterprise is usually short, which makes it important to give priority to aspects that the purchasing enterprise considers to be most essential to analyze. It is therefore important to have a clear vision of what important aspects to study and what background information is needed to accomplish the analysis. To prioritize and define which facts that need to be analyzed are likewise important due to the great secrecy surrounding an acquisition. The secrecy could in some case make it next to impossible to get the desired information and it could also be released gradually in stages connected to checkpoints defined in the letter of intent. This mode of procedure is a precautionary measure to protect sensitive information, but could also be a way of hiding critical information about the target enterprise which could affect the deal in a negative direction seen from the selling enterprise's view.

Another aspect to consider is whether the due diligence process takes too long time to effect. It can occasionally lead to changing conditions for the acquisition and the target enterprise might no longer be interested due to the purchasing enterprise's business plans.

#### **5.3.4.3 Policy for the Due Diligence Process**

There need to be an established policy on how to accomplish a due diligence process. In order for the DANFiRM model to be a natural part of the due diligence process, the policy should clarify the role of the risk manager and when a due diligence of risk management is called for. It should also specify the outcome, aspects to consider, the working procedure, the responsibility distribution and communication within the due diligence team.

#### **5.3.4.4 Planning and Prioritizing**

All team members need to participate in determining what risk categories are worth addressing during the due diligence process and their priority. All members should be present when responsibilities for areas of concern are assigned within the team. The member with best competence within a specified risk area should be the one responsible for the assessment of risks associated with this area. The list of risks and their priority should be based on the purchasing enterprise's policies, target enterprise's operations and the purpose and objectives of the acquirement. If the prioritizing does not reflect the purchasing enterprise's attitude, it will be difficult to gain a hearing for the accomplished analyze at the board of directors. An example of risks to address is presented in Appendix A - List of Risks and Form for Presentation

It is important to ensure that all team members have an understanding of the purchasing enterprise's purpose of acquisition and how to evaluate the result from the analysis. This will hopefully ensure conformity within the team.

#### **5.3.4.5 Data Collection**

To make an adequate assessment of the target enterprise, information about its processes, insurance programs, existing protections et cetera has to be analyzed in an early stage of the process. The information should be specified at the beginning of the due diligence process to ensure that it can be provided. Priority of risks and available time should be considered when deciding what information to request as well as size, activities and geographical location of the target enterprise. There should also be a priority of the demanded information to make the working procedure easier, increase the accessibility and the ability to make an adequate analysis. The requested amount of information on each risk should reflect the priority set in step 3.

When demanding specified documents from the target enterprise, a list of desired employees to interview and sites to inspect should be attached. Specifying which employees to meet and what sites to inspect makes it easier for the target enterprise to compile necessary data and plan the visits.

#### **5.3.4.6 Site Surveys and Interviews**

Through interviews and site surveys additional information about the target enterprise's processes, protections, prevention activities, occupancy, hazards, operations et cetera will give an increased understanding of the target enterprise's condition, risks and mitigation measures. The visits can show how the governing documents are put into practice and the general physical state of the sites and surroundings.

To collect further information, questions need to be asked both in the field and at other levels in the organization. When it comes to identifying risks, the people on the ground can be a useful source regarding production risks, but in contrast, the organizational risks are better understood at the strategic level. Employees to interview should include both key persons and employees with knowledge about production and the physical work at the sites.

When choosing what sites to visit, an optimum would be to visit all units at the target enterprise, but due to lack of time and wherewithal it will perhaps not be possible to visit all. If this is the case, key units and units that are representative for the target enterprise should be visited.

The technical survey of the target enterprise's sites should follow the same principles as the surveys used in-house at the purchasing enterprise. This will make it easier to judge the target enterprise from the purchasing enterprise's policies. However, it will not be possible to be as rigorous as usual due to lack of time and wherewithal.

A discrepancy between information gained from the previously collected data and the information gained through interviews and site surveys is an indicator of management malfunctions and the way the target enterprise manages to translate theory into practice. A discrepancy can also indicate that there are mitigating measures that are unnecessary and could have a positive business profit impact if altered or removed.

#### **5.3.4.7 Checkpoints**

Important resources can be saved by making a quick assessment of whether the process should be aborted due to alarming risk exposure, if further information about the target enterprise is required or if the process should progress to the next step. The decision to abort is the team leader's to make and can be taken at any time during the due diligence procedure if seriously disturbing information is obtained or if the risk exposure is found to be too high in critical areas.

### 5.3.4.8 Evaluation

When sufficient data about the inherent risk exposure and existing risk management is collected it is time to evaluate the current risk exposure. Once the current risk exposure is evaluated, identify and evaluate mitigating efforts that are required in order for the target enterprise to meet the purchasing enterprise's risk appetite and view on risk management. The whole team should be gathered to make ensure an interdisciplinary view and that all aspects are taken into consideration.

A benchmark against the purchasing enterprise's policies, routines and manuals has to be done. The control documents will hopefully be well established and reflect opinions concerning risk appetite, criteria for evaluation and strategic objectives.

#### **Current Risk Exposure**

Risks that are deemed to lack of coverage (see Figure 7) are either risks that would be treated differently according to the purchasing enterprise's policies or risks that have not been identified earlier by the target enterprise. If it is several unidentified risks, or if the risk management activities at the target enterprise are poor in general, there is a greater probability of additional risks threatening future business profit. It would also give indications on the quality of the management at the target enterprise. However, it is also possible that the target enterprise simply has a higher risk appetite than the purchasing enterprise or lack sufficient resources to manage their risks. Another reason for discrepancies, between inherent risk exposure and risk management activities, to arise is that the target enterprise can come into a new situation under the new ownership. The risk exposure can be altered as the purchasing and target enterprise join assets and the risk treatment options change.

When evaluate the level of current risk exposure, both the inherent risk and the current risk management activities should be taken in to account as illustrated in Figure 10. The grading, described in the left graph, consists of red, yellow and green. For example a risk with high level of inherent risk exposure and lack any kind of current risk management activity gives a red, severe, "Current Risk Exposure". Green means that the current risk exposure is low and yellow indicates a borderline case. For instance an enterprise can have only one supplier capable of delivering a certain component but the supplier has many different factories and the target enterprise has priority in the case of lowered production capability written in the contract. This would mean a high inherent risk exposure but good current risk management activities. This aspect could be graded as a yellow "Current Risk Exposure". Yellow could also indicate that there's a potential of future changes in the risk exposure. Positive and negative aspects should be documented using the form illustrated in Figure 11.

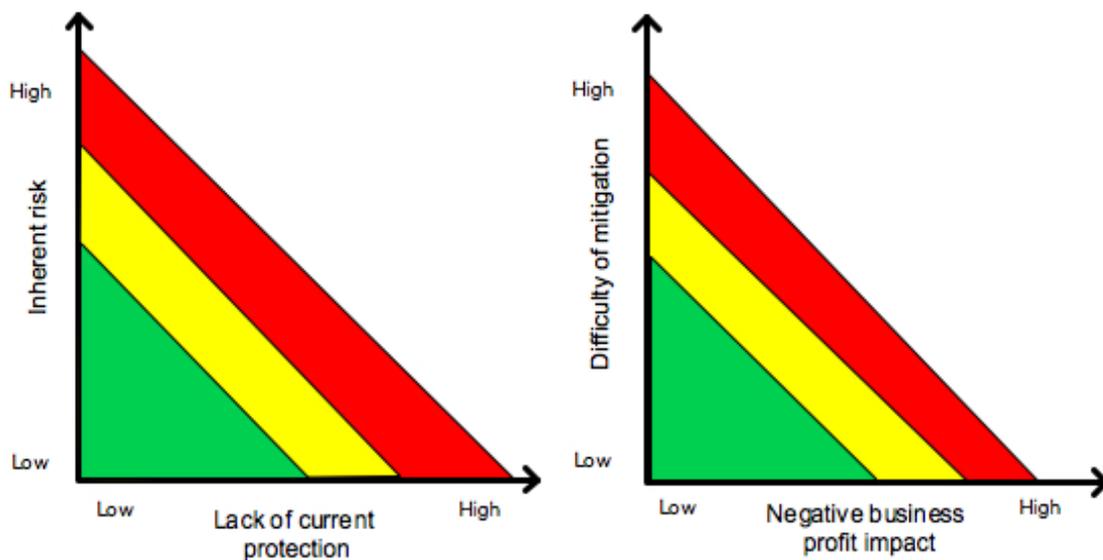
Consideration should also be taken to the risk exposure at the purchasing enterprise. The severity of risk exposure can be deemed more or less acceptable if the target enterprise is affected by the same events as the purchasing enterprise.

### Mitigating Efforts Required

The level of “Mitigating Efforts Required” also comprises two dimensions; negative business profit impact and the difficulty of implementing the necessary changes, and is illustrated in the right graph of Figure 10. The level of “Mitigating Efforts Required” is also graded with the three colors; red, yellow and green. For example, if the risk appetite and policies of the purchasing enterprise requires investments with a highly negative business profit impact and changes that are difficult to implement it would give a red, severe, “Mitigating Efforts Required”. Green indicates a low “Mitigating Efforts Required” and yellow indicates a boarder line case, or when “Mitigating Effort Requiring” normally would be graded red but the high risk operation is important for the objective of the acquisition.

Required mitigating efforts should be compared to the strategic importance or business profit of acquiring an enterprise with high risk exposure. For example; if the reason for acquiring the target enterprise is due to the valuation theory, mentioned in chapter 3.4, then the operation should contribute to high profits to outweigh the “Mitigating Efforts Required”.

Business profit impact is a function of the short term costs, long term costs and the change in revenue. In the event of changes in revenue, it often proves to be the most important factor for the business profit impact<sup>30</sup>. The business profit impact of mitigation should be compared to the contract price to be meaningful to the decision of acquisition and areas where money can be saved through altering mitigation measures, such as altered insurances, should also be considered. To measure the business profit impact of mitigating efforts there need to be an understanding of what measure that can be taken, needed investment required for the measure, how the business profit is affected in the long run and how it will affect the risk exposure. If a required mitigation measure also affects the purchasing enterprise’s risk exposure in a positive way, it can be more acceptable, i.e. a new storage facility.



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<sup>30</sup> Paulsson U., Assistant Professor, Lund University, Lund, 20-05-2007

Figure 10. Level of “Current Risk Exposure” (to the left) and level of “Mitigating Efforts Required” (to the right).

Each risk should be summarized and evaluated individually. Both negative and positive aspect concerning the inherent risk exposure and mitigating efforts required should be considered and the business profit impact for needed measures should be added, The form used for this is presented in Figure 11. The forms should be attached as an appendix to the final report.

**NAME OF THE RISK**

<b>Current Risk Exposure</b>	<b>Routines and investments for risk mitigation</b>		
Negative: -	Additional need	Difficulty to correct:	Business profit impact: USD
Positive: +	-		
<b>Color:</b>	<b>Color:</b>		

Figure 11. An example on how the form for summarizing exposure and required additional routines and investments can be used.

**5.3.4.9 Insurance Program**

It can be advisable to draft a new insurance program to complement or replace the purchasing enterprise’s present one in conjunction with an acquisition. This could be because the program is suspected to be substantially altered in terms of coverage or business profit impact after the acquisition or if there will be new critical risk exposures for the purchasing enterprise due to the acquisition. In these cases the working procedure described in chapter 5.4 can be used.

Other reasons to draft an insurance program could be; to ensure that there will not be a period where the target enterprise lacks coverage, or is covered by two insurance programs, after an acquisition; an insurance program could be more favorable and practical than to divide the risk exposure between the selling and purchaser of the target enterprise.

**5.3.4.10 Presentation of the Result**

Presentation is one of the most important parts of the DANFiRM model, a failure of presenting the results in an accessible way could make the whole model useless. In order to provide an overview of the risks at hand, the risks facing the target enterprise are presented per category in a list, see Figure 12 and Appendix A - List of Risks and Form for Presentation.

In order to maintain the decision maker’s interest, the most important categories of risks should be presented at the top of the list. For each risk the level of “Current Risk Exposure” and “Mitigating Efforts Required” should be presented in the form of red, yellow or green. If there have been aspects that have made it impossible to investigate a prioritized risk, this risk should be colored grey.

Apart from the list of risks and their respective concerns, the presentation should also include the business profit impact for the additional investments. The forms used in the evaluation of the individual risk should be attached as an appendix to the final report.

<b>Risk Category</b>	<b>Risk</b>	<b>Current Risk Exposure</b>	<b>Mitigating Efforts Required</b>	<b>Business Profit Impact</b>
<b>Market</b>	Clients			
	Raw material			
	Competitors			
	...			
<b>Production disruption</b>	Processes			
	Suppliers			
	...	...		...
	...	...		...

**Figure 12. A Schematic figure of the result from the DANFiRM model.**

### **5.3.4.11 Revision**

By evaluating the information from an accomplished DANFiRM model will ensure a continuous development of the processes in use. A revision will give input to the decision of what risks to consider in future acquisitions, how to prioritize and what aspects to consider when proposing measures to reduce the identified risks.

To follow up on proposed measures submitted as mitigation actions and what effects they have had, is also of importance. This will hopefully give information on how to make measures more effective and give a more nuanced cost-benefit understanding of different kinds of risk treatment options.

The revision can also work as a management support by helping the purchasing enterprise to gain a greater understanding about the acquired enterprise. This will hopefully create value when developing and revising control documents concerning risk matters in the future.

## **5.4 Development of Insurance Program in Conjunction with an Acquisition**

The procedure of developing an insurance program in conjunction with an acquisition should be viewed as an application to the developed DANFiRM model.

Insurance plays an important role in almost every enterprise’s risk treatment strategy and a new insurance program will influence the business profit. The developed procedure is described from an insurance broker’s perspective and is similar to the working procedure for the DANFiRM model but areas of concern are primarily insurable risks, such as liability, property and business interruption.

By investigating insurable risks and current insurance program at the target enterprise and the purchasing enterprise’s insurance policies, a new insurance program is proposed to cover the target enterprise’s insurable risks.

### 5.4.1 Outcome and Benefits

The purpose of the procedure for developing insurance program in conjunction with an acquisition is to increase the understanding of the fundamental methodology of developing insurance structures in connection to M & A.

The main outcome of the procedure is an estimate of the change in total cost of risk due to change in insurance program when an enterprise acquires another enterprise. The outcome is meant to work as an instrument in the negotiation process prior to an acquisition and could affect the contract price or the arrangement of the deal.

A secondary objective for the described procedure is to give supplementary information about effort of mitigation to the DANFiRM model.

### 5.4.2 Procedure for Developing Insurance Program in Conjunction with an Acquisition

The working procedure has been developed from interviews with Stanser<sup>31</sup> and Wallén<sup>32</sup> at Aon M & A Group and from discussion with Wennersten<sup>33</sup>, insurance broker at Aon Sweden.

#### **Step 1 – Define assignment**

Establish an assignment contract with the purchasing enterprise and define the target enterprise, intention and extension of the analysis, available time and wherewithal.

#### **Step 2 – Create an overview of the target enterprise**

Perform an initial analysis of the target enterprise and get an overview of its line of business, operations, geographic location and what risk aspects to consider. Prioritize what aspects to investigate considering available time and wherewithal. Use the results that the DANFiRM model has produced so far.

#### **Step 3 – Study insurance structure at the purchasing enterprise**

Study the purchasing enterprise's policies concerning insurance and directives from the target enterprise's investors or clients regarding level of insurance.

#### **Step 4 – Study insurance structure at target enterprise**

Study the insurance structure at the target enterprise in order to understand what former aspects that have been taken into account and how the insurance program has been constructed. Benchmark this against purchasing enterprise's policies concerning insurance and the standard prevailing in the target enterprise's line of business.

#### **Step 5 - Assemble the required expertise**

Put together a team with adequate expertise depending on the geographical dispersion, risk aspects and the prioritization made in step 2. Bring in external expertise from other offices or agencies to complement the expertise within the office if needed.

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<sup>31</sup> Stanser M., Managing director, Aon Mergers & Acquisitions Group, Stockholm, 22-08-2007

<sup>32</sup> Wallén R., Project Manager, Aon Mergers & Acquisitions Group, Stockholm, 22-08-2007

<sup>33</sup> Wennersten L., Senior Account Executive, Aon Sweden AB, Malmö, 31-08-2007

**Step 6 - Plan**

Establish a timetable with defined checkpoints, prioritised working order, deadline and other important aspects to consider during the process.

**Step 7 – Perform the analysis**

Perform the defined analysis to get a deeper knowledge of the target enterprise’s risks and insurance coverage. Keep an open communication within the team and inform each other about facts that can be interesting in other fields of investigation. If time and wherewithal allow, make site surveys to get a deeper understanding of the physical protection within the target enterprise.

Make a compilation of earlier claims and follow up the outcomes. Analyze what sort of claims that are most frequent and how they are distributed over time and geographical location.

Make an assessment of the target enterprise’s former insurers. Inspect what kind of insurance the target enterprise has at different insurance companies and clarify the assignment of responsibility due to different policies such as occurrence policy or claims made policy. The insurance companies’ level of rating and solvency in regards to international standards should also be investigated to ensure that the purchasing enterprise’s policies regarding insurance are fulfilled.

**Step 8 – Evaluate the results and options**

Collocate and evaluate the results from the accomplished analysis. Make an assessment of the identified risks and analyze if these are possible to transfer with insurance or through assignment of responsibilities between seller and purchaser.

**Step 9 – Develop a risk transfer strategy**

Develop an insurance program matching identified risk aspects, risk appetite at the purchasing enterprise and demands from the target enterprise’s interested parties.

Make a financial consideration for the new proposed insurance program. Describe total cost of risk and include insurance premium tax. Compare current total cost of risk with total cost of risk for the new insurance program.

Make a prioritization list, a “100 day plan”, to ensure that important aspects that have not been analyzed due to time and/or wherewithal will be remembered after an acquisition. The list should also contain information on implementations of risk reducing measures that need to be made in the near future.

**Step 10 – Report**

Present the result in a report where areas of pre-closing insurance structure, suggested post-closing insurance structure, financial considerations and claims history are presented.

**Step 11 – Follow up**

Follow up on how the total cost of risk for the new insurance program matched the real outcome and revise the method for developing an insurance program if needed.

## 6 Evaluation of the DANFiRM Model

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*This chapter evaluates and discusses the validation of the DANFiRM model. It is discussed whether the model meets its requirements, whether it could be considered to add value to the due diligence process and its feasibility.*

### 6.1 Validation

Since there is only a limited amount of literature about risk management in the context of due diligence, it is important to validate the DANFiRM model with practitioners and decision makers. A validation has been attempted with risk managers and due diligence team leaders at three enterprises with the same background as the target group for the model. This has only been partially possible to perform due to lack of time and difficulty to get hold of the intended representatives of the due diligence teams. Only two of the enterprises have taken part to validate the model and it was only the risk managers at the enterprises who were involved.

Overall, the risk managers involved in validating the DANFiRM model were satisfied. They considered it to fulfill its purpose and objective in the sense that it creates a holistic overview of non-financial risks, their management and need for further efforts at the target enterprise. They also considered the model to complement the other disciplines in the traditional due diligence analysis and add value to the M & A process.

The working procedure was considered to be in line with the traditional due diligence procedures and to be described in a clear and structured way. One of the risk managers involved in the validation verified that all important categories of risks and that most of the critical aspects to consider were taken into account. The main objection from the same risk manager was that the evaluation of “Level of Current Risk Exposure” and “Mitigating Efforts Required” were not entirely easy to understand. The M & A experts at Aon Sweden who were involved in the work leading to the thesis also considered the process and content of the model to cover all important categories of non-financial risks and most of the critical aspects to consider were taken into account.

To improve the validation of the model, a draft was sent to all the respondents to investigate whether they considered the model to fulfill its purpose and objective. Those two who replied were satisfied with the model and no significant objections were made.

Unfortunately it has not been possible to validate the model against decision makers and due diligence team leaders which would be desirable. As a result, it has not been possible to draw definite conclusions about whether the DANFiRM model would add value in an M & A or whether the result can be used as a basis for negotiation. Due to lack of wherewithal it has not been possible to validate the model through using it either.

## **6.2 Usability**

### **6.2.1 Correspondence with the Overall Purpose of a Due Diligence**

As mentioned in chapter 3.1.3, Defining Due Diligence, due diligence is a standardized audit process to study, inspect and benchmark different business opportunities. The purpose of a due diligence process is to identify, organize, and to the extent possible, quantify risk – not eliminate it – in order to assist acquisition negotiators and investment committee decision makers.

Describing a working procedure that is applicable in most acquisitions helps to standardize the due diligence process. The DANFiRM model emphasizes the importance of a policy describing the due diligence analysis as a whole and defines the situations in which a certain kind of due diligence is called for. The model involves the elements of identifying and benchmarking different business opportunities in the shape of different alternatives for further risk mitigation and their business profit impact.

The main outcome of the DANFiRM model is a basis for decision makers in conjunction to an M & A based on a prioritized list of present risks and the process involves organizing and prioritizing risks. Quantifying corporate risks is difficult and often subjective even when expertise, time and information are available. Due to the complexity and difficulty of quantifying each risk, interviewed enterprises use policies and control documents to define their view on tolerability and treatment of a certain risk. Given the time frame, secrecy and wherewithal quantifying risk is even more difficult in a due diligence process. The model uses the purchasing enterprise's policies and control documents as a basis for risk quantification, tolerability and treatment.

### **6.2.2 Complement to the Traditional Due Diligence Process**

The risk manager has his own areas of responsibility such as risk for physical damage, internal dependencies within the supply chain, estimating maximum losses, insurance and historical claims in the DANFiRM model. Interviews have shown that the respondents would like to complement the due diligence process by having a risk manager investigating these aspects as they are rarely addressed and will add value to the M & A.

The risk manager is also meant to help the due diligence team to look at risk from a broader perspective and to act as a source of inspiration and information to the other team members. According to some of the respondents, the risk manager and the DANFiRM model can give synergy effects and provide information which other disciplines may find useful.

Using the model will hopefully inspire an interdisciplinary and holistic view within the due diligence team. The holistic view is attempted to be incorporated in the model. The implications the target enterprise and its risk exposure would have on the acquiring enterprise as a whole and vice versa, should be taken into account when evaluating the “Current Risk Exposure” and “Mitigation Efforts Required”. Discussions within the team are also meant to ensure that risks and measures are viewed from different perspectives. However, without having performed and tested the model in practice it is difficult to

evaluate what degree this goal has been reached. It is also possible that this view already exist within many due diligence teams, which a few of the respondents indicated.

### **6.2.3 Desired Outcome?**

As mentioned in chapter 6.1, it has not been possible to draw any definite conclusions about whether the DANFiRM model would create value in an M & A or whether the result can be used as a basis for negotiation.

The respondents see risk management as a value creating function within the enterprise as it categorizes and gives priority to different risks and in extension makes it possible to balance risk and opportunity. These virtues are also the intended result of the model, why decision makers would hopefully value the outcome of DANFiRM model.

The majority of the respondents consider the model to create value for themselves in the risk management activities after an acquisition. They also believe that a decision committee would find the results useful as a decision basis as it highlights areas of concern, its business profit impact and possible courses of action. However none of the respondents have been a member of a decision committee and can thus not represent its views.

### **6.2.4 Feasibility**

There are several issues that need to be resolved in order for the DANFiRM model to be feasible. Important aspects, to consider are time, wherewithal, secrecy, knowledge, communication, attitude and understandable process.

All due diligence analyses demand time and wherewithal from the purchasing enterprise, which could be used to create value in an alternative way. If time and wherewithal are short, the incentive for adding non-financial risks and their management to the list of disciplines involved in the process would decrease. To deal with these issues the model's working procedure is held flexible. The process can also be aborted as soon as the risk exposure investigation shows alarming signs, which minimizes unnecessary spending of time and wherewithal. These signs are presented to the team leader at the checkpoints in the described procedure. However, the interviews have shown that time and wherewithal to perform a satisfying due diligences analysis is rarely a severe problem.

Secrecy affects the feasibility in two ways. The first is that enterprises often wish to minimize the size of the due diligence team due to secrecy surrounding M & A and risk for outside speculation or insider trading. Secondly it could limit the amount of obtainable information about the target enterprise. To minimize the latter problem, the prioritization of information to demand from the target enterprise, which is included in the working procedure, should make it easier to obtain the most important information in an early stage of the procedure.

Knowledge should not be a problem as the members of a due diligence team are assumed to be competent and well informed of the purchasing enterprise's policies and strategic business plans. The issue is whether there are policies for risk appetite and risk treatment at the purchasing enterprise to compare the target enterprise with. Major enterprises, acquiring units for production or distribution on a regular basis, are expected to have policies regarding most risks. Enterprises acquiring outside their core business or acquiring more

seldom, on the other hand have to rely more on the cognizance of the due diligence team members on what risk appetite the purchasing enterprise has.

Faith is also put to the team members' competence when it comes to estimating the "Mitigating Effort Required". The quality of organizational aspects of risk management at the target enterprise (such as safety culture or reporting systems) can be difficult to determine and will partly lead to subjective evaluation. But this is meant to be improved through the revision after an acquisition.

Professional pride and attitude among the team members is one of the aspects many of the respondents have stressed as crucial to consider. If the team members perceive the involvement of a risk manager as a lack of faith in their competences, then cooperation within the team may fail. Open dialogues and a clear distribution of roles and responsibilities will hopefully minimize this risk.

Most respondents have stressed the importance of risk management being legitimized through a policy regarding M & A. The policy should also stipulate the desirable competences within the due diligence team at different kinds of acquisitions. Compared to most business functions, risk management is a relatively new discipline and the interviews showed that risk managers still have to struggle to bring attention to its potential value and that risk management is more than just insurance.

The main objection from one of the risk managers validating the model was that the assessment of level of "Current Risk Exposure" and "Mitigating Efforts Required" was not entirely easy to understand. However, the working procedure was considered to be in line with the traditional due diligence procedures and to be described in a clear and structured way, which may increase the comprehensibility of the DANFiRM model.

## 7 Conclusions

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*This chapter contains a discussion about how the questions in the problem statement are answered, how the thesis objective is met and whether this is sufficient to fulfill its purpose. The chapter also contains a discussion about the potential use of the result and suggests further work.*

### 7.1 Problem Statement

As mentioned in the problem statement, a number of questions need to be resolved in order to meet the objective of this thesis.

- 1) How is the due diligence process designed as a whole and what are its purposes and objectives?*
- 2) On what grounds do major enterprises, active in Sweden, generally appraise a target enterprise and are non-financial risks and their management among these grounds?*
- 3) How to obtain, analyze and evaluate important information on the target enterprise's non-financial risks and their management in conjunction with an acquisition?*
- 4) What information is most important and worth seeking in order to get a satisfactory knowledge on the target enterprise's non-financial risks and their management?*
- 5) How should a working procedure for developing an appropriate insurance program in conjunction with an acquisition be designed?*

The first and the fourth question have been answered both through literature studies and interviews. The design, purpose and objectives for a due diligence analysis are described in chapters 3.5 and 4.3.1. It has not been possible to produce a complete account of all information that is worth seeking but an introduction to common risks is given in chapter 3.2. Examples of information that is worth investigating is also provided in Appendix B – Example on Aspects to Consider for Different Risks. There has been sufficient material to address the two questions and reliability, validity and objectivity can be considered to be high.

The second and third questions have been answered primarily through interviews with risk managers at major enterprises, active in Sweden, and the respondents' answers have been summarized in chapter 4. Discussions with tutors and literature about the purposes of M & A, described in chapter 3.4 have also contributed to give clear answers to these questions. Considering that the answers primarily come from interviews the validity and objectivity may be moderate. To improve these aspects several enterprises have been interviewed to increase the objectivity. The respondents represent enterprises with well established risk management departments and substantial experience of acquisitions, which speaks in favor of the validity of the answers.

The fifth question has mainly been answered through interviews and the result is presented in chapter 5.4. Due to lack of time, the working procedure was only developed from interviews with professionals at Aon Sweden and the objectivity is therefore quite low.

At the majority of the performed interviews both authors have been present and the interviews have been recorded to ensure that no essential information or facts were left behind. Never the less, it should also be considered that the respondents' opinions and ideas sometimes change over time.

Discussions with tutors have complemented the answers with important aspects to reach an academic level for the developed DANFiRM model.

## **7.2 Meeting the Objective**

The objective for this thesis was to develop a qualitative model for performing a due diligence analysis of non-financial risks and their management. By answering the questions defined in the problem statement this thesis has met its objectives.

A model for due diligence analysis for non-financial risks and their management, the DANFiRM model, has been developed and is described in chapter 5 and evaluated in chapter 6. The model provides answers to the questions defined in chapter 1.2. It also corresponds to the definition of due diligence analysis of non financial risks and their management which is described in chapter 3.1.4.

## **7.3 Purpose Fulfillment**

The purpose of this thesis was to contribute to the general knowledge on how to add value to the M & A process through incorporating non-financial risks and their management in the due diligence analysis. By meeting the objective the authors believe the purpose to be fulfilled.

The model for due diligence analysis of non-financial risks and their management, the DANFiRM model, is based on the principles of risk management and a majority of the persons involved in forming a base for this thesis have expressed a belief that an analysis of non-financial risks and their management would add value to the M & A process. However, the model needs further testing and validation to ascertain that it would add value to the M & A process.

## **7.4 Use of the Thesis' Result**

The DANFiRM model is focused on acquisitions of production- and distribution enterprises. Both the procedure and the suggestions on risks to consider are written with these kinds of acquisitions in mind. However, the flexibility of the process allows for further areas of application.

Widening the scope of target enterprises does not affect the model's structure and the working procedure will most likely only need minor adjustments. In the beginning of the due

diligence analysis the team is supposed to determine which risks are relevant and worth addressing, which means that the team is free to adjust the list of risks and their priority to suit the present type and purpose of acquisition.

The model can probably be used to include financial risks as well. The reasons that these risks are not included is because they are already well covered in the due diligence analysis and the authors feel that they lack sufficient knowledge and insight regarding the handling of financial risks.

The interviews have shown that a few enterprises always perform some kind of due diligence analysis of non-financial risks and their management, some perform it on a limited basis and a few never perform it. The authors hope that the use of due diligence of risk management will increase in the future and that the developed model will help to extend the benefits of risk management to the area of M & A.

The working procedure for developing an insurance program in conjunction with an acquisition will most likely be carried out by insurance brokers as it requires a broad expertise about insurance theory and premiums. The procedure is primarily meant to be used if the insurance program is suspected to be substantially altered in terms of coverage or business profit impact after the acquisition or if there will be new critical risk exposures due to the acquisition.

## **7.5 Further Work**

Further work that needs to be done is foremost validation and testing of the DANFiRM model and investigation of the attitude among members of decision committees. The model would ideally be tested by an enterprise which already performs due diligence of risk management to check whether it could add value to M & A. After validating and testing the model, it should be refined to better serve its purpose and perhaps broaden its area of application.



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## Appendix A - List of Risks and Form for Presentation

Risk Category	Risk Aspect	Current Risk Exposure	Mitigation Effort Required	Business Profit Impact
<b>Market</b>	Competitors	COLOR	COLOR	USD
	Trading agreements	COLOR	COLOR	USD
	Critical raw materials	COLOR	COLOR	USD
	Customers	COLOR	COLOR	USD
<b>Public Relations</b>	Public relations	COLOR	COLOR	USD
<b>Political climate</b>	Political climate	COLOR	COLOR	USD
	Organized crime	COLOR	COLOR	USD
	World opinion	COLOR	COLOR	USD
<b>Organizational</b>	Integration	COLOR	COLOR	USD
<b>Liability</b>	Products	COLOR	COLOR	USD
	Data/Information	COLOR	COLOR	USD
	Pensions and benefits	COLOR	COLOR	USD
<b>Project risks</b>	Project risks	COLOR	COLOR	USD
<b>Production and Supply Chain</b>	Critical suppliers	COLOR	COLOR	USD
	Critical processes	COLOR	COLOR	USD
	Supply-systems	COLOR	COLOR	USD
	Strained production	COLOR	COLOR	USD
	Internal/external dependency	COLOR	COLOR	USD
<b>Environmental Hazards</b>	Emissions	COLOR	COLOR	USD
	Leakage and accidents	COLOR	COLOR	USD
	Contamination	COLOR	COLOR	USD
	Exposure	COLOR	COLOR	USD
<b>Human Resources</b>	Health	COLOR	COLOR	USD
	Strike	COLOR	COLOR	USD
	Personal safety	COLOR	COLOR	USD
	Key personnel	COLOR	COLOR	USD
<b>Property</b>	Fire and Explosion	COLOR	COLOR	USD
	Natural disaster	COLOR	COLOR	USD
	Patent	COLOR	COLOR	USD
	Security	COLOR	COLOR	USD
	Water/Liquids	COLOR	COLOR	USD
	Maintenance	COLOR	COLOR	USD
	Ownership	COLOR	COLOR	USD
<b>IS/IT</b>	Data security	COLOR	COLOR	USD
	Technical integration	COLOR	COLOR	USD
	Production controlling systems	COLOR	COLOR	USD
<b>Logistics</b>	Infrastructure	COLOR	COLOR	USD
	Transporters	COLOR	COLOR	USD
	Storage	COLOR	COLOR	USD
	Vehicles	COLOR	COLOR	USD

Total cost of additional risk mitigation:

USD



## Appendix B – Example on Aspects to Consider for Different Risks

### Aspects to be considered for all categories:

- Policies at the purchasing and target enterprises
- Local legislation
- Risk mitigating routines
- Risk mitigating investments
- Routines for risk identification and assessment
- Responsibility distribution
- Insurance solution
- Business Continuity Planning
- Incident reports
- Insurance letters indicating problems

Property						
Fire and Explosion	Natural disaster	Patent	Theft and Damage	Liquids	Maintenance	Ownership
Fire department	Flooding	Dependencies	Physical protection	Storage	Machinery breakdown	Is the seller also the property owner?
Sectioning	Hurricane activity	Expiry date	Security systems	Containers	Cistern breakdown	Is the seller also the owner?
Building displacement	Volcanoes	pirate copies	Regional aspects		Building breakdown	Co-operation with other partners
Sprinklers	Earthquakes	Area of use	Controversial business		Quality Management System	
Other active fire protection	Landslide	Area of validity	Guards			
Water supply	Subsidence		Lit area			
Manual extinguishment						
Ignition sources						
Fire load						
Explosive or flammable material						
Ex-classification						
Order						
Safety MS						
Surrounding exposure						

**Model for Due Diligence Analysis of Non-Financial Risks and their Management**

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<b>Production and supply chain</b>				
<b>Critical Suppliers</b>	<b>Critical Processes/Production</b>	<b>Supply-systems</b>	<b>Internal/external dependency</b>	<b>Strained production</b>
Single source	Single site	Electricity		Temporary capacity shortage
Single site	Supply systems	Water		safety margin
Geographical location of distributor	Backup systems/machinery	Fuel		increased risk of mistakes
supply agreement	Location	Cooling		increased risk of machinery failure
Distribution of product liability	Alternative suppliers			Bottlenecks
Alternative suppliers	Impact on overall business			
Impact on overall business	Status of equipment			
Historical problems				
MS requirements				

<b>Environmental Hazards</b>			
<b>Emissions</b>	<b>Leakage and accidents</b>	<b>Contamination</b>	<b>Exposure</b>
Toxicity of substances	Hazardous materials/substances	Toxicity of substances	Toxicity of substances
Potential of substance banning	Storage	Disposal of toxic substances	Historical activities and substances
Amount of emissions	Handling	Storage	Hidden claims
Surrounding environment	Quantities	Soil properties	Liability distribution
Surrounding population	Surrounding environment	Historical activities and substances	Delayed effects (employees and surroundings)
Soil and landscape properties	Soil and landscape properties	Hidden claims	Direct effects (employees and surroundings)
Quantities	Surrounding population	Amounts	Usage
Environmental MS	Environmental MS	Environmental MS	Degree of exposure
	Sanitation possibilities	Usage	Surrounding population
	Transports	Liability distribution	
		Sanitation possibilities	

<b>Human Resources</b>			
<b>Health</b>	<b>Strike</b>	<b>Key Personnel</b>	<b>Personal safety</b>
Sick reports	Toughening working conditions	Management Attitude	Dangerous processes
Strenuous tasks	Unions	Research and Technical experts	Working permits
Culture (stress, bullying etc.)			Safety equipment
			Safety MS
			Safety instructions
			Safety culture
			Emergency exits

<b>Liability</b>		
<b>Products</b>	<b>Data/Information</b>	<b>Pension and benefits</b>
Quality management system Potential product usage and hazards Contracts with customers Markets	Sensitive customer information Handling Agreements	Age structure Frozen benefits Pension programs Hidden benefit programs

<b>IS/IT</b>		
<b>Data security</b>	<b>Technical integration</b>	<b>Production controlling systems</b>
Backup Physical protection (locks, fire protection) Security systems (access etc.) Firewall and virus protection	Technical integration Employee adaptability to new systems	Order systems Control systems within production

<b>Logistics</b>			
<b>Infrastructure</b>	<b>Transporters</b>	<b>Storage</b>	<b>Vehicles</b>
Alternative transport routes Reliability of routes Sensitivity of delay	Number of transport alternatives Agreements Impact of delay Management systems Historical problems Sensitivity of delay	Number of storages Flexibility in storage Geographical location Safety margin Days of inventory	Leasing and service agreements Status of equipment

<b>Organizational matters</b>		
<b>Integration</b>	<b>Key personnel</b>	<b>Project risk</b>
Lack of motivation within workforce Management philosophy	Management attitude Research and Technical Experts	Dependency on single projects Technical risks Supply chain Key personnel Delays Environmental issues Communication Theory into practice

**Model for Due Diligence Analysis of Non-Financial Risks and their Management**

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<b>Political climate</b>		
<b>Political climate</b>	<b>Terrorism and organized crime</b>	<b>World Opinion</b>
Discriminating laws Refusal of renewing licenses Prohibiting transfer of currency Improper use of on-demand bonds Prize freeze Expropriation Corruption Political Strike Rapid change in legislation Opposing parties Kind of operation in country	Religious or ethnic discord War Guerilla Mafia Kidnapping Extortion	Embargos Boycott Associations with company

<b>Market risks</b>				
<b>Competitors</b>	<b>Trading agreements</b>	<b>Critical raw materials</b>	<b>Customers</b>	<b>Public relations</b>
		World resources Variations in price	Number of customers Distribution of customers Stable demand	BCM "Capital of confidence" Brand name Press spokesman

## **Appendix C – Due Diligence Checklist Proposed by Steinberg**

An example of information and data to collect in the initial phase of the due diligence of risk management is presented below. The list comes from Steinberg (2002).

### **General**

- Names of all operating entities and a list of owners and officers and percentages of ownership
- Most current annual report
- Copies of current insurance policies
- Loss control/Safety/Hiring/testing/maintenance manuals, procedures etc.
- The insurance company issued loss runs for current year and four prior years
- Description of and details about any individual loss in excess over a *certain value* paid or reserved.
- Details on any planned significant change in operations over the next year.
- A list over insurance carriers, limits and premiums (Most current insurance company audits)
- Brochures and information folders used to describe the target enterprise
- insureds
- Copies of any hold harmless agreement in effect
- Information about fire/theft protection systems, safeguards, procedures etc.
- Information about any foreign operations
- Copies of current Experience Modifiers for workers compensation
- Copies of all leases and contracts

### **Workers compensations**

- Payroll and number of employees by classification for next year
- Description of any operation involving exposure due to different acts in force

### **General liability**

- Gross revenues expected this year and next
- Gross revenues for the last five years
- Details on any discontinued product or service

### **Property**

- List of all locations including occupancy, type of fire protection, construction and size
- Details about any change in insured values compared to current coverage
- Details on any bailment or property at the target enterprise, custody or control



## Appendix D – Risk Handling Methods for Supply Chain Risks Proposed by Paulsson

The DRISC (Disruption Risks In Supply Chains) model for supply chain risk management developed by Paulsson (2007) suggests a number of generic risk handling methods and describes their effect on the triplet elements of risk according to the definition of risk by Kaplan & Garrick.

Generic risk handling methods	Affected triplet element/s
Avoid - and discontinue high-risk activities	Scenario
Backup plans - in case of interruptions	Consequence
Buffers – in stock and slack in lead time	Likelihood
Concentrate – flows and gain better control	Scenario and Likelihood
Diversify – supply channels and production facilities	Consequence
Flexibility – in production mixture and capacity	Consequence
General reserves – in funds and human resource	Consequence
Good relations – with key customers and suppliers	Consequence
Identify – early warnings through monitoring flows	Consequence
Insure – equity, transports and business interruptions	Consequence
Organize – units, staff, responsibilities and authorities	All three
Overcapacity – to make up for interruptions	Consequence
Protect – assets from theft and damage	Scenario
Replace – missing components with equivalent ones	Consequence
Training – in how to analyze and handle risk situations	Consequence
Secure supply chain partners – to remain in business and out of competitors control	Likelihood
Transfer through contract changes – regarding delivery and supplying spare capacity	Consequence



## Appendix E – Interview Questionnaire

### Inledande frågor

- Huvudsakliga arbetsuppgifter?
- Position på företaget?
- Anställningsår på företaget?
- Tidigare erfarenheter? hur länge, tidigare arbetsuppgifter?

### Allmänt om förvärv och due diligence

- Vad kallar ert företag processen vid ett företagsförvärv? (M&A eller något annat)
- Vilken definition har ert företag av due diligence?
- Hur är själva beslutsprocessen vid förvärv och när kommer due diligence in i processen?
- Hur påverkar sekretess processen?
- I vilken omfattning förvärvar ert företag?
- Vilken typ av företag är det främst som ert företag förvärvar?
- Vilken erfarenhet har ert företag av due diligence?
- När började ert företag nyttja due diligence som verktyg vid förvärv?
- Hur ofta genomför ert företag due diligence vid ett förvärv?
- Vilken tidsaspekt rör det sig om när en due diligence genomförs?
- Vilka områden tar ert företag hänsyn till under due diligence?
- Vem beslutar vilka personer som ska medverka vid due diligence?
- Hur är due diligence teamets sammansättning?
- Sker det något informationsutbyte mellan olika team medlemmar och hur sker detta?  
– Fördelar och nackdelar med informationsutbytet?
- Sker det någon överlappning mellan olika typer av due diligence och kan det uppstå problem med att information ej blir analyserad på grund av att två områden berör samma ämne?

- Hur är själva arbetsgången vid en due diligence i generella drag? - Är det främst ett standardförfarande och standardinnehåll som används eller är det skräddarsydda lösningar inför varje undersökning?
- Hur stor inverkan har tids- och resursbegränsningarna på resultatet av en due diligence?
- Hur påverkar due diligence resultatet förvärvet?  
(försäkringar, exklusion, omfattning, köpeskilling etc)

### **Icke-finansiell risk management due diligence**

#### **Om företaget gör risk management due diligence**

- Finns det en risk management avdelning inom koncernen?
  - **Om ja:**
  - Organisation
  - Arbetsuppgifter, och ansvarsområden
  - **Om inte:**
  - Har ni undersökt behovet av risk management?
- Vad är RM för er? Varför har ni det och vilket värde är det tänkt att skapa för företaget?
- Vad anser ni karaktisera ett väl fungerande risk management?
- Vilka nyckelfaktorer anser ni vara viktiga för ett fungerande RM?

#### ***För nedanstående frågor gäller dels hur gör ert företag idag och hur skulle ni vilja göra***

- Hur kan en RM-dd komplettera övriga due diligence analyser?
- Finns det en tydlig gränsdragning mellan RM-dd och andra typer av due diligence?
- Vilka är dina erfarenheter av genomförda RM-dd? (har du genomfört någon själv, brukar syftet uppnås med nuvarande upplägg?)
- Hur ofta genomförs RM-dd vid företagsförvärv?
- Vilka omständigheter anser ni berättiga en RM-dd?
- Ser ni RM-dd som ett värdeskapande moment i en förvärvsprocess?
  - Varför/varför inte?

- Utgår bedömningen av RM från riskbilden eller det köpande företags RM- policys?
  - riskbild: Vilka riskområden beaktas och vad refereras de mot?
  - policys: Vilka policys är det som bedömningen grundar sig på?
  - Finns det andra bedömningsgrunder?
- Vilka risk management aspekter undersöks vid en due diligence? (Ex. Policies, rutiner, kvalitet på riskhanteringsprocess, grad av integrering, riskkultur, budgetallokering, riskbild, kritiska komponenter eller partners i produktion etc.)
- Vad är arbetsgången vid RM-dd? (tidsaspekt, datainsamling, besök på företag, intervjuer, analys, rapportering etc)
- Vilken information och data är av intresse vid en RM-dd?
- Specificeras det någon informationslista angående RM i anslutning till initial kontakt med målföretaget?
  - **Om ja:**
  - vilken information efterfrågas?
- Vilka personer intervjuas vid en RM-dd? Varför?
- Vid platsförsök, vad är det som studeras? Varför?
- Vem genomför själva RM-dd?  
(RM-ansvarig inom företaget, konsulter?)
- Vad är resultatet av en RM-dd, vad innehåller den och hur presenteras den för beslutsfattare? (Form och innehåll)
- Används resultatet från RM-dd som ett redskap vid förhandlingar mellan aktörerna?  
(värdering, ansvarfördelning etc.)
- Hur sker värderingen av resultatet från en RM-dd?
- Vem gör värderingen, team medlemmen eller beslutsfattaren?
- Används resultatet från en RM-dd som en eventuell åtgärdslista efter ett förvärv och sker det någon följdanalys utifrån den genomförda dd och hur hårt drivs kraven?
  - Kan en eventuell åtgärdslista ligga till grund för prioritering av olika riskreducerande åtgärder?
- Kartläggs endast brister i RM eller kartläggs även positiva aspekter vid en RM-dd?
- Vilka praktiska problem har ni stött på vid en RM-dd?
- Vilka teoretiska problem har ni stött på vid en RM-dd?

- Är tillgängliga resurser för genomförandet av en RM-dd tillräckliga?
- Vad hade du önskat kartlägga ytterligare om mer resurser hade funnits?



