

Evaluate Your Business Continuity Management:

A step towards a more resilient company!

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ABSTRACT

Major businesses today involves complex supply chains with world-wide sourcing and marketing which create new risks for both the individual enterprise and the society at large. Supply chain disruptions are seen as the primary threat to a company's revenue driver. To be able to cope with undesired events, companies need to review their business continuity management (BCM).

To increase the knowledge of effective BCM, this thesis develops and presents a model for evaluating the level of BCM within a company, *The BCM Evaluation Model*. The model is a self-assessment questionnaire to be used at site level which can give management and insurance companies an indication of what needs to be improved to reduce the potential negative business profit impact from a disruption somewhere in the supply chain.

The study involves a lens with factors based on a literature survey. Documented cases were then examined through the lens to find key factors for effective BCM. The model was validated through a test on six company affiliates together with expert opinions.

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Enjoy your reading!

Joakim Almén

Anders Rosqvist



EXECUTIVE SUMMARY

The development of modern enterprises goes toward more complex supply chains with many links and worldwide sourcing and marketing which create new risks for enterprises. In recent years there have been a number of crises resulting in significant economic loss and in the worst cases, a loss of market shares for the enterprise involved. Several of these crises could have been avoided with better preparedness. Therefore, satisfactory business continuity management (BCM) to cope with a crisis situation would be of great value to any organisation. The purpose of this thesis is *to give corporate management the ability to reduce the potential negative business profit impact from a disruption somewhere in the supply chain and thereby increase the knowledge of effective BCM. To fulfil this purpose, the main objective is the development of a model for evaluating the level of business continuity management within a company.*

The first part of this thesis was a literature survey on the topics of risk management and BCM. Based on this survey, a framework to use as a lens for analysing documented cases was developed. The lens was then applied on documented cases to reveal a pattern of key factors for effective BCM. Based on the above lens and documented cases, a preliminary model was developed for evaluation of a company's level of BCM. The preliminary model was validated through a test on six affiliates in the Cardo Group and through a survey with expert opinions. The last stage was revising the model based on the outcome of the validation.

Since the first step in the construction of the lens was to study the literature to find previous material on the topic, a clarification of perceptions in connection with BCM was needed. This was made through a structure of existing risk concepts. The expressions found in the literature were then placed in factors under the five different areas: indirect BCM, direct BCM, emergency response (ER), crisis management (CM) and business recovery (BR). The lens was then used on eight documented cases which were chosen based on a number of criteria. Factors found in half or more of the documented cases were given extra priority in The BCM Evaluation Model.

The factors retrieved from the lens, when constructing The BCM Evaluation Model, were factors which were found in the cases and/or had more than one source in the literature. Questions related to all of the retrieved factors were formulated to give the answer “yes”, “no” or “not applicable”. The questions were organised into five categories (direct BCM, ER, CM, BR and indirect BCM) to be able to see results not only for the whole, but also for each respective part of the continuity work. Even though the results in the company validation gave roughly the expected values, improvements were made following the results of both the company validation and the expert opinions. Some hints on things to remember when using the model was also presented together with the final model.

The last chapter discusses whether the purpose and objectives have been achieved and how to use the results of The BCM Evaluation Model. As a result of the purpose, the model will give an indication on the level of BCM but a maximum score does not mean that improvements cannot be made. The model was developed for businesses in general. Hence, it does not include factors for specific businesses e.g. pharmaceutical companies. Suggestions on further research to develop the results in this thesis were made.



SAMMANFATTNING

Till följd av att företagsvärlden idag utvecklas mot mer komplexa flödeskedjor med många länkar och världsomfattande handel skapas nya risker för de inblandade företagen. Under senare år har ett antal kriser resulterat i ekonomisk förlust och, i de värsta fallen, förlorade marknadsandelar. Flera av dessa kriser kunde ha undvikits med bättre beredskap. Detta innebär att tillfredställande business continuity management¹ (BCM) är av stort värde för alla organisationer. Syftet med denna uppsats är att öka kunskapen om effektiv BCM genom att hjälpa företagsledningarna att minska den potentiella förlusten från ett avbrott någonstans i flödeskedjan. För att uppfylla detta syfte kommer huvudmålet med uppsatsen vara att utveckla en modell för att utvärdera nivån på BCM i ett företag.

Den första delen av rapporten är en litteraturgenomgång inom området. Baserat på denna genomgång skapades sedan ett ramverk, att användas som en lins, för att utvärdera tidigare inträffade kriser. Linsen tillämpades sedan på tidigare fall för att identifiera ett mönster av faktorer som är viktiga för effektiv BCM. Av resultaten från fallstudien tillsammans med litteraturunderlaget utvecklades sedan en första utvärderingsmodell. Denna validerades sedan mot sex dotterbolag i Cardokoncernen samt genom expertutlåtanden från nio experter. Det sista steget var att revidera den ursprungliga modellen efter de resultat som valideringen gav.

Eftersom det första steget i framställandet av linsen var att studera tidigare litteratur inom BCM, behövdes olika uppfattningar i anslutning till BCM klargöras. Detta gjordes genom en strukturering av existerande riskbegrepp. De BCM-uttryck som hittades i litteraturen placerades sedan under fem olika områden: indirect BCM, direct BCM, emergency respons² (ER), crisis management³ (CM) and business recovery⁴ (BR). Linsen användes sedan för att underöka åtta case som valdes utifrån ett antal kriterier. De faktorer som hittades i hälften av casen, eller mer, gavs extra prioritet i The BCM Evaluation Model.

De linsfaktorer som fick vara kvar, när modellen gjordes, var faktorer som hittades i casen och/eller hade mer än en källa i litteraturen. Frågor för att mäta de kvarvarande faktorerna framställdes så att de ger svaret "ja", "nej" eller "inte tillämpligt". Frågorna organiserades i fem grupper (direct BCM, ER, CM, BR and indirect BCM) så att resultat kan erhållas för respektive del. Resultatet från företagsvalideringen överrensstämde till stor del med det väntade resultatet. Modellen reviderades därför både till följd av företagsvalideringen och expertutlåtandena. Några tips på saker som kan vara bra att komma ihåg i samband med användandet av modellen presenterades också tillsammans med den slutliga modellen.

Det sista kapitlet diskuterar om syftet och målen har uppnåtts och hur resultaten av modellen kan användas. Till följd av syftet kommer modellen att ge en indikation av nivån på BCM men det går att vidareutveckla arbetet även om resultatet av modellen är maximalt. Modellen utvecklades för att vara generell. Detta innebär att den inte innehåller faktorer för specifika företagstyper. Förslag på ytterligare forskning för att utveckla resultaten gavs i slutet av denna rapport.

¹ "Krisberedskap för företag".

² "Nödberedskap".

³ "Krishantering".

⁴ "Återhämtningsförmåga".

ACRONYMS

BCI	Business Continuity Institute
BCM	Business Continuity Management
BCP	Business Continuity Planning
BIA	Business Impact Analysis
BR	Business Recovery
CM	Crisis Management
ER	Emergency Response
N/A	Not Applicable
NRI	Negative Result Impact
RI	Result Impact
SCM	Supply Chain Management



DEFINITIONS

RISK

“A risk event is an uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of one or more of the project’s objectives” (APM PRAM Guide, 2006, p. 17).

CRISIS

“A situation which is harmful and disruptive, is of high magnitude, is sudden, acute and demands a timely response and is outside the firm’s typical operating frameworks” (Reilly, 1993, p. 116).

BUSINESS CONTINUITY MANAGEMENT

“A holistic management process that identifies potential threats to an organisation and the impacts to business operations that those threats, if realised, might cause, and which provides a framework for building organisational resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities” (British Standards, 2008a).

SUPPLY CHAIN

“Life cycle processes supporting physical, information, financial and knowledge flows for moving products and services from suppliers to end users” (Ayers, 2000, p. 6).

RESILIENCE

“The ability of an organisation, staff, system, network, activity or process to absorb the impact of a business interruption, disruption and/or loss and continue to provide a minimum acceptable level of service” (BCI, 2008).

EMERGENCY RESPONSE

Actions taken to protect people, the environment and assets (based on Nilsson, 2008).

CRISIS MANAGEMENT

Organised management of undesired events through decisions on strategical and tactical questions and the handling of internal and external communication (based on Nilsson, 2008).

BUSINESS RECOVERY

Service to customers, alternative production, restore processes and supply chain management (based on Nilsson, 2008).

DIRECT BCM

Direct BCM is the planning for ER, CM and BR (Almén & Rosqvist, 2008, see chapter 4.1).

INDIRECT BCM

Indirect BCM means that the factor influences the outcome of BCM without being a plan for or the execution of ER, CM and BR (Almén & Rosqvist, 2008, see chapter 4.1).



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1 INTRODUCTION

“The only guarantee is that bad things will happen to good companies⁵”.

This thesis is the final part of the Master of Science in Risk Management and Safety Engineering programme at Lund University, Faculty of Engineering, Sweden. The Swedish insurance broker and risk advisor Marsh AB inspired the authors to explore business continuity management (BCM). To ensure the quality of this thesis the Department of Business Administration, Marsh AB and the Department of Fire Safety Engineering and Systems Safety acted as supervisors.

1.1 BACKGROUND

The development of modern enterprises goes toward more complex supply chains with many links and worldwide sourcing and marketing which create new risks for enterprises (Sheffi, 2005; Brannen & Cummings, 2005). In recent years there have been a number of crises resulting in significant economic loss and, in the worst cases, a loss of market shares for the enterprise involved (Sheffi, 2005). The majority of the worst cases involve disruptions in the supply chain which is also seen as the primary threat to a company's revenue driver (Brannen & Cummings, 2005). This aspect is further demonstrated by Hendricks and Singhal (2005) who show that the stock return decreased by nearly 40 % in average from 827 supply chain disruption announcements.

Furthermore, there has been an increase in the demands put on today's enterprises. Legislation, terrorism threats and change in customer demands are just to name a few factors that contribute to risk management as a factor of competition. (Hutchins & Gould, 2004)

The business world has seen examples of crises that could have been avoided with better preparedness. An example that displays both good and bad BCM is the fire in a semiconductor factory in Albuquerque, USA which in the end led to Nokia taking market shares from Ericsson (Latour, 2001). Another example is the Johnson & Johnson Tylenol case in 1982 which accounted for hundreds of millions of dollars of forgone sales and added costs (Mitchell, 1989). These cases further show the importance of BCM as a part of the enterprise risk management programme.

Furthermore, mitigation of all risks is unrealistic as it is impossible to identify all risks and it would also result in all too great costs. Therefore, the authors' opinion is that a satisfactory BCM to cope with a crisis situation would be of great value to any organisation. One part to preserve the continuity in a business is a well organised and prepared crisis management team within the enterprise (Chong, 2004). If the key factors for good BCM can be identified, this may, as a result of the importance for the enterprise risk management, give the company the resilience to go through tough conditions and the opportunity to remain as the main contender for market shares as

⁵ Ross & Wolf (2007), p. 44.

less prepared companies struggle when disaster strikes. This leads to the conclusion that a model to evaluate whether an enterprise has a satisfactory level of BCM or not should be in the interest of many.

1.2 THEORETICAL BACKGROUND

Kaplan and Garrick (1981) are known as the ones who define risk as a triplet that answers the three questions: What can happen? How likely is it to happen? And, if it happens, what are the consequences? This thesis will focus on the ability to reduce consequences in those triplets that have high consequence on the achievement of objectives and low probabilities as these are normally “outside the firm’s typical operating frameworks and harmful, disruptive and of high magnitude” which, according to Reilly (1993, p. 116), characterises a crisis.

There can always be a discussion on the matter whether worst case scenarios should be valued as more important to manage than high probability incidents with lower consequences. Slovic et al. (1982) have shown that many individuals perceive a greater threat from high consequence risks even if the probabilities should make these risks less important if Kaplan and Garrick’s risk definition is used. Therefore, a way to minimise the total perceived risk in an organisation could be to concentrate on worst case scenarios. Furthermore, many companies are prepared with routines to manage frequent incidents but often express denial, sure that their business is not large enough, important enough or geographically situated to be concerned with severe consequence threats (Mitroff, 2005).

To be able to mitigate and manage potential threats, a BCM programme is of great importance (Terry, 2004; Knight & Pretty, 2002). BCM comprises three phases, emergency response (ER), crisis management (CM) and business recovery (BR) (Nilsson, 2008). ER focuses on the acute phase of an accident and includes life-saving, environment protection and property protection measures. CM focuses on maintaining critical functions in the company during a crisis while BR is actions taken to restore the business activities to the original level. This thesis will focus on BCM and the actions taken by the organisation to reduce the consequences of a crisis situation.

Earlier cases show that one important aspect of BCM is to consider the supply chain in which the company exists (Paulsson, 2007). A supply chain risk structure model has been developed by Peck et al. (2003) to create resilient supply chains and thus mitigate that large consequence incidents appear as a result of a disruption in the supply chain. Peck et al.’s model will also include preparedness to react to unpredictable change. This thesis will focus on measures to reduce the potential costs of a supply chain disruption.

The supply chain is by many authors divided into three main flows. These are a) the material flow, which flows upstream from the supply to the demand side, b) the cash flow, which flows downstream and c) the informational flow, which flows in both directions within the supply chain. (Ayers, 2000; Lambert et al., 1998; Sheffi, 2005)



Cavinato (2004) has taken it two steps further and divides the supply chain into five sub-chains which are physical, financial, informational, relational and innovational. It's easy to see the similarities to the main flows, however Cavinato adds relational, "the linkage between a supplier, the organisation and its customers for maximum benefit" and innovational, "the processes and linkages across the firm, its customers, suppliers and resource parties for the purpose of discovering and bringing to market product, service and process opportunities".

The above are different ways of explaining a supply chain network. In this thesis the ambition is to demonstrate key factors, affecting all of these sub-chains.

In the theoretical background of corporate CM Mitroff (2001) has developed a best practice model for CM which involves preparing for at least seven different types of risks, examine the important mechanisms in the actual crisis management, examine how different systems coexist in the organisation, building relationships with stakeholders prior to crisis and glue the previous four together with scenario training. In municipal CM the importance of the responsibility, likeness and nearness principles is mentioned by Fredholm and Göransson (2006). These principles are centred on the fact that during a crisis situation, the responsibility should stay the same within the affected activity, the organisation and localisation should be the same as during normal circumstances and that the crisis should be managed at the lowest level possible.

In supply chain risk management, different strategies to reduce consequences are an integral part of Peck et al.'s (2003) framework for the resilient supply chain. Regarding CM, Mitroff (2001) has developed a best practice model to prepare for crisis while Fredholm & Göransson (2006) have expressed the need for three principles. Different approaches have been used regarding crisis in supply chains, BCM and municipal CM. This thesis will try to merge those different views into a broader view.

1.3 PURPOSE AND OBJECTIVES

The purpose of this thesis is *to give corporate management the ability to reduce the potential negative business profit impact from a disruption somewhere in the supply chain and thereby increase the knowledge of effective BCM.*

To fulfil this purpose, the main objective is *the development of a model for evaluating the level of business continuity management within a company.*

To achieve the above objective, the following sub-objectives are required to be fulfilled:

- Identify, in the literature, the key factors involved in BCM which are related to supply chain disruptions.



- Investigate if previous corporate crises reveal a pattern of factors that are more significant than others for a risk to turn into a crisis or a crisis to be managed well.
- Discuss how to measure the key factors and structure them into BCM areas which then can be evaluated.
- Based on knowledge from the above, develop a user-friendly and cost-effective model for the evaluation of an enterprise's BCM and thereby give hints on which areas to improve.

1.4 TARGET GROUPS

This report is targeted at both academia and corporate management teams. In academia, risk management students can benefit from this thesis through the extensive methodology that includes both documented cases and the development of a model. They may also be helped by the theory on BCM and the list of documented cases which may give ideas for future studies.

Corporate management teams within all business activities can benefit from the model as this may be a good tool to get a hint on the status of the BCM within the company.

1.5 DELIMITATIONS

To allow this project to be undertaken during a 20-week time period, the following delimitations are required:

- This thesis will look at preparations taken to achieve effective BCM. Hence, if Kaplan and Garrick's (1981) definition of risk is used, this means that the focus will be on preparations to manage the consequences of a crisis and not the process to minimise the probability for a crisis to occur. However, as BCM is a proactive activity, it often affects the scenario and likelihood while reducing the consequences.
- One way of evaluating key factors in an enterprise will be presented in The BCM Evaluation Model. To prevent the model from becoming too extensive and time consuming, it does not cover all aspects of each factor.



1.6 CHAPTER OVERVIEW

This thesis is structured into the chapters shown in Figure 1.

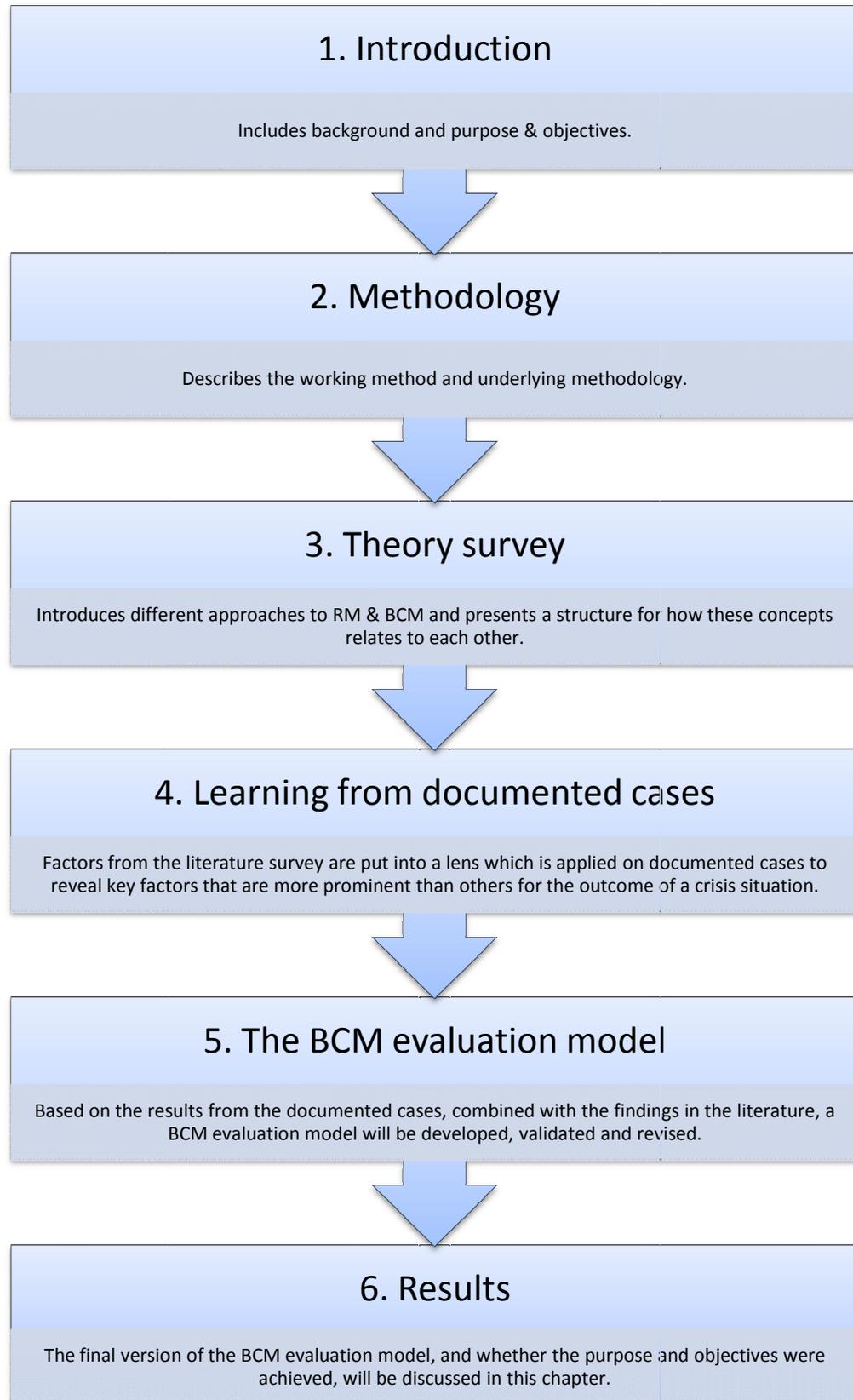


Figure 1. Chapter overview.

2 METHODOLOGY

"Next week there can't be any crisis. My schedule is already full⁶".

While methodology refers to the theory of how research should be undertaken, methods are tools and techniques used to gather and analyse data. If the underlying methodological issues are taken into account when methods are chosen it is easier to understand which method will give the best result (Saunders et al. 2003).

2.1 SCIENTIFIC APPROACH

A quantitative approach will try to describe and explain a subject while a qualitative approach will try to gain a deeper understanding and describe the holistic view (Holme & Solvang, 1997). This thesis is written in a semi-quantitative approach as time limits the amount of cases that may be investigated. As this tends to lean towards the qualitative approach the final model in this thesis will not involve all aspects of each factor.

2.2 THE RESEARCH PROCESS

The research process can be described as an onion (Figure 2) where all layers need to be considered before a scientific process may begin.

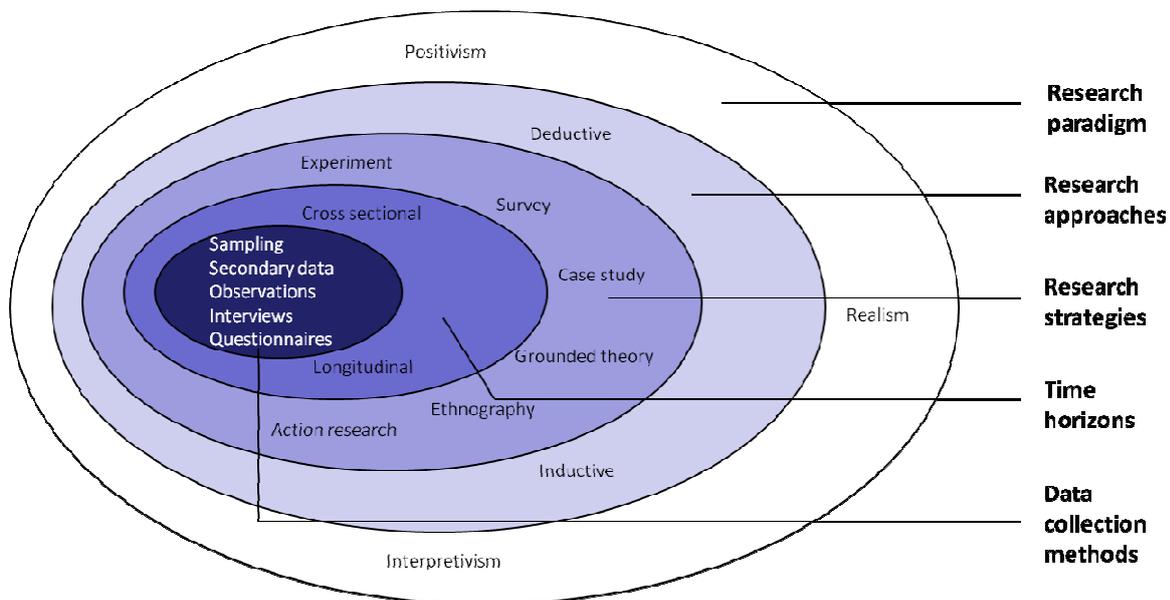


Figure 2. The research process onion according to Saunders et al. (2003, p. 83).

2.3 RESEARCH PHILOSOPHY

There are three different philosophies that dominate the literature: positivism, interpretivism and realism. When using positivism an observable social reality is assumed and used as an objective view of the problem. Interpretivism involves the idea that the world may not be simplified down to observable social reality without

⁶ Kissinger, H., Obtained from Jones, 1973

losing the complexity which gives the situation in the first place. Realism assumes that some interpretations affect people so that a reality is created. The main difference between realism and positivism is that realism “recognises the importance of understanding people’s socially constructed interpretations and meaning, or subjective reality, structures or processes that influence, and perhaps constrain, the nature of people’s views and behaviours”. (Saunders et al., 2003)

In this thesis the authors strive towards a positivistic research philosophy but will also use an interpretive philosophy when the different concepts will be examined to find where different views are today.

2.4 RESEARCH APPROACHES

There are two different research approaches, deductive and inductive. The deductive approach develops a theory and hypothesis which later is tested while an inductive approach gathers information which develops a theory. (Saunders et al., 2003)

In this thesis both the deductive and the inductive approach will be used as information from the literature will be gathered to form the lens which then will be tested on documented cases to see if it is correct.

2.5 RESEARCH STRATEGIES

The research strategy is the way, through clear objectives, to answer the scientific question in the research. There are numerous different research strategies including experiments, surveys, case studies, grounded theory, ethnography and action research. (Saunders et al., 2003)

The experiment is commonly used and will typically involve a definition of a theoretical hypothesis, a selection of different samples, or an introduction, measurements or control of variables. The survey is usually associated with a deductive approach and often in the form of a questionnaire as this enhances the possibility of comparing a big sample. The case study involves empirical investigation of a problem and can often give the answer on why something happened. The grounded theory is a deductive and inductive approach which starts without an initial theoretical framework and then develops theory through observation. The next step is to test the prediction in further observations which may, or may not, confirm the prediction. Ethnography is an inductive approach, originated from anthropology, which has the purpose to interpret the social world in the same way as the research objects do. Action research is focused on promoting change in an organisation which includes several steps of evaluation and revision of the initial idea as the idea is tested. (Saunders et al., 2003)

In this thesis, a grounded theory strategy will be used as it is not based on any hypothesis for a model but the lens will be based on literature studies. Then the lens will be a prediction for what important factors to look for in earlier documented cases. These documented cases will give additional information regarding which factors to retrieve from the lens. Then the preliminary evaluation model will be



tested through a survey in a company to see if it measures business continuity management (BCM) in a correct way.

2.6 TIME HORIZONS

Research can either have a cross-sectional approach, which means that a snapshot is taken at a certain time, or a longitudinal approach, where the object of the study is followed over time. (Saunders et al., 2003)

This thesis will try to make a model for cross-sectional use to examine a company's current status of BCM. During the process a longitudinal approach will be used to examine earlier cases as there will be difficulties to draw conclusions out of a snapshot of a certain time in a crisis.

2.7 RELIABILITY AND VALIDITY

Reliability means that a certain study will show the same results if it is conducted multiple times while validity means that the right matter is being measured (Ejvegård, 2003). Yin (2003) means that if reliability should be achieved in a case study the procedure must be well documented. Regarding case studies Yin further implies that validity should be divided into three different parts: construction validity, internal validity and external validity.

In this thesis construction validity will be addressed, during data collection, by the use of multiple sources and the establishment of a chain of evidence through the use of documented cases. This will, apart from construction validity, also bring reliability to the study. During the composition of the report, reviews will make it possible to know whether or not the presentation delivers a valid conclusion.

A case study with good internal validity have drawn the right conclusions concerning that a factor leads to the results. If internal validity is low there may be other factors, which actually lead to the result, which are missed (Yin, 2003). As information regarding crises is not easily apprehended there is a risk that conclusions may be drawn incorrectly due to confounding factors.

Patton (2002) means that when a qualitative method is used it is important to select information-rich cases as this, along with the observational/analytical capabilities of the researchers, gives validity and meaningfulness to the research. Yin (2003) means that in order to generalise case studies there should be a strive towards theorisation so that the theory later can be checked in other cases. In this thesis theorisation is made prior to the study with the objective to modify the theory with regard to results from the study. When cases are chosen, an important point is that they consist of enough information so that an evaluation can be made. The results from the documented cases will be available for others to evaluate.

When conducting multiple case studies, replication logic should be used. This can be either literal replication, which means that the second case will give the same results,



or theoretical replication which will give contradictory results for a predictable reason. (Yin, 2003)

In this thesis the replication logic may be hard to achieve since major crises are not common. As Mitroff (2001) has divided crises into seven different categories and as supply chain disruptions and physical crises are among these, the focus will be to achieve literal replication in the supply chain disruption area.

2.8 OBJECTIVITY

Science objectivity means striving towards a minimum of personal opinions which normally is achieved through the assessment of different views in the area (Ejvegård, 2003). This thesis will achieve objectivity through the literature study as this method makes it possible to obtain many views and through these see different angles. A literature study of scientific articles also makes it probable that these articles have been checked so that the opinions are based on argumentation thus making them more valuable than interviews or questionnaires.

In this thesis there may exist some potential personal interpretation when cases are reviewed but this will be counter measured by the fact that the authors of this thesis are two and that the procedures and ways to draw conclusions will be accounted for.

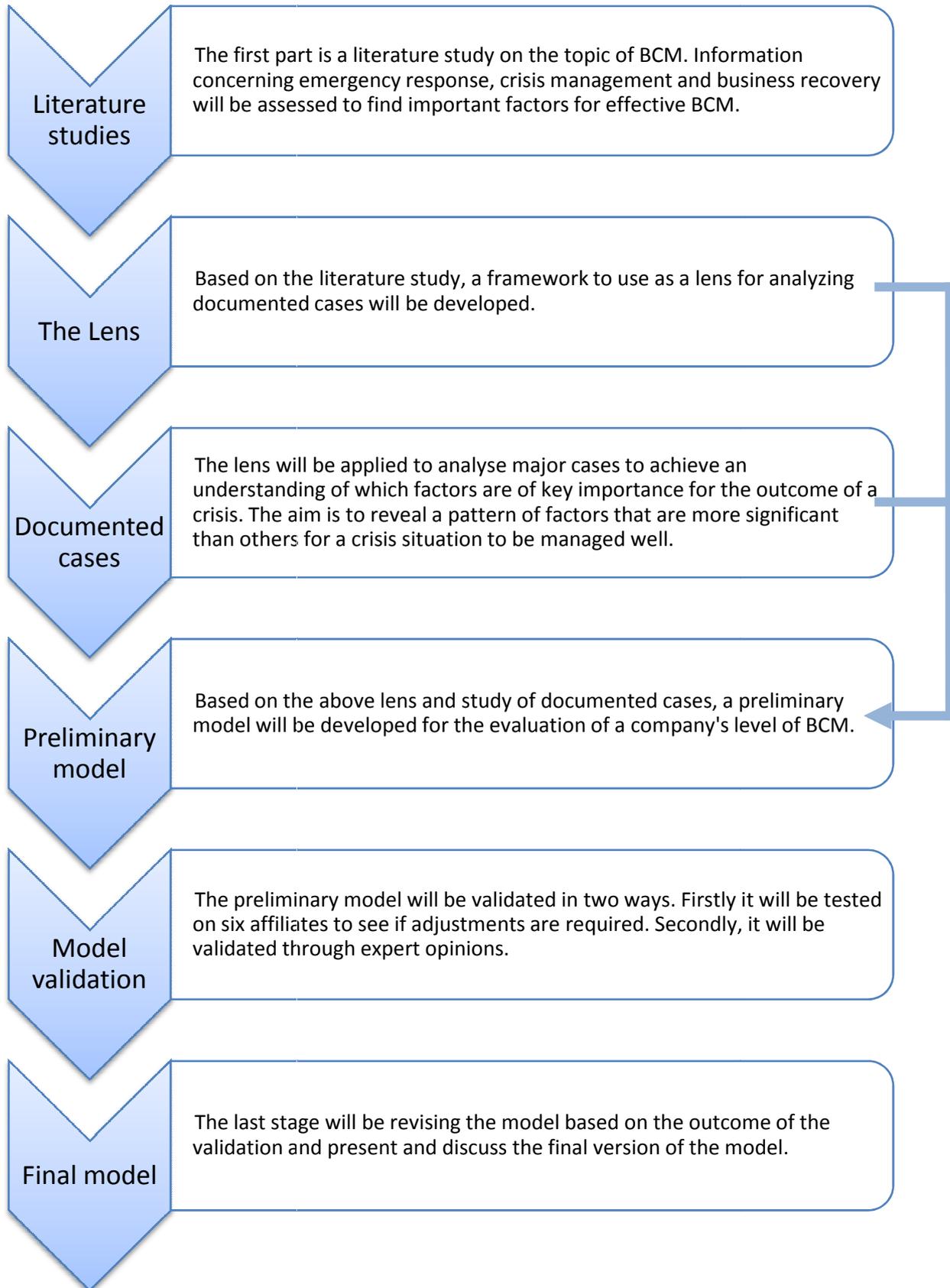
2.9 SOURCES

In science the ambition is to use primary sources instead of secondary sources which are an interpretation of the primary data (Ejvegård, 2003). In this thesis the use of secondary sources, as means to evaluate earlier documented cases, is inevitable. This matter will be dealt with by finding as many sources as possible to see which interpretation is most common but also which interpretation seem to be the most correct.



2.10 WORKING METHOD

The above has concluded in a working method described below.



3 THEORY SURVEY

“Each enterprise is only as resilient as the weakest link in its supply chain?”.

Theory that needs to be examined before commencing the study of documented cases is the clarification of risk management terminology and earlier literature on the business continuity management (BCM) topic. The results of this study will later help to form the lens, through which documented cases will be examined.

3.1 RISK MANAGEMENT TERMINOLOGY

Risk management terminology is surrounded by ambiguity to the extent that British Standards (2008a) recommends organisations to create their own glossary as a part of their risk management process. There are numerous definitions of risk management, BCM and crisis management (CM) and some are quite far apart. To be able to understand how these expressions are linked together, the following section will present a few of the definitions and give a conclusion of the coupling between the different expressions. Note that no new definitions will be formulated in this chapter.

3.1.1 RISK MANAGEMENT

RISK

Answers the three questions:

- What can happen?
- How likely is it to happen?
- If it happens, what are the consequences? (Kaplan & Garrick, 1981, p.13)

“A risk event is an uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of one or more of the project’s objectives” (APM PRAM Guide, 2006, p. 17).

“Effect of uncertainty on objectives” (ISO/IEC Guide 73, 2007, p. 2).

“The chance of something happening, measured in terms of probability and consequences. The consequence may be either positive or negative. Risk in a general sense can be defined as the threat of an action or inaction that will prevent an organisation’s ability to achieve its business objectives. The results of a risk occurring are defined by the impact” (BCI, 2008).

RISK MANAGEMENT

“Coordinated activities to direct and control an organisation with regard to risk” (ISO/IEC Guide 73, 2007, p. 3).

⁷ Sheffi, 2005, p.15.



“The culture, processes and structures that are put in place to effectively manage potential opportunities and adverse effects. As it is not possible or desirable to eliminate all risk, the objective is to implement cost effective processes that reduce risks to an acceptable level, reject unacceptable risks and treat risk by financial interventions i.e. transfer other risks through insurance or other means, or by organisational intervention i.e. Business Continuity Management” (BCI, 2008).

“The culture, processes and structures that are put in place to effectively manage potential negative events. As it is not possible or desirable to eliminate all risk, the objective is to implement cost effective processes that reduce risks to an acceptable level, reject unacceptable risks and treat risk by financial interventions i.e. transfer other risks through insurance or other means, or by organisational intervention” (British Standards, 2008a).

“Enterprise risk management is 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” (COSO, 2003, p. 3).

“The systematic application of management policies, procedures, and practices to the tasks of analysing, evaluating, controlling, and communicating about risk issues” (CSA, 1997, p. 3).

“A structured approach to managing uncertainty related to a threat, through a sequence of human activities including: risk assessment, strategies development to manage it, and mitigation of risk using managerial resources” (Wikipedia, 2008a).

CONCLUSION

Based on the definitions above, risk management within a company/organisation is about:

- Coordinating activities to *control risk*.
- Implementing cost-effective processes that *reduce risks to an acceptable level*.
- *Realising potential opportunities whilst managing adverse effects*.
- *Identifying, analysing, evaluating, controlling, communicating and mitigating risks*.

However, to be able to understand the term *risk management*, at first, the meaning of *risk* has to be understood. According to the definitions above, risk is:

- The *likelihood* of something happening and the following *consequences*.
- An *uncertain* event that *affects* the achievement of objectives.
- The *probability* and *consequences* of something happening.

This means that risk is about probability and consequences which in turn means that there are two ways of managing risk after identification: to minimise either the



probability or the consequences of an undesired event. If possible, the risk may also be avoided completely by e.g., in the process industry, exchange a hazardous chemical for a non hazardous chemical.

Furthermore, it is possible to conclude that a risk is something that has not yet happened (what *can* happen? *how likely?* *if it happens, should it occur, uncertainty, chance* of something happening, *the threat* of an action or inaction). This means that risk management is exercised *before* an event occurs to identify, analyse and mitigate risks. If a risk becomes reality, it is no longer a risk. It has become a certain event with the potential to form a crisis situation.

Regarding enterprise risk management, this is simply a level within risk management where it is exercised i.e. risk management within an enterprise. Another example is supply chain risk management which is managing risks in the supply chain (see section 3.1.4).

3.1.2 BUSINESS CONTINUITY MANAGEMENT

BUSINESS CONTINUITY

“A pro-active process which identifies the key functions of an organisation and the likely threats to those functions” (British Standards, 2008a).

“A progression of disaster recovery, aimed at allowing an organisation to continue functioning after (and ideally, during) a disaster, rather than simply being able to recover after a disaster” (Wikipedia, 2008b).

“An ongoing process supported by senior management and funded to ensure that the necessary steps are taken to identify the impact of potential losses, maintain viable recovery strategies, recovery plans, and continuity of services” (NFPA 1600, 2007, p. 1600-4).

BUSINESS CONTINUITY MANAGEMENT

“A holistic management process that identifies potential impacts that threaten an organisation and provides a framework for building resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value creating activities” (BCI, 2008).

“A holistic management process that identifies potential impacts that threaten an organisation and provides a framework for building resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value creating activities. Also the management of the overall programme through training, rehearsals, and reviews, to ensure the plan stays current and up to date” (British Standards, 2008a).

“A holistic management process that

- identifies potential threats against the activity
- judges the consequences if a threat becomes a reality



- gives a framework for resilience in a crisis
- gives requirements and possibilities to act efficiently in a crisis in order to
 - protect people, the environment and assets
 - protect the cash flow
 - protect image and brand name
 - keep the customers” (Nilsson, 2008).

FM Global uses the Business Continuity Institute’s definition but Stuart Selden, assistant vice president and manager, FM Global’s Business Risk Consulting Group (BRCG) further defines BCM as:

“A business culture rather than a project—a continual effort by all members of an organisation to help build resilient processes. It’s a framework that combines various elements of risk management and related disciplines, which can ultimately lead to an action oriented document called the business continuity plan, or BCP”. (Reason Magazine, March 2007, p. 18)

“Business continuity management provides the availability of processes and resources in order to ensure the continued achievement of critical objectives” (Gibson et al., 2004, p. 2).

“A tool that can be employed to provide greater confidence that the outputs of processes and services can be delivered in the face of risks. It is concerned with identifying and managing the risks which threaten to disrupt essential processes and associated services, mitigating the effects of these risks, and ensuring that recovery of a process or service is achievable without significant disruption to the enterprise” (Gibb & Buchanan, 2006, p. 129).

- “The ongoing management of the business continuity plan to ensure that it is always current and available and
- the ongoing management of operational resilience and process availability within an organisation, with the aim of ensuring that the organisation experiences the minimum possible day-to-day disruption” (Continuity Central, 2008).

BUSINESS CONTINUITY PLANNING

“The advance planning and preparations that are necessary to identify the impact of potential losses; to formulate and implement viable recovery strategies; to develop recovery plan(s) which ensure continuity of organisational services in the event of an event/incident/crisis; and to deliver a comprehensive training, testing and maintenance programme” (BCI, 2008).

“The advance planning and preparations which are necessary to identify the impact of potential losses; to formulate and implement viable recovery strategies; to develop recovery plan(s) which ensure continuity of organisational services in the event of an emergency or disaster; and to administer a comprehensive training, testing and maintenance programme” (British Standards, 2008a).



Eric Jones, assistant vice president and manager, BRCG's U.S. operations defines business continuity planning as:

"Business continuity planning, or a BCP, is just one element of business continuity management. A BCP is drawn from information-gathering and risk assessments, and involves assigning responsibilities to key individuals, who then create recovery strategies based on specific objectives" (Reason Magazine, March 2007, p. 18).

CONCLUSION

According to the above, BCM is:

- A holistic management *process*.
- *Identifying* potential impacts.
- Provides a *framework for resilience*.
- *Effective response*.
- *Safeguarding* stakeholders, reputation, brand and value creating activities.
- *Keeping* the customers.
- *Training*, rehearsals and reviews to keep plans up to date.
- *Leads* to a business continuity plan.
- *Ensures the continued achievement* of critical objectives.
- *Minimising and managing* disruption risks.

Again, as in the risk management case, it is important to know what business continuity is to be able to understand BCM which in accordance with the definitions above is:

- A pro-active *process*.
- *Identifying* threats to key functions.
- A *progression* of disaster recovery.
- The *continuation of functions* during and after a disaster.
- *Maintain viable recovery strategies*.

Both sets of definitions say it is a management process and both bring up the identification of threats and the response to these. The authors' conclusion from the above is that business continuity and BCM has the same meaning. From what this study has found, it is only British Standards who defines both concepts. This together with the fact that the Business Continuity Institute defines BCM but not BC and that the National Fire Protection Association defines BC but not BCM further strengthens this argument.

Organisational crises are in the literature often divided into three phases (British Standards, 2008b; Nilsson, 2008). At first an acute phase where the focus is on saving lives, the environment and property. Secondly a semi-acute phase with a focus on the continuation of critical business functions. The last phase is the recovery phase which aims to put the business back to the state as it was prior to the crisis. Marsh AB has named these phases, emergency response (ER), crisis management (CM) and business recovery (BR) as shown in Figure 3 below.



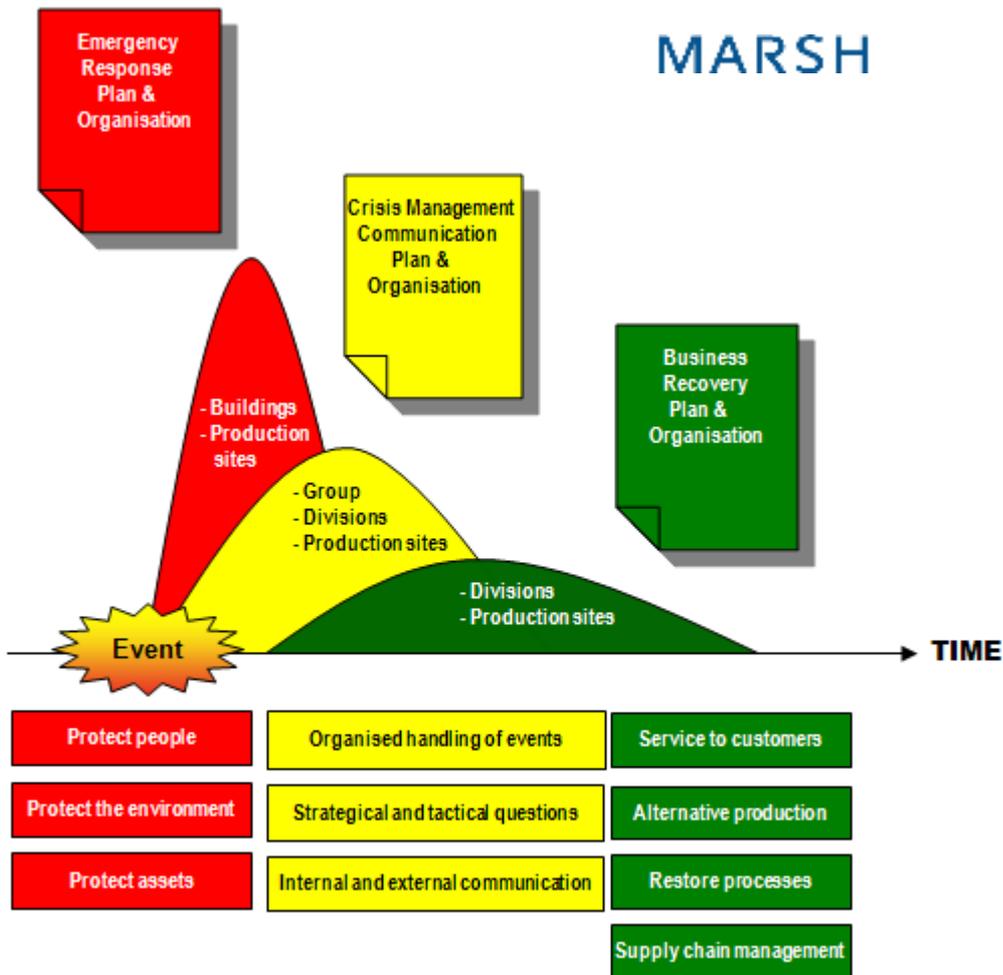


Figure 3. Business continuity management at Marsh AB (Nilsson, 2008).

So when is BCM exercised? Looking at the definitions again, BCM involves a process, identification, response, management, maintenance of plans etc. This means that although BCM predominantly involves the response, management and recovery of a crisis, it is also exercised prior a crisis situation to fabricate and train the three business continuity plans, one for each phase.

Regarding business continuity planning (BCP) it is described as:

- *Planning* and preparations.
- *Identify* the impact of potential losses.
- To *formulate* and implement recovery strategies.
- The development of continuity and recovery *plans*.
- Training, testing and maintenance.
- A business continuity plan.
- One element of BCM.

So what is the difference between BCM and BCP? A comparison of the definitions of the two terms shows that there is none or very little difference. BCP may be seen as the physical plans that come out of the BCM process. It is possible to say that BCP is one level of BCM like the levels of risk management discussed above. Every company

should develop one plan for each phase, an ER plan, a CM plan and a BR plan (Nilsson, 2008).

Another conclusion is that BCM strive towards organisational preparedness rather than the mitigation of risks. BCM focuses on the minimisation of the consequences following an undesired event but it does not aim to reduce the probability of an undesired event even though this may be achieved in the process.

3.1.3 CRISIS MANAGEMENT & CRISIS PREPAREDNESS

CRISIS

“A situation which is harmful and disruptive, is of high magnitude, is sudden, acute and demands a timely response and is outside the firm’s typical operating frameworks” (Reilly, 1993, p. 116).

“An occurrence and/or perception that threatens the operations, staff, shareholder value, stakeholders, brand, reputation, trust and/or strategic/business goals of an organisation” (BCI, 2008).

“A critical event, which, if not handled in an appropriate manner, may dramatically impact an organisations profitability, reputation, or ability to operate. Or, an occurrence and/or perception that threatens the operations, staff, shareholder value, stakeholders, brand, reputation, trust and/or strategic/business goals of an organisation” (British Standards, 2008a)

CRISIS MANAGEMENT

“Organisational crisis management is a systematic attempt by organisational members with external stakeholders to avert crises or to effectively manage those that do occur” (Pearson & Clair, 1998 p. 61).

“The process by which an organisation manages the wider impact of a Business Continuity event/incident/crisis until it is either under control or contained without impact to the organisation or the Business Continuity Management Plan is invoked as a part of the Crisis Management process” (BCI, 2008).

“The overall coordination of an organisations response to a crisis, in an effective, timely manner, with the goal of avoiding or minimising damage to the organisation’s profitability, reputation, and ability to operate” (British Standards, 2008a).

NFPA 1600 (2007, p. 1600-4) defines disaster/emergency management as “an ongoing process to prevent, mitigate, prepare for, respond to and recover from an incident that threatens life, property, operations or the environment.

PREPAREDNESS

“Activities, tasks, programmes, and systems developed and implemented prior to an emergency that are used to support the prevention of, mitigation of, response to and recovery from emergencies” (NFPA 1600, 2007, p. 1600-5).

CRISIS PREPAREDNESS

“A state of corporate readiness to foresee and effectively address internal or exogenous adversary circumstances with the potential to inflict a multidimensional crisis, by consciously recognising and proactively preparing for its inevitable occurrence” (Sheaffer & Mano-Negrin, 2003, p. 575).

CONCLUSION

CM as defined above is about preventing and managing crisis situations. Again, comparing CM and BCM, one conclusion is that CM is one part of the BCM process. Furthermore, objectives of this process is to foresee and effectively respond to a crisis situation which means that if a company has a well established BCM programme, it is prepared to handle a crisis. Hence, in a company, crisis preparedness and BCM can be seen as the same matter.

3.1.4 SUPPLY CHAIN MANAGEMENT

Over the last decade, supply chain management (SCM) has gone from a focus on logistics to a proactive, strategic and corporate approach. Previously, SCM had the aim to insulate the business from the risks of supply chain disruptions, primarily from suppliers immediately upstream, engaged with buffer stock assessments to reduce the consequences of such a disruption. Today SCM is more demanding which mainly is due to more complex supply chains. Looking at a schematic image of a company's supply chain (see Figure 4) it is easy to see a linear relationship from suppliers to customer. However, the reality is much more complex. (Zsidisin & Ritchie, 2009)



Figure 4. Schematic image of a company's supply chain.

Often supply chains encompass first, second and third tier suppliers and/or first, second and third tier distributors or customers. Each of these may in turn involve suppliers and distributors. This means that there may be a large number of organisations involved in a company's supply chain why the term network is often used. The focus of SCM is on the organisations whose products or services are likely to be critical. It is now a more proactive activity overseeing a complex network of upstream and downstream organisations to “enhance the competitive advantage, added value, lean operations, agility and profitability at the same time as managing a more complex interaction of risks” (Zsidisin & Ritchie, 2009, p. 3). The complex interaction of risks is something which Peck et al. (2003) points towards. Peck et al. mean that there are four levels of risk. The first level - Process/Value Stream which may be seen quite as an end to end as in Figure 4. The second level – Assets and Infrastructure Dependencies, the third – Organisations and Inter-organisational Networks and the fourth – The Environment are not as easy to see in the end to end chain. These are rather risks which may interact in the more complex way to disrupt the supply chain and form a crisis situation.

3.2 CHAIN OF EVENTS

Disruptions are often caused by a series of undesired events. It is possible that the initial events occur at a site not belonging to the most affected company. The complexity of today's SCM often results in that one undesired event leads to another which finally leads to a critical event. Also, the critical event may be different for different companies, both in time and range. Even though the BCM organisation focuses on management of the critical event, effective BCM may be able to deal with the threat before it turns into a critical event. These different stages of a disruption and the chain of events are explained in Figure 5 below.

Furthermore, not all critical events lead to the activation of all of the three business continuity plans. E.g. in non life-threatening situations, like a disruption of deliveries from a supplier, there may be no need for ER.

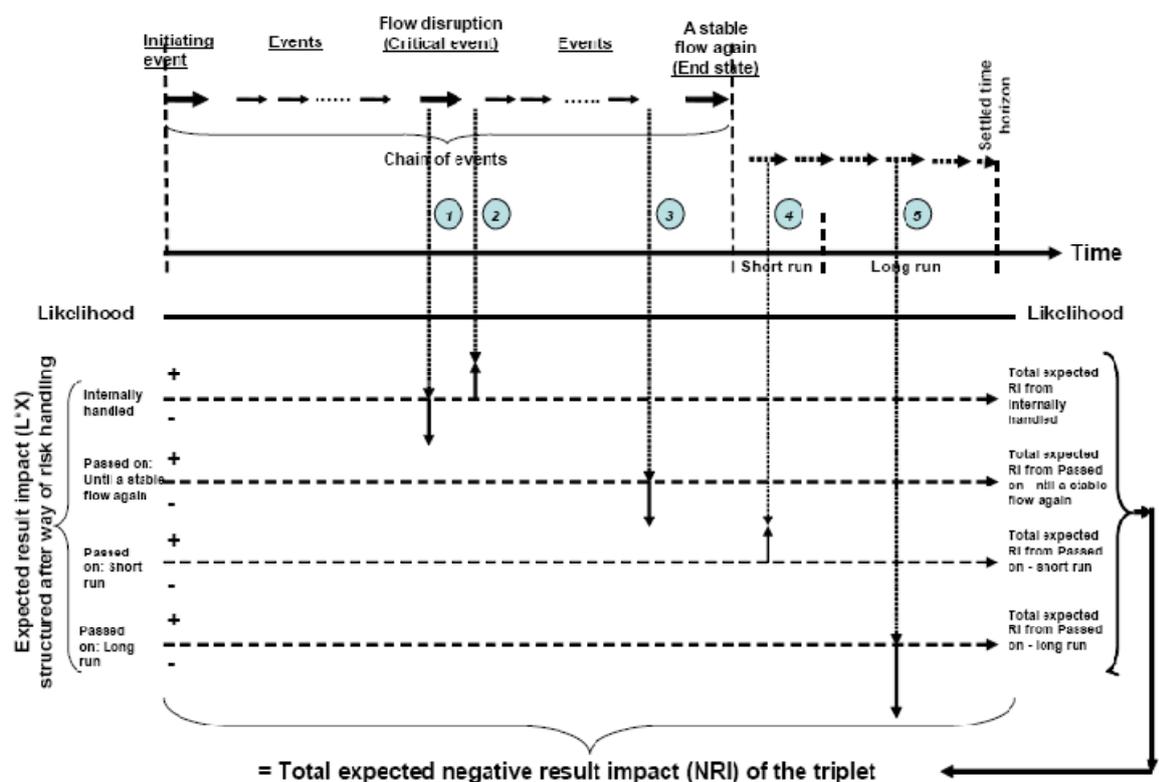


Figure 5. Negative result impact of a disruption (Paulsson, 2007).

Consider a disruption in deliveries from the supplier of the critical component X.

1. Usage of alternative suppliers but at a higher price.
2. There is no supply of component X; hence no payment to the supplier is needed during this period.
3. Loss of sale revenues for the duration of the disruption.
4. In the short term, due to the lack of deliveries, customers will buy more than usual to restock items.

5. In the long run, revenues will fall as the market no longer regards the company as an equally reliable supplier as before the disruption.

3.3 STRUCTURING THE CONCEPTS

The conclusion of the above discussion has resulted in the following model:

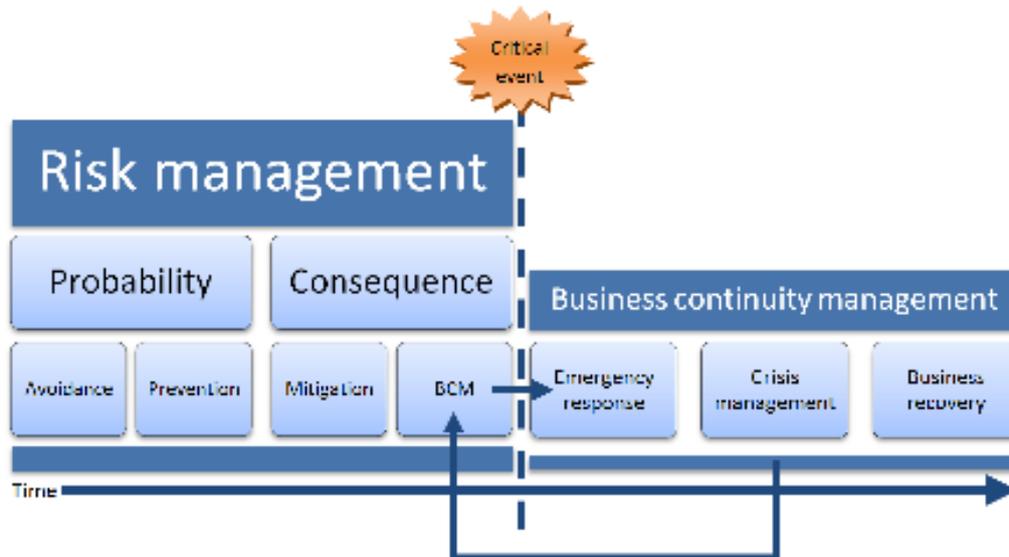


Figure 6. Risk management terminology.

Figure 6 shows the linkage of the different risk management terms and a hint on when they are exercised. It is to be noted that these elements often blur into each other, for example there are factors of probability reduction in BCM even though the main objective is to minimise the consequences. BCM can be seen as one part of risk management but there are some differences.

Applying risk management on Kaplan & Garrick's definition of risk, it can be divided into minimising probability or consequence. The probability can be reduced by either avoiding the risk completely e.g. to withdraw a risk-prone product from the market or by preventing the risk from happening e.g. multiple sourcing to reduce the probability of supply disruptions. The consequence can be reduced by mitigating the risk by e.g. installing sprinkler protection in warehouses. This will not reduce the probability of a fire but will likely reduce the consequence of a fire.

When exercising risk management a company deals with specific risks that in one way or another have been identified during the process. If there is a cost-effective solution to deal with the risk, it will be managed accordingly e.g. sprinklers, safety equipment etc. However if a risk has not been identified it cannot be managed, or can it? This is where BCM steps in. Although identification is involved in BCM it aims to deal with *any* crisis situation disregarding of what risk has caused it to happen.

4 LEARNING FROM DOCUMENTED CASES

“Many companies spend huge amounts of money on advertising and public relations, yet they tend to ignore the fact that a poorly handled disaster can quickly destroy their carefully crafted image”⁸.

This chapter consists of three steps. First, the construction of a lens through which the documented cases can be analysed. Second, to choose the different cases based on a number of criteria and third, the analysis itself.

4.1 THE CONSTRUCTION OF A LENS

To construct the lens the first step was to study the literature to find previous material on the topic. The lens will consist of factors or abilities within the three steps of business continuity management (BCM) which are emergency response (ER), crisis management (CM) and business recovery (BR) together with the planning process of these.

To simplify the classification of factors, Marsh AB’s model of BCM was used (Figure 3). Apart from the three categories used by Marsh AB, three additional categories were added. This led to six different categories; indirect BCM, direct BCM, ER, CM, BR and others.

When different expressions were placed under the categories the first question was: Do the factor concern BCM direct or indirect? Direct BCM would in this case be the planning for or execution of any of the ten boxes in Marsh AB’s model of BCM (Figure 3). Indirect BCM means that the factor influences the outcome of BCM without being a plan for or execution of the ten boxes. If the answer was neither then the factor was put into others.

As Quarantelli (1998) emphasises on the weight of recognising that planning for crisis situations and CM are separate processes the following question in direct BCM considered when the factor is exercised: Is it “prior” or “during” the crisis? Here, prior means that it will not at any point be exercised during the crisis and during means the execution of any of the BCM plans. If the answer was “prior” then the factor was placed under direct BCM while “during” led to one of ER, CM or BR. If it concerned life-saving, protection of environment or the protection of assets it would go into ER. If it concerned organised handling of events, strategical and tactical questions or internal and external communication it would go into CM. Finally, if it concerned service to customers, alternative production, restore processes or the supply side of SCM it would go into BR.

Under each category the authors created different factors where the expressions were placed. The factors were aimed to reflect the expressions.

⁸ Wisenblit, 1989, p. 31.

The complete classification of factors or abilities is found in Appendix B. The classification resulted in the lens factors shown in Table 1 below.

Table 1. Lens factors

Category	Factors
Indirect BCM	Understanding the organisation, Corporate culture, Management support, External relations, Internal relations, Quick detection, Adaptability, Acceptance.
Direct BCM	BCM Programme, Liability, Risk identification, Risk analysis, Holistic view, Plans, Implementation, Clear responsibilities, Training and education, Testing, Review, Corporate policy statement, Business recovery objectives.
Emergency response	Alert system, Response procedures, Evacuation procedures, Emergency response equipment.
Crisis management	Likeness principle, Quick response, Internal communication, External communication, CM Team, Decision making, Crisis operations centre, Demand lowering.
Business recovery	Debriefing, Redundancy, Image.
Others	Database control, Knowledge.

4.2 CHOOSING THE CASES

The cases within this study fulfil the following criteria:

- The event has caused a supply chain disruption.
- The event has caused a negative economic impact.
- The event was reported in world media.
- Each case involves a publicly quoted company.
- Information regarding the event must be available and extensive enough for conclusions to be drawn.
- The event will mainly concern one or few companies.
- The event will have to be a manmade event and not a natural disaster.
- The event occurred during the 21st century.

The reason to look into cases which concerns the supply chain is that those risks are perceived as the greatest threat to a company's revenue driver according to Brannen and Cummings (2005).

If an event does not cause a negative economic impact to a business, it is the authors' opinion that it is not perceived as a crisis by that company.

The fact that a case is reported in world media is often an indication of a major event.

The criterion that the cases involve a publicly quoted company gives the result that only major companies involved in a crisis will be examined.

To get results from the documented cases, the information regarding the cases must be sufficient enough to draw conclusions from.

If a disaster or crisis concerns many corporations at the same time it may be difficult to see which factors that answers to effective BCM since this may change the normal circumstances of how to handle a crisis. Furthermore, it is probable that this new environment is more forgiving to the management of a crisis since it has influenced big parts of the society. This makes the choice to look at events which only affect a few companies probable to give results that also may be applicable on other situations.

Major natural disasters have occurred during recent years but information concerning if individual companies were affected by these is not easily found. This thesis will therefore examine cases where the effects of a manmade action lead to the crisis. The authors hope to be able to draw conclusions that will be applicable to natural disasters as well.

As old cases may not reflect today's corporate environment the cases will be limited to the 21st century.

To find cases, the authors conducted a second literature survey in previous literature on the topics of CM and BCM. The survey was complemented with internet searches and led to findings of the crises listed in appendix D. The authors' opinion is that, based on the criteria, these cases represent a selection that will give relevant cases to analyse. In Table 2, the crises which fulfilled the criteria are listed. Eight of these cases were examined. When choosing the cases, the authors chose cases with disruptions in different flows of the supply chain. Also, cases which had several similarities yet some differences, e.g. the SAS and Air France cases, were also found more interesting due to the possibility of a thorough comparison. Furthermore, a few cases were very well documented, e.g. the Nokia/Ericsson and BP cases, and were therefore given extra priority.

Table 2. Crises which fulfilled the criteria to be part of the study of documented cases.

Case	Year	Major market players
Refinery explosion led to 15 deaths and more than 170 injured	2005	BP
Landing gear problems on Dash 8 Q400 aircraft resulted in several incidents	2007	SAS
Tires on SUV were blamed for accidents which led to product recall	2000	Bridgestone/Firestone
Concorde flight AF4590 crashed which led to 109 deaths	2000	Air France
Japanese Financial Services ordered Citibank to close its private banking offices in Japan	2004	Citibank Japan

Case	Year	Major market players
Lost customers due to lack of development, today, the company has regained profits	1998-2001	Marks & Spencer
Purified water bottle (Coca-Cola UK Dasani) recall after exceeding health limits	2004	Coca-Cola
Coach crash in Austria led to 6 deaths	2004	Ingham
Danish paper Jyllandsposten published caricatures of Mohammed which led to boycott of Arla dairy products in the Middle East	2007	Arla Foods
Car producing lines had to be halted as steel needed for production was missing.	2004	Nissan
Stop Huntingdon Animal Cruelty started to harass a company's employees and stakeholders so it was almost bankrupted.	2001	Huntingdon Life Science
Fire in semi conductor factory in Albuquerque led to supply chain disruption in mobile phone manufacturing	2000	Nokia/Ericsson
Accounting fraud led to the bankruptcy of Enron which drew accounting company Arthur Andersen out of accounting	2001	Enron, Arthur Andersen

4.3 DOCUMENTED CASES

Each documented case will be presented with a short summary of the crisis and its outcomes. Then with the help from our lens, the cases will be examined regarding the different factors from the lens with the objective to find the key factors which lead to the crisis solution and/or bad outcome. Factors which contributed to the outcome are written in *italic*. The following questions will be investigated in each case:

- What happened and why?
- What was managed well/poorly?
- Which key factors contributed to the final outcome? Could those factors have been managed differently?

The used sources will be revealed for each case.

4.3.1 THE NOKIA/ERICSSON DISRUPTION

This case is particularly interesting as it contains both a winner and a loser from the same disruption. While one company gained market shares, the other suffered devastating losses. The other point of interest is that the initial event occurred at a site not belonging to the most affected parties.

SOURCES

- Latour (2001), *Trial by Fire*.
- NCSU (2008), *How Do Supply chain Risks Occur?*
- Norrman & Jansson (2004), *Ericsson's proactive supply chain risk management approach after a serious sub-supplier accident*.
- Sheffi (2005), *The resilient enterprise*.

MAJOR MARKET PLAYERS

- LM Ericsson AB
- Nokia Corp.
- Philips Electronics NV

WHAT HAPPENED AND WHY?

On Friday evening, March 17, 2000, the city of Albuquerque in New Mexico was hit by a thunderstorm. An electric line was struck by a lightning bolt which caused power fluctuations throughout the state. Situated in Albuquerque, a Philips plant manufacturing radio-frequency chips, had no spare diesel motor to support the fans with power so the fans stopped. This caused the furnace in Fabricator No. 22 to overheat and catch fire (Norrman & Jansson, 2004). The fire triggered the alarm and sprinklers and in less than ten minutes, the fire was out. Nobody was hurt and the damage seemed almost negligible from a site perspective. The incident didn't even reach the Albuquerque newspapers (Sheffi, 2005). Little did they know that the real drama was yet to begin.

What the fire fighters did not realise was that the fire's location was in a so called clean room with air filters making sure no particle larger than half a micron gets inside. After the fire the room was anything but clean. Smoke had also spread throughout the facility and staff and fire fighters shoes tracked in dirt as they dealt with the fire. Within minutes, millions of cell phones' worth of chips was ruined. Even worse was the damage to the clean rooms that had to be completely sanitised. This was going to be a more demanding job than expected. (Sheffi, 2005)

The two Scandinavian cell phone giants, Ericsson and Nokia, accounted for 40 % of the affected orders at the Philips plant. The following Monday, March 20, they both received a phone call from Philips officials informing about the fire outbreak saying there would be delays of approximately one week. Even before Nokia's chief component-purchasing manager, Tapio Markki, received the call they had noticed a glitch on the shipments of Philips chips as order numbers were not adding up (Latour, 2001). Even though Mr. Markki was not overly concerned about the news, one-week delays are not rare in global supply chains, he communicated the information to others within the Nokia organisation. This included Pertti Korhonen, Nokia's top trouble shooter. Mr. Korhonen placed the affected components on a special watch list and Nokia made daily calls to Philips to check the status of the situation. Korhonen also offered Philips two Nokia engineers to help but his offer was declined as Philips had the opinion that outsiders would only add confusion at the plant (Sheffi, 2005).

Two weeks after the fire, the situation escalated at Nokia when Philips called Mr. Markki to explain the full scope of the disruption. Philips had now realised that it would take several weeks to restore the plant and months' worth of chip supplies would be delayed. Korhonen calculated that the production of approximately four million handsets would be affected at a time of booming sales. He quickly assembled a team of 30 Nokia officials to work on a solution. They redesigned chips, boosted production and exercised the company's position to squeeze out more capacity from suppliers. (Latour, 2001)

At the same time in Stockholm, Sweden, Ericsson executives had yet not realised the seriousness of the situation. Ericsson received the same phone call as Nokia three days after the fire but middle management failed to communicate the information to their superiors. Jan Wareby, head of consumer products, did not find out about the disruption until early April. (Latour, 2001)

By that time, Messrs. Korhonen and Markki were on their way to Philips headquarters in Amsterdam to meet with the company's chief executive. Also Jorma Ollila, Nokia's chairman and chief executive rerouted a flight to attend the meeting. Nokia were very demanding and stressed that every possible solution should be looked at. (Latour, 2001)

Nokia now directed all effort to replace the millions of chips forfeited. Due to that Nokia was such an important customer, one Japanese supplier and one U.S. supplier took on additional orders to produce more than two million chips with only five days lead time. Nokia further demanded information about capacity at other Philips plants. Mr. Korhonen had one goal: "For a little period of time, Philips and Nokia would operate as one company regarding these components". This gave results and ten million chips were replaced by a factory in Eindhoven and another factory in Shanghai was also made available for Nokia. (Latour, 2001)

Within Nokia, chips were redesigned so they could be produced elsewhere. Another two million chips were made up for when the New Mexico plant went back online because of a project for more effective chip production. (Sheffi, 2005)

Nokia's efforts really paid off but for Ericsson it meant disaster. When they finally asked Philips for more capacity it was already bound by Nokia. Ericsson had nowhere else to turn for spare chips resulting in a staggering loss of at least \$400 million in potential revenue (Latour, 2001). They were able to recover somewhat of that sum through an insurance claim. However, six months after the fire, Ericsson's market share had gone down 3 % where Nokia's had gone up by the same percentage. At the end of 2000, Ericsson announced a loss of \$2.34 billion in the mobile phone division. In April 2001, one year after the fire, the company retreated from the phone handset market as a producer of its own and signed a joint venture with Sony, creating Sony Ericsson owned 50-50 by the two companies (Sheffi, 2005).



WHAT WAS MANAGED WELL/POORLY?

So what made Nokia come out as a winner after the crisis? To start with, even before they received a call from Philips they had noticed a glitch in chip deliveries [*Quick detection*] and as soon as Nokia received the news of the fire, it was communicated to higher instances [*Quick response; Internal communication*]. The matter was directly put on a special watch list [*Quick response*]. Status on the disrupted plant was checked daily [*External communication*]. Nokia started cooperating with Philips and offered them their services [*External relations*]. They assembled a *crisis management team* and started looking into their alternative resources [*Redundancy*]. The fact that Nokia's staff calls themselves "Nokians" (Latour, 2001) indicates a good *corporate culture* and also somewhat *internal relations*. Mr. Korhonen encouraged bad news to travel fast which emphasises an *acceptance* that it is only a matter of time before an undesired event occurs. Further Nokia's chief executive, Jorma Ollila, truly showed his support by rerouting his flight to attend the meeting in Amsterdam [*Management support*]. By putting the disruption on a special watch list, Nokia also showed risk awareness as an integrated part of supply chain management (SCM) and their communication indicates a functioning integration [*Holistic view*]. Nokia also adapted to the situation by redesigning chips and accelerating a project to boost chip production [*Adaptability*]. They had processes like the special watch list which simplified *decision making*. The command structure and communication between Nokia officials indicates *clear responsibilities*, it seems as each of the key-employees knew what was expected from them. Latour (2001) explains that Nokia, a few years before the fire, had a disruption that cost them millions of dollars in potential sales. Jorma Ollila vowed it would not happen again and started what could be considered a *BCM programme*. It is not clear whether the programme included any business continuity plans but the authors' opinion is that it would be hard to achieve what Nokia did in such a short time without a *plan*.

And what made the outcome for Ericsson so dreadful? Well, it is possible to say that they lacked the abilities of Nokia but that is not the whole truth. At first, even though they were informed about the fire and disruption at the Albuquerque plant they failed in their *internal communication* and did not report up the ladder. NCSU (2008) argues that lower level employees did not communicate the news for fear of reprimand [*Corporate culture/Internal relations*]. The failure to inform top management also made it impossible for a *quick response*. The phone call from Philips three days after the fire was considered "one technician talking to another" and the expected one week delay was not given any extra thought. Ericsson employees failed to take responsibility and thus did not inform their bosses [*Clear responsibility*]. The Philips plant was Ericsson's only source for radio-frequency chips but even still they had neither a system to detect the snag [*Quick detection*] nor any back-up suppliers [*Redundancy*]. This also indicates a lack of *risk identification* since single sourcing with no back-up suppliers should have activated the warning bell at Ericsson. This in turn means that it is unlikely that a *risk analysis* had been made regarding their suppliers. Although Ericsson made up some of the loss through an insurance claim, loss of market shares cannot be insured.

After the crisis, both Ericsson and Nokia have reviewed their risk management procedures to be able to resist future disruption (Norrman & Jansson, 2004; NCSU, 2008).

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

The fact that Nokia were one step ahead of Ericsson and seized all spare capacity made it impossible for Ericsson to retrieve chips for their cell phones. This gave Ericsson the wrong product mix and Nokia could come out as a winner by taking market shares from Ericsson. The differences in management between the two companies show that Ericsson could have managed many things differently.

4.3.2 THE EXPLOSION AT BP TEXAS CITY REFINERY

Even though this case is relatively new, which is one reason to look into it, the main reason to examine BP Texas City is that there was a safety management system (SMS) in the organisation but the accident still occurred. Another reason to explore this case is that it can give input in the area of ER which not all cases do.

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MAJOR MARKET PLAYERS

- British Petroleum (BP)

WHAT HAPPENED AND WHY?

On Wednesday, March 23, 2005, during a restart of an isomerisation unit after a planned maintenance outage, an explosion occurred in Texas City on the BP refinery. The aftermath of the explosion consisted of 15 deaths and 180 injured. The incident emerged from an overfilled raffinate splitter since no liquid was removed while new flammable liquid was pumped into the tower. Warning systems failed to invoke any reaction from the staff. The overhead pipe became flooded which led to a pressure rise. This made three pressure relief valves open for six minutes in which a large quantity of flammable liquid entered a blow down drum which was connected to the atmosphere. The blow down drum had no flare, in the connection to the atmosphere, which led to liquid leaving the drum and pooling on the ground below.

This liquid pool then evaporated and later ignited into an explosion. All fatalities occurred in occupied trailers which were situated close to the high hazard unit. (US Chemical safety and Hazard Investigation Board, 2007)

During the time when liquid evaporated from the pool, personnel left the area around the vaporisation quickly without anyone sounding the alarm. In the area around the blow down drum the site's ER team responded quickly after the explosion and started a search and rescue operation. (Mogford, 2005)

The CEO Lord John Browne flew over from the UK to visit the site on the day after the explosion (Turner et al., 2005). In 24 hours of the explosion BP also opened a web page for information regarding the incident (Silverman, 2005).

WHAT WAS MANAGED WELL/POORLY?

The reports regarding this incident are mostly of investigating character and try to reveal why the incident happened and not how the company acted after the incident. This gives insight in the planning process but not as much regarding the actual management during the crisis.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) (2007) found several technical flaws including: the start up procedure needed an open vent which was closed for more than three hours, the process unit was started despite reported malfunctions, the size of the blow down drum was insufficient for the amount of liquid that ended up there, the blow down drum had not been replaced even though it had been considered unsafe, occupied trailers were situated too close to a highly hazardous process unit, eight serious releases of flammable material from blow down stacks had occurred during the years before the accident without them being investigated and the pre-start up safety review was not implemented to ensure no nonessential personnel around the process unit.

CSB (2007) further made key organisational findings: Budget reasons impaired process safety performance, the BP Board of Directors did not have sufficient oversight as no member was responsible for assessing and verifying the hazard prevention programme's performance, misled perception of process safety as the indicator was personal injury rate, deficiencies in maintenance programme, a check-the-box mentality made checklists go through without all boxes in reality being met, lack of reporting and learning culture, surveys were met with too small actions from BP managers and possible impact on process safety were not assessed when changes occurred.

Regarding BCM, CSB (2007) found that one of the underlying reasons for the closed vent was poor *internal communication* between supervisors and operators regarding critical information. The poor communication is probably a result of poor *internal relations* between supervisors and operators. The insufficient blow down drum, the fact that an unsafe design was used and eight previous releases of flammable material indicate deficiencies in the *risk analysis* since the risk identification had been done. Occupied trailers situated too close, and the not implemented pre-start up

safety review, indicate lack of *implementation* of the existing SMS. This indicates a lack of implementation of plans. The fact that the board did not have sufficient oversight and that no member was responsible for the process safety indicate a lack of *management support*. The deficiencies in maintenance, the check-the-box mentality, and surveys met with only small actions and possible impacts of changes not being investigated together are signs of an unsatisfactory *corporate culture*.

Baker et al. (2007) were assigned to assess the effectiveness of BP's overview of the SMS at BP's five U.S. refineries and its corporate safety culture. Their findings were that in corporate safety culture there were deficiencies in process safety leadership, employee empowerment, resources and positioning of process safety capabilities, incorporation of process safety into management's decision-making and process safety cultures. In process safety management the deficiencies found were in process risk assessment and analysis, compliance with internal process safety standards, implementation of external best engineering practices, process safety knowledge and competence and the effectiveness of BP's corporate process SMS. Concerning performance evaluation, corrective actions and corporate oversight lay deficiencies in the areas of measuring process safety performance, incident and near miss investigations, process safety audits, timely corrections of identified process safety deficiencies and corporate oversight.

Considering the elements of BCM when reading the conclusions of Baker et al. (2007) the following aspects add to the earlier findings. The existing corporate policy statement of "no accidents, no harm to people" is good but with no broken down objectives for how to achieve the goal the leadership was judged as insufficient by Baker et al. When considering a process SMS, Baker et al. mean that the system as a whole does not cover all identified risks and that deficiencies seem to reoccur [Review/Risk analysis].

Mogford (2005) points out four critical factors: loss of containment, raffinate splitter start up procedures and application of knowledge and skills, control of work and trailer positioning and design and engineering of the blow down stack.

Factors affecting BCM, which according to Mogford (2005) were involved, and adds to the earlier factors are that there was an ER plan but *clear responsibilities* did not exist for all parts of the plan. This, together with poor internal communication resulted, in that no one sounded the evacuation alarm during any phase of the event which indicates a deficient *alert system* and *evacuation procedures*.

Stanley et al. (2005) identifies deficiencies in leadership, risk awareness, control of work and workplace conditions. Deficiencies in leadership include problems to hold people at all levels accountable for actions and that different groups in the organisation did not work in collaboration but rather as separate entities. Regarding risk awareness, repeated failure to complete actions from past incident investigations and a lack of awareness of potential consequences were the main shortcomings. Control of work was not conducted in compliance with regulations. Regarding workplace conditions, Stanley et al. mean that possibilities of quick



response may be inhibited by the fact that work environment in some control rooms was inadequate to allow full focus on unit control.

Stanley et al. (2005) adds that workplace conditions may have led to difficulties for a *quick response*.

BP quickly initiated good *external communication* through their website (Silverman, 2005) and open communications with media, both by answering questions openly (Rendon et al., 2005) and by communicating what their investigation results were (Cappiello & Moran, 2005). The website initiation and the quick upstart of an internal investigation are together with CEO Lord John Browne's visit to the site on the day after the explosion (Turner et al., 2005) incentives of a *quick response* to the accident.

In the BP annual report and accounts (British Petroleum, 2005) the event at BP Texas City is mentioned at several occasions and it is stated that incidents at Texas City together with hurricane Rita estimated profit losses of \$2 billion compared with 2004. The \$700 million for fatalities and personal injury claims, which BP also paid, were not included in this amount. Even though estimated losses for BP were almost \$3 billion, it was not large enough to cut profit below the earlier year as BP's profit increased from \$17 to \$22 billion from 2004 to 2005 even with this event included. Since an estimated loss of \$2 billion was due to production loss it seems that the capacity to produce the required gasoline elsewhere was not in place [*redundancy*].

In addition to what have already been discussed it also seems that the simulation possibilities for harmful events were not available which indicates that the training/education had not been made properly. Testing could not be done on a project that was not implemented. Since the corporate safety culture was deficient it seems that there was no *acceptance* for the fact that crisis may occur.

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

Internal communications, internal relations and clear responsibilities were not handled satisfactory in this case. The fact that all three were handled inappropriate makes a bad combination. Clear responsibilities and internal communications are probably closely connected. With clearer reporting structures so it is clear when and to whom to report something, the internal communications would probably be functional. Improved internal relations may also improve internal communications as it is easier to check things if people inside the organisation have good relations to each other. Internal relations are tougher to improve as the workforce had been cut recently. This makes the authors believe that internal communications could have been improved by either clear responsibilities and/or better internal relations. However, clear responsibilities would have been more probable to accomplish in this case.

As *internal communications* also affects the possibility for *quick detection* it is a necessity to improve this area. Another possible way to achieve better detection is to



have better automatic alarm systems. A better maintenance programme in this case should have been in place to assure that indicators were functional.

Risk analysis was not satisfactory up to the accident. This could have been handled by a better *review* system for earlier reported incidents. A better review system may be achieved by *clear responsibilities* for whom and when to do a *review*. A better *review* system would also improve the possibilities for good *implementation* of an SMS or a BCM programme. Good *implementation* could also have been achieved by clear responsibilities for whom to initiate different parts of the programme. It seems to the authors that a good way to improve *risk analysis*, *review* and *implementation* is to have *clear responsibilities*.

The lack of *clear responsibilities* may also have been connected to the lack of *management support* and *acceptance* that crisis may occur. If the management not supports or identifies the different parts that need to be improved it is unlikely to distribute clear responsibilities in the organisation.

Bad *corporate culture* could be improved by better *internal relations*, both vertically and horizontally in the organisation. But even if it is achievable, it is a slow process and more difficult in large companies yet easier at specific sites.

Regarding ER, the *evacuation procedures* did not effectively evacuate all employees in this case. The evacuation alarm would probably have made it work but it was never sounded due to lack of *clear responsibilities*. This may have been avoided if a *review* of the ER had been performed when personnel cuts were made.

A lack of satisfactory working environment made a *quick response* before the accident difficult. This could have been avoided by improving the working environment.

After the accident the *quick response* and the *external communication* was handled well. Regarding *redundancy*, since this was BP's largest refinery it would be all too costly to assimilate that kind of capacity elsewhere.

In this case it seems like many factors went wrong. The same could be said about the Ericsson case earlier. This may imply the requirement for many of the factors not to work to form a big crisis since there are several factors that each one could have prevented the event.

Although this is a clear ER case, facts about how the ER was carried out were limited. It could, and should, be so that fatalities lead to less attention to what happens after the fatal event and more attention towards what caused the deaths.

4.3.3 THE FIRESTONE RECALL OF FORD EXPLORER TIRES IN USA

This case is of interest since it shows different media approaches. Also it shows how a brand can lose value due to media handling. It also shows some interesting concerns regarding culture differences and the results of those.



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MAJOR MARKET PLAYERS

- Bridgestone (Japan Parent Company)/Firestone (American Company)
- Ford

WHAT HAPPENED AND WHY?

After a series of accidents involving SUV Ford Explorers equipped with Firestone tires in several warm countries, Bridgestone/Firestone developed another tire to replace tires on Ford Explorers in warm climate zones with rough roads. These were then used in a recall and replacement of tires in Saudi Arabia (Aug 1999), Malaysia, Thailand (Feb 2000) and Venezuela (May 2000). During this period complaints had started to arise in USA where accidents similar to the ones abroad had started to occur. At this time there were no connections made. The accidents were rather seen as isolated events by Firestone and Ford. When the US National Highway Traffic Safety Administration (NHTSA) opened an investigation regarding 90 complaints, Ford and Firestone showed a united front when it was agreed that Firestone's Decatur plant in Illinois, USA, had produced deficient tires. This led to a recall of 6.5 million tires in August 2000. Unfortunately, for Firestone and Ford, this did not solve the problems and complaints continued to come in to NHTSA. Now, the almost 100 year old alliance between the two companies started to break apart. Ford continued to claim it was a tire problem, while Firestone argued a combination of customer errors, heat exposure and the SUV design to be the problem. This crack led the public opinion towards thinking that both companies, playing the blame game, were more interested in avoiding liability than improving public safety. In the blame game, Bridgestone, Firestone's parent company in Japan, came to aid and reassured America that there was no fault with the tires. This was perceived as the correct action in Japan, but it was not appreciated by the American public and media. Ford's CEO, Jac Nasser, managed the media by expressing his concern for Ford's customers but later did not have time to testify at a Senate hearing on the tire recall. Both Ford's and Firestone's share prices and profits fell as a result of the event. Later a reconstruction of positions within the companies was made as both Bridgestone's CEO Ono and Ford's CEO Nasser resigned during 2000-2001. (Regester & Larkin, 2005)

WHAT WAS MANAGED WELL/POORLY?

Gibson (2000) implies that the recall made by Firestone in 2000 was carried out badly because of the fact that Firestone did not follow the recall campaign rules: “Act quickly, tell the truth, accept recall responsibility, public safety is paramount concern, act voluntarily, do not scapegoat, maintain coalitions/alliances and plan and practice recall procedures”. A year later Gibson (2001) had reviewed his opinions but still thought that the following lessons could be learned by Firestone’s recall: “Be aware of intercultural variables, American recalls require aggressive media relations, the U.S. recall regulatory system require open communication, proactive public relations is necessary, rapid media and public judgment requires recall ‘first strike’ tactics and a variety of perspectives is usually available”.

When considering BCM in the Firestone case, Gibson (2001) points towards *external communications* which did not take initiative and tried to scapegoat. Without open *external communication* it was also hard not to be hit by the U.S. regulatory system. From Gibson (2000) the lack of *quick response* and *external relations*, inside the supply chain between Firestone and Ford, in the handling of this case can be added although it may seem unjust to demand quick recall action if the company indeed does not have deficient products which for example Eto (2001) implies that Firestone did not.

Newman (2001) means that the following lessons can be learned from Firestone: Do not wait until deaths approach 100 to bring in outside expertise, your lawyers should be advisors or defenders, not strategists. Every company needs a person whose pay and promotion depends on looking for vulnerabilities. Furthermore, each party affected by your problem must be contacted as soon as possible and expression of regret without guilt is needed. The truth will come out quickly and you must involve emotions, not only facts in the consideration. Quick decision making is critical and to speak with one voice and above all that the truth cannot be silenced.

Conclusions regarding BCM from Newman (2001) are that initiative was not good enough from Firestone regarding *risk identification/analysis* since there was no inside expertise brought in and no employee was analysing vulnerabilities. Another shortcoming was *external communications* since advice suggests the importance of telling the truth, express regrets, involve emotions not only facts and fast communication with stakeholders.

The isolation of reports from different parts of the world implies that neither Ford nor Firestone had a sufficient *holistic view/internal communication*. Playing the blame game seems to be a bad way of conducting *external communications* since the emphasis is to not give away information. This also hurts *external relations* with both the other company and the public.

Even if there is no clear statement found that Firestone knew about their exact liability, the authors’ opinion is that the reason for the company’s defensive approach probably was advice from lawyers. The advice was probably affected by knowledge of liability. Furthermore, Eto (2001) shows that Ford and Firestone



collaborated in designing the flawed tires which makes it thinkable that the company should be afraid of liability problems. Even if this regards liability it does not show any signs of the company bringing in lawyers to help in the planning process which is the factor called liability in this thesis.

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

Playing the blame game and withholding information were ways that made *external communications* in this case unsuccessful. It also made *external relations* suffer. This shows that open information is important to maintain public opinion. Since Ford and Firestone produced an unsafe combination of products (Eto, 2001) it would have been better, for external relations with both the public and the partner company, to admit that this was a bad combination.

Improvement of *risk identification/analysis* may have been done by employing someone responsible for this area. Another way to improve identification of risk may be to make someone responsible for the *internal communications* and *holistic view* so that problems in different parts of the organisation are realised in other parts.

4.3.4 THE SAS DASH 8 Q400 INCIDENTS

This is the most recent documented case which is especially interesting as it involves a disruption of services and not physical products.

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MAJOR MARKET PLAYERS

- Scandinavian Airlines (SAS)
- Bombardier Inc

WHAT HAPPENED AND WHY?

On the 9th of September, 2007, flight SK1209 from Copenhagen to Aalborg was involved in an accident at Aalborg airport. The aircraft involved was a Dash 8 Q400 where the pilots identified problems with the main landing gear and prepared a controlled emergency landing. After landing, the right main gear collapsed and five passengers suffered light injuries during evacuation. (SAS press release, September 9, 2007)

SAS continued its operations as scheduled while the Danish Accident Investigation Board (HCL) investigated the accident. Although the accident was considered an

⁹ English translation: 100 pages on effective crisis management in companies.

isolated event, after discussions with aircraft manufacturer Bombardier, SAS decided to check its entire Q400 fleet. These checks were in addition to official requirements and would commence immediately. This was to make sure to customers and employees that flight safety is SAS' first priority. (SAS press release September 10, 2007)

The next setback came only three days after the first incident when another SAS Dash 8 was involved in an accident at Vilnius airport, Lithuania. The flight was destined for Palanga but experienced technical difficulties and the crew diverted the aircraft to Vilnius. All passengers were evacuated and no injuries were reported. SAS now decided to ground their entire Dash 8 Q400 fleet until further notice. Bombardier developed an inspection programme and recommended that all aircraft worldwide of this type with 10,000 landing gear cycles or more were to be grounded until the inspection was carried out. (SAS press release, September 12, 2007)

On the 13th of September, HCL presented a preliminary report regarding the first incident in Aalborg. The investigation focused on the right main landing gear which had collapsed on landing. When they examined the retraction/extension actuator piston, corrosion was found on the internal threads. This led to a separation of the rod end from the piston which in turn caused the landing gear to collapse (HCL, 2007a).

In another press release (18th of September), SAS reported that all of their 27 Q400 aircraft were grounded for additional inspections in accordance with the airworthiness directive issued by Canada after the 12th September incident. SAS replaced parts of the landing gear on all Q400s, regardless whether the fault was detected or not. Due to the circumstances, SAS was forced to cancel a number of flights.

Due to the accidents in Aalborg and Vilnius, a prosecutor in Stockholm started an investigation regarding suspicion of "creating danger to another person". This was also reported in a press release (September 19) by SAS. This investigation was later terminated, in May 2008, and all suspicions cleared.

In two press releases in late September and early October, SAS announced that the Dash 8 Q400 aircraft have undergone thorough inspections and parts replacement and would return to traffic. Some inspections and parts replacement were in excess to those required by the civil aviation authorities and aircraft manufacturer. SAS also reported that they would contact Bombardier regarding compensation for the costs and lost income incurred due to the period of which the aircraft were grounded.

The Dash planes were successively taken back to traffic in October and the recent troubles with the landing gear had disappeared, at least for a while. As if the two previous incidents were not enough, a third accident involving a Dash 8 Q400 occurred on the 27th of October at Copenhagen airport. This accident was also caused by landing gear problems. No injuries were reported from the incident. By now SAS decided it was enough and removed the entire Dash 8 Q400 fleet from service



permanently. “Confidence in the Q400 has diminished considerably and our customers are becoming increasingly doubtful about flying in this type of aircraft. Accordingly, with the Board of Directors’ approval, I have decided to immediately remove Dash 8 Q400 aircraft from service” said Mats Jansson, SAS President and CEO. SAS also gave information to their customers regarding rebooking and refunds for cancelled flights. Actions to handle the replacement of the Q400 fleet were also presented to SAS’s stakeholders. (SAS press releases, October 27, 28 & 29, 2007)

The Danish Accident Investigation Board released three preliminary reports regarding the last incident in Copenhagen. In the third report (November 3, 2007), they state that the accident was caused by a migrating o-ring blocking the orifice in the restrictor valve. This prevented the normal extension of the right main landing gear (HCL, 2007b).

Bombardier accused SAS for performing a “not approved documented procedure” when replacing parts in the right landing gear of the aircraft that five days later was involved in the third incident (Maltesen, 2007). The part was initially configured for installation into the nose landing gear (HCL, 2007b). SAS spokesman, Bertil Ternert, answered that “SAS are not performing any replacements without following the manual”.

Due to the findings by HCL, SAS reached a settlement with Bombardier and received compensation for the Dash aircraft incidents (SAS press release, March 10, 2008). The financial compensation summed up to slightly more than SEK 1 billion in the form of a cash payment and credits for future firm and optional aircraft orders. SAS’s Board of Directors approved an order of 27 aircraft as part of the agreement. Shapiro (2007) argues that Bombardier’s decision to compensate SAS was a strong incentive to avoid litigation.

In the SAS Group year-end report of 2007, they estimated a negative impact due to the Q400 accidents of SEK 700 million of which more than 70 % was charged to the fourth quarter.

WHAT WAS MANAGED WELL/POORLY?

In this case, due to limited documentation, it was hard to find information about a number of factors.

SAS’s *crisis management team* had previously been tested in the crash at the Linato airport in Milan, 2000. After this disaster SAS was commended for their efforts and good CM skills. The key factor was the airline’s new *crisis management plan*. During the 2000 disaster, the plan was followed almost mechanically which indicates that some kind of *training and education* had been carried out and that the plan was well implemented [*Implementation*]. The SAS centre at Copenhagen airport keeps in touch with all aircraft 24 hours a day which enables *quick detection*, e.g. should the contact be lost. SAS also has an agreement with the alarm company, SOS alarm to get in touch with SAS’s management once the decision has been made to activate the plan. Furthermore, the company has an emergency room available at headquarters

in Frösundavik, Sweden [*Crisis operations centre*] and hundreds of persons especially trained for emergency events. (Hammerskog, 2005; Airline Industry Information, 2001)

As in any business but specifically in service businesses, credibility is of importance (Sheffi, 2005). In the Dash 8 Q400 case, credibility [*External relations*] was maintained by the *quick response* of SAS. Aircraft inspections commenced directly and information was communicated to media and the public via their website [*External communication*]. The fact that SAS Group has its own Corporate Communications division indicates *clear responsibilities*. *Management support* was expressed by the early statements from SAS's CEO, Mats Jansson and the board of directors' drastic decision to ground the entire Q400 fleet. Furthermore, the official statement that flight safety is SAS's first priority implies that SAS has a good *corporate culture*. Due to the 2007 incidents, SAS had to cancel a number of flights. Although some spare capacity could be found, it was not enough to meet customer demand [*Redundancy*].

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

Overall, from the authors' point of view, SAS managed the situation well. The one thing that obviously could have been managed differently was the replacement of parts in the right landing gear of the aircraft involved in the 3rd incident. The only information found about whether this replacement was in line with correct maintenance procedures or not, was SAS's statement that no changes are performed without following the manual. However, the fact that SAS reached a settlement with Bombardier and received compensation shows that Bombardier shoulders the blame of the incidents.

4.3.5 ENRON BANKRUPTCY

This case is interesting since it shows an economy flow disruption instead of material/service disruption. It is also mainly a management crisis.

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MAJOR MARKET PLAYERS

- Enron Corporation
- Arthur Andersen

WHAT HAPPENED AND WHY?

Before bankruptcy, Enron Corporation was a large company based in Houston, Texas, USA. The company mainly operated in the energy market and revenues exceeding \$100 billion was accounted 2000 (Enron Corporation, 2000). The accountings were one of the reasons why Enron would file for bankruptcy in December 2001 and the reason why this case will be used as an example of fraud for years to come (Batson, 2003).

On the 14th of August, 2001, Jeffrey Skilling, Enron's CEO, announced his resignation from the position due to personal reasons (Oppel & Berenson, 2001a). Skilling had just been on the position for six months and this would be the beginning of the end of Enron, which after a weak autumn finally filed for bankruptcy on December 2 (Oppel & Berenson, 2001b). One consequence of the bankruptcy was that Arthur Andersen, at that time one out of five large auditing firms, who helped Enron lost their auditing license in Texas as a result of the crisis. This because they had not noticed the way Enron had mishandled their finances (NY Times, 2002).

Enron had made a series of special-purpose entities (SPE) and aggressive accounting practices which made the firms finances look better than they were. Six different techniques were used which resulted in that debts shown in the annual report for 2000 was \$10.2 billion instead of the actual \$22.1 billion. (Batson, 2003)

WHAT WAS MANAGED WELL/POORLY?

Neil Batson investigated this bankruptcy to find whether there were persons or entities with responsibility for the misuse of its SPE structures and filed a report in 2003. As Batson (2003) evaluates Enron he makes a conclusion that Enron, as investments declined in value, "...masked the problem by borrowing money against those investments and using various SPE transactions to (i) disguise its obligation to repay the amounts borrowed, (ii) report the proceeds as cash flow from operating activities and, in some cases, as revenue, and (iii) hide the decline in value in its mark to market merchant investment portfolio." The conclusions of Batson's report is that senior officers of Enron had responsibility for the company's entrance of the SPE structure and that certain financial institutions had knowledge of the wrongful conduct of these officers and actually even assisted the officers in conducting the SPE transactions.

Zellner (2002) means that the main reason for the Enron bankruptcy was a *corporate culture* of greed and deception which existed in the organisation. Dodd (2003) describes the demise of the firm as a result of not being able to create a central derivatives market in bandwidth, the extravagant pay to top executives, stock options and benefits and the executives' participation in SPEs. These disabilities could be symptoms of the corporate culture which Zellner (2002) refers to.

Corporate culture can be influenced from the top down and Batson (2003) came to the conclusion that several management members, with aid from “certain financial institutions”, were deceiving the public and the law. This has led to several lawsuits which resulted in a number of convictions of management members (NY Times, 2006).

As this case is a result of deceptive management (Zellner, 2002) it is not easy to attain information about the company. It does seem that management all by itself more or less can drive a large company to bankruptcy. This can possibly imply that a *review* mechanism which includes external people, or at least not only management members, could be necessary to obtain effective BCM. On the other hand, this is unlikely to be obtained if management is not interested in review of this kind. Furthermore, in the Enron case, Arthur Andersen was an external auditor which did not stop the crisis from occurring. A lack of *management support* makes internal attempts to achieve business continuity hard. Thus, external forces, such as legislation, are left as possible means.

In committing fraud, including tampering corporate results, Enron also did not execute good *external communication* as they did not show what they knew. If the accountings would have been done correctly the valuation of the company could have reflected the beginning of growing debts in falling stock prices much earlier which could have alerted the market. The deception of growing debts thus led to a total lack of *quick detection* of the problem. This in turn made it difficult to handle the effects since the response was so late. A *quick response* would probably have given the company a better chance to manage the difficulties.

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

The *corporate culture* is difficult to change when *management support* for the change in corporate culture is not present. To have a well functioning *review* mechanism is also difficult when management wants to hide transactions in accounting tricks. One lesson from this case is that if a company is interested in effective BCM, it should be open with its actual assets. With this type of *external communication*, with transparent annual reports, the market can make a *quick detection* of a problem and thus make it possible for management to make a *quick response* in case management should have overlooked something. This can be difficult to apply since this may lower stock value in an initial phase but it could also be a way to improve BCM.

4.3.6 AIR FRANCE FLIGHT AF4590

This case is of interest since it concerns the same industry as SAS Dash plane incident but differs in the fact that there were many fatalities in this case. It is, as SAS, in the service business.



SOURCES

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- Harper, K. (2000), French Concorde stay grounded.
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- Press Association (2004), Concorde piped in to its last hangar.
- Regester, M. & Larkin, J. (2005), *Risk issues and crisis management: A casebook of best practice, 3rd edition*

MAJOR MARKET PLAYERS

- Air France
- British Airways

WHAT HAPPENED AND WHY?

On the 25th of July, 2000, during takeoff from Charles de Gaulle Airport in Paris, Air France's Concorde flight AF4590 caught fire due to a metal strip which accidentally hit a fuel tank causing a leakage. Almost immediately after the leakage occurred the fuel ignited and started a fire under the left wing. The fire on the Concorde plane led to problems with two engines and the landing gear. After liftoff the airplane managed to fly for around one minute before the two other engines lost thrust and the plane crashed into a hotel building. (Bureau d'enquêtes et d'analyses pour la sécurité de l'aviation civile (BEA), 2001)

Air France reacted to this incident by grounding all Concorde aircraft. The company posted their first two press releases (two on the same day) on their website which included a condolence from the company and incident phone numbers for more information. They continued with press releases daily after the accident. Air France also paid relatives to the deceased an interim amount of money in advance of the full legal settlement. (Regester & Larkin, 2005)

British Airways, the other company which operated Concorde, grounded their Concorde fleet on August 15 when they got the information that the investigation would lead to a withdrawal of the airworthiness certificate the next day (Henley, 2000). The last active Concorde plane was retired in 2004 (Press Association, 2004).

WHAT WAS MANAGED WELL/POORLY?

One of the recommendations from BEA (2001) was that Direction Générale de l'Aviation Civile should undertake an audit regarding operational and maintenance conditions within Air France. This is a recommendation which is difficult to interpret

from the probable causes presented. These causes were high speed passage over a part lost from another airplane, the damage inflicted by tire parts to a fuel tank which lead to fuel leakage and the ignition of fuel by an electric arc. Even though the causes do not seem to be especially operational or maintenance related it seems that improvements could be made in this area.

The *quick response* by Air France showed that they really took this seriously by grounding all Concorde and by posting information on their website with contact information and condolences. The continuous press releases during the following days further imply that good *external communication* was made by Air France. The early interim payments also seem to have kept *external relations* at level. It may be that this is the background for Air France quick recovery in share value, while British Airways reluctance to ground planes may have made their recovery longer (Henley, 2000).

Even if the grounding of the entire Concorde fleet was an impact on the companies it should be pointed out that British Airways only had seven planes (The Guardian, 2000) and Air France only five (Harper, 2000) at the time. The large revenues for both companies came from subsonic airplanes and these came to replace the Concorde. This implies that Air France, along with British Airways, had *redundancy* which enabled them to continue with their transportation service.

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

As there are little organisational descriptions in the report from BEA (2001), there are difficulties in drawing any conclusions about how factors were managed prior to the accident. Since the management after the event was good, there is no need to manage those factors differently.

4.3.7 CITIBANK JAPAN

Due to limited documentation, this case only gave minor influence on our work. Still, the authors would like to present the information found.

SOURCES

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- FSA, 2004, Recommendation Based on the Inspection Result of Tokyo Branch of Citibank, N.A.
- The Economist, 2004, Sayonara; Citibank in Japan

MAJOR MARKET PLAYERS

- Citibank Japan
- The Financial Services Agency (FSA)

WHAT HAPPENED AND WHY

It is fair to say that there are many grey areas in the banking business today. So was the case in Japan before 1998. That year the Financial Services Agency (FSA) was created and undertook inspections of Japan's 19 major banks. FSA sent out a clear



message by revoking the license of the Tokyo branch of Credit Suisse First Boston in 1999. Many formerly grey areas in banking were now unacceptable, such as cross selling financial products across corporate units. Citibank however, continued cross selling which remained a core strategy for the company. (Bazerman & Chugh, 2006)

In 2000, Deutsche Bank's Tokyo securities unit was suspended for six months by the FSA for concealing losses. The unit had sold securities designed to conceal the losses of corporate clients. This was one of many similar punishments levied against banks. (Bazerman & Chugh, 2006)

In 2001, Citibank was forced by the FSA to report that it had offered products to about 40 companies which let them transfer book losses on securities holdings and foreign exchange losses to later periods. In a press release September 14, 2004, the FSA presents facts found based on the inspection of the Tokyo branch of Citibank. They found that Citibank were making representation of a misleading statement on material matter in connection with the handling of private placement of securities. They also handled private placement as a condition of granting credit (FSA, 2004; The Economist, 2004).

Due to these findings, FSA revoked the licenses of Citibank's four private banking offices. Their reputation was also damaged by FSA who claimed the bank had cheated customers by putting excessively high margins onto financial products. (Bazerman & Chugh, 2006; FSA, 2004)

WHAT WAS MANAGED WELL/POORLY

From the information found about this case it is possible to say that the case was not managed at all. No information has been found regarding Citibank's actions to remedy the situation.

Bazerman & Chugh (2006) points out that even though several punishments were levied against other banks, Citibank ignored this fact and continued its questionable business. This can be seen as a lack of *acceptance*.

From this information it is hard to draw any conclusions and therefore no further investigation will be carried out of this case.

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

The only factor found in this case was that Citibank ignored the clear signals sent from FSA that grey areas in banking no longer was accepted. Maybe they would still have their license if Citibank had shown more *acceptance* and changed their tactics.

4.3.8 COCA-COLA'S UK DASANI WITHDRAWAL

This case is of interest since it is a withdrawal of a product, similar to Firestone's, but is in another market (food). Coca-Cola also recently had another product recall in Belgium (1999) which makes it interesting to see if that gave them a better possibility to manage the situation.

SOURCES

- Lyons, T. (2007), Top five business disasters - Our pick of the UK's worst collapses and cock-ups
- Regester, M. & Larkin, J. (2005), *Risk issues and crisis management: A casebook of best practice, 3rd edition.*

MAJOR MARKET PLAYERS

- Coca-Cola Dasani
- The UK Food Standards Agency (FSA)

WHAT HAPPENED AND WHY

The product, Dasani, was by 2004 introduced in 20 markets outside Europe. In February 2004 Coca-Cola launched their European campaign by introducing their Dasani product in the UK. The purified water was a new kind of product on the British mineral water market since it was not tapped from a spring but rather tap water which through certain refinement, including addition of minerals for taste, were sold on bottles. This was in Coca-Cola's view no problem since their research showed that the most important factor in Britain should be the taste when choosing bottled water. However, the fact that the water was tap water was something that other parties would not oversee. An official complaint made by the Natural Mineral Water Association started a series of articles which made this subject known to the public. When the purified water then was investigated by the UK Food Standards Agency (FSA) it was found to have a too high level of bromate, as a result of the purifying process. The level was higher than the allowed limit in the UK while lower than the level allowed in the rest of Europe. After the FSA alert, Coca-Cola decided to bring in their Incident Management Crisis Resolution Team, which was formed in connection to the 1999 Belgium withdrawal, to handle the case. A total withdrawal of the product was ordered in late March after only five weeks on the shelves. (Regester & Larkin, 2005)

WHAT WAS MANAGED WELL/POORLY?

Acting quickly with their *external communications* by taking the initiative and release their side of the story, Coca-Cola made the incident isolated to the product in the UK. The quick withdrawal and intensive communications [*quick response*] made this problem stay in the UK. The quick response was partly dependent on the fact that Coca-Cola had a *crisis management team* working around the clock to solve the situation. Even if Lyons (2007) ranks this incident as one of the top five business disasters in the UK, the decision to withdraw the product from the UK market may be considered correct if other markets are included in the perspective.

The management before the introduction had several flaws though. The *risk analysis*, if any, cannot be seen as extensive enough as Coca-Cola did not foresee the problem of introducing a product which was close to tap water and then sell it with high margins. It is possible that Coca-Cola made a risk analysis regarding competitors'



actions but missed some possibilities. Also, the *risk identification* part is deficient as Coca-Cola did not compare their product to health standards before selling it.

CONTRIBUTING FACTORS, COULD THEY HAVE BEEN MANAGED DIFFERENTLY?

This case is hard to draw conclusions from since it was difficult to find several sources regarding the management.

Coca-Cola could have done a better *risk identification* by including a comparison with health standards. If proactive risk identification and analysis had been done this could have prevented the whole situation.

4.4 LESSONS FROM THE DOCUMENTED CASES

The factors which have been found to significantly affect BCM in any of the documented cases are listed in Table 3 below. Following the factor are the cases which supported the factor.

Table 3. Contributing factors from the documented cases.

Factor	Cases
Understanding the organisation	
Corporate culture	Nokia/Ericsson, BP, SAS, Enron
Management support	Nokia/Ericsson, BP, SAS, Enron
External relations	Nokia/Ericsson, Firestone, SAS, Air France
Internal relations	Nokia/Ericsson, BP
Quick detection	Nokia/Ericsson, BP, SAS, Enron
Adaptability	Nokia/Ericsson
Acceptance	Nokia/Ericsson, BP, Citibank
BCM Programme	Nokia/Ericsson
Liability	
Risk identification	Nokia/Ericsson, Firestone, Coca-Cola
Risk analysis	Nokia/Ericsson, BP, Firestone, Coca-Cola
Holistic view	Nokia/Ericsson, Firestone
Plans	Nokia/Ericsson, SAS
Implementation	BP, SAS
Clear responsibilities	Nokia/Ericsson, BP, SAS
Training and education	SAS
Testing	
Review	BP, Enron
Corporate policy statement	
Business recovery objectives	
Alert system	BP
Response procedures	
Evacuation procedures	BP
Emergency response equipment	

Factor	Cases
Likeness principle	
Quick response	Nokia/Ericsson, BP, Firestone, SAS, Enron, Air France, Coca-Cola
Internal communications	Nokia/Ericsson, BP, Firestone
External communications	Nokia/Ericsson, BP, Firestone, SAS, Enron, Air France, Coca-Cola
Crisis Management Team	Nokia/Ericsson, SAS
Decision making	Nokia/Ericsson
Crisis operations centre	SAS
Demand lowering	
Debriefing	
Redundancy	Nokia/Ericsson, BP, SAS, Air France
Image	
Database control	
Knowledge	

Factors found in half or more of the documented cases will be given extra priority. If a factor was supported in less than half of the cases, the factor may be important for certain events but maybe not for the preparedness for any crisis situation. This makes them part of BCM but not as important as the factors which have been found in more cases.

Due to the lack of total information regarding the cases, the factors which have not been found to play an important role in any of the cases but have support in the literature may still be of significance for the outcome of a crisis.

In both the Albuquerque and BP cases many factors contributed to the outcome whereas several factors each could have prevented the outcome. This implies that the majority of factors need to be satisfactory to prevent a major crisis from developing.



5 THE BCM EVALUATION MODEL

“The only thing certain about the business world today is that managers must prepare for uncertainty¹⁰”.

The main objective of this thesis is *the development of a model for evaluating the level of business continuity management within a company*. The model was developed from two sources: the lens and the documented cases. This chapter will describe the development from the lens, via the results from the documented cases, to the final evaluation model and how to apply the model.

5.1 DEVELOPING THE PRELIMINARY MODEL

To form the preliminary model, factors were retrieved from the lens and questions formulated related to each factor.

5.1.1 FACTORS RETRIEVED FROM THE LENS

The factors retrieved from the lens were factors which were found in the cases and/or had more than one source in the literature. These factors are found in Table 4. The factors removed were: understanding the organisation, liability, corporate policy statement, business recovery objectives, likeness principle, demand lowering, debriefing, image, database control and knowledge.

Table 4. Factors retrieved from the lens and documented cases.

Category	Factors
Indirect BCM	Corporate culture, Management support, External relations, Internal relations, Quick detection, Adaptability, Acceptance
Direct BCM	BCM Programme, Risk identification, Risk analysis, Holistic view, Plans, Implementation, Clear responsibilities, Training and education, Testing, Review
Emergency response	Alert system, Response procedures, Evacuation procedures, Emergency response equipment
Crisis management	Quick response, Internal communication, External communication, CM Team, Decision making, Crisis operations centre
Business recovery	Redundancy

Several of the removed factors may have been missed due to the fact that they are not the first to be described during a crisis. These factors may still improve business continuity management (BCM) but the reason not to take them further into the model is that they, according to the studies, do not carry the same importance as the other factors. To avoid the model from becoming too extensive and time consuming, it will not involve the details of all aspects of BCM.

¹⁰ Chong, 2004, p. 43.

When studying the literature, the plans for emergency response (ER), crisis management (CM) and business recovery (BR) were merged into one factor. The same was done with implementation, clear responsibilities, training and education, testing and review. In The BCM Evaluation Model, plans were put in each of the three areas ER, CM and BR while the other factors were put together with actions that need implementation, clear responsibilities, training and education, testing and review. This makes those factors more important for the outcome of The BCM Evaluation Model. The authors' opinion is that actions which require more effort to function need to be given more weight in the model.

The factors *corporate culture, management support, external relations, quick detection, risk analysis, quick response* and *external communications*, which were found in half or more of the cases, are considered more important than the others and therefore receive two questions related to each of these factors. The authors' opinion is that protection of people is the main objective in ER and therefore, *evacuation procedures* is seen as an important factor. This factor did not get the important status from the cases since there were too few cases which gave input to ER.

5.1.2 FORMULATION OF QUESTIONS

Questions related to all of the retrieved factors (Table 4) were formulated. Several questions cover more than one factor. In those cases, the factors concerned may be closely attached. This makes it, in the authors' opinion, unnecessary to add more questions for each factor since the model should not be too extensive.

The questions in The BCM Evaluation Model are of "yes" or "no" type. There is also the possibility to answer "not applicable" ("N/A") since all questions may not be applicable to all companies. The reason to choose yes or no questions is that this leaves less chance for personal judgment influencing the result than if the questions would be of the type; evaluate this ability on a scale from 1 to 5.

When the questions were created, the expressions from the lens were considered in each factor so that the question reflects the expression. This was done to make the questions comprehensible since many factors otherwise might be too wide and without specifications. The questions being of the "yes" or "no" type further increases the comprehension.

Reason (1997) means that an incident reporting system is one important part of the safety culture and therefore, one of the questions related to corporate culture was decided to involve an incident reporting system.

Regarding the classification of which factor a question affects, the authors singled out those factors which were mostly examined by the question. Many questions can be related to a number of factors since many factors are closely connected to each other. This makes the questionnaire less extensive than if every factor should receive one question exclusively for that factor. On the other hand it is also important not to



put too many factors in the same question since that would make the question too extensive.

Some questions are of a type where several aspects are considered in the same question. This is because that factor should not have too many points in the result or that the question involves more than one factor.

The questions were organised into each of the five categories (direct BCM, ER, CM, BR and indirect BCM). Separation is made to be able to see results not only for the whole, but also for each respective part of BCM. This makes it possible to see in which area improvements are needed.

To clarify expressions and explain how to use the model without having to go through this report, an information leaflet was put together to act as a guide when conducting The BCM Evaluation Model.

5.1.3 FIELD OF APPLICATION

Since the model is applicable for *any* company, all BCM aspects in all types of businesses may not be investigated through this model. This means that even with a maximum score there may still be aspects which can be improved. Even if some aspects have been missed, the authors' opinion is that the model gives an indication of the level of BCM in the organisation.

The reason why all aspects of each factor are not included in The BCM Evaluation Model is partly because this will make the model too extensive with too many questions. If the model is too time-consuming it will probably not be used. Another reason for the model to not include all aspects is the time factor which did not allow the authors to cover the entire BCM topic.

5.2 MODEL VALIDATION

The model was validated in two stages. The first was a company validation where the model was filled out while the second was an expert validation where experts gave their opinions on the model.

5.2.1 COMPANY VALIDATION

With around 6000 employees in more than 30 countries, Cardo is a major provider of industrial doors and logistics systems, systems for water treatment, process equipment for the pulp and paper industry and garage doors.

At the time of writing, Cardo is undergoing a BCM process together with Marsh AB. Therefore, the model was tested on Cardo since all parts of the organisation have not been through the BCM process yet. This makes it possible to test the model on different affiliates which should give different results.

In Cardo, The BCM Evaluation Model was sent out to six different affiliates in the organisation. The first affiliate produces and sells garage doors. The second sells industrial doors and docking units. The third produces and sells measuring devices for



the pulp and paper industry. The fourth produces garage doors. Both the fifth and the sixth sell pumps for water and sewer systems. The affiliates were considered to have varying levels of BCM within their organisations. This should give results which can imply whether The BCM Evaluation Model actually measures the level of BCM. The valuation, of the level of BCM within each affiliate, was done by Mats Hedberg, Risk Manager at Cardo. Hedberg expected good results from affiliate 1, decent results from affiliates 3 and 4 and less good results from the others.

All of the affiliates returned the model. The filled out forms from this validation are found in appendix E. The results for each respective category at each respective affiliate can be found in Table 5. The results were roughly what was expected which imply that the objective to evaluate a company's level of BCM is achieved. The fact that all affiliates returned the model implies that the model is user friendly.

Note: The differences in maximum and minimum scores between the six affiliates is due to the number of questions answered "not applicable".

Table 5. Results from the company validation. The actual point is shown with the maximum point inside the parenthesis.

Affiliate	1	2	3	4	5	6	All
Direct BCM	5 (7)	-4 (6)	5 (7)	-5(7)	-7 (7)	-5 (7)	-11 (41)
ER	5 (9)	3 (9)	5 (9)	-9(9)	7 (9)	9 (9)	20 (54)
CM	-6 (10)	-7 (11)	-3 (11)	-11(11)	-11 (11)	-7 (11)	-45 (55)
BR	5 (5)	2 (6)	4 (6)	-6(6)	-6 (6)	-6 (6)	-7 (35)
Indirect BCM	5 (5)	1 (7)	4 (8)	0(8)	3 (7)	-4 (8)	9 (43)
Overall	14 (38)	-5 (39)	15 (41)	-31(41)	-14 (40)	-13 (41)	-34 (240)

Even though the results gave roughly the expected values, except for affiliate 4 which had a very low score when expected a reasonable score, some sources of error may have occurred due to several reasons. One possible source was that forms may have been filled in based on one person's perception of the situation which may not correspond to the actual state. Another source may be different interpretations of our questions at different affiliates. Further, the questions where several aspects are considered to give the answer "yes" may disguise the aspects that actually have been fulfilled. The low result in affiliate 4 may be reasoned to depend on the fact that they were the only affiliate that had a problem to get the questionnaire back in time due to a heavy workload. The perception that it should receive good results may depend on the fact that they have a good indirect BCM environment.

The total summarised point of all affiliates is -34 with a min/max score of -240/240 which imply that a summation of many affiliates or companies may give a result where deficiencies at certain sites can be hidden since other sites may weigh up for this. From the results in the company validation, it can also be mentioned that most affiliates have a good ER while CM is at a low level in all affiliates. It should be noted that affiliate 1 commented that they did not fully understand the concept of CM. This could possibly have given the negative result for them in that area. This also implies that this definition needs to be overseen. The other areas give varying results. Therefore the questions in ER and CM need to be overseen to see if they are too easy or difficult to achieve and therefore need to be amended.

5.2.2 EXPERT VALIDATION

The draft model together with the information leaflet was sent to nine experts for validation. These are all on, or recommended by persons on, management level with years of experience from working with risk management. To the authors delight, answers were received from all of them. The experts were:

- Kenneth Miger, Group Risk & Insurance Manager, Securitas.
- Lennart Edström, Vice President, Group Insurance & Risk Management Support, AB Electrolux.
- Magnus Bergh, Group HSE Manager, Nynas AB.
- Thomas Granström and Matti Seiman, Willis AB.
- Lisa Ekstig, Plast- & Kemiföretagen.
- Mats Lindgren, Risk Manager, Preem.
- Aon Risk Services, Aon Sweden AB.
- Christel Gunnarson, Group Insurance Manager, Perstorp Holding AB.
- Solveig Nilsson, Site Manager in Södertälje and BCM Coordinator in Sweden, AstraZeneca.

Kenneth Miger wrote it was an “excellent model. Short, logical and easy to fill out with structured questions”. He added comments about incident reporting that it would be enough to ask if employees know how to report incidents and not what type of incidents to report and if employees know the limit for when an incident turns into a crisis. Miger also means that a clear delegated responsibility is important within the CM team, not only that the team knows what to do but also if they have assurance from management on what they are allowed to do and decide about. The last comment was about the layout of the information leaflet to keep it portrait oriented.

Lennart Edströms comments were received through telephone and he also was positive to the model. He liked the questions and the structure in general. He also expressed the importance of separating the three parts, ER, CM and BR. Edström mentioned deficiencies in the weighting system e.g. he considered question 1 to be more important than 34. Edström also commented that it is important to be specific about what company level the model is for i.e. is it for group or site level. He means

that if the model is used on a group level, major flaws in BCM from one site can be hidden in the overall result. Edström also suggested changing employees and departments to functions in question 34 c.

Magnus Bergh thought that it could be useful to weigh the answers from different questions according to Fundamental 5 points, Important 3 points and Useful 1 point. He also implied that the questions where the answer “no” leads to a jump in the model needs to be overseen. For example in ER he thought that question 10 cannot be answered if question 7 is answered no as question 10 refers to the *plan* being tested. Bergh further suggested that a question regarding sessions for debriefing/lessons learnt in the organisation directly after a crisis could be added.

Thomas Granström and Matti Seiman were also positive regarding the setup and the structure of the questions. They also found the definitions and explanations good to avoid direct misconceptions. Further they implied to be more specific about who the model is targeted at, whether it is a self assessment or if help is needed from a qualified person. Granström and Seiman believed a qualified person to be necessary or that a number of persons from the company filled in the model to get a wider picture than with only one respondent. They also implied that another way to get a wider picture is to use multiple choices instead of just yes or no questions. Another matter Granström and Seiman pointed out is that some of the questions cover an area that is too large e.g. question 5 and 23. Finally, they believed question 34 a. to be unnecessary or wrongly formulated as all companies would answer yes to this question.

Lisa Ekstig especially focused on the questions that could be related to the manufacturing of chemical products. She was positive to the model in general but gave suggestions for additional questions:

- Does resources and competence exist? (under direct BCM)
- Are new employees given an introduction? (under crisis management)
- Does protection from entry to the site exist?
- Are safety equipment checked regularly? (in question 11)
- Are incidents being reported and reviewed?

Mats Lindgren’s comments were also positive, he thought the questions were generally good and covered the BCM area at a holistic level. Lindgren also requested additional answering alternatives. Further, on question 11 he suggested to replace freely with readily and on question 26 to add: “...plans based on identified risks”.

Aon risk services commented that to be able to use the model, a company needs to have a running BCM process. Otherwise the majority of the answers would be “no” and thus, the results meaningless. They also pointed out the difficulty in making a BCM audit system and mentioned that some exists but none are really good. They also believe creating a BCM self-assessment questionnaire is a good idea but hard to accomplish as most companies does not have a fully developed BCM Programme. Aon points out that a major issue is how to present the results? They mean that the



presentation and the understanding of the results are more important than the method. According to Aon, the biggest challenge is to be able to present the results at different company levels.

Christel Gunnarson also pointed out the importance of specifying at which company level the model is for. It will give different results for site and group levels.

Solveig Nilsson points out that for BCM in general, it is important to focus on what is critical for the business. This can be done by conducting a business impact analysis (BIA) to identify key suppliers and key customers and contingently involve them in the BIA process. She commented the next step, to investigate how to eliminate the effects of an undesired event and how to assure deliveries on time.

Furthermore regarding the three phases ER, CM and BR, Nilsson means that internal communication is essential and she believes that this has not been expressed in the model. It has to be clear what to say to employees, who is responsible for what and how things should be carried out. Another critical function is the telephone exchange which has to have the correct information available and the possibility to increase capacity in the case of a crisis situation.

According to Nilsson, companies should have both an internal and external crisis operations centre where step one is an internal. She also means that, in the model, it should be emphasised that management, organisation, roles and mandates must be clarified during normal conditions.

Regarding training and education, Nilsson mentioned both stress management exercises where you learn to handle stressful situations and work under pressure and desktop exercises which give a possibility for reflection and to rectify flaws in processes and plans. The last thing she mentioned is to have few but important continuity plans since it is hard to keep them alive and there is a risk of focusing on the wrong issues.

The complete answers from the above experts are found in appendix F¹¹.

5.3 MODEL REVISION

The company and expert validations gave useful information on how to improve The BCM Evaluation Model. When questions are mentioned in this chapter, the numbers refer to the initial model found in appendix E. The comments and results from these validations were met in the following ways:

COMPANY LEVEL

As a number of the experts commented on the importance to specify for what company level (site or group level) the model is for, it is now targeted at site level. This is because if the model is used at group level, major site level deficiencies can be

¹¹ These comments are all in Swedish. Since Lennart Edström's comments were received over telephone they are not included in the appendix.

hidden in the overall group result. Furthermore, many of the questions are site specific e.g. questions regarding evacuation procedures can only be answered at site level.

THE WEIGHTING SYSTEM

A number of the experts expressed that there were deficiencies in the weighting system of different factors. The authors believe that this was mainly because the experts never received any information about the weighting system and therefore thought it did not exist. Therefore, the weighting system remains as existing and information regarding the system has been added to the information leaflet.

ADDITIONAL ANSWERING ALTERNATIVES

Some experts believe that the model should have more answering alternatives, e.g. a 1-5 scale. The reason to use yes or no questions in the beginning was that this leaves less chance for judgment influencing the result. The authors believe that a greater range in scale will only add confusion with ambiguous and hard to interpret results. Therefore, the alternatives have been left as existing.

NO OR N/A JUMPS

Following Bergh's comment, the questions where the answer "no" or "N/A" leads to a jump to a later question has been overseen. The questions regarding the testing of the plans have been exerted from the questions regarding training and education and inserted in the review questions for each respective part.

MODEL APPLICATION

Granström and Seiman commented on the need for a qualified person or a group within the company to fill out this form. This has been added to the working procedure as a comment that several employees may need to be involved for a good result.

Aon commented that a running BCM process is needed for the model to show a meaningful result. The authors' opinion is that a company may have an organisation corresponding with BCM objectives without specifically naming it a BCM organisation/process. Hence, many of the questions can be answered "yes" without undergoing a BCM process.

TEAM QUESTIONS

The explanatory notes regarding the different team questions have been amended to further clarify the meaning of each respective team.

DIRECT BCM

Granström and Seiman commented that question 5 covered a too large area. This question relates to the factor "Holistic view" and for this to be achieved, the authors believe that all of the different areas of the supply chain need to be included. Furthermore, as mentioned in chapter 5.1.2, that factor should not have too many points in the result.



Ekstig suggested that a question about whether the resources and competence exist or not should be added. This has been done by the amendment of question 3.

EMERGENCY RESPONSE

The authors found question 10 and 14 to be too similar and therefore the explanatory note for question 10 was reformulated to be more directed to the ER team. To further clarify that question 10 was related to the team specifically, the word “members” was added in the question.

As a result of Lindgren’s comment the word readily replaced freely in question 11.

Ekstig suggested adding if safety equipment is checked regularly which has been added to question 11.

CRISIS MANAGEMENT

During the company validation, none of the affiliates received a plus result in CM. This may be explained by the definition of CM being unclear. Therefore this definition has been clarified in the final model (see definitions) and the explanatory notes to questions 15 and 17 have been amended to include the new definition. Furthermore, a “no” answer in question 17 results in negative four points which is considered too much weight. Therefore the word “team” in questions 18 and 19 have been replaced by organisation and the automatic negative four points have been changed to two.

Based on Miger’s comments, firstly about it being unnecessary to know what type of incidents to report, question 21 was given an explanatory note to clarify that this question related to the communication between employees rather than the physical incident reports. Secondly, regarding if employees know the limit for when an incident turns into a crisis, question 20 has been amended for clarification. Miger also means that it is important that the Crisis management team have assurance from management on what they are allowed to do and decide about. The authors believe that this is already covered in question 17.

Granström and Seiman commented that question 23 covered a too large area. As mentioned in chapter 5.1.2, this is because the factor “External communication” should not have too many points in the results. Furthermore, the authors believe that facing media in a crisis situation involves a lot of stress and therefore, to cope with the situation, this person should always receive media training beforehand.

The question suggested by Ekstig whether new employees are given an introduction has not been included since both of the questions 21 and 22 are directed towards *all* employees which make the authors believe that this is already achieved through these questions.

Nilsson emphasised on the importance of internal communication. This together with that it was found in three of the documented cases is believed to be reasons enough to add another question referring to internal communication in the model. Nilsson further pointed out the importance of a telephone exchange which led to the

addition of this into question 25 where examples of means for external communication are mentioned. Regarding the importance of correct information question 25 was further improved to include this aspect. It seems that ensuring capacity at the telephone exchange, will give this area too much room in the model why this was not added. Since Nilsson also emphasised that an operation centre on site is more important than one off site, the off site formulation was removed from question 26 and put in the explanatory note where the formulation was altered to “preferably situated off site”. Nilsson’s comment about the clarification of management, organisation, roles and mandates during normal conditions, the authors believe already to be included as all phases and direct BCM include questions about plans and organisations. Regarding learning a maximum from different training types, this was added to the explanatory note for question 18.

BUSINESS RECOVERY

Following Bergh’s comment about sessions for debriefing/lessons learnt this was found during the literature survey but not in the documented cases. That it was not found in the documented cases can be explained by the fact that this is conducted internally after a crisis situation and is not probable to be reported. Therefore, a question regarding this matter has been added.

Granström and Seiman suggested that question 34 a should be removed since every company should answer this question with a yes. During the company validation this was proved wrong as both affiliate 4 and 6 answered no to this question, hence the question remains as existing.

Lindgren’s suggestion to add “...plans based on identified risks” to question 26 (Do your company have a business recovery plan?) was considered but not added as there already are three questions regarding risk identification and analysis. Furthermore, BCM is about being able to manage *any* crisis situation and even if the BCM plans can be based on identified risks, the authors believe adding the above words may entail to only manage identified risks.

INDIRECT BCM

Edström suggested a change in question 34 c which has been changed to employees and functions.

The suggestion by Ekstig to add a question regarding protection from entry to the site was added as a question in the indirect BCM since the model up to this point did not have any questions regarding security which may contribute to BCM. This factor was found during the literature survey but was not included in the lens since, at that point, it was considered to be too risk management specific. Her comment about incident reporting, the authors believe is already included in the model through question 31.



5.4 THE FINAL MODEL

The final model is a semi-qualitative model consisting of a self-assessment questionnaire which is to be used at site level. It is an Excel based model which includes colour scale formatting that requires Excel 2007 or later but can also be used with earlier versions. The complete model can be found in appendix A. The information leaflet which acts as a guide and gives valuable information on how to apply the model can also be found in appendix A. For more details about the application of the model it could be wise to look through chapter 5.5.

To get an Excel copy of The BCM Evaluation Model please contact either of the authors at arosqvist@gmail.com or joakim.almen@gmail.com.

5.5 APPLICATION OF THE BCM EVALUATION MODEL

The BCM Evaluation Model is to be used at site level. It may be used at group level as well but in this case the user has to be aware that major site level deficiencies can be hidden in the overall group result.

It is possible to fill out the model in a few minutes. However, to get the best results, it may be necessary to ask a few key persons in the organisation about their view on the topic. This is especially important when filling in questions about implementation, clear responsibilities, training, testing and review. As Johnson (2000) implies, the perception of some of these factors can be different in different categories of the organisation. For example, it may be necessary to ask the person who is responsible for the evacuation procedures – Are they practiced enough? But it may also be necessary to ask someone that does not have responsibility since this person is not as involved in the planning process. This will give good input to the factors mentioned above.

The answers are translated into 1 for yes, -1 for no and 0 for N/A. All answers are then summarised in each group (direct BCM, ER, CM, BR and indirect BCM) to get the result for each group. When questions state that the answer “no” or “N/A” leads to a later question, then all questions which are not filled in are considered “no” or “N/A” respectively (for example: 1. Do you have a running BCM programme? (If No or N/A → 4.) If this question is answered “no”, then the questions 1-3 are considered no when the results are calculated). The possibility to answer “N/A” makes the available maximum (and minimum) score differ depending on the amount of N/A answers. All questions answered N/A will be excluded from the total.

Based on the literature and documented cases, some factors were considered more important than others. As The BCM Evaluation Model was to be as user friendly as possible, and therefore include a simple point system as described above, those factors were weighted with additional questions instead of awarding extra points for the answer “yes”. Factors found in half or more of the documented cases have two questions related to them in the model. If a factor was supported in less than half of the cases or found in several sources in the literature, the factor has one question related to it.

Some questions are of a type where several aspects are included in the same question. When answering this kind of question, the answer should be “no” if not all of the aspects are in place. This makes it harder to achieve a maximum score which should be taken into consideration when evaluating the result.

5.5.1 BENEFITS

If The BCM Evaluation Model is used in an honest way in the organisation it may give an indication to which areas the organisation needs improvements in order to achieve a satisfactory level of BCM. This may be a first step towards a more resilient company.

5.5.2 WORKING PROCEDURE

To achieve better results when using The BCM Evaluation Model the following work procedure may be used:

1. Find a suitable person to be responsible to fill in the questionnaire.
2. The responsible person finds the necessary information to answer the questions. This could be by asking questions to several persons in different areas of the organisation. It could be useful to not only ask people with responsibility for the area in question since this could give useful information about the level of implementation, clear responsibilities, training, testing and review.
3. Fill in the questionnaire and summarise the results for each part respectively.
4. To improve the BCM in the organisation, if this is necessary, the results from the different areas should be examined to find suitable areas for improvement.
5. Review the corrective actions taken in 4 so that they have given effect. This could be done in the same way as in 2.

As one of the experts expresses in the validation, a big challenge is how to present the results from The BCM Evaluation Model to management at different company levels. Although this was never one of the objectives for this thesis, the authors have had this in mind during the period of writing. The division of The BCM Evaluation Model into five parts was partially due to this reason. This makes it easier for a company to see where improvements need to be made.



6 RESULTS

“Planning is everything, plans are nothing”¹².

An instrument for corporate management to use when evaluating their level of business continuity management (BCM) is of concern to many since Hendricks and Singhal (2005) show that the potential negative impact in the case of a supply chain disruption may be significant.

6.1 MEETING THE OBJECTIVES

The main objective was *the development of a model for evaluating the level of business continuity management within a company*. Through The BCM Evaluation Model, the authors believe that this has been achieved.

The sub-objectives were:

- Identify the key factors involved in business continuity management (BCM) which are related to supply chain disruptions.
- Investigate if previous corporate crises reveal a pattern of factors that are more significant than others for a risk to turn into a crisis or a crisis to be managed well.
- Discuss how to measure the key factors and structure them into BCM areas which then can be evaluated.
- Based on knowledge from the above, develop a user-friendly and cost-effective model for the evaluation of an enterprise’s BCM and thereby give hints on which areas to improve.

The identification of key factors has been made through the construction of the lens. The authors believe that the literature survey was extensive enough to cover the key factors for an effective BCM although some aspects were excluded. The fact that the latter expressions found in the literature did not add any new factors implies that the study was extensive enough.

Through the investigation of documented cases, the authors believe that a pattern of more significant factors has been identified.

The authors believe that The BCM Evaluation Model with the five different parts is one way to measure and evaluate the state of the key factors. Therefore, the third sub-objective has been achieved.

As The BCM Evaluation Model is not too extensive or time consuming, the authors believe it is a user-friendly model for evaluating an enterprise’s level of BCM. From the results it also gives hints on which areas to improve.

¹² Count Helmut von Moltke, obtained from The Eisenhower institute, 2008.



6.2 FULFILLING THE PURPOSE

The purpose was *to give corporate management the ability to reduce the potential negative business profit impact from a disruption somewhere in the supply chain and thereby increase the knowledge of effective BCM*. The BCM Evaluation Model is a way to increase knowledge of what changes that should be made within the organisation for a more efficient BCM. This will reduce the potential negative impact from a disruption. Based on the above, the authors believe that the purpose has been fulfilled.

6.3 DISCUSSING THE APPLICABILITY OF THE BCM EVALUATION MODEL

When using The BCM Evaluation Model it is important to remember for what purpose the model was developed. The model is designed to increase knowledge by helping corporate management to reduce the potential negative impact. It is important to keep in mind that the model covers BCM in general and that the BCM programme should be specified depending on the business activity.

A risk when using a model which is supposed to indicate the level of BCM rather than to check *all* aspects is that a company may improve exactly the aspects of the factors which are included in the model. Scoring 100 % yes in The BCM Evaluation Model does not mean that the level of BCM has been improved to perfection but the authors believe that this indicates an efficient level of BCM for most companies.

It can always be argued that scoring 100 % yes is better than 90 %. However, if the costs involved for reaching 100 % are more than the benefits, it may be wise to reconsider what is the appropriate level in your company. Therefore, when analysing the results from The BCM Evaluation Model, a cost-benefit mindset should be applied.

The BCM Evaluation Model is validated through both expert opinions and by a test where six affiliates filled in the model to see whether they received the expected results or not. The expert opinions were from people who have experience from varied business activities which makes the model even more general.

6.4 FUTURE RESEARCH

To further develop the results from this thesis the authors suggest the following directions for future research:

The development of better strategies to measure the factors in the model would probably lead to better questions and thus improve the model.

Investigation of other documented cases to develop a better foundation for, and probably development of, the model. Especially cases regarding natural disasters, small businesses crises and crises where many companies are involved may add depth to the model. Cases which have good description of emergency response may also improve the foundation.



For an extensive evaluation of the level of BCM, one model for each respective part should be developed. These models could go deeper in each part and offer a more extensive coverage of all aspects. This could give better hints for more hands-on improvements in the organisation. Even though The BCM Evaluation Model is a cost-effective way to get an indication of the level of BCM within the company, it may be a good complement to get a more thorough investigation of the parts where improvements are needed.

The development of more specific approaches for different business activities would be of benefit to many companies. This model is developed to be general whereas many businesses may need a model which is more based on prerequisites for their activity.

Further company validations in other sectors would also make the foundation stronger.



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APPENDICES

- A. The final model
- B. Classification of factors
- C. Marsh presentation
- D. Complete list of documented cases
- E. Company validation
- F. Expert Validation



A. THE FINAL MODEL

The final model together with the information leaflet is found below. To get an Excel copy of The BCM Evaluation Model please contact either of the authors at arosqvist@gmail.com or joakim.almen@gmail.com. The model includes formatting that requires Excel version 2007 or later but can also be used with earlier versions. Please include what version you are running in your email.

THE BCM EVALUATION MODEL – INFORMATION LEAFLET

The aim of this leaflet is to act as a guide when conducting The BCM Evaluation Model. This model was developed as part of a master's thesis in risk management engineering at Lund University, Sweden. The report *Evaluate Your Business Continuity Management: A step towards a more resilient company* can be downloaded from the following website: <http://www.brand.lth.se/english/publications/>.

Note that this model is to be used to measure the level of business continuity management at site level. It may be used at group level as well but in this case the user has to be aware that major site level deficiencies can be hidden in the overall group result.

Before answering the questions, for the best results, please take your time and read through the definitions and using the model. Should there be any unclarities in the model, explanations can be found under each question respectively. The factor(s) of concern is shown in italics. These explanatory notes will show up in the excel model when holding the mouse pointer over a cell with a small red triangle in the top right corner.

DEFINITIONS

BUSINESS CONTINUITY MANAGEMENT (BCM)

“A holistic management process that identifies potential threats to an organisation and the impacts to business operations that those threats, if realised, might cause, and which provides a framework for building organisational

resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities” (British Standards, 2008a).

EMERGENCY RESPONSE (ER)

Actions taken to protect people, the environment and assets (based on Nilsson, 2008).

CRISIS MANAGEMENT (CM)

Organised management of undesired events through decisions on strategical and tactical questions and the handling of internal and external communication (based on Nilsson, 2008).

BUSINESS RECOVERY (BR)

Service to customers, alternative production, restore processes and supply chain management (based on Nilsson, 2008).

DIRECT BCM

Direct BCM is the planning for ER, CM & BR.

INDIRECT BCM

Indirect BCM means that the factor influences the outcome of BCM without being a plan for or the execution of ER, CM & BR.

SUPPLY CHAIN

“Life cycle processes supporting physical, information, financial and knowledge flows for moving products and services from suppliers to end users” (Ayers, 2000, p. 6).

RISK

“An uncertain event or set of circumstances that, should it occur, will have an effect on the



achievement of objectives" (APM PRAM Guide, 2006).

CRISIS

"A situation which is harmful and disruptive, is of high magnitude, is sudden, acute and demands a timely response and is outside the firm's typical operating frameworks" (Reilly, 1993, p. 116).

USING THE MODEL

The model is a three-choice questionnaire with the answering alternatives "Yes", "No" or not applicable "N/A". Some questions are of a type where several aspects are included in the same question. When answering this kind of question, the answer should be "no" if not all of the aspects are in place.

The answers are translated into 1 for yes, -1 for no and 0 for not applicable. All answers are then summarised in each group respectively (direct BCM, ER, CM, BR and indirect BCM). All questions answered N/A will be excluded from the total.

Factors considered more important are weighted with additional questions instead of awarding extra points for the answer "yes".

For the best results, the model should be filled in by a qualified person with the correct competence and/or by taking more than one person's knowledge into account.

For a more detailed version of using the model, please see section 5.5 in the thesis.

EXPLANATORY NOTES

DIRECT BCM

1. A running BCM programme does not have to be named "BCM programme" i.e. it could be any programme with objectives coinciding with the objectives of BCM (see BCM definition). *BCM Programme*

2. Are directives sent out from management? Does management show interest in BCM measures? Management support; *Acceptance*

3. *Clear responsibilities; implementation*

4. E. g. Incident reporting system, risk management meetings, What if analysis, external experts. *Risk Identification*

5. See supply chain definition. *Holistic view*

6. Either in a quantitative or qualitative analysis. *Risk analysis*

EMERGENCY RESPONSE

7. A plan for protecting people, the environment and assets. *Plan*

8. *Testing; Review*

9. People who have been assigned the responsibility for evacuation and protection of the environment & assets. Depending on the size of the company, this team or organisation can consist of one or many persons. *Emergency response team; Clear responsibilities*

10. E.g. first aid courses, training in the use of fire extinguishing equipment, emergency response roles and responsibilities in conjunction with evacuation drills etc. *Training and education*

11. Equipment required from the emergency response plan. *Emergency response equipment*

12. E. g. The emergency service (fire department), maintenance personnel etc. *Alert System*

13. a. E. g. Fire alarm, gas alarm, radiation alarm etc. *Evacuation Procedures*

13. b. An evacuation plan is the physical plan which show escape routes, floor plans etc. *Evacuation Procedures*

14. *Training and education*

CRISIS MANAGEMENT

15. A plan for organised management of undesired events through decisions on strategical and tactical questions and the handling of internal and external communication. *Plan*

16. *Testing; Review*

17. Employees on management level which in a crisis situation are responsible for organised management of undesired events through decisions on strategical and tactical questions and the handling of internal and external communication. Depending on the size of the company, this team or organisation can consist of one or many persons. *Crisis management team; Clear responsibilities*

18. E. g. Role playing crisis scenarios, case studies, stress management, desktop exercises etc. *Training and education*

19. *Decision making*

20. *Quick response*

21. It has to be made clear what to inform employees about, who is responsible and how it should be carried out. *Internal communication*

22. *External communication; Training and education*

23. E. g. through the company's website, telephone exchange, press releases. *External communication*

24. Preferably one on site and a secondary situated off site. *Crisis operations centre*

25. This does not relate to physical incident reports but rather the communication between employees. *Internal communication; Clear responsibilities*

26. E. g. Evacuate in case of emergency, inform other personnel. *Quick response; Clear responsibilities*

BUSINESS RECOVERY

27. A plan for how to provide service to customers, available alternative production, restoration of processes and supply chain management in a crisis situation. *Plan*

28. *Testing; Review*

29. A team which in a crisis situation is responsible for service to customers, available alternative production, restore processes and supply chain management. This is often the same team as the crisis management team. Depending on the size of the company, this team or organisation can consist of one or many persons. *Crisis management team; Clear responsibilities*

30. E. g. Role playing crisis scenarios, case studies etc. *Training and education*

31. Quality: validated so the spare capacity can produce the same quality as normal production/services. *Redundancy*

INDIRECT BCM

32. *Debriefing/Lessons learnt*

33. E. g. Incident reporting sheets freely available to all employees, safety meetings etc. *Corporate culture*

34. Risk awareness can be achieved by e. g. communicating risks to all employees. *Management support*

35. Risk awareness can be achieved by e. g. communicating risks to all employees. *Training and education; Corporate culture; Quick detection*

36. a. Cooperation with suppliers (e. g. research projects), image improving activities & customer service. *External relations*

36. b. E. g. sharing information. *External relations*



36. c. E. g. Providing a good working environment, team building events, cooperation between departments, encourage incident reporting. *Internal relations*

37. Systems that alarms e. g. if supplies are late, deficient or in case of machinery malfunction or communication systems to continuously share information between departments. *Quick detection*

38. E. g. Creative thinking and thinking “outside the box” in a crisis situation. *Adaptability*

39. *Security*



The BCM Evaluation Model					
Direct BCM		Yes	No	N/A	Score
1.	Do you have a running BCM programme? (If No or N/A → 4.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
2.	Is the BCM programme supported by management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
3.	Is there an assigned person, with BCM competence or similar, responsible for the organisation and implementation of the BCM programme?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
4.	Do you have recurring risk and vulnerability identification procedures?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5.	Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
6.	Do you analyse risks and vulnerabilities regarding:				
a.	- probability?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
b.	- consequence?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
				Σ Direct BCM	
Emergency response		Yes	No	N/A	Score
7.	Does your company have an emergency response plan? (If No or N/A → 9.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
8.	Is the emergency response plan being tested and reviewed regularly to make sure it is functional?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
9.	Is there a team with clear roles and responsibilities for the emergency response? (If No or N/A → 11.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
10.	Do you run regular exercises to train and educate the members of the emergency response team?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
11.	Is there emergency equipment readily available to enable an effective emergency response and are they checked regularly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
12.	Is there a distributed up to date list with contact details to available internal and external emergency resources?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
13.	Are there up to date evacuation procedures including:				
a.	- Regularly maintained evacuation alarm systems installed in all buildings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
b.	- Unobstructed escape routes and evacuation plans?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
14.	Do you run regular evacuation drills to train and educate employees on evacuation procedures?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
				Σ Emergency response	
Crisis management		Yes	No	N/A	Score

15.	Does your company have a crisis management plan? (If No or N/A → 17.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
16.	Is the crisis management plan being tested and reviewed regularly to make sure it is functional?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
17.	Is there a team with clear roles and responsibilities for crisis management? (If No or N/A → 19.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
18.	Do you run regular exercises to train and educate the crisis management team?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
19.	Is there a clear decision making process within the crisis management organisation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
20.	Are there clear prerequisites on when an undesired event turns into a crisis and thus initiate the crisis management process?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
21.	Is there an employee responsible for assuring the internal communication in a crisis situation and that means for this is available?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
22.	Is there an employee responsible for external communication through media and has this person undergone media training?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
23.	Are means of external communication available and is it verified that all information communicated is accurate?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
24.	Is there a room which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
25.	Are all employees aware of what type of incidents to communicate to superiors and when to do so?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
26.	Are all employees aware of what actions to take in case of an undesired event?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
		Σ Crisis management			
	Business recovery	Yes	No	N/A	Score
27.	Does your company have a business recovery plan? (If No or N/A → 28.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
28.	Is the business recovery plan being tested and reviewed regularly to make sure it is functional?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
29.	Is there a team with clear roles and responsibilities for business recovery? (If No or N/A → 30.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
30.	Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
31.	In your company, are there forms of redundancy like:				

a.	- spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
b.	- backup suppliers & shared processes and are they validated regarding quality and capacity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
32.	Are debriefing/lessons learnt sessions conducted directly after a crisis situation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
				Σ Business recovery	
Indirect BCM		Yes	No	N/A	Score
33.	Are there well implemented incident reporting procedures?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
34.	Does management encourage incident reporting and risk awareness?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
35.	Do employees undergo annual education regarding safety, security and risk awareness?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
36.	Does your company build relationships:				
a.	- With suppliers, customers and other stakeholders?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
b.	- With media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
c.	- Between employees and functions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
37.	Are there automated systems installed for quick detection of a supply disruptions and/or machinery malfunction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
38.	Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
39.	Is the site protected from unauthorised entry?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
				Σ Indirect BCM	
How did you measure up?		Min	Score	Max	
Direct BCM					
Emergency response					
Crisis management					
Business recovery					
Indirect BCM					
Overall					



B. CLASSIFICATION OF FACTORS

In this appendix the different factors will be described briefly and after that a short motivation of why the factor is placed under each of the different categories. Finally the different expressions found in the literature will be lined up. When the authors find it not clear why an expression is put into a certain factor it will be a short explanation in connection with the expression. The lens is found in Table 6.

INDIRECT BCM

As BCM is the part of RM which improves organisational skills to reduce consequences of the factors which influence BCM will be part of the wider risk management process. Even though they are part of the RM, in this thesis the aspects which concern BCM are the only ones explored.

UNDERSTANDING THE ORGANISATION

To be able to make a BCM programme as effective as possible the programme needs to fit together with the organisation it will function in.

Examine the five systems that govern an organisation. (Mitroff, 2001)

CORPORATE CULTURE

The corporate culture is the manner in which a corporation act in accordance to what is encouraged from the top management. The organisational culture is, along with top management psychology, the most important systems to decide an organisation's CM. (Mitroff, 2001)

As the corporate culture does not plan for or execute any of the ten boxes it will be considered indirect BCM.

Corporate culture (Sheffi & Rice, 2005)

Avoid using meetings as a means to assign blame but rather concentrate on improving signal detection. (Mitroff, 2001)

MANAGEMENT SUPPORT

For any BCM to be successful it needs the support of the top management as the issue otherwise will not get the attention it needs to achieve results in the area.

As management support in itself does not plan for or executes any of the ten boxes it will be considered indirect BCM.

Programme driven by senior management (Rozek & Groth, 2008).

Risk awareness among top managers (Peck et al., 2003).

EXTERNAL RELATIONS

The handling of a crisis will be easier if external relations, with media and other stakeholders, are good prior to crisis. Good relations will not be easily achieved during crisis.



As external relations neither consists of planning for or executing BCM but affects the outcome of BCM, this factor is considered indirect BCM.

Establish contacts with your infrastructure providers (Wade, 2004)

Stakeholder relations (Mitroff, 2001)

Build up a buffer of goodwill (Birch, 1994)

Build relations with opportunistic politicians (Birch, 1994).

INTERNAL RELATIONS

If internal relations are not developed prior to crisis it may be difficult to effectively manage crisis when it occurs as it may be hard to interpret intentions and actions and thus difficult to manage the whole.

Internal relations are a requirement for a crisis to be handled well but not planning for or executing BCM. Thus, this factor will be indirect BCM.

Relationships with all departments (Hanson, 2007)

Stakeholder relations (Mitroff, 2001)

Meetings for sharing information (Quarantelli, 1998)

Establish informal linkages between involved groups (Quarantelli, 1998)

Crisis management teams should meet at least once a month (Wade, 2004)

QUICK DETECTION

To be able to detect the early warning signs of a crisis, and indeed the crisis itself, as they occur is a step which will give the BCM an easier way to handle the crisis. It will not affect the ability to handle it though.

As quick detection gives better chances for BCM to be effective even though it is not BCM in itself it will be an indirect BCM factor.

Quick disruption detection (Craighead et al., 2007)

Sensitive control system (Sheffi & Rice, 2005)

Supply chain cooperation (Tang, 2006)

Automated surveillance equipment (Flessas, 2004)

Set up mechanisms to detect the early warning signs (Mitroff, 2001). These mechanisms will either anticipate or sense the crisis.

Problem sensing (Reilly, 1993)

Sensing (Chong, 2004) Detect the early warning signals of a crisis.



ADAPTABILITY

Many crises will not easily be predicted and even if they are predicted the consequences may be a little bit different than predicted. This invokes a need of adaptability for the organisation so that it can adjust to adapt plans to the actual crisis.

Since adaptability is not planning or execution of BCM but rather a factor that contributes to the BCM it is considered indirect BCM.

Flexible and open-minded people (Wade, 2004).

Flexible schedules (Hanson, 2007). The employee may need flexible schedules to allow them to respond to their family's emotional responses to the crisis in addition to their own.

Carry out generic functions in an adequate way (Quarantelli, 1998). Quarantelli means that prepared generic functions must be adapted for the situation to give good response.

ACCEPTANCE

"In the end, the main enemy, the main barrier to overcome, is denial" (Mitroff, 2001, p. 8).

Acceptance that crises may occur is an important factor for the programme to succeed but is not a part of the programme. Thus, it is considered indirect BCM.

Accepting that crises can occur (Mitroff, 2005).

Identify the defense mechanisms the company uses to promote denial (Mitroff, 2001).

Recognise that disasters are both quantitatively and qualitatively different from minor emergencies (Quarantelli, 1998).

DIRECT BCM

BCM is the organisational procedures that will correct an event after occurrence. BCM here consists of four parts: The BCM managed before crisis and ER, CM and BR.

BUSINESS CONTINUITY MANAGEMENT PROGRAMME

To achieve a satisfactory level of BCM, a program which states how the process will be put in place is needed.

As the meaning of the BCM programme is to plan for the handling of all ten boxes the programme will be considered direct BCM.

BCM programme (Gibb & Buchanan, 2006)

LIABILITY

In a crisis situation it could be important to know what liabilities a company has so that no ambiguities occur during crisis whether it is the company's responsibility or not. Even though this is important it is important not to forget that legal responsibility not always mean the same as the perceived responsibility of the opinion.

As known liabilities will help to plan for BCM it will be considered direct BCM.



Involve lawyers in the process (Birch, 1994)

RISK IDENTIFICATION

To identify crisis which can hit the company is an important step towards being able to handle them. It may also give companies initial scenarios to prepare against which have been considered to be a threat to the company. When considering crises it is important, but difficult, to take into account crises that have not yet occurred anywhere.

As the identification is the initial step in the planning for the ten boxes it is put into the direct BCM.

Creative thinking to consider different types of crises (Mitroff, 2001). It is important not to miss crises that have not yet appeared.

Identify corporate vulnerabilities (Umansky, 1993)

Thinking of and communicating information about future dangers and hazards (Quarantelli, 1998).

Be based on what is likely to happen (Quarantelli, 1998). Do not look in the past if circumstances have changed.

Strive to evoke appropriate actions by anticipating likely problems and solutions or options (Quarantelli, 1998).

RISK ANALYSIS

Risk analysis is "the systematic process of identifying the nature and causes of risks to which an organisation could be exposed and assessing the likely impact and probability of those risks occurring". (BCI, 2008)

It should be mentioned that in the context of BCM, a risk analysis is often referred to as a business impact analysis (BIA). A BIA is a way to find knowledge of what to focus on in a crisis situation and is closely attached with risk identification.

As risk analysis is considered a part of the planning for all of the ten boxes, it is considered a direct BCM factor.

Risk analysis (Gibb & Buchanan, 2006)

Business impact analysis (Cerullo & Cerullo, 2004). An analysis of company's threats.

Analyse risks from operations and manage issues (Umansky, 1993)

Mapping and critical path analysis (Peck et al., 2003)

Generate maps to understand how a crisis develops (Mitroff, 2001)

Consider the impact of a crisis on other categories (Mitroff, 2001)

HOLISTIC VIEW

To see the company as a part of the whole which can be hit by different crises will prevent the company from building moats around their own company while missing that a flood will damage



them if the company lives near the river. To not see BCM as a separate part but a part of the whole will also bring existence to the programme.

The holistic view is a part of making the plans for crisis. Thus, it is considered direct BCM.

Integrate crisis management with other programs (Mitroff, 2001)

Be vertically and horizontally integrated (Quarantelli, 1998)

Risk awareness as an integrated part of supply chain management (Peck et al., 2003)

All vendors are required to participate (Rozek & Groth, 2008)

Be generic rather than agent specific (Quarantelli, 1998)

Focus on general principles and not specific details (Quarantelli, 1998)

PLANS (FOR ER, CM AND BR)

To be prepared it will be important to have plans for how to handle a crisis. Even though a plan for specific events may be useful the main purpose is to develop plans which, with minor adjustments, can handle any crisis situation.

The plans are used in the case of an undesired event occurring but the plan is made prior. Thus, plans will be a direct BCM factor.

Development of plan to mitigate or reduce impact (Cerullo & Cerullo, 2004)

Plan for the worst (Berman, 2002). All planning is the initial step of implementation of a good business continuity planning.

Create a crisis management model for reacting to problems (Berman, 2002). A model is a plan for how to work.

Have a business continuity plan to keep critical business functions (Schmidt, 2007)

Develop an emergency response plan (Brown, 1995)

Plan for how organisation can continue operations (Hanson, 2007) (BR)

An evacuation and relocation plan (Hanson, 2007) (ER)

Create a crisis portfolio (Mitroff, 2001) Mitroff means that to be prepared for crisis it is needed to prepare for seven different categories thus have plans for at least seven different crises.

Build scenarios against which to plan (Umansky, 1993)

Collate reference material and procedures (Umansky, 1993)

Coping (Chong, 2004) Chong relates coping to developing a plan for how to handle a potential crisis.



Drawing up organisational disaster plans and integrate them with overall community mass emergency plans (Quarantelli, 1998)

IMPLEMENTATION OF THE PLANS

When plans are finished it is necessary to the implementation will make them work in practice. If this step is missed the process of planning is unmade.

Implementation will be a part of planning for execution which means that this factor will be a direct BCM factor.

Implementation (Gibb & Buchanan, 2006)

Implementation of crisis response plans (Hanson, 2007)

Plan coordination (Brown, 1995)

Developing techniques for training, knowledge transfer and assessments (Quarantelli, 1998)

CLEAR RESPONSIBILITIES

To make a BCM programme effective it is necessary to clearly specify who is responsible for what. For example, someone needs to be responsible for the development of the programme and someone needs to be in charge of revising. Clear responsibilities also make the role every individual is supposed to play in case of a crisis clear. Specific roles/responsibilities that may be missed according to Holloway (1995):

- Senior staff member with responsibility to handle media and government agencies
- Deputies for key response personnel
- Not clearly define how internal emergency response shall cooperate with external emergency response
- Information to outside contractors when they work on site

Since clear responsibilities is part of the planning for all ten boxes, it is considered to be direct BCM.

Roles and responsibilities (Holloway, 1995)

Administrative details (Holloway, 1995)

Every department needs to be responsible for carrying out their crisis response plan (Hanson, 2007)

TRAINING AND EDUCATION FOR BCM

To train and educate individuals as a part of the BCM organisation will be an important step towards the implementation of plans.

Training and education is a part of planning for an emergency. Thus it will be classified as direct BCM.

Education and training (Gibb & Buchanan, 2006)

Train employees (Cerullo & Cerullo, 2004)

Train people who will be in charge in case of an emergency (Schmidt, 2007)



Exercises and drills (especially for leaders) (Schmidt, 2007). As exercises and drills are more used to educate people and make them better while testing is more for evaluating the plan this topic lands in the training and education.

Train spokespeople and media managers (Umansky, 1993)

Educating employees (Wade, 2004)

Rehearsed emergency response plan (Hanson, 2007)

Holding disaster drills, rehearsals and simulations (Quarantelli, 1998)

Educating citizens and others involved in the planning process (Quarantelli, 1998)

Undertaking public education activities (Quarantelli, 1998).

Training requirements (Holloway, 1995)

Employee training (Brown, 1995)

TESTING

Even though training and education will improve BCM the testing of the organisation is important to find misses and makes foundation for the review.

Testing is also an important planning process for emergencies. Thus, direct BCM.

Testing (Gibb & Buchanan, 2006)

Test the plan (Thomas, 2006; Cerullo & Cerullo, 2004)

Test, test, test (Berman, 2002)

Test and validate (Umansky, 1993)

Testing and evaluating response (Brown, 1995)

REVIEW

A plan will not be good if not continuous reviews and improvements are made. Important aspects can be achieved through results of tests and during training and education.

Review should be made prior or after crisis not during. It is a part of planning for the next crisis which makes it a part of direct BCM.

Review (Gibb & Buchanan, 2006)

Keep the plan evolving (Thomas, 2006)

Make sure the plans are easy to maintain (Berman, 2002)

Re-examine plan (Berman, 2002)



Each time a crisis response plan is used a new plan needs to be developed (Hanson, 2007)

Learning from and redesigning (Mitroff, 2001)

Conduct postmortems of crises and near misses (Mitroff, 2001)

Rethinking (Chong, 2004) Rethinking for Chong is to answer three questions after a crisis: What has happened and how did it happen? What made it happen? Why did it happen the way it did?

Initiating (Chong, 2004) Implementing results from rethinking into the plan.

Continually updating obsolete materials/strategies (Quarantelli, 1998)

Plan revision (Holloway, 1995)

Look for patterns and interconnections in past crises (Mitroff, 2001). A step towards improvement of own plans.

Determine how crises can develop from the five systems, and how you can reduce errors. (Mitroff, 2001) This is for improvement of own plans.

CORPORATE POLICY STATEMENT

To achieve improvement a policy may help as a vision to work against.

As this is the initial step in the planning process, this is considered a direct BCM factor.

Corporate policy statement (Holloway, 1995)

BUSINESS RECOVERY OBJECTIVES

To achieve a good recovery it is vital to know what a good recovery is.

Objectives for recovery are a part of planning for recovery which makes this a part of direct BCM.

Clearly defined corporate recovery objectives (Berman, 2002)

EMERGENCY RESPONSE

Emergency response is the initial part of the BCM (Nilsson, 2008). It focuses towards protection of people, environment and assets.

ALERT SYSTEM

Clearly defined ways to alert everyone that an emergency is present is a necessity. This may include fire alarm with noise and/or flashing lights or buddy system where one employee informs others. Also, communication networks include methods to get in touch with response personnel, inside or outside, the workplace. This must be possible to do not only on office hours, but after hours too. (Holloway, 1995)

Both internal and external communication during ER will protect people, environment and assets.

Communication networks (Holloway, 1995)



List of emergency phone numbers (Brown, 1995)

Lists containing contacts in the company which may be useful in emergencies should be easily available and usable. Holloway (1995) gives examples:

- Maintenance, operations and engineering personnel
- Medical personnel and first aiders
- Emergency response team members
- Public relations representatives
- Environmental coordinators
- Health and safety personnel
- Security staff
- Employees who speak other languages

Also, a list of external contacts should be entered in the ERP. Holloway's (1995) examples:

- Police
- Fire department
- Ambulance services
- Hospital
- Poison control centre
- Government regulatory agencies
- Hazardous materials contact
- Municipality
- Utility companies
- Spill clean-up contractors
- Mutual assistance groups
- Insurance companies
- Lawyers

RESPONSE PROCEDURES

Detailed emergency response procedures should be included in your plan for specific emergencies which are to be covered by the plan. Details should concern notification, response mechanisms, training and equipment requirements, available external resources and internal and external reporting requirements (Holloway, 1995). The authors of this thesis is of the opinion that it may be a start to try to not make details for cases that are too similar, but try to start by detailing out quite different areas in a similar fashion to Mitroff's (2001) model for crisis management.

Checklists for taking actions in an emergency are a part of ER execution to protect people, environment and assets.

Response procedures (Holloway, 1995)

Plot plan (Brown, 1995)

Material safety data sheets (Brown, 1995)



Set up damage containment mechanisms (Mitroff, 2001)

EVACUATION PROCEDURES

Evacuation routes and congregation points shall be prepared, posted and printed into the ERP document. Common failure points according to Holloway (1995):

- All employees are not properly trained so the system is not implemented
- Evacuation routes are not reviewed and updated frequently. In connection with rearrangements, constructions and alterations this may lead to evacuation routes which do not work.
- No clear responsibility for checking the evacuation or to implement shutdowns
- Not enough emergency lighting
- Climate considerations:
 - No thinking of winter and that snow may block evacuation routes if not cleared away properly
 - Congregation points are not sheltered in harsh climates
- Locked emergency exits due to security reasons
- Lack of arrangements for disabled

This factor is a part of ER execution as it is supposed to protect people.

Evacuation procedures (Holloway, 1995)

Evacuation plans (Brown, 1995)

EMERGENCY RESPONSE EQUIPMENT

The emergency response equipment needed to make the ERP work, need to be identified, situated and purchased.

As equipment may be needed for protection of people, environment and assets it will be classified as ER.

Emergency response and personal protective equipment (Holloway, 1995)

Available equipment (Brown, 1995)

Obtaining, positioning and maintaining relevant material resources (Quarantelli, 1998). As Quarantelli is focused towards disaster management this is considered to be a mean of protecting people, environment and assets and so considered a part of ER.

CRISIS MANAGEMENT

CM is the part of BCM which concerns organised handling of events, strategical and tactical questions and internal and external communications (Nilsson, 2008).

LIKENESS PRINCIPLE

Companies should strive towards that organisation and facilities are the same during ordinary and crisis situations. This is the likeness principle.



The likeness principle can lead to organised handling of events, make strategical and tactical questions easier and improve internal communication. This makes the factor part of CM.

Implementing common sense initiatives: Make emergency processes part of everyday culture (Wade, 2004)

QUICK RESPONSE

To be able to meet an upcoming crisis it is necessary to be able to act once the crisis has become known.

As quick response is the initial step in CM and necessary to handle events in an organised way it will be considered a part of CM.

Velocity/acceleration (Peck et al., 2003). How quickly the chain can respond.

Quick response (Craighead et al., 2007)

Management's reaction (Bjelmrot, 2007)

Decision response (Reilly, 1993). Response need to be coordinated not dysfunctional as it tends to be in a crisis situation to be able to respond correctly.

Intervening (Chong, 2004). To act on the early warning signals when they are so clear that it is not possible to be inactive.

INTERNAL COMMUNICATION

During crisis, and under normal conditions, the communications between different persons and parts of the organisation will give possibilities to act quicker than otherwise.

Internal communication is a part of CM.

Product importance in own company (Bjelmrot, 2007). As losses depends on which product that is hit (Bjelmrot, 2007) it is important for management to keep track of which products are the most valuable in the company. This information is an integral part of decision making during crisis and hence important part of internal information during crisis management.

Visibility (Peck et al., 2003). Peck et al. (2003) introduces supply chain visibility as a way to keep all members of the supply chain aware of how they combine the chain and thus make it possible to reduce inventories and thus reduce non-value adding time in the chain and thus increase flexibility in the chain. To achieve visibility an information flow between all parts of the chain is vital. That makes visibility a part of the information flow.

Internal information flow (Reilly, 1993).

Develop messages to internal audiences (Umansky, 1993)

Tracking research (Birch, 1994). To act on real information and not the media's view of the matter is important for good management.



Allow the adequate processing of information (Quarantelli, 1998). Problems in communications between parts of the organisation.

Have a well functioning emergency operations centre (Quarantelli, 1998).

Reporting requirements (Holloway, 1995).

EXTERNAL COMMUNICATION

During a crisis stakeholders may want information from the company. Media will be one important stakeholder but there are others that want information. If not the company will direct communication towards all stakeholders the media will reach those who have not had other information.

External communication is a part of CM.

Frequent and active communication during the disruption (Sheffi & Rice, 2005).

Media handling (Bjelmrot, 2007).

Communications with stakeholders (Schmidt, 2007).

Communicate with your stakeholders (Hanson, 2007).

External information flow (Reilly, 1993).

Develop messages to external audiences (Umansky, 1993).

Seeking the facts as quickly as possible (Birch, 1994) Birch focus is on quickly detect the facts so that a crisis can be affirmed or denied in case of a copycat crisis.

Provide the mass communication system with appropriate information (Quarantelli, 1998).

Reporting requirements (Holloway, 1995).

CRISIS MANAGEMENT TEAM

To properly organise the solution of a crisis there will be a need for coordination. To achieve coordination a team may be needed. It can consist of the persons which are normally in charge, in resemblance with the likeness principle, or of others.

A CM team is a necessity for an organised handling of events. Thus, this factor is considered CM.

Pick experienced group (Flessas, 2004).

Organise an internal team (Berman, 2002).

Formulating capable and dependable crisis management team (Wade, 2004).

Including backup people (Wade, 2004).



Resource mobilisation and implementation (Reilly, 1993). Since resource mobilisation and implementation is focused towards using the resources correct this needs to be organised in a decision process.

Recognise the difference between agent and response generated needs and demands (Quarantelli, 1998). There is a difference between the needs and demands from the event and the response. There are additional needs and demands exclusively for the response.

Mobilise personnel and resources in an effective manner (Quarantelli, 1998).

Blend emergent aspects with established ones (Quarantelli, 1998). If individuals or groups show up and can offer help in a crisis situation they should be considered even though they were not part of the original plan. Sometimes they are useful and sometime they are not but consideration should be made.

DECISION MAKING

To have a decision making which works during crisis will make things happen. In the literature the tactic diverge a bit between recommendations which involve command and control and those which involve more decisions in lower levels of the organisation.

Decision making during crisis will contribute to organised handling of the crisis. This makes it part of CM.

Chain of command (Holloway, 1995).

Clear command structure (Flessas, 2004).

Create management and communications systems and procedures (Umansky, 1993). Umansky means that it is important to know who decides and how to communicate so that these not need to be fixed in time of crises.

Be based upon emergent resource coordination and not a command and control model (Quarantelli, 1998).

Involve proper task delegation and division of labour (Quarantelli, 1998).

Permit the proper exercise of decision making (Quarantelli, 1998).

Focus on the development of overall coordination (Quarantelli, 1998). No command and control can control large events effectively. Smaller groups which can decide are necessary to evolve effectively.

CRISIS OPERATIONS CENTRE

In a crisis situation there might be a need of specific resources and infrastructure. This is best organised at a certain location so that the crisis can be led from this location.

As one centralised location where the crisis is handled from will be a part of organised handling of events this will be a factor of CM.

Have a well functioning emergency operations centre (Quarantelli, 1998).



DEMAND LOWERING

To lower demand will mean that customers will not be as interested in purchasing the product. If a company produces several products, this can lead to increased demand in products which can have high supply while products with low supply may get lower demand.

Demand lowering can be seen as an attempt to make organised handling of events possible which puts this factor in CM.

Dynamic pricing (Tang, 2006).

Change in the assortment (Tang, 2006).

Change display (Tang, 2006).

BUSINESS RECOVERY

BR is the part of BCM which concerns service to customers, alternative production, restoration of processes and SCM (Nilsson, 2008).

DEBRIEFING

In the aftermath of a crisis it may be good to debrief those who were involved in the solution of crisis. Some may have experienced scenarios which led to them feeling guilt or deep sorrow which they could not manage during the crisis but may come back to them later. If this is not treated it is possible that the business will not recover due to key members being unfit to continue their work.

A debriefing may be the final step towards restoring processes which makes this part of BR.

Psychology (Hanson, 2007). Since time is of shortage during crisis a debriefing of individuals who were part of a crisis may be necessary to fully recover them from the incident.

REDUNDANCY

To be redundant is to have back-ups so that the production of materials or services may continue during a crisis. It is especially important for key equipment, or key suppliers, so that a small accident not will cripple a company. In a crisis situation there may be resources available which are not considered a part of the plan to solve the situation. It is important to not miss those resources when handling a crisis.

Redundancy will help restore processes by alternative production which makes it part of BR.

Shared processes (Sheffi & Rice, 2005).

Back-up suppliers (Tang, 2006).

Redundant infrastructure (Flessas, 2004).

Critical resources (Rozek & Groth, 2008).

Temporary work space (Hanson, 2007).



Sandbagging (Chong, 2004) Chong refers to putting all members on full alert and that all back-up resources, including personal and equipment, must be mobilised and placed in stand-by. This can be seen as the initial step to start business recovery.

Formulating memoranda of understanding and mutual aid agreements (Quarantelli, 1998). To be able to use others' resources to recover from a crisis may be useful.

IMAGE

The image is the cornerstone of every brand. In case opportunities to increase the image evolve during a crisis these should be taken.

As this is a part of service to customers this factor will be considered BR.

Help customers to find new supply (Sheffi & Rice, 2005).

OTHERS

Regularly control databases so that an awareness of which information media will have exists in the company (Birch, 1994). Intelligence work to keep updates on which information media will have.

Use the best social science knowledge possible and not myths and misconceptions (Quarantelli, 1998). This will always be important no matter what step that is prepared.



Table 6. The lens

Expression	Factor/Ability	Hits	Sources
INDIRECT BCM			
Examine the five systems that govern an organisation	Understanding the organisation	I	Mitroff, 2001
Corporate culture, Avoid using meetings as a means to assign blame but rather concentrate on improving signal detection	Corporate culture	II	Sheffi & Rice, 2005; Mitroff, 2001
Programme driven by senior management; Risk awareness among top managers	Management Support	II	Rozek & Groth, 2008; Peck et al., 2003
Establish contacts with your infrastructure providers; Stakeholder relations; Build up a buffer of goodwill; Build relations with opportunistic politicians	External Relations	IV	Wade, 2004; Mitroff, 2001; Birch 1994 ²
Relationships with all departments; Stakeholder relations; Meetings for sharing information; Establishing informal linkages between involved groups; CMTs should meet at least once a month	Internal Relations	V	Hanson, 2007; Mitroff, 2001; Quarantelli, 1998 ² ; Wade, 2004
Quick disruption detection; Sensitive control system; Supply Chain cooperation (information); Automated surveillance equipment; Set up mechanisms to detect early warning signs; Problem sensing; Sensing	Quick detection	VII	Craighead et al., 2007; Sheffi & Rice, 2005; Tang, 2006; Flessas, 2004; Mitroff, 2001; Reilly, 1993; Chong, 2004
Flexible & open-minded people; Flexible schedules; Carry out generic functions in an adequate way	Adaptability	III	Wade, 2004; Hanson, 2007; Quarantelli, 1998
Accepting that crisis can occur; Identify the defense mechanisms for denial; Recognise that disasters are both quantitatively and qualitatively different from minor emergencies and everyday crises	Acceptance	III	Mitroff, 2005; Mitroff, 2001; Quarantelli, 1998
DIRECT BCM			
BCM programme	BCM programme	I	Gibb & Buchanan, 2006
Involve lawyers in the process	Liability	I	Birch, 1994
Creative thinking to consider types of crisis; Identify corporate vulnerabilities; Thinking of and communicating about future dangers and hazards; Be based on what is likely to happen; Strive to evoke appropriate actions by anticipating likely problems and solutions or options	Risk identification	V	Mitroff, 2001; Umansky, 1993; Quarantelli, 1998 ³

Expression	Factor/Ability	Hits	Sources
Risk analysis; Business impact analysis; Monitor potential, emerging and current issues; Analyse the risks your own operations pose; Mapping and critical path analysis; Generate maps to understand how a crisis develops; Consider the impact of a crisis on other categories	Risk analysis	VI	Gibb & Buchanan, 2006; Cerullo & Cerullo, 2004; Umansky, 1993; Peck et al. 2003; Mitroff, 2001 ²
Integrate crisis management with other programs; Be vertically and horizontally integrated; Be generic rather than agent specific; Risk awareness as an integrated part of supply chain management; All vendors are required to participate Focus on general principles and not specific details.	Holistic View	VI	Mitroff, 2001; Quarantelli, 1998 ³ ; Peck et al., 2003; Rozek & Groth, 2008
Development of plan to mitigate or reduce impact; Plan for the worst; Create a CM model; Have a business continuity plan to keep critical business functions; Develop an ERP; Plan for how organisation can continue operations; An evacuation and relocation plan; Create a crisis portfolio; Coping; Build scenarios against which to plan; Collate reference material and procedures manuals; Drawing up organisational disaster plans and integrating them with overall community mass emergency plans.	Plans	XII	Cerullo & Cerullo, 2004; Berman, 2002 ² ; Schmidt, 2007; Brown, 1995; Hanson, 2007 ² ; Mitroff, 2001; Chong, 2004; Umansky, 2003 ² ; Quarantelli, 1998
Administrative details; Roles and responsibilities; Every department needs to be responsible for carrying out their CMP.	Clear responsibilities	III	Holloway, 1995 ² ; Hanson, 2007
Implementation; Implementation of CRP, Plan coordination; Developing techniques for training, knowledge transfer and assessments.	Implementation	IV	Gibb & Buchanan, 2006; Hanson, 2007; Brown, 1995; Quarantelli, 1998
Education & Training; Train employees; Train People Who will be in charge ICOAE; Exercises & Drills; Educating employees; Rehearsed ERP; Train spokespeople and media managers; Holding disaster drills, rehearsals and simulations; Educating citizens and others involved in the planning process; Undertaking public education activities; Training requirements; Employee training.	Training & education	XII	Gibb & Buchanan, 2006; Cerullo & Cerullo, 2004; Schmidt, 2007 ² ; Wade, 2004; Hanson, 2007; Umansky, 1993; Quarantelli, 1998 ³ ; Holloway, 1995; Brown, 1995
Testing; Test the plan; Test the plan; Test, test, test!; Test and validate; Testing and evaluating response.	Testing	VI	Gibb & Buchanan, 2006; Thomas, 2006; Cerullo & Cerullo, 2004; Berman, 2002; Umansky, 1993; Brown, 1995
Review; Keep the plan evolving; Make sure the plans are easy to maintain; Re-examine planning; Each time a CRP is used, a new plan needs to be developed; Learning from and redesigning; Conduct post mortems of crises & near misses; Rethinking; Initiating; Continually updating obsolete materials/strategies; Plan revision; Look for patterns and interconnections in past crises; A step towards improvement of own plans; Determine how crises can develop from the five systems, and how you can reduce errors.	Review	XIII	Gibb & Buchanan, 2006; Thomas, 2006; Berman 2002 ² ; Hanson, 2007; Mitroff, 2001 ⁴ ; Chong, 2004 ² ; Quarantelli, 1998; Holloway, 1995

Expression	Factor/Ability	Hits	Sources
Corporate policy statement.	Corporate policy statement	I	Holloway, 1995
Clearly defined corporate recovery objectives.	Business recovery objectives	I	Berman, 2002
EMERGENCY RESPONSE			
Communication networks; List of emergency phone numbers.	Alert system	II	Holloway, 1995; Brown, 1995
Response procedures; Plot plan; Material safety data sheets; Set up damage containment mechanisms.	Response procedures	IV	Holloway, 1995; Brown, 1995 ² ; Mitroff, 2001
Evacuation procedures; Evacuation plans	Evacuation procedures	II	Holloway, 1995; Brown, 1995
Emergency response and personal protection equipment, Available equipment, Obtaining, positioning and maintaining relevant material resources.	Emergency response and personal protection equipment	III	Holloway, 1995; Brown, 1995; Quarantelli, 1998
CRISIS MANAGEMENT			
Implementing common sense initiatives, make emergency processes part of everyday culture.	Likeness principle	I	Wade, 2004
Velocity/Acceleration; Quick response; Management's reaction; Decision response; Intervening.	Quick response	V	Peck et al., 2003; Craighead et al., 2007; Bjelmrot, 2007; Reilly, 1993; Chong, 2004
Product importance; Visibility; Internal information flow; Develop messages to internal audiences; Tracking research; Allow the adequate processing of information; Have a well functioning emergency operations centre; Reporting requirements.	Internal communication	VIII	Bjelmrot, 2007; Peck et al., 2003; Reilly, 1993; Umansky, 1993; Birch, 1994; Quarantelli, 1998 ² ; Holloway, 1995
Frequent and active communication during the disruption; Media handling; Communications with important stakeholders; Communication with your stakeholders; External information flow; Develop messages to external audiences; Seeking the facts as quickly as possible; Provide the mass communication system with appropriate information; Reporting requirements.	External communication	IX	Sheffi & Rice, 2005; Bjelmrot, 2007; Schmidt, 2007; Hanson, 2007; Reilly, 1993; Umansky, 1993; Birch, 1994; Quarantelli, 1998; Holloway, 1995
Pick experienced group; Organise an internal team; Formulating capable & dependable CMTs; Back-up people; Resource mobilisation and implementation; Recognise correctly the difference between agent and response generated needs and demands; Mobilise personnel and resources in an effective manner; Blend emergent aspects with established ones.	CM Team	VIII	Flessas, 2004; Berman, 2002; Wade, 2004 ² ; Reilly, 1993; Quarantelli, 1998 ³

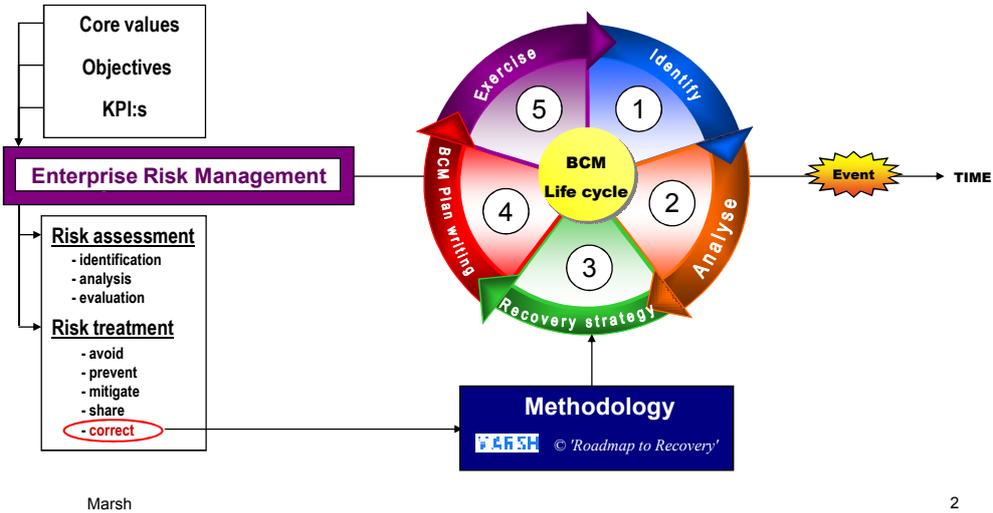
Expression	Factor/Ability	Hits	Sources
Clear command structure; Create management and communications systems and procedures; Be based upon emergent resource coordination and not a command and control model; Involve proper task delegation and division of labour; Permit the proper exercise of decision making; Focus in the development of overall coordination.	Decision making	VI	Flessas, 2004; Umansky, 1993; Quarantelli, 1998 ⁴
Have a well functioning emergency operations centre.	Crisis operations centre	I	Quarantelli, 1998
Dynamic Pricing; Change the assortment; Change display.	Demand lowering	III	Tang, 2006
BUSINESS RECOVERY			
Psychology.	Debriefing	I	Hanson, 2007
Shared processes; Back-up suppliers; Redundant infrastructure; Critical Resources (electricity, water); Temporary workspace; Sandbagging; Formulating memoranda of understanding and mutual aid agreements.	Redundancy	VII	Sheffi & Rice, 2005; Tang, 2006; Flessas, 2004; Rozek & Groth, 2008; Hanson, 2007; Chong, 2004; Quarantelli, 1998
Help to find new supply (Even competitors).	Image	I	Sheffi & Rice, 2005
OTHERS			
Regularly control databases so that an awareness of which information media will have exists.	Database control	I	Birch, 1994
Use the best social science knowledge possible and not myths and misconceptions.	Knowledge	I	Quarantelli, 1998

C. MARSH PRESENTATION

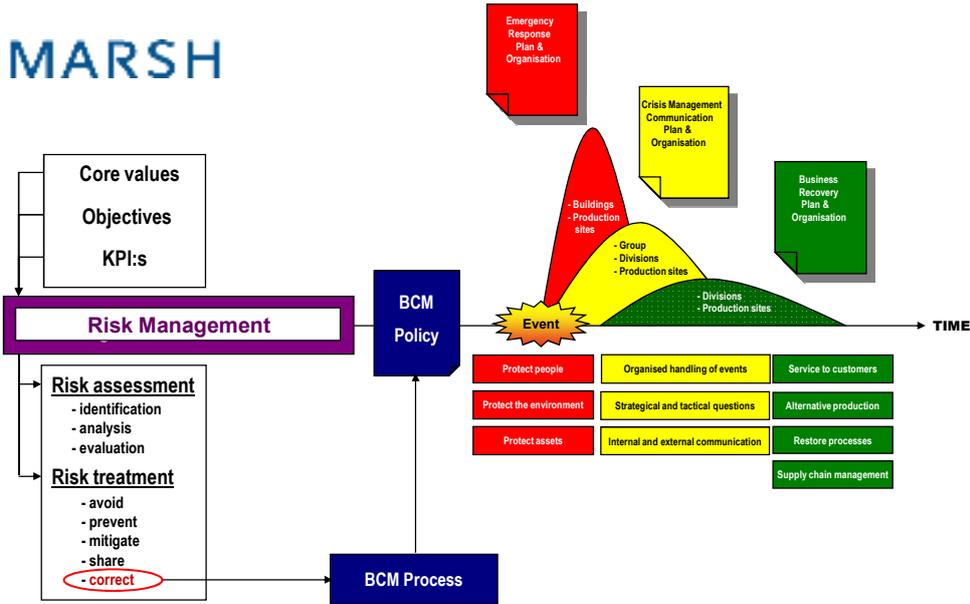
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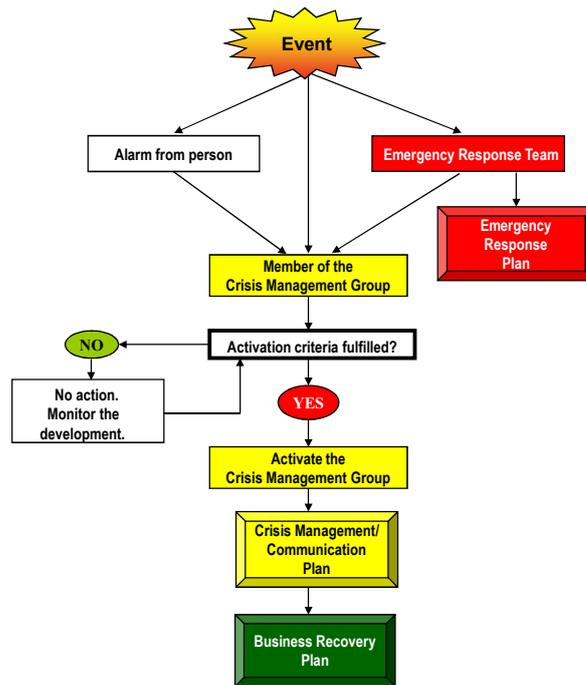
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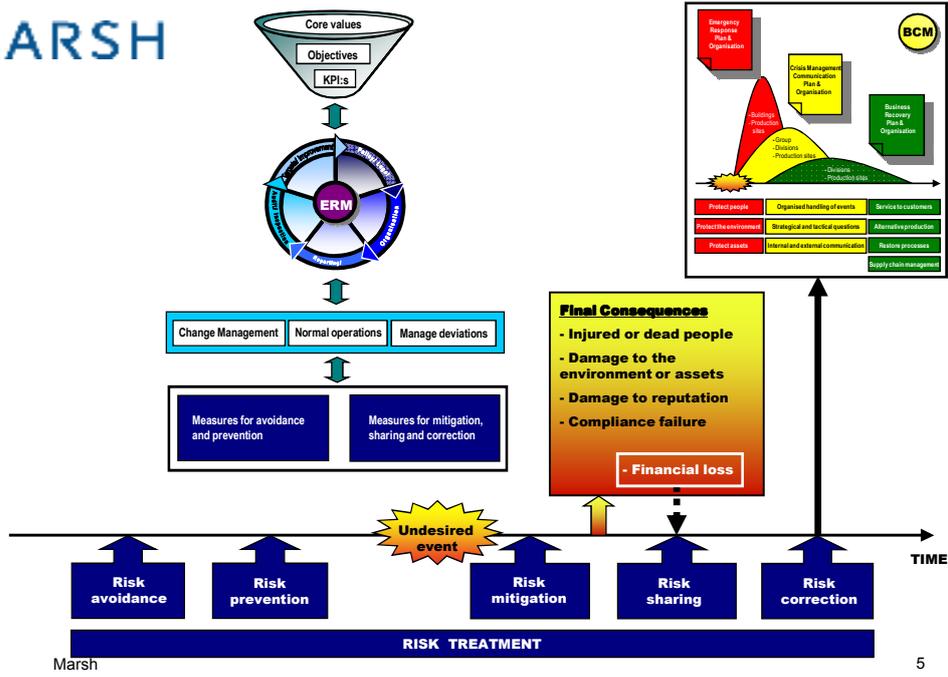
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D. COMPLETE LIST OF DOCUMENTED CASES

Colour	Reason for exclusion
	Natural catastrophes
	Wrong year
	No supply-chain disruption
	Involves a multitude of companies

Case	Year	Major market players
Blizzard made 1191 flights unable to leave during a week	2007	Jetblue
Refinery explosion led to 15 deaths and more than 170 injured	2005	BP
Around 100 port workers went on strike on ILWA initiative	2002	Several
Blizzard made power outages in North-eastern and Midwestern USA	2003	Several
Landing gear problems on Dash 8 Q400 aircraft resulted in several incidents	2007	SAS
Storm inflicted power outages in southern part of Sweden	2005	Sydkraft
Tires on SUV where blamed for accidents which led to product recall	2000	Bridgestone/Firestone
Concorde flight AF4590 crashed which led 109 death	2000	Air France
A tsunami swept in over south eastern Asia killing over 225,000 people in 11 countries	2004	Several
Japanese Financial Services ordered Citibank to close its private banking offices in Japan	2004	Citibank Japan
Space shuttle crash, all 7 crew dead, held up space program	1986	NASA
Oil platform Piper Alpha was destroyed due to explosion	1988	Occidental Oil
Train collision in Paddington led to 30 deaths and 160 injured	1999	Railtrack
Lost customers due to lack of development, today, the company has regained profits	1998-2001	Marks & Spencer
Cyanide in the pain killer pill Tylenol led to 7 deaths	1982	Johnson & Johnson
Benzene in bottled water was dismissed in France as no problem. Later all bottles were recalled	1990	Perrier

Case	Year	Major market players
230 schoolchildren in Belgium and 80 in France became ill after drinking Coca-Cola products	1999	Coca-Cola
Purified water bottle (Coca-Cola UK Dasani) recall after exceeding health limits	2004	Coca-Cola
Oil tanker Exxon Valdez leaked oil outside Alaska coast	1989	Exxon
Oil tanker Braer leaked 84,000 tonnes of crude oil outside Shetland Islands	1993	
Oil tanker Sea Empress leaked outside Wales coast	1996	
95 Liverpool supporters died as they were crushed when more supporters entered the arena	1989	
Coach crash in South Africa led to 26 deaths	1999	Thomas Cook Holidays
Coach crash in Austria led to 6 deaths	2004	Ingham
The passenger ship Herald of free enterprise sank as a result of the bow visor not being closed	1987	P/O
Oil tanker Erika broke into two parts and leaked 14000 tons of heavy fuel oil	1999	TotalFina
Danish paper Jyllandsposten published caricatures of Mohammed which led to boycott of Arla dairy products in the Middle East	2007	Arla Foods
Car producing lines had to be halted as steel needed for production was missing.	2004	Nissan
The slammer virus hits internet	2003	Several
Mad cow disease (BSE) in UK	1996	Meat industry
Child labour were found producing Nike footballs	1995	Nike
Cloths produced by child labour	1995	Global Fashion (Kathie Lee Gifford)
Investment meltdown led to loss of around \$1.5 billion and county bankruptcy	1994	Orange County
Valujet flight 592 crash in Everglades, Florida, killing all 105 passengers and 3 attendants. This led to a destroyed credibility for low price airline Valujet	1996	Valujet
Columbine high school massacre. 2 students killed 12 other students and one teacher while wounding 23 others before committing suicide.	1999	
TWA Flight 800 exploded in midair just after takeoff from JFK airport. All passengers and crew died.	1996	TWA
Swiss Air 100 hijacked by Popular Front for the Liberation of Palestine. The plane was rerouted and later blown up. No passengers were in the planes then.	1970	Swiss Air

Case	Year	Major market players
President Clinton's impeachment	1998-99	
Explosion in chemical plant in Bhopal	1984	Union Carbide
Nuclear disaster on Three Mile Island	1979	
Stop Huntingdon Animal Cruelty started to harass a company's employees and stakeholders so it almost bankrupted.	2001	Huntingdon Life Science
Reports that phthalates (used in toys) could be dangerous to consume	1990s	Toy industry
Doctor indicated that MMR vaccine could be connected with bowel disorder and autism	1988	
UK Newspaper published warning for radiation from mobile phones	1996	Mobile phone industry
British Medical Association issued warning not to use Norplant as contraception despite no real evidence it was bad	1995-96	Wyeth-Ayerst Laboratories
Anti Gene Modified foods campaign throughout Europe led the food industry towards no GM food policies	1999	Monsanto, food industry
Reports that third generation contraception pills were source of thrombosis	1990s	Producers and retailers of third generation pills
Nanotechnology meet the same scepticism as GM food and cellular phones	2000	Nano industry
A bug in the Pentium chip calculation ability was found by prof Thomas Nicely	1994	Intel
Vote buying during host city decision during Olympics 2004	2004	IOC
Decommissioning of floating storage Brent Spar in the North Sea led to a need to decommission on land thanks to Greenpeace and some European governments	1995	Shell
The Medicines Control Act creates an infected lawsuit between 39 Pharmaceutical companies and the state of South Africa	1998-2001	Pharmaceutical Industry
Finding a suitable replacement for CFC in asthma inhalers when CFC:s were banned from all other equipment	1980-1990	Pharmaceutical Industry
Fire in semi conductor factory in Albuquerque led to supply chain disruption in mobile phone manufacturing	2000	Nokia/Ericsson
Acryl amide in crisps were reported	2002	Estrella
Earthquake in Kobe, Japan, resulted in, among other things, car production loss	1995	Several, Toyota

Case	Year	Major market players
Accounting fraud led to bankruptcy of Enron which drew accounting company Arthur Anderson out of accounting	2001	Enron, Arthur Andersen
9/11 Attacks	2001	Several

E. COMPANY VALIDATION

The draft information leaflet and the results from the draft BCM Evaluation Model sent to Cardo for validation is found below.

THE BCM EVALUATION MODEL – INFORMATION LEAFLET

The aim of this leaflet is to act as a guide when conducting The BCM Evaluation Model. Before answering the questions, for the best results, please take your time and read through the definitions. Should there be any unclarities in the model, explanations can be found under each question respectively. These explanatory notes will show up in the excel model when holding the mouse pointer over the cells with a small red triangle in the top right corner.

DEFINITIONS

BUSINESS CONTINUITY MANAGEMENT (BCM)

“A holistic management process that identifies potential threats to an organisation and the impacts to business operations that those threats, if realised, might cause, and which provides a framework for building organisational resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities” (British Standards, 2008a).

EMERGENCY RESPONSE (ER)

Actions taken to protect people, the environment and assets (Nilsson, 2008).

CRISIS MANAGEMENT (CM)

Organised handling of events, strategic & tactical questions and internal & external communication (Nilsson, 2008).

BUSINESS RECOVERY (BR)

Service to customers, alternative production, restore processes and supply chain management (Nilsson, 2008).

DIRECT BCM

Direct BCM is the planning for ER, CM & BR.

INDIRECT BCM

Indirect BCM means that the factor influences the outcome of BCM without being a plan for the execution of ER, CM & BR.

SUPPLY CHAIN

“Life cycle processes supporting physical, information, financial

and knowledge flows for moving products and services from suppliers to end users” (Ayers, 2000, p. 6).

RISK

“An uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of objectives” (APM PRAM Guide, 2006).

CRISIS

“A situation which is harmful and disruptive, is of high magnitude, is sudden, acute and demands a timely response and is outside the firm’s typical operating frameworks” (Reilly, 1993, p. 116).

HOW DID YOU MEASURE UP?

The answers are translated into 1 for yes, -1 for no and 0 for not applicable. All answers are then

summarised in each group respectively (direct BCM, ER, CM, BR and indirect BCM) to get the result for that group.

EXPLANATORY NOTES

DIRECT BCM

1. A running BCM programme does not have to be named "BCM programme" i.e. it could be any programme with objectives coinciding with the objectives of BCM (see BCM definition). *BCM Programme*

2. Are directives sent out from management? Does management show interest in BCM measures? Management support; *Acceptance*

3. *Clear responsibilities; implementation*

4. E. g. Incident reporting system, risk management meetings, What if analysis, external experts. *Risk Identification*

5. See supply chain definition. *Holistic view*

6. Either in a quantitative or qualitative analysis. *Risk analysis*

EMERGENCY RESPONSE

7. A plan for protecting people, the environment and assets. *Plan*

8. *Review*

9. People who have been assigned the responsibility for evacuation and protection of the environment & assets. *Emergency response procedures; Clear responsibilities*

10. E.g. Evacuation drills, first aid courses, training in the use of fire extinguishing equipment etc. *Training and education; Testing*

11. Equipment required from the emergency response plan. *Emergency response equipment*

12. E. g. The emergency service (fire department), maintenance personnel etc. *Alert System*

13. a. E. g. Fire alarm, gas alarm, radiation alarm etc. *Evacuation Procedures*

13. B. An evacuation plan is the physical plan which show escape routes, floor plans etc. *Evacuation Procedures*

14. *Training and education*

CRISIS MANAGEMENT

15. A plan for organised handling of events, strategic & tactical questions and internal & external communication. *Plan*

16. *Review*

17. People on management level which in a crisis situation are responsible for organised handling of events, strategic & tactical questions and internal & external communication. *Crisis management team; Clear responsibilities*

18. E. g. Role playing crisis scenarios, case studies etc. *Training and education; Testing*

19. *Decision making*

20. *Quick response*

21. *Internal communication; Clear responsibilities*

22. E. g. Evacuate in case of emergency, inform other personnel. *Quick response; Clear responsibilities*

23. *External communication; Training and education*

24. E. g. Person responsible for the company's website and person responsible for press releases. *External communication*

25. *Crisis operations centre*

BUSINESS RECOVERY

26. A plan for how to provide service to customers, available alternative production,

restoration of processes and supply chain management in a crisis situation. *Plan*

27. Review

28. A team which in a crisis situation is responsible for service to customers, available alternative production, restore processes and supply chain management. *Crisis management team; Clear responsibilities*

29. E. g. Role playing crisis scenarios, case studies etc. *Training and education; Testing*

30. Quality: validated so the spare capacity can produce the same quality as normal production/services. *Redundancy*

INDIRECT BCM

31. E. g. Incident reporting sheets freely available to all employees, safety meetings etc. *Corporate culture*

32. Risk awareness can be achieved by e. g. communicating risks to all employees. *Management support*

33. Risk awareness can be achieved by e. g. communicating risks to all employees. *Training and education; Corporate culture; Quick detection*

34. a. Cooperation with suppliers (e. g. research projects), image improving activities & customer service. *External relations*

34. b. E. g. sharing information. *External relations*

34. c. E. g. Providing a good working environment, team building events, cooperation between departments, encourage incident reporting. *Internal relations*

35. Systems that alarms e. g. if supplies are late, deficient or in case of machinery malfunction or communication systems to continuously share information

between departments. *Quick detection*

36. E. g. Creative thinking and thinking “outside the box” in a crisis situation. *Adaptability*

The answers from the six affiliates were as follows:

AFFILIATE 1

The BCM Evaluation Model **Yes** **No** **N/A**

Thank you for participating in this study! This model is still in its developing stages and therefore we would be happy to find your comments should there be any unclarities or ambiguities. Before answering the questions, please read the information leaflet sent to you together with this model. Again, thank you for your time!

Direct BCM **Yes** **No** **N/A**

- | | | |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----|
| 1. Do you have a running BCM programme? (If No → 4.) | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
| 2. Is the BCM programme supported by management? | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
| 3. Is there an assigned person responsible for the organisation and implementation of the BCM programme? | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
| 4. Do you have recurring risk and vulnerability identification procedures? | <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> | -1 |
| 5. Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers? | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
| 6. Do you analyse risks and vulnerabilities regarding: | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
| a. - probability? | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
| b. - consequence? | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |

Σ Direct BCM 5

Emergency response **Yes** **No** **N/A**

- | | | |
|--------------------------------------------------------------------|------------------------------------------------------------------------------|---|
| 7. Does your company have an emergency response plan? (If No → 9.) | <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> | 1 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------|---|



- 8. Is the emergency response plan being reviewed regularly to make sure it is up to date? -1
- 9. Is there a team with clear roles and responsibilities for the emergency response? (If No → 11.) 1
- 10. Do you run regular drills to train and educate the emergency response team where the emergency response plan is tested? -1
- 11. Are there emergency equipment freely available to enable an effective emergency response? 1
- 12. Is there a distributed up to date list with contact details to available internal and external emergency resources? 1
- 13. Are there up to date evacuation procedures including:
 - a. - regularly maintained evacuation alarm systems installed in all buildings? 1
 - b. - free escape routes and evacuation plans? 1
- 14. Do you run regular evacuation drills to train and educate employees on evacuation procedures? 1

Σ Emergency response 5

Crisis management	Yes	No	N/A	
15. Does your company have a crisis management plan? (If No → 17.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
16. Is the crisis management plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1



17. Is there a team with clear roles and responsibilities for crisis management? (If No → 21.) -1
18. Do you run regular drills to train and educate the crisis management team where the crisis management plan is tested? -1
19. Is there a clear decision making process within the CMT? -1
20. Are there clear prerequisites on when to initiate the crisis management team? -1
21. Are all personnel aware of what type of incidents to inform superiors about and when to do so? 1
22. Are all personnel aware of what actions to take in case of an undesired event? 0
23. Is there a person responsible for external communication through media and has this person undergone media training? -1
24. In a crisis situation, are means of communication available to communicate through e. g. website? 1
25. Is there a room, situated off site, which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.? -1

Σ Crisis management

-6

Business recovery

Yes No N/A

26. Does your company have a business recovery plan? (If No → 28.) 1



- 27. Is the business recovery plan being reviewed regularly to make sure it is up to date? 1
- 28. Is there a team with clear roles and responsibilities for business recovery? (If No → 30.) 1
- 29. Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested? 0
- 30. In your company, are there forms of redundancy i.e.:
 - a. - spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality? 1
 - b. - backup suppliers & shared processes and are they validated regarding quality and capacity? 1

Σ Business recovery 5

Indirect BCM	Yes	No	N/A	
31. Are there well implemented incident reporting procedures?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
32. Does management encourage incident reporting and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
33. Do employees undergo annual education regarding safety, security and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
34. Does your company build relationships:				
a. - with suppliers, customers and other stakeholders?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
b. - with media?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
c. - between employees and departments?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1



35. Are there automated systems installed for quick detection of a supply chain disruption and/or machinery malfunction? 0
36. Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation? 1

Σ Indirect BCM **5**

How did you measure up?

	Min	Score	Max
Direct BCM	-7	5	7
Emergency response	-9	5	9
Crisis management	-10	-6	10
Business recovery	-5	5	5
Indirect BCM	-7	5	7
Overall	-38	14	38

Comment on question 15. Not sure exactly what is meant by Crisis Management

AFFILIATE 2

Direct BCM	Yes	No	N/A	
1. Do you have a running BCM programme? (If No → 4.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
2. Is the BCM programme supported by management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
3. Is there an assigned person responsible for the organisation and implementation of the BCM programme?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1



- 4. Do you have recurring risk and vulnerability identification procedures? Yes No N/A 1
- 5. Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers? Yes No N/A 0
- 6. Do you analyse risks and vulnerabilities regarding:
 - a. - probability? Yes No N/A -1
 - b. - consequence? Yes No N/A -1

Σ Direct BCM -4

Emergency response	Yes	No	N/A	
7. Does your company have an emergency response plan? (If No → 9.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
8. Is the emergency response plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
9. Is there a team with clear roles and responsibilities for the emergency response? (If No → 11.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
10. Do you run regular drills to train and educate the emergency response team where the emergency response plan is tested?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
11. Are there emergency equipment freely available to enable an effective emergency response?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
12. Is there a distributed up to date list with contact details to available internal and external emergency resources?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
13. Are there up to date evacuation procedures including: <ul style="list-style-type: none"> a. - regularly maintained evacuation alarm systems installed in all buildings? 	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1



b. - free escape routes and evacuation plans?	<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>		1
14. Do you run regular evacuation drills to train and educate employees on evacuation procedures?	<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>		1
Σ Emergency response			3

Crisis management	Yes	No	N/A	
15. Does your company have a crisis management plan? (If No → 17.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
16. Is the crisis management plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
17. Is there a team with clear roles and responsibilities for crisis management? (If No → 21.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
18. Do you run regular drills to train and educate the crisis management team where the crisis management plan is tested?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
19. Is there a clear decision making process within the CMT?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
20. Are there clear prerequisites on when to initiate the crisis management team?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
21. Are all personnel aware of what type of incidents to inform superiors about and when to do so?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
22. Are all personnel aware of what actions to take in case of an undesired event?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1



23. Is there a person responsible for external communication through media and has this person undergone media training? -1
24. In a crisis situation, are means of communication available to communicate through e. g. website? -1
25. Is there a room, situated off site, which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.? -1

Σ Crisis management **-7**

Business recovery **Yes** **No** **N/A**

26. Does your company have a business recovery plan? (If No → 28.) 1
27. Is the business recovery plan being reviewed regularly to make sure it is up to date? 1
28. Is there a team with clear roles and responsibilities for business recovery? (If No → 30.) 1
29. Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested? -1
30. In your company, are there forms of redundancy i.e.:
- a. - spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality? -1
- b. - backup suppliers & shared processes and are they validated regarding quality and capacity? 1

Σ Business recovery **2**



Indirect BCM		Yes	No	N/A	
31.	Are there well implemented incident reporting procedures?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
32.	Does management encourage incident reporting and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
33.	Do employees undergo annual education regarding safety, security and risk awareness?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
34.	Does your company build relationships:				
a.	- with suppliers, customers and other stakeholders?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
b.	- with media?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
c.	- between employees and departments?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
35.	Are there automated systems installed for quick detection of a supply chain disruption and/or machinery malfunction?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	0
36.	Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
Σ Indirect BCM					1

How did you measure up?

	Min	Score	Max
Direct BCM	-6	-4	6
Emergency response	-9	3	9
Crisis management	-11	-7	11
Business recovery	-6	2	6



Indirect BCM	-7	1	7
Overall	-39	-5	39



AFFILIATE 3

Direct BCM		Yes	No	N/A	
1.	Do you have a running BCM programme? (If No → 4.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
2.	Is the BCM programme supported by management?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
3.	Is there an assigned person responsible for the organisation and implementation of the BCM programme?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
4.	Do you have recurring risk and vulnerability identification procedures?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
5.	Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
6.	Do you analyse risks and vulnerabilities regarding:	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
a.	- probability?				1
b.	- consequence?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
Σ Direct BCM					5
Emergency response		Yes	No	N/A	
7.	Does your company have an emergency response plan? (If No → 9.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
8.	Is the emergency response plan being reviewed regularly to make sure it is up to date?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
9.	Is there a team with clear roles and responsibilities for the emergency response? (If No → 11.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
10.	Do you run regular drills to train and educate the emergency response team where the emergency response plan is tested?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1

- 11. Are there emergency equipment freely available to enable an effective emergency response? Yes No N/A 1
- 12. Is there a distributed up to date list with contact details to available internal and external emergency resources? Yes No N/A 1
- 13. Are there up to date evacuation procedures including:
 - a. - regularly maintained evacuation alarm systems installed in all buildings? Yes No N/A 1
 - b. - free escape routes and evacuation plans? Yes No N/A 1
- 14. Do you run regular evacuation drills to train and educate employees on evacuation procedures? Yes No N/A -1

Σ Emergency response

5

Crisis management		Yes	No	N/A	
15.	Does your company have a crisis management plan? (If No → 17.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
16.	Is the crisis management plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
17.	Is there a team with clear roles and responsibilities for crisis management? (If No → 21.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
18.	Do you run regular drills to train and educate the crisis management team where the crisis management plan is tested?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
19.	Is there a clear decision making process within the CMT?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
20.	Are there clear prerequisites on when to initiate the crisis management team?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1



- 21. Are all personnel aware of what type of incidents to inform superiors about and when to do so? -1
- 22. Are all personnel aware of what actions to take in case of an undesired event? -1
- 23. Is there a person responsible for external communication through media and has this person undergone media training? 1
- 24. In a crisis situation, are means of communication available to communicate through e. g. website? 1
- 25. Is there a room, situated off site, which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.? -1

Σ Crisis management -3

Business recovery	Yes	No	N/A	
--------------------------	------------	-----------	------------	--

- 26. Does your company have a business recovery plan? (If No → 28.) 1
- 27. Is the business recovery plan being reviewed regularly to make sure it is up to date? 1
- 28. Is there a team with clear roles and responsibilities for business recovery? (If No → 30.) 1
- 29. Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested? -1
- 30. In your company, are there forms of



redundancy i.e.:

- a. - spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality? 1
- b. - backup suppliers & shared processes and are they validated regarding quality and capacity? 1

Σ Business recovery 4

Indirect BCM	Yes	No	N/A	
31. Are there well implemented incident reporting procedures?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
32. Does management encourage incident reporting and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
33. Do employees undergo annual education regarding safety, security and risk awareness?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
34. Does your company build relationships:				
a. - with suppliers, customers and other stakeholders?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
b. - with media?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
c. - between employees and departments?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
35. Are there automated systems installed for quick detection of a supply chain disruption and/or machinery malfunction?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
36. Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
				Σ Indirect BCM 4

How did you measure up?



	Min	Score	Max
Direct BCM	-7	5	7
Emergency response	-9	5	9
Crisis management	-11	-3	11
Business recovery	-6	4	6
Indirect BCM	-8	4	8
Overall	-41	15	41

AFFILIATE 4

Direct BCM	Yes	No	N/A	
1. Do you have a running BCM programme? (If No → 4.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
2. Is the BCM programme supported by management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
3. Is there an assigned person responsible for the organisation and implementation of the BCM programme?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
4. Do you have recurring risk and vulnerability identification procedures?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
5. Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
6. Do you analyse risks and vulnerabilities regarding:				
a. - probability?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
b. - consequence?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1



Σ Direct BCM -5

Emergency response		Yes	No	N/A	
7.	Does your company have an emergency response plan? (If No → 9.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
8.	Is the emergency response plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
9.	Is there a team with clear roles and responsibilities for the emergency response? (If No → 11.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
10.	Do you run regular drills to train and educate the emergency response team where the emergency response plan is tested?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
11.	Are there emergency equipment freely available to enable an effective emergency response?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
12.	Is there a distributed up to date list with contact details to available internal and external emergency resources?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
13.	Are there up to date evacuation procedures including:				
a.	- regularly maintained evacuation alarm systems installed in all buildings?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
b.	- free escape routes and evacuation plans?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
14.	Do you run regular evacuation drills to train and educate employees on evacuation procedures?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
					Σ Emergency response -9

Crisis management		Yes	No	N/A	
15.	Does your company have a crisis management plan? (If No → 17.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1



16. Is the crisis management plan being reviewed regularly to make sure it is up to date? -1
17. Is there a team with clear roles and responsibilities for crisis management? (If No → 21.) -1
18. Do you run regular drills to train and educate the crisis management team where the crisis management plan is tested? -1
19. Is there a clear decision making process within the CMT? -1
20. Are there clear prerequisites on when to initiate the crisis management team? -1
21. Are all personnel aware of what type of incidents to inform superiors about and when to do so? -1
22. Are all personnel aware of what actions to take in case of an undesired event? -1
23. Is there a person responsible for external communication through media and has this person undergone media training? -1
24. In a crisis situation, are means of communication available to communicate through e. g. website? -1
25. Is there a room, situated off site, which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.? -1

Business recovery		Yes	No	N/A	
26.	Does your company have a business recovery plan? (If No → 28.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
27.	Is the business recovery plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
28.	Is there a team with clear roles and responsibilities for business recovery? (If No → 30.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
29.	Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
30.	In your company, are there forms of redundancy i.e.:				
a.	- spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
b.	- backup suppliers & shared processes and are they validated regarding quality and capacity?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
Σ Business recovery					-6

Indirect BCM		Yes	No	N/A	
31.	Are there well implemented incident reporting procedures?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
32.	Does management encourage incident reporting and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
33.	Do employees undergo annual education regarding safety, security and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
34.	Does your company build relationships:				
a.	- with suppliers, customers and other	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	



- stakeholders?
- b. - with media? -1
- c. - between employees and departments? -1
35. Are there automated systems installed for quick detection of a supply chain disruption and/or machinery malfunction? 1
36. Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation? -1

Σ Indirect BCM

0

How did you measure up?

	Min	Score	Max
Direct BCM	-7	-5	7
Emergency response	-9	-9	9
Crisis management	-11	-11	11
Business recovery	-6	-6	6
Indirect BCM	-8	0	8
Overall	-41	-31	41

AFFILIATE 5

Direct BCM	Yes	No	N/A	
1. Do you have a running BCM programme? (If No → 4.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
2. Is the BCM programme supported by management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1



3.	Is there an assigned person responsible for the organisation and implementation of the BCM programme?	<input type="radio"/> <input type="radio"/> <input type="radio"/>	-1
4.	Do you have recurring risk and vulnerability identification procedures?	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	-1
5.	Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers?	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	-1
6.	Do you analyse risks and vulnerabilities regarding:	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	-1
a.	- probability?	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	-1
b.	- consequence?	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	-1
Σ Direct BCM			-7

Emergency response		Yes	No	N/A	
7.	Does your company have an emergency response plan? (If No → 9.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
8.	Is the emergency response plan being reviewed regularly to make sure it is up to date?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
9.	Is there a team with clear roles and responsibilities for the emergency response? (If No → 11.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
10.	Do you run regular drills to train and educate the emergency response team where the emergency response plan is tested?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
11.	Are there emergency equipment freely available to enable an effective emergency response?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
12.	Is there a distributed up to date list with contact details to available internal and external emergency resources?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1



13. Are there up to date evacuation procedures including:				
a. - regularly maintained evacuation alarm systems installed in all buildings?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
b. - free escape routes and evacuation plans?				1
14. Do you run regular evacuation drills to train and educate employees on evacuation procedures?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
Σ Emergency response				7

Crisis management	Yes	No	N/A	
15. Does your company have a crisis management plan? (If No → 17.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
16. Is the crisis management plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
17. Is there a team with clear roles and responsibilities for crisis management? (If No → 21.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
18. Do you run regular drills to train and educate the crisis management team where the crisis management plan is tested?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
19. Is there a clear decision making process within the CMT?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
20. Are there clear prerequisites on when to initiate the crisis management team?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
21. Are all personnel aware of what type of incidents to inform superiors about and when to do so?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
22. Are all personnel aware of what actions to take in case of an undesired event?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1



- 23. Is there a person responsible for external communication through media and has this person undergone media training? -1
- 24. In a crisis situation, are means of communication available to communicate through e. g. website? -1
- 25. Is there a room, situated off site, which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.? -1

Σ Crisis management

-11

Business recovery		Yes	No	N/A	
26.	Does your company have a business recovery plan? (If No → 28.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
27.	Is the business recovery plan being reviewed regularly to make sure it is up to date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
28.	Is there a team with clear roles and responsibilities for business recovery? (If No → 30.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
29.	Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
30.	In your company, are there forms of redundancy i.e.:				
a.	- spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
b.	- backup suppliers & shared processes and are they validated regarding quality and capacity?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1



Σ Business recovery -6

Indirect BCM	Yes	No	N/A	
31. Are there well implemented incident reporting procedures?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
32. Does management encourage incident reporting and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
33. Do employees undergo annual education regarding safety, security and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
34. Does your company build relationships:				
a. - with suppliers, customers and other stakeholders?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
b. - with media?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
c. - between employees and departments?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
35. Are there automated systems installed for quick detection of a supply chain disruption and/or machinery malfunction?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
36. Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	0
Σ Indirect BCM				3

How did you measure up?

	Min	Score	Max
Direct BCM	-7	-7	7
Emergency response	-9	7	9



Crisis management	-11	-11	11
Business recovery	-6	-6	6
Indirect BCM	-7	3	7
Overall	-40	-14	40

AFFILIATE 6

Direct BCM	Yes	No	N/A	
1. Do you have a running BCM programme? (If No → 4.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
2. Is the BCM programme supported by management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
3. Is there an assigned person responsible for the organisation and implementation of the BCM programme?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
4. Do you have recurring risk and vulnerability identification procedures?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
5. Do you involve the entire supply chain in the risk identification phase, including suppliers, activity & customers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
6. Do you analyse risks and vulnerabilities regarding:	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
a. - probability?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	-1
b. - consequence?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
				Σ Direct BCM
				-5
Emergency response	Yes	No	N/A	
7. Does your company have an emergency response plan? (If No → 9.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1

- 8. Is the emergency response plan being reviewed regularly to make sure it is up to date? 1
- 9. Is there a team with clear roles and responsibilities for the emergency response? (If No → 11.) 1
- 10. Do you run regular drills to train and educate the emergency response team where the emergency response plan is tested? 1
- 11. Are there emergency equipment freely available to enable an effective emergency response? 1
- 12. Is there a distributed up to date list with contact details to available internal and external emergency resources? 1
- 13. Are there up to date evacuation procedures including:
 - a. - regularly maintained evacuation alarm systems installed in all buildings? 1
 - b. - free escape routes and evacuation plans? 1
- 14. Do you run regular evacuation drills to train and educate employees on evacuation procedures? 1

Σ Emergency response 9

Crisis management	Yes	No	N/A	
15. Does your company have a crisis management plan? (If No → 17.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
16. Is the crisis management plan being reviewed regularly to make sure it is up to date?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1



- 17. Is there a team with clear roles and responsibilities for crisis management? (If No → 21.) -1

- 18. Do you run regular drills to train and educate the crisis management team where the crisis management plan is tested? -1

- 19. Is there a clear decision making process within the CMT? -1

- 20. Are there clear prerequisites on when to initiate the crisis management team? -1

- 21. Are all personnel aware of what type of incidents to inform superiors about and when to do so? -1

- 22. Are all personnel aware of what actions to take in case of an undesired event? -1

- 23. Is there a person responsible for external communication through media and has this person undergone media training? -1

- 24. In a crisis situation, are means of communication available to communicate through e. g. website? -1

- 25. Is there a room, situated off site, which in a crisis situation can act as a crisis operations centre with communication equipment like e. g. whiteboard, telephones, online computers etc.? -1

Σ Crisis management

-7

Business recovery	Yes	No	N/A
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- 26. Does your company have a business recovery plan? (If No → 28.) -1



27. Is the business recovery plan being reviewed regularly to make sure it is up to date? -1
28. Is there a team with clear roles and responsibilities for business recovery? (If No → 30.) -1
29. Do you run regular drills to train and educate the crisis management team where the business recovery plan is tested? -1
30. In your company, are there forms of redundancy i.e.:
- a. - spare manufacturing/service capacity & storage capacity to cover dips in production and are these validated regarding quality? -1
- b. - backup suppliers & shared processes and are they validated regarding quality and capacity? -1

Σ Business recovery -6

Indirect BCM	Yes	No	N/A	
31. Are there well implemented incident reporting procedures?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
32. Does management encourage incident reporting and risk awareness?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
33. Do employees undergo annual education regarding safety, security and risk awareness?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
34. Does your company build relationships:				
a. - with suppliers, customers and other stakeholders?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
b. - with media?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	-1
c. - between employees and departments?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1



35. Are there automated systems installed for quick detection of a supply chain disruption and/or machinery malfunction? -1
36. Can the execution of the BCM plans be modified depending on the circumstances of a crisis situation? -1

Σ Indirect BCM -4

How did you measure up?

	Min	Score	Max
Direct BCM	-7	-5	7
Emergency response	-9	9	9
Crisis management	-11	-7	11
Business recovery	-6	-6	6
Indirect BCM	-8	-4	8
Overall	-41	-13	41



F. EXPERT VALIDATION

KENNETH MIGER

Hej

har läst igenom er evalueringsmodell och har följande kommentar

Min feedback på detta är att jag tycker att det är en utmärkt modell. Kort, logisk och lätt att fylla i med strukturerade frågor.

Några små detalj kommentarer. Incident rapportering, tycker att det räcker med att fråga om all personal vet hur man rapporterar incidenter, inte vilken typ etc. Kanske också fråga om personalen vet när/gränser för när en incident blir en kris, t ex dödsfall, media täckning

Vad gäller krisgruppen bör man också fråga om det finns ett tydligt delegerat ansvar. Inte bara att kris gruppens medlemmar vet vad man skall göra utan också att styrelsen har godkänt mandat för vad de får göra/besluta.

Sista kommentaren är en liten layoutkommentar. Det är alltid stökigt med olika format

Skriv även definitionerna i vanligt stående A4

Annars återigen, en mycket bra modell

Kenneth Miger

Group Risk & Insurance Manager

MAGNUS BERGH

Anders, Joakim,

Intressant arbete som ni ber om synpunkter på.

Absolut kommer jag att se på det slutgiltiga resultatet.

Kommentarer:

1. I er evalueringsmodell skulle man kunna tänka sig att vissa frågor är mer värda än andra. T.Ex. Frågor klassade som Fundamental ger 5 poäng, Important ger 3 poäng och Useful ger 1 poäng.

2. Första frågan i Emergency och Crises är om det finns en plan, om inte så ska man hoppa en bit ned i formuläret. Det är ett bra upplägg men hoppar ni över tillräckligt många frågor?

Exempel Emergency response plan, om den inte finns hoppa till fråga 9. Fråga 10 handlar om Emergency response plan testas, men den är ju inte relevant om man inte har en plan!

Här behövs nog lite finputsning. Det kan gälla flera evalueringsområden.

3. För Emergency response och Crises Management kan man tänka sig att organisationen har en systematisk debriefing / lesson learned system direkt efter att man har hanterat en Emergency / Crises.

Att fråga om organisationen har detta kunde vara en (liten) förbättring.

Lycka Till med avslutningen av ert arbete.

Best regards



Magnus Bergh
Manufacturing
Group HSE Manager

THOMAS GRANSTRÖM AND MATTI SEIMAN (CONVEYED THROUGH JERKER ALBIN)

Hej Anders !

Jag har bett två av mina kollegor att läsa igenom det material jag fick av Mats och de har gett lite kort feedback nedan. Vore intressant att få veta åt vem Ni gör det här arbetet åt. Upplägget liknar en hel del av det som idag används inom försäkringsbranschen. Har du några funderingar kring svaret får du gärna återkomma. Vi ser det soim viktigt att i den mån vi har möjlighet hjälpa utbildningen i Lund med vår erfarenhet.

Vi är i grunden positiva till upplägget där vi tycker att frågebatteriet har en bra struktur.

Vi tycker också att definitioner och begreppsförklaringar är bra och minskar riskerna för direkta missuppfattningar.

Några funderingar som vi har:

- Är formuläret avsett för "self assessment" eller med hjälp av en kvalificerad handledare – vi tror att det krävs en kvalificerad handledare eller att ett antal personer inom företaget svarar så att man på det sättet får en mer nyanserad bild än med bara en svarare.
- Svårt att få en nyanserad bild med binära svarsalternativ – vi tycker man bör överväga en flergradig skala med fler svarsalternativ.
- Många av de enskilda frågorna täcker för stort ämnesområde ex: fråga 5 supply chain/customers överväg att dela i fler delfrågor; fråga 23 där säkert många företag har utsett någon som mediaansvarig men betydligt färre företag har givit personen adekvat träning i massmediahantering.
- En stilla undran – vilket företag skulle kunna svara nej på fråga 34 a (Does your company build relationships with suppliers, customers and other stakeholders)

Hälsningar

Jerker Albin
Executive Director
Head of Expert Department Risk Consulting

LISA EKSTIG

Hej Anders och Joakim,

Jag har nu tittat på evalueringsmodellen och tycker att den överlag ser bra ut. Vad jag förstår så ska modellen kunna tillämpas på alla typer av företag? Då vi endast har medlemsföretag som är tillverkare eller leverantörer av kemiska produkter, är jag förstås fokuserad på de frågor som främst rör dem. Det kan därför hända att jag föreslår frågeställningar som inte passar in i modellen. Jag ber i sådana fall om ursäkt för detta! Här är mina förslag på ytterligare frågeställningar:

- Finns resurser och kompetens? (Ev. under "Direct BCM")
- Sker introduktion av nyanställda?(Ev. under "Crisis management")
- Finns tillträdesskydd?
- Görs regelbundna kontroller av säkerhetsutrustning? (I fråga 11?)
- Sker rapportering och uppföljning (utredning) av olyckor?

Det var allt. Återkom gärna om ni har frågor angående detta.

Vänliga hälsningar

Lisa Ekstig

[MATS LINDGREN](#)

Hej,

Jag har tittat igenom evalueringsmodellen och har följande synpunkter:

I stora drag är frågorna bra. De går bra att förstå, och jag tror de täcker in hela BCM begreppet bra på en övergripande nivå.

Möjligen skulle ni kunna ha fler svarsalternativ (typ 1-6; I mkt hög utsträckning, i viss utsträckning e.dyl.).

Fråga 11: kanske passar Readily bättre än freely?

Fråga 26: det är kanske självklart, men man skulle kunna lägga till "...plans based on identified risks".

Detta var allt jag hade.

Lycka till med arbetet, jag ser fram mot att läsa rapporten!

Mvh

Mats Lindgren

[AON RISK SERVICES¹³](#)

Hej Anders!

Här är lite funderingar och kommentarer kring ert exjobb från några av våra kolleger här på Aon:

"Min enda reflektion är att de företag/grupper som vill använda modellen måste ha en BCM process redan igång och relativt fungerande. Detta för att modellen skall kunna göra någon nytta som audit-verktyg annars blir det "Nej" på de flesta frågorna och då är inte denna modell så användningsbar, eller?"

"svårt att göra ett generellt audit system för BCM. Finns en del redan och jag tycker ingen är riktigt bra . . .Många kunder jobbar fortfarande med att få ihop en BCP (BCM). Spännande EX jobb be dem att vi får ett ex."

"Vettig idé men antagligen mkt svår att genomföra som ett 'self-assessment' questionnaire då de flesta företag, som min kollega påpekade, inte har nåt fullt utvecklat BCP/BCM eller dylikt på plats. Min största fråga är hur man redovisar det hela??? Presentation och förståelse av resultatet är ju det viktigaste, kanske inte så mkt metoden.... Hur ska man presentera det på lokal (site) nivå, divisionsnivå, Groupnivå... Etc. DET är utmaningen tror jag..."

¹³ This answer has been anonymized.

.... och så lite material som kan vara nyttigt, se bifogad pdf. Glöm bara inte att ha rätt referens om ni skulle använda det i ert exjobb :-)...

(See attached file: BCM presentation.pdf)

Ni får gärna kontakta oss om ni har frågor. Skicka gärna en mail till mig först så fixar vi resten med de andra killarna och tjejerna :-)... Som du själv nämnde har vi rätt mycket att göra och därför är det bra om ni har en eller två kontakt personer som ni vet ni kan vända er till.

Ha det bra!

CHRISTEL GUNNARSON

Anders,

Ber så hemskt mycket om ursäkt. Idag är det den 1/9 och det är absolut sista dagen att svara till er.

Jag försökte följa instruktionerna och fyllde i min score som till min förfäran blev så låg som -9.

Min kollega Michael Bengtsson gjorde samma övning och landade på 25 i totalscore.

Jag var eventuellt lite för hård och ibland berodde det faktiskt på okunskap.

Michael tittade på Site Perstorp och jag tittade på koncernnivå.

Är det tanken att detta skall vara en self test? I så fall måste ni vara jättetydliga i instruktionen så att folk inte blandar ihop olika perspektiv.

Hoppas detta är en liten liten hjälp. Ni får gärna återkomma med kompletterande frågor per telefon.

Hälsningar

Christel Gunnarson

SOLVEIG NILSSON

Hej Anders!

Beklagar att jag svarar sent men jag har haft en hel del omkring mig. Först vill jag gratulera till ett bra jobb och att ni fått med det mesta.

Jag skulle vilja ge en generell kommentar när det gäller BCM och det är att när man arbetar med det skall man fokusera på det som är affärskritiskt och det får man fram genom att göra en Business Impact Analysis (BIA). Här är det bra att ha koll både på sina nyckelleverantörer och nyckelkunder och eventuellt involvera dem i BIA arbetet. BIA är steg ett så att man vet vad man skall fokusera på i en nödsituation och identifiera vilka personer som är nödvändiga för den leveransen.

Nästa steg blir att analysera vad som kan gå snett och se hur man kan eliminera effekterna av om något går snett dvs hur kan jag säkerställa min leverans i rätt tid. Man bryr sig inte om orsaken till om något går snett och det tycker jag ni fångat upp. I en riskanalys så fångar man upp orsakerna och jobbar på att eliminera dem men även där gäller det att arbeta med rätt saker och fokusera på det som är affärskritiskt.



Ni har med mycket runt Recovery vilket är bra likaså Emergency Response och Crisis management. När det gäller båda så är internkommunikationen oerhört viktig. Jag kan inte se att Ni fått med den. Man måste ha klart för sig vad man skall säga till personalen, vem som ansvarar och hur det skall göras. En annan viktig funktion i kommunikationssammanhang är telefonväxeln. Man tillse att de har tillgång till rätt information och har möjligt till att öka kapaciteten i samband med en allvarlig händelse.

Krisledningsrum - bör man ha både internt. Ni har nämnt möjlighet till att evakuera men steg ett är att ha ett internt.

Ledning, organisation, roller och mandat måste man klargöra i lugnt läge vilket Ni bör understryka. Bra med en person som håller ihop det hela. Det gäller i alla men framför allt i stora organisationer. Vi sätter ofta ihop gruppen beroende på vilken fråga det gäller dvs sammansättningen är inte konstant. Däremot så har vi vissa fasta funktioner och representanter tex ordförande är oftast några få som axlar det ansvaret, och representanter från Säkerhet och Kommunikation är nästan alltid med

Incidentrapportering är ett viktigt verktyg för att följa upp vad som händer och få indicier på om något håller på att gå snett.

Vi har gjort både stressövningar och sk desktop övningar och jag anser att man behöver göra båda för de ger helt olika erfarenheter och resultat. Stressövningar lär en att arbeta under stress och press, medan desktop ger en möjlighet till reflektion och att korrigera fel i processer och planer. Övningar är dock viktiga för man får in rutiner. Det motoriska minnet är mycket viktigt vid stress.

Som slutkläm skulle jag också vilja framföra att man skall ha få men viktiga kontinuitetsplaner för det är ett jättejobb att hålla dem levande och risken är att man lägger sin kraft på fel frågor.

Slutligen så vill jag citera Dwight Eisenhower: Plans are nothing, but planning is everything.

Lycka till! Hör av er om Ni vill att jag skall förtydliga något.

Det vore kul att få en kopia när Ni är klara.

Vänliga hälsningar
Solveig



