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Towards a Resilient Production System

Strategy for Implementation of Business Continuity Planning

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Abstract

Towards a Resilient Production System - Strategy for Implementation of Business Continuity Planning

Mattias Karlsson

Business continuity planning (BCP) aims at minimizing the effects of assumed future disruptions, by means of a proactive planning. Performing BCP takes participation from organization and therefore this study investigates how to develop a functional implementation of BCP. Studies on the subject of risk perception show that all risk also holds opportunities and that risk-taking is at the heart of all business activities. Elimination of all risk is therefore not desirable. Risk management should rather be about balancing optimization and flexibility and aim for persistence in relations, i.e. resilience. However, BCP generally adopts a biased perception, focusing only on the threats of future loss. A case study at a Volvo CE plant shows how this gives considerable marketing problems for the BCP practice. Two paths for implementation occur:

• Consolidation path – strengthen the understanding for current practice.
• Reconsideration path – create of a more direct gain from the planning.

Common for both paths is the key elements of a implementation plan, which are marketing strategy, process description and work organization. Irrespective of what path one chooses, these three constituents remain at focus for successful implementation. However, it is the opinion of the author that the reconsideration path holds the best promises to reach a functional implementation since it acknowledges the dualism of risk and thereby also acknowledges the necessary trade off between optimization and flexibility. Such a BCP practice thereby establishes a systematic for process administration that ensures both well-administrated processes and business wellness – this should establish resilience.

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Populärvetenskaplig sammanfattning

Kontinuitetsplanering är ett verktyg för att minimera effekten av framtida störningar i ett produktionssystem. Genom att planera för framtida störningar är förhoppningen att pengar ska sparas. Den här planeringen kräver dock en omfattande insats och bidrag och delaktighet från hela organisationen. Detta har visat sig vara ett mycket tungrott projekt. Människor verkar ha svårt att motivera sig till att planera för de stora, framtida förluster som initialt antas. Därför söker denna studie svar på hur man kan göra planeringen mer självgående utan att kompromissa med målet om nå kontinuitet.

För att förstå problematiken kring kontinuitetsplanering studeras här hur människor uppfattar risker. Sådana studier visar att begreppet risk är ett rikt koncept, intimt kopplat till begreppet sannolikhet – en risk rymmer både en sannolikhet för ett negativt utfall och en sannolikhet för ett positivt utfall. Risk måste därför även förstås som en möjlighet, inte bara som ett hot. En närmare granskning visar att alla ekonomiska aktiviteter i grund och botten innebär en risktagning men en risktagning som ses som en möjlighet (till att tjäna pengar). Riskhantering blir därför en fråga om att medvetandegöra denna risktagning så att den kan ske på ett medvetet och nyanserat sätt.

På Volvo CE sker kontinuitetsplanering med utgångspunkten att risk är en framtida förlust. Risk ses därmed som ett hot som vi endast kan försäkra oss mot och förbereda oss på. Resultatet av kontinuitetsplaneringen är därför en plan som främst tjänar ett försäkringssyfte. Bara om störningar inträffar blir detta dokument betydelsefullt och våra förberedelser avgörande. Detta ger upphov till ett problem med att marknadsföra planeringsarbetet om människor inte ser de diskuterade störningarna som tillräckligt sannolika för att motivera en förberedelse. För att planeringen ska bli mer självgående finnas då två vägar att gå. Dels kan nuvarande verksamhet stärkas genom att vinsterna av nuvarande planering kommuniceras tydligare och dels kan metodiken förändras i försök att skapa en mer direkt avkastning av planeringsarbetet, en avkastning som är oberoende av om störningar inträffar eller inte.

Oavsett vilken väg som väljs framstår tre överväganden som centrala för att stärka kontinuitetsplaneringen. Dessa tre är *marknadsföring av planering*, *metodik för planering* och *organisering av planering*. Att välja den förstnämnda vägen ovan är att lägga betoning på marknadsföring av planeringsarbetet, denna väg förutsätter nämligen en tro på att nuvarande planering skapar en tillräcklig avkastning för att motivera organisationen – människor måste bara göras uppmärksamma på denna vinst. Att välja den sistnämnda vägen är istället att förneka vinsten av nuvarande metodik som tillräcklig. Istället bör en mer direkt avkastning av planeringen sökas genom att förändra metodiken *för* och organiseringen *av* planeringen. En mer direkt avkastning är lämpligen en som kan användas för att förändra våra processer och göra dem mindre störningskänsliga där så behövs. Genom att förändra kontinuitetsplaneringen till ett verktyg för att skapa underlag för förändring anammas den mer nyanserade definitionen av risk. Planeringen blir då en fråga om såväl hot som bör undvikas, osäkerheter som bör utredas och om möjligheter som bör gripas – det vill säga en fråga om hur våra processer ska förbli *konkurrenskraftiga*. Det är författarens övertygelse att denna väg rymmer störst möjligheter att stärka kontinuitetsplaneringen och rekommendation är därför att söka utveckla metodiken i denna riktning.

Content

1. Introduction

Business Continuity Planning (BCP) is a field of risk management, developed to deal with disruptions in production. It can be seen as a proactive measure preparing for disruptions. The aim of the planning is to make a swift response possible, thereby minimizing the financial effects.

The importance of such a swift response should not be underestimated. Usually the direct cost from a disruption is small compared to the cost of lost production, direct loss and long-term loss due to dependencies and complex interactions. Figure one tries to illustrate how a proactive planning might decrease the direct loss of production as well as the loss connected to re-establishment of production (yellow area). With a thorough planning it might even be possible to make up lost production as displayed in figure. Concluding, there are strong financial incitements to develop a well-functioning and effective continuity planning.

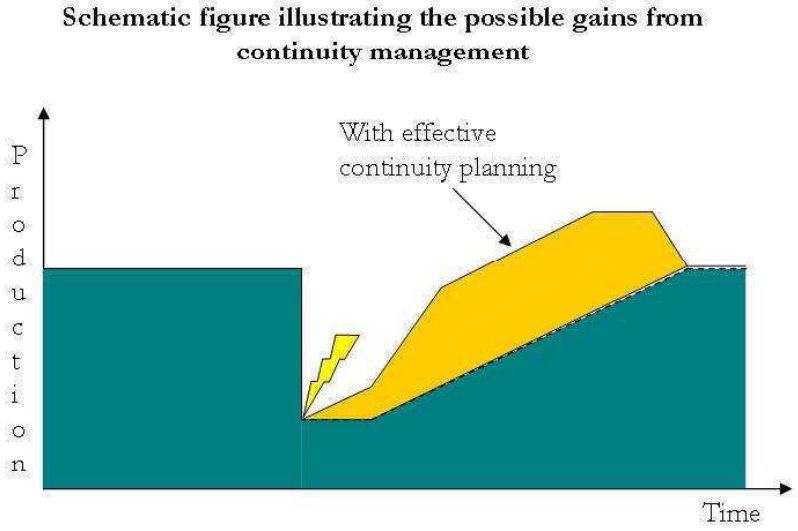

Figure 1 – Illustration of BCP gain

Despite the strong financial incitements for this type of work, risk management departments often face substantial problems developing business continuity plans. This is partly due to resistance from an unmotivated workforce, partly due to lack of sustained sponsorship from senior managers and partly there is also confusion about which information should be gathered and how it should be presented – i.e. how to know that our planning will be effective?

These problems calls for a better implementation of the continuity work practice with the rest of organization, facilitating the planning. But the problem of implementation is still shaded, partly due to problems identifying the real cause. What is clear is that these problems reflect a lack of awareness and acknowledgement of the importance of continuity aspects. The aim of this study is to suggest actions that strengthen the acknowledgement of BCP on Volvo CE.

1.1 Objectives

The overall objective for this master thesis is to provide a plan for implementation of BCP, integrating the practice with the rest of organization and creating a functional methodology and work practice. This plan consists of suggested strategic actions for the continuity work practice, aimed at strengthening the acknowledgements of continuity aspects.

If it is possible to evolve a malfunctioning work practice for continuity planning there must be problems inherent in this field of work. To fulfil the overall objective, these problems must be identified and solved. Therefore the study will first look into participatory problems inherent in BCP.

- How might motivation fail? What are the participatory problems that need to be considered when implementing business continuity planning?
- How are these problems to be addressed for an implementation that ensures participation from organization?

The next focus must be on studying our current implementation – how our organization understands current practice – and address the questions of how to transform our implementation to a better one:

- How is the current practice understood? What actions need to be taken in order to transform our current implementation to one that ensures participation from the organization? What are the strengths and weaknesses of different paths for improved implementation? What are the key elements of a BCP implementation plan?

These questions are articulated to guide towards fulfilment of the overall objective.

1.2 Scope

The focus of this study will be on establishing a functional work practice for BCP within production, other areas such as shipments and suppliers will not be discussed due to the limited time.

1.3 Disposition

There are six main chapters in this report, excluding this first chapter. The six chapters are described one-by-one below.

- **Chapter 2 – Background**: First of all a background on the practice of BCP will be given. This chapter gives a short introduction to the history of BCP and relates it to other risk management in terms of goals and approaches. Finally the objectives for this study will be further discussed.

- **Chapter 3 – Methodology:** In the methodological chapter research approaches and decisions along the road are described, motivated and discussed. The aim of the methodological chapter is to straighten out and make visible the line of

reasoning that underlies the progression of this study, mainly in order to legitimize the validity of the conclusions.

- **Chapter 4 - Theory**: The wider aim of this chapter is to enhance the understanding of participatory problems within continuity planning. In the theoretical chapter attempts are made to establish a theoretical framework of the participatory problems, based on literature that address related questions.

- **Chapter 5 - Data**: In an empirical chapter the data collected in this study will be presented. The data is structured in accordance to the main interview questions used to collect data.

- **Chapter 6 - Analysis**: In this chapter the data will be synthesized and analysed. This analysis is designed to lay the foundation for a final discussion.

- **Chapter 7 - Discussion**: Finally, the results of the case study will be discussed and conclusions drawn in this last chapter. Actions on how to better implement BCP is suggested as well as key elements of a plan for implementation.

1.4 Definitions

There are certain key concepts in this study that should be defined in order to ensure consistency and avoid misunderstandings.

Continuity is the property of a process connected to variance in input-output relations. Most often the term is used to denote precision in terms of outbound deliveries of production.

BCP refers both to the process of *business continuity planning* and the output from the process – *a business continuity plan*. The meaning of the term is dependant on context and there should likely be no problem with understanding the current meaning.

Implementation will here refer to the problem of reaching the goal of BCP – continuity that is. We are searching for an implementation that is functional but still effective, no compromising about the ultimate goal of BCP is allowed.

Strategy refers to a guiding framework delimiting our degrees of freedom in order to further shared goals.

Participation is seen as compliance without any considerable pressure other than the self-inflicted pressure originating from shared goals.

Methodology is the sequence of measures we apply to reach certain goals.

Scope of BCP is a term used to describe on what type of disruptions the focus of this process is put.

Disruption refers to an event with negative effects on our process, visible or not.

A *functional* BCP process is here a self-perpetuating process, i.e. a process that will face no considerable resistance when initiated since the concept is motivating enough.

An *effective* BCP process is a functional process which establishes a progressive work with the overall goal of continuity.

Resilience refers to the level of persistence of relationships in a system. In a company the most important relation is the one between company and the customer.

Optimization refers to measures that aim for an increased competitiveness by reaching higher process efficiency.

Flexibility refers to the attribute of a system describing its ability to adapt to potential external or internal changes affecting its value delivery.

2. Background

This chapter gives a background to the problem of implementing BCP and further discusses the focus of this study.

2.1 What is business continuity planning?

Here, a brief introduction to the history, goals and practice of BCP will be presented. A short introduction to the specific BCP practice at Volvo CE will also be given. Finally, the chapter will also try to make clear the relation between BCP and other risk management, in order to bring to light the general implementation of BCP and its problems.

2.1.1 Short history of BCP

BCP has its roots within disaster recovery. This field of work emerged during the 1950's and 1960's within industries, especially data-dependent firms, where a single disaster could mean irreplaceable loss of major corporate value.[1] In the 1980's federal institutions started to mandate recovery plans. Mainly this means that there were requirements put to keep database back-ups and to define recovery routines.

In 1989 the US Federal Financial Institutions Examinations Council (FFIEC) as one of the first institutions mandated expanded activities like documentation, maintenance and testing. Later on the business continuity scope was broadened to involve entire productions system, partly because of the spread of informatics and high-tech electronics into traditional industry.[2] Nowadays, BCP has evolved enough making it controversial to compare with disaster recovery:

> "Today, many corporate leaders use the terms 'disaster recovery' and 'business continuity' interchangeably, yet smart managers know that they are different things requiring radically different thinking."[3]

BCP is currently considered to hold a much wider scope than disaster recovery, although they share a common history. What is the scope of BCP then?

2.1.2 Description of current BCP practice at Volvo CE

The guidelines for BCP on Volvo CE could be schematically described like this:

- Critical activities should be defined in advance and be prepared for continuity. Non-critical activities that may need to be downgraded or stopped, while waiting for re-establishment, should also be defined.
- Interim activity for critical operations should be implemented, and this may have to be done in alternative ways from normal business operations. Therefore, such alternative ways of operating should be defined in advance.

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[1] Wikipedia describes *business continuity* as a *"progression of disaster recovery"*, http://en.wikipedia.org/wiki/Business_continuity 2008-01-12

[2] -, *The history of continuity planning: a timeline*, http://www.businessresiliency.com/evolution_history.htm 2007-11-14

[3] Wilson, B., *What came first: disaster recover or business continuity?* http://www.continuitycentral.com/feature0132.htm 2007-11-26

- Routines, procedures and log requirements for re-establishment to business as-usual should be known.
- The above should be documented in advance in a business continuity plan as part of the contingency planning.

The most recent BCP was developed by operational managers and manufacturing engineers, in cooperation with a continuity support function. This plan consists mainly of tables that were filled out during workshops. See appendix for one such template (in Swedish). The main labels were for example *replacement of machine*, *replacement of a group of machines* and *back-up for complete articles*.

2.1.3 Relation to other risk management

BCP sorts under Business Contingency Management (BCM) and can be more or less exhaustive on what contingencies that are covered. It is of course desirable that it covers negative contingencies such as all sorts of losses. This focus on assumed losses separate BCP from other risk management in the way it downplays the role of causes:

> "What is the single, most valuable business continuity lesson I've learned in the last 10 years? It is this: never argue about what disaster might happen. As I stated at the outset, I'm very poor at predictions. Moreover, I don't think the cause of a disaster is as important as the consequences of a disaster, in particular to the businesses of my clients. So I've reduced the sum of my experience to three words, which I urge you to remember when someone wants to challenge your desire to commence or improve contingency plans at your company: Consequences, not causes."[4]

Other risk management often aims at taking pre-emptive actions eliminating risk. That makes studies on causes very important in order to suggest the right actions. It is not very interesting for BCP however. Further contrasting BCP against other risk management will reveal other distinct features. BCP assumes that a disruption will realize at some point in time while, on the contrary, other risk management put every effort into the prevention of something from happening.[5] In fact, the return from continuity planning is *minimized effects* of disruptions, whereas other risk management often aims as *absence* of disruptions. Question is if risk management is the idea that underpins all business continuity planning?

What different strategies are there to deal with risks? It has been proposed that the strategy for risk management is a function of current degree of knowledge about the risk and the degree of agreement on the risk.[6] When knowledge about a problem is high but agreement low, enlightenment campaigns is a natural measure to try to reach agreement and thereby strength to act. When, on the other hand agreement is high but knowledge about the risk is low, management tend to stem from majority decision. Low knowledge *and* low agreement often leads to discussion and debates, just like technical solutions is the natural way of managing risk when both knowledge and agreement is high. These different strategies are illustrated and exemplified in a figure below:

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[4] Forbes, N. *A decade in business continuity planning*, http://www.continuitycentral.com/feature0290.htm 2007-11-26

[5] Wikipedia, http://en.wikipedia.org/wiki/Risk_management#Risk_management_and_business_continuity 2007-12-28

[6] Riskkollegiet, *Upplevd risk*, p. 13

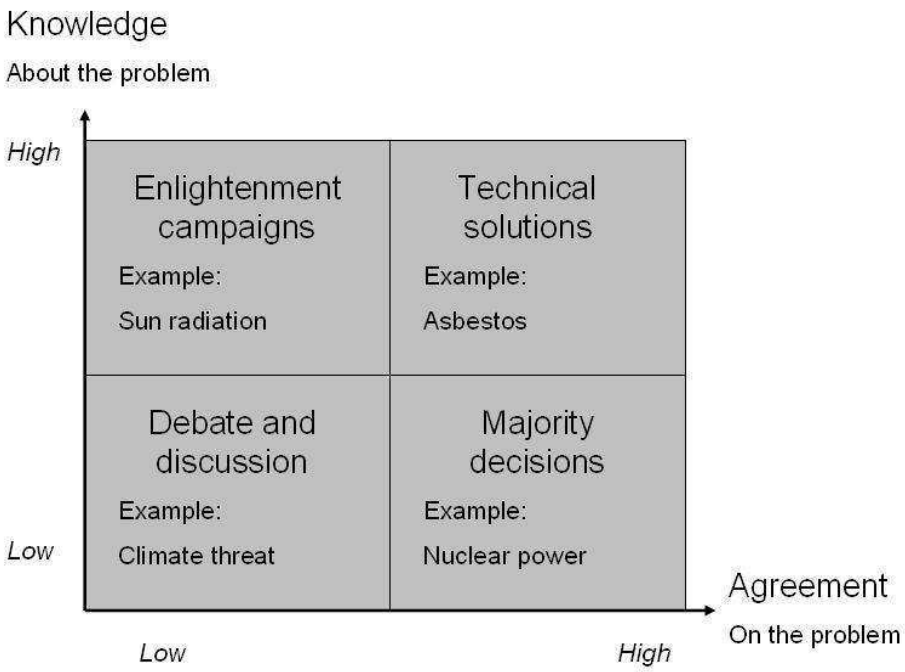

Figure 2 – Strategies for risk management

Where is BCP in this figure? Focusing on the consequences, the knowledge about the effects of the risk (the loss) is high during planning. Agreement on the problem could range from low to high depending on how probable people consider the specific loss. This would suggest enlightenment campaigns or technical solutions as our strategy for management, all depending on the current degree of agreement. But who is to define level of agreement? Considering that operational managers should be better equipped than continuity managers to judge whether a loss is probable or not, a possible conflict reveals itself. When should continuity managers push for more thorough planning and when should they listen to the organization and consider it enough.

This possible conflict might be re-framed: a risk can hardly be handled until it has been identified, that is when it gains a probability. But this probability (a certain number is often hard to define and agree about) can only be identified and measured by studying the cause and BCP tries to manage risks without studying causes. Now what if an operational manager does not consider a loss probable but the continuity manager does? Since continuity managers perform no studies on the causes of a loss, agreement on a risk might be hard to reach and this could induce a participatory problem – who knows what is best?

2.2 The problem of implementation

Although the problem of implementing BCP has been raised numerous times[7] it has unfortunately not been raised from a scientific point of view. Therefore the concept of continuity planning must be investigated. Can it be developed and in what sense?

[7] For a good example of this, see: Chapman, A. *The loneliness of the business continuity manager*, http://www.continuitycentral.com/feature0520.htm 2007-11-26,

Perhaps it can both be broadened and narrowed – broaden to promote a wider return from the invested time and effort and narrowed to present extracted information enhancing the return. In order to answer such questions an exhaustive study needs to be carried out. This study will start from the obvious effects of a failed implementation, namely an unmotivated workforce resulting in low participation.

To start from a participatory perspective is to approach the problem of developing an implementation plan in a broad and open manner. It is paying respect to many different intra-BCP (internal) parameters and possible causes for a failed implementation (problems), such as guidelines, scope, methodology and organizational integration for example. At the same time it does not exclude treatment of possible external causes to lack of participation, such as resistance to change or lack of sponsorship. Though these parameters are not directly adjustable they can be indirectly affected and resolved by searching for certain configurations of the intra-BCP parameters. Summarizing, approaching the problem of implementation from a participatory perspective should generate a thorough and exhaustive study on the subject. It is therefore assumed in this study that the problem of implementing BCP is primarily of a participatory nature, it is a starting point in this work.

There are also other parameters that must be fixed. Recall that our goal is to implement BCP in a way that ensures participation. Functionality is at focus, but of course functionality can not be allowed to inflict on effectiveness in any considerable way. There must be certain goals within BCP that will not be compromised – an implementation that creates a functional practice must also create an effective practice. However, since there are no clear descriptions of the gains from the work – only guidelines of how to perform the planning – the only goal we try to reach is to establish continuity. The practice might therefore be adjusted in any way as long as it does not inflict on this goal of BCP and lessens the value of the work.

Functionality has earlier been defined as a self-perpetuating process, a process that will face no considerable resistance when initiated. Therefore the output is of high value – it must be enough to ignite another round of planning. This study should lay bare the gain from the BCP process and investigate if it is enough to ensure participation. Whatever actions that should be taken to ensure participation, it is obvious that reflection about business continuity is important for a successful decision-making, both during production-as-usual and during times of disruptions. Therefore continuity planning must be seen as an important cornerstone in the establishment of a resilient organization. The question is when an organization should be considered resilient enough?

This study should investigate what key elements that determines if the input-output relation from the BCP-process is good enough to ensure participation. If these elements can be identified, general conclusions on the implementation of BCP can be drawn. The identified key considerations will also give a real possibility to focus the distribution of resources and decide upon what actions to take – i.e. fulfil our overall objective of developing an implementation that ensures participation.

3. Methodology

Yin suggests that every good *research design* considers five distinct themes: research objectives, theory, units of analysis, the logical connection between data and theory and criteria for interpretation of the result.[8] Since the objectives have already been discussed, this chapter discusses the four latter themes.

Firstly, the general research approach is discussed considering the problem at hand. Then the methodology for establishment of a theoretical framework will be considered, followed by the methodology for collection and analysis of data.

3.1 Research approach

In this chapter the overall research approach and the methodological consequences of this approach will be discussed. The choice of research approach and decisions should be made with respect to the overall objective. Since the overall objective of better implementing a work practice is no problem itself, much of the research problem stems from not knowing what the real problem is. Therefore this study could be said to be an *exploratory study*, trying to specify complex of problems that implementation is burdened with. But the study is also explanatory in trying to lay bare *why* participation fails and thereby solving the problems of implementation.

The question-words used, *"why" motivation might fail* and *"how" our methodology might be adjusted*, according to Yin suggest an experiment, a case study or a historical study as the method for data collection.[9] An experiment can be ruled out directly because there is no possibility to regulate parameters and manipulate behaviour in a systematic way. The historical study is neither interesting since we have the supreme possibility of gaining first-hand information.[10] A case study it is then. This is also appropriate because of the limited amount of time and since BCP is a rather similar process organization-wide on Volvo CE (and therefore most likely to face the same participatory problems on all production facilities) – the conclusions from this analysis could therefore be considered generally applicable even though only the practice on one production site has been studied.

To summarize, this is both an exploratory and an explanatory study that tries to identify and suggest actions to deal with the participatory problems of continuity planning at Volvo CE. The exploratory nature of this study stems from the fact that there is no established theory investigating participatory problems within this field of management. Research will be separated into one literature study that establishes a theoretical framework describing the problems and one case study where data on the participatory problems of BCP is collected. Finally, the theoretical framework will be confronted with data in an analysis, in order to investigate how BCP best could be implemented.

3.2 Literature study

Yin concludes that a thorough research design contains a theory on the subject for the study. Theory does not have to be grand but it should contain a description of why

[8] Yin, Robert K., 2007: p. 40
[9] Yin, Robert K., 2007: p. 22
[10] Yin, Robert K., 2007: p. 24-25

actions, events, structures and thoughts occur.[11] Yin also considers an analytical generalisation of the data from a case study as appropriate. An analytical generalisation means that a theoretical framework is being used as a template to compare the case study results.[12] Theory should structure our analysis. The question is what kind of literature that will give the analysis a sharp edge.

"Why to choose what literature?"

The aim of the literature study is to enhance the understanding of the participatory problems with continuity planning. Since participation is at focus the choice of literature will be made in accordance to this. A natural starting point for every study is to take a look at what has been written on the subject before, but as earlier mentioned, there is very limited theory on implementation of and participatory problems with BCP. Although the participatory problem of BCP has been raised numerous times it has not been raised from a scientific point of view.

However, abundant research has been done on the subject of risk management, literature that can be used to describe the participatory dimension of the problem at hand. Especially interesting is the theory of risk perception since it describes how people perceive the risk they are facing, for example during BCP. In addition, historical study might show how this, our understanding of risk, has evolved. There is also literature that reviews our risk management practice. Many sociologists have analysed the role of risk in our contemporary society and drawn interesting conclusions for risk management. Bringing conclusions from these studies together should show the progression of the risk concept and reveal criticism on different understandings of risk.

3.3 Empirical study

The literature study will discuss how participation can be achieved in theory, but to gain a possibility to suggest actions improving the BCP implementation on Volvo CE, real data about how our organization perceives the current work practice must also be gathered – i.e. to decide upon what steps to take in order to reach some goals, we must first identify where our organization currently stands. The employee's opinions and wishes will of course be useful in the process of determining strengths and weaknesses of current practice as well as in the process of deciding about appropriate actions. The following question is at focus in this chapter:

"How to gather what data?"

For our data collection a case study approach has already been chosen. Considering the case study, a qualitative study is a natural choice for describing what people think about current work practice. Therefore, interviews will be performed. The data about current implementation will be gathered on the Braås plant, and will be considered representative for all Volvo CE plants since they have common guidelines for BCP.

Considering the choice of respondents, it is natural to speak with people that have participated in the BCP process to gather their opinions about the methodology and work practice. The respondents should be chosen to represent different functionalities

[11] Yin, Robert K., 2007: p. 48
[12] Yin, Robert K., 2007: p. 51-53

such as assembly, fabrication, material handling, IT, facilities, human resources, manufacturing engineering etc. This is to give an exhaustive view of the organizations opinions. Interviews were also held with upper managers for some of these different functions. This was in order to collect opinions from people hopefully providing sustained sponsorship for BCP and thereby motivating their subordinates.

What data to collect then? The questions should be formulated in accordance to our research questions, to ensure a collection of appropriate data. The research questions are focused on participation. The concept participation will in the case study be studied from three perspectives, namely how the BCP guidelines are understood, how the BCP output is understood and how the BCP process is understood.

1. The first subject in the interviews will concern how the guidelines are understood in order to scan for possible participatory problems.
2. The second subject in the interviews will concern the value of a continuity analysis, in order to scan for possibilities to develop the BCP practice from a participatory point of view.
3. The third subject in the interviews will concern the process of planning itself in order to scan for a better way of performing the work.

These three questions can be directly compared with the subjects for the research questions, namely *problems*, *how to address problems* and *what actions to take*.

3.4 Quality of research design

Yin discusses four criteria that could be used to assess the quality of a social-scientific study. These four criteria are also very important to consider when deciding upon research design. The criteria *concept validity*, *internal validity*, *external validity* and *reliability* are further described below[13]:

- *Concept validity*: design of operational measures for the studied concepts. It must be possible to assure that the phenomenon at hand is what is being measured.

- *Internal validity*: establishment of causal relations. This does only apply to explanatory studies.

- *External validity*: demarcation of scope to where the conclusions apply. External validity is guaranteed as long as some sort of theory is used to analyse the data and therefore will not be further elaborated.

- *Reliability*: assurance that the study can be repeated with the same research design and generate the same results.

Concept validity and reliability is most important to ensure in this study and will therefore be briefly discussed below.

[13] Yin, Robert K., 2007: p. 54-55

3.4.1 Concept validity

To maintain concept validity it is necessary to specify the concepts that are to be studied and tie these concepts to the study objectives. It is also necessary to show that the studied concepts will be the one measured by the interview questions.[14]

See discussion under 3.3 Empirical Study above. Since the interview questionnaire gains its structure from the research questions, concept validity should be guaranteed in this study.

3.4.2 Reliability

Certain problems specific to qualitative studies (like interviews) have been considered here. Firstly, scientific studies have shown that open interviews with flexible questions – more of a steered conversation really – is appropriate for case studies.[15] Therefore the questions in the interviews where put in an open way. Certain controversial words, for example the word *risk*, where also left out in order not to risk guiding the answers.

Secondly, the questions were also phrased in accordance to scientific studies that have shown how why-question might awake resistance.[16] Instead of asking why motivation might fail the question was phrased 'how do you perceive' (the guidelines for continuity planning). Finally, the interviews were also anonymous in order to make the respondents relaxed enough to bring forth all criticism.

3.5 Summary

Now we can summarize the disposition for this master thesis.

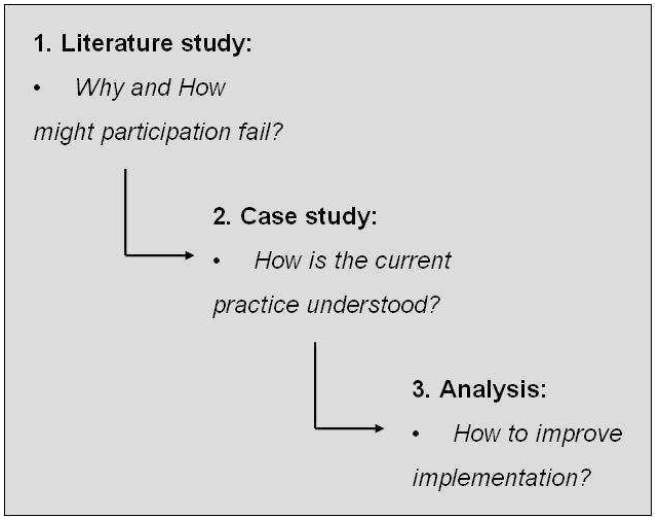

Figure 3 – Disposition: three main parts

[14] Yin, Robert K., 2007: p. 56
[15] Yin, Robert K., 2007: p. 117
[16] Yin, Robert K., 2007: p. 118

4. Theoretical framework

This chapter looks into literature that can be used to enhance the understanding of problems with BCP. The chapter will elaborate mainly with the first two of our research questions:

- How might motivation fail? What are the participatory problems that need to be considered when implementing business continuity planning?
- How are these problems to be addressed for an implementation that ensures participation from organization?

Literature on risk perception is studied to investigate how people tend to relate to and manage risk. Sociological studies reviewing our risk management practice will further enrich this discussion.

4.1 Investigating risk perception

There are currently two dominating theories within the scientific field of risk perception, cultural theory and psychometric risk perception.[17] Psychometric risk perception emphasizes individual differences, such as differentiation in knowledge, as parameters determining our possibility to perceive risk. According to cultural theory our risk perception is shaped by culture because of the connection between culture and societal institutions – certain risks are more evident to certain institutions.

Cultural theory emphasizes the inability to anticipate all risks, since we are partly blinded by our culture. Thereby it can be said to advocate repudiation from an expert culture. Instead of trying to eliminate risks we should therefore strive for resilience.

> "If the selection of risk is a matter of social organization, the management of risk is an organizational problem. Since we do not know what risks we incur, our responsibility is to create resilience in our institutions."[18]

This stands in contrast to the psychometric theory which advocates a risk management culture where people with expert knowledge should manage risk. Still, even the psychometric paradigm denotes differentiation in ability to see risks. Therefore there should be no doubt about the fact that humans have problems thoroughly identifying risks.

Additionally, communication of risk have been shown to have a low influence of the risk assessment but a high influence on the trajectories of our thoughts – we think more about the recent communicated risks and we expect measures against these particular risks.[19] Thereby, humans also seem to have troubles relating to the probabilities of already identified risks.

These two facts make risk management particularly hard and studying how people perceive risk appear to be an important step in the development of a plan for

[17] Wikipedia, http://en.wikipedia.org/wiki/Risk_perception 2008-01-12
[18] Douglas, M. & Wildavsky, A. 1982: p. 198
[19] Riskkollegiet, *Upplevd risk*, p. 14

implementation. This chapter tries to understand the psychology and science behind successful implementation of risk management methods.

4.1.1 How to relate to risk?

What is risk? How should it be understood? The word risk originates from the Italian word *risicare* which means 'to dare'.[20] It first referred to voyages into unknown waters during the age of great discoveries.[21] Anthony Giddens concludes that the notion of 'risk' presuppose a society that actively tries to break with its past and conquer the future – a society that is future-oriented.[22]

Economic historian Peter L Bernstein similarly explains why the Arabs lay the mathematical foundation for probability theory but did not develop it themselves. The Europeans eventually did and Bernstein considers this to be due to different views between cultures on who determines our future – if it is fate, God or we ourselves.[23] Bernstein means that the probability concept has a double composition. One element that is future-oriented and concerned with our opinions and one that is history-oriented concerned with our interpretations of the past.[24] Outlook on future is therefore essential for noticing probability, according to Bernstein.

In 1738 Bernoulli elaborated with the so far strictly mathematical probability theory and postulated that *utility is inversely related to the quantity of goods previously possessed.* According to Bernoulli people are rational and rational decision-makers will chose risks based on a will to maximize expected utility, rather than expected mathematical value. This theory brought subjectivity to mathematics and it made risk management a decision-making practice.[25]

Bernoulli's theory also states that there are rules defining rational behaviour, thereby explaining the behaviour of people.[26] This rational behaviour means that measurement always wins over intuition. People will make choices based on availably information and in accordance to well-defined preferences. Basing decisions on information constitute the history-oriented element of probability; preferences constitute the future-oriented. People *prefer wealth* and strive to maximize utility. Optimization is the technical word for this rational behaviour.[27]

In a famous experiment by Daniel Kahneman and Amos Tversky the rational behaviour was questioned. The two scientists made a survey of how people would respond to a rare disease.[28] They asked the same question but posed it in two different settings. Rational behaviour predicts that the answer to a question is the same regardless of the setting where the question is posed. This experiment showed something else however:

[20] Bernstein, Peter L., 1998: p. 8
[21] Giddens, A., 2003: p. 36
[22] Giddens, A., 2003: p. 37
[23] Bernstein, Peter L., 1998: p. XXXV
[24] Bernstein, Peter L., 1998: p. 49
[25] Bernstein, Peter L., 1998: p. 104, 110-11
[26] Bernstein, Peter L., 1998: p. 110
[27] Bernstein, Peter L., 1998: p. 247, 257
[28] Kahneman, D. & Tversky, A., *Choices, Values and Frames*, p. 5-6

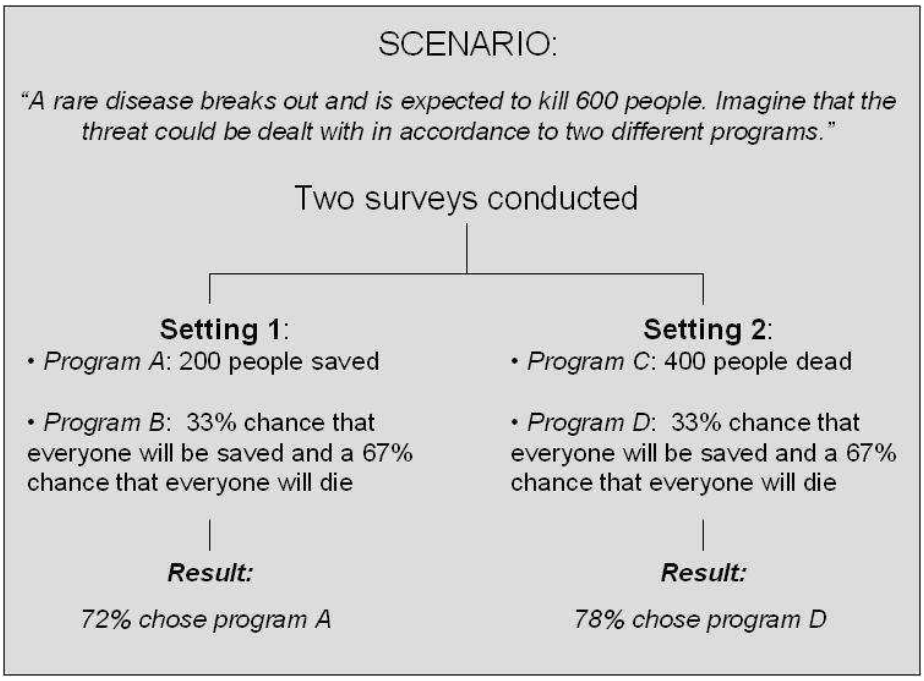

Figure 4 – Prospect theory

A closer reading of the options in *figure 4* reveals that choices A and C are identical as well as choices B and D, but still people preferred A in the first setting and D in the second and this is inconsistent with rational behaviour. Rather then rational, we are emotional when making decisions - we prefer avoiding loss over an uncertain gain. The experiment also shows that our preferences can be manipulated by changing reference point.[29] These ideas founded a new theory, namely prospect theory.

Prospect theory meant that Bernoulli was wrong stating that the utility is inversely proportionate to the quantity of goods previously possessed. Instead people's valuations depend more on the reference point where possible gain or loss will occur than on the final value of the asset that would result – *"it is not how rich you are that motivates your decision, but whether that decision will make you richer or poorer"*.[30] Studying this conclusion from the viewpoint of a continuity manager, shows that continuity managers might have a hard time motivating employees for BCP since it assumes a future loss. Judging from the output of the BCP process, the plan itself, it is not even sure that the planning will make anyone richer at all since the plan will only be useful if a disruption occurs.

Bernoulli was wrong on utility. Bernstein points out his true brilliance though, defining that *"while the role of facts is to provide one single answer to expected value, the subjective process will produce as many answers as there are human beings involved"*.[31] Ever since, risk has not been something *to be faced* by business managers but instead *a set of opportunities open to choice*.

[29] Bernstein, Peter L., 1998: p. 272-275
[30] Bernstein, Peter L., 1998: p. 274
[31] Bernstein, Peter L., 1998: p. 105-106

Utility theory introduced subjectivity and psychology into the mathematical probability theory and transformed it into a decision-making practice.[32] Still, it was a practice that could be described by laws on rationality. Prospect theory gave a more balanced picture and brought management into the dealing with risk.

4.1.2 How to manage risk?

Shortly after the earthquake in Lissabon 1755, the French philosopher Rosseau ascribed the terrible consequences to human mistakes. According to Rousseau, man could have minimized the consequences of the earthquakes if spreading city settlements over a larger area.[33] The large impact of the hazard was therefore due to human mistakes and mistakes could be avoided by choosing the right strategy for risk management – by planning for continuity. This newborn risk management practice held great promise, if only the right strategy could be chosen for different problems.

Sociologist Zygmunt Bauman is not so content with the achievements of risk management so far. His opinion is that man from this point in history and onwards has travelled a long *"detour"*, fuelled by the success of human reason bringing wealth to man, just to end up at the same spot once more.[34] What does he mean by this? Bauman writes that:

> "Man-made disasters seem now as unexpected as their natural precursors (attendees/followers)…they are…understandable first when you >>look back and analyse them afterwards<<."[35]

> "Soon we, the inventors of automatics, will stand as defenceless in front of our own creations, as we stand when we are confronted with complex nature phenomenon."[36]

In the first quote Bauman speaks about what scientist calls the *hindsight bias*. The hindsight bias is the name for a human inclination to see events that have occurred as more predictable than they actually were. Most attempts to make use of historical events for prediction and preparation against future events are therefore fruitless.[37]

In the second quote Bauman speaks about how causality is being blurred due to growth and creation of complex systems, due to *system characteristics*. This is also something that has been noted by risk scientists as something complicating safety efforts. For example the problem of delimitation in time and space and the complex interaction among components (also hard to delimit) makes functional assumptions and linear approaches problematic.[38]

The blur of causality and the growing complexity are of course, to some extent, interconnected. However, what is truly essential no notice is that these processes pose real difficulties. Bernstein writes that *"since the end of the First World War the world*

[32] Bernstein, Peter L., 1998: p. 110-111
[33] Bauman, Z., 2007: p. 70
[34] Bauman, Z., 2007: p. 74-75
[35] Bauman, Z., 2007: p. 75
[36] Bauman, Z., 2007: p. 103
[37] Dekker, Sidney W. A., *The hindsight bias is not an bias and not about history*, 2004
[38] See for example Perrow, C. 1999: p. 75-77, Hellström, T. et al 2003: p. 50-51 or Vicente, Kim J. 1999: p. 15-16

has faced nearly all the risks of the old days any many new risks as well".[39] Bernstein ascribes the growing number of risks to the explosion of knowledge over the last 75 years, it has *"served (…) to make life more uncertain…"*.[40] The growing number of risks is probably also what Bauman means when he writes detour in an earlier quote above. The western civilisation has made large progress[41] from 1755 and on. Many threats posed by nature have in fact been eliminated but still we seem to stand before unconditional unpredictability – just like when God ruled. Perhaps we are a little wiser now than in 1755 but still as powerless. Fact is that if we spread our settlements to protect from earthquakes, we might just weaken our settlements for the risk of flooding.

In 1986 Ulrich Beck coined the phrase "*risk society"* to describe our society – a society overwhelmed with uncertainty.[42] However, Beck does not consider the growing numbers of risks to stem from an increased knowledge, but rather from an institutional source of error within our societies strive for progress – an error resulting in man being constantly one step behind the threats:

> "The production of risk and the miscalculation of them stem foremost from […] the rationality of science and *its* economic one-eyedness. It focuses entirely on production advantages. Thereby it, at the same time, suffers from a systematically induced blindness to risk. […] In attempts to increase productivity one has always and does always ignore the risks these attempts also result in."[43]

Beck and Bauman shows how progress has produced more risks than it has erased. However, many would probably criticise them for their focus on risk as threats. Just like many probably would criticize Giddens and Bernstein for their focus on risk as opportunity, although they have showed the obvious connection between taking risks and making progress. Who is right then? Both are, depending on what outlook on risk that we adopt. This means that there should be no doubt about the dualistic nature of the risk concept – it holds a positive as well as negative possibility. From the viewpoint of risk management it is interesting to notice how this positive outlook on risk, to which all the progress associated with modern society and science is ascribed, has been marginalized in our contemporary practice.

What is the lesson learned for continuity managers? It seems clear that continuity planning only makes sense if there is belief in possibilities to affect future conditions by means of proactive measures – i.e. to predict. This is one of the founding conceptions of our society and of course we do believe and we must believe in it. How can we know that our efforts will not be contra-productive? We simply can not. That is probably why Giddens writes that we will have to search for new ways to relate to *uncertainty*.[44]

4.1.3 How to relate to uncertainty?

Can investigating the nature of uncertainty render further insight on the problems with BCP? It has been proposed that, at the bottom of the uncertainty problem in economics is the forward-looking character of the economic process itself. Economic data are

[39] Bernstein, Peter L., 1998: p. 213
[40] Bernstein, Peter L., 1998: p. 206
[41] Progress should here be understood as the elimination of threats posed by nature.
[42] Beck, U. 1986: p. 84
[43] Beck, U. 1986: p. 84
[44] Giddens, A., 2003: p. 39

specific to their period of time since the economic environment is under constant change.[45] Past events therefore provide poor guidance in a new environment.

From a more technical point of view it has been proposed that uncertainty stems from complexity and, as Charles Perrow points out, this complexity often stems from a desire of obtaining functionalities that optimizes a process (see about system characteristics above in chapter 4.1.2). It is obvious that a tighter coupling among parts in a system, optimizing a flow, might introduce a higher vulnerability to disruptions. But optimization might also increase vulnerability in other ways. Below is a figure illustrating such an example:

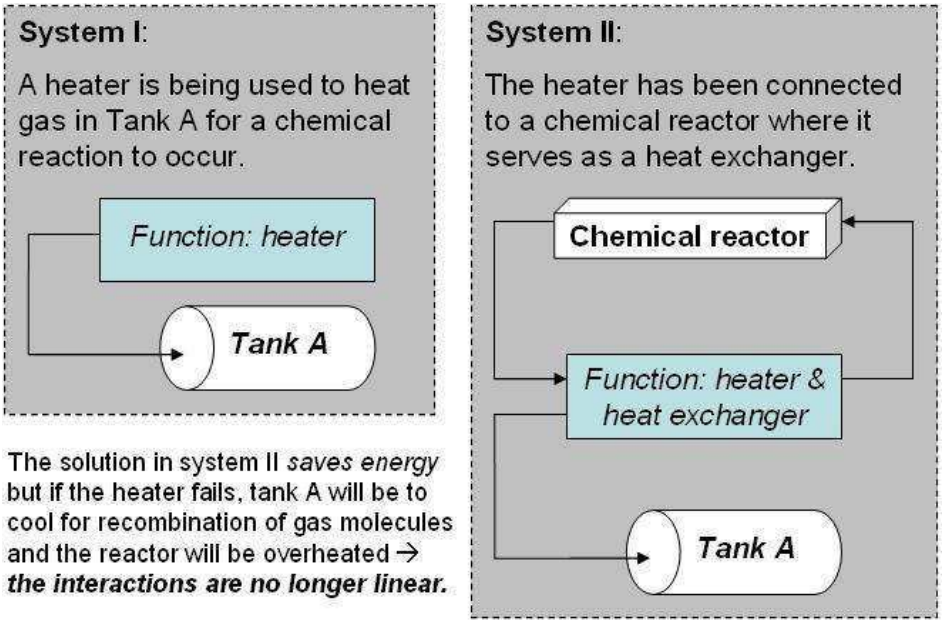

Figure 5 – Introducing uncertainty

The price we pay for receiving the optimized functionality is introducing nonlinear (complex) interactions.[46] Introducing these complex interactions increases potential for system disruptions. Consider for example a system consisting of four parts. Arranged in a non-linear fashion, the number of potential interactions produced by these four parts is twelve – to be compared with the linear arrangement that produces a maximum of four paths for system disruption.[47] The potential interactions grow exponential and note that four parts is a very small number for a production system. It is easy to see what effects complex arrangements can have for the level of uncertainty in a very large system. The discussion on optimization could thus be summarized:

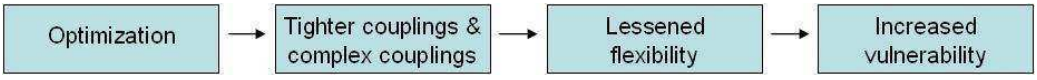

Figure 6 – Optimization and continuity

[45] Bernstein, Peter L., 1998: p. 227
[46] Perrow, C. 1999: p. 72-73, 76, 89-93
[47] Perrow, C. 1999: p. 75-76

How to relate to an increasing uncertainty? Perrow also showed that even redundancy might introduce additional complexity (uncertainty) and encourage risk taking in system.[48] His conclusions for risk management were therefore very pessimistic. According to Perrow, all systems where accidents can not be allowed from an ethical point of view should be shut down. Others have criticised this conclusion because of Perrows focus on redundancy as the main safety precaution. Leveson et al points out that risk management also could be about reducing complexity (reducing uncertainty) – evolve a simpler, decoupled design introducing looser couplings when necessary. Leveson concludes that risk management is a trade-off between optimization and introducing this *flexibility*:

> "The problem boils down to tradeoffs and determining how much risk is acceptable in order to achieve goals other than safety. Such decisions go beyond engineering"[49]

Here we can see a connection between the actuality of a risk society and the progress our 'civilization' has made – we can possibly understand the paradox. According to Ulrich Beck our risk society is a result of a blind drive for optimization, missing out the risk that has followed. If risk management is about deciding about acceptable risk level, as Leveson suggests, then society has so far prioritized the utility of optimization, maybe because people have not been aware of the rising risk level that has followed. How can real safety be provided then?

Safety, to Leveson, is a trans-scientific question involving moral, ethical and political questions. When deciding upon actions, engineers can only provide information about how much risk is acceptable – to inform decision-makers.[50] Hellström takes a similar trans-scientific stance as Leveson when he writes about the future of risk management.[51] His conclusions is more imprecise but supports Leveson in the way that he points out that risk management analysis must be yielding, it must have the ability to create something new.[52] Thereby Hellström also accentuates risk managements as a decision-making practice.

Considering the trade-off theory, risk managers should provide basic data for decision-making and suggest strategic decisions. This data should concern current degree of uncertainty, thereby visualizing possibilities both for optimization (increasing risk) and for increasing flexibility (decreasing risk). The trade-off theory also reveals that continuity mangers risk loosing the attention of their listener if continuously focusing on losses (great losses in particular) and continuously forcing for increased flexibility. Why? We do not want to get rid of all risk since it would necessary end all activities. Unfortunately, BCP is mainly set to deal with losses. To receive sustained attention, continuity managers must therefore strive for a directly positive output from the process whether the assumed loss occurs or not. Since the planning effort must be motivated, best would be if this output would consist of both optimization and flexibility considerations.

[48] Leveson, N. et al, *Beyond normal accidents*, p. 2
[49] Leveson, N. et al, *Beyond normal accidents*, p. 2
[50] Leveson, N. et al, *Beyond normal accidents*, p. 2-3
[51] Hellström, T. et al, *En antologi om framtidens säkerhetsfrågor* p. 51
[52] Hellström, T. et al, *En antologi om framtidens säkerhetsfrågor* p. 54

Leveson leans heavily on C. S. Holling in her studies. For example Holling opened his article that introduced 'resilience' as a concept for risk management, with a discussion on two separate views on continuity which both should be considered. Holling writes that if our system is strictly mechanical and performs under rather predictable external conditions, the natural aim is to achieve non-variable performance. On the other hand, if our system is an open socio-technical one, subject to constantly changing external conditions, the natural aim is rather to achieve persistence. Non-variable performance is more important in the first system, while persistence is more important in the latter.[53] Both these properties are aspects of continuity however.

This view is supported by Hovden et al who has shown that optimization methods do not value flexibility. According to Hovden, applying an optimization method directly affect the result since optimization always is searched for under given conditions, especially this applies to the deterministic scenario-based methods.[54] The choice of appropriate method is a question of weighing cost versus robustness, valuing flexibility takes more calculations but gives a more robust result (for what it is worth). Hovden concludes that:

> "…too low investments in flexibility may force actors to improvise in order to handle the unexpected courses of events, and at the same time deprive them of the resources needed for successful improvisation. The positive message is that many organisations may improve their safety *and* increase their profit if they avoid the pitfalls leading to too low investments in flexibility."[55]

Viewing risk as uncertainty has made risk management a trade-off practice, with generation of *the right data* as the key to a wise management.

4.1.4 How to manage uncertainty?

In the 1970's Kenneth Arrow described the relation between money, contracts and uncertainty. He proposed that no contracts would be written in money terms if we consider an economy without a past or future.[56] Writing contracts is one way of managing uncertainty, but *it can be a very costly business* depending on how much uncertainty that is to be reduced. This reflects the financial way of managing uncertainty.

Bauman does also elaborate with the future of risk management. He concludes that we must focus our efforts on a search for equilibrium between safety and freedom and make conscious that we are doomed to constant vigilance.[57] For Bauman, risk management is a question of making the right decisions *in the long run*. None of these decisions are entirely black or entirely white, but they will assure change and thereby transformation of our uncertainty. Decision-making is the operational way of managing uncertainty.

BCP is originally a financial risk management practice. It is also charged with the rather ungrateful mission to deal with all negative possibilities, everything that might go

[53] Holling, C. S., *Resilience and stability of ecological systems*, p. 1
[54] Hovden, J. et al, Exploring *beliefs in modelling decision-making: optimising and cost-cutting versus risk and vulnerability*, p. 8-9
[55] Hovden, J. et al, *Exploring beliefs in modelling decision-making: optimising and cost-cutting versus risk and vulnerability*, p. 13
[56] Arrow, Kenneth J., *Essays in the Theory of Risk-Bearing*
[57] Bauman, Z., 2007: p. 202-203

wrong. In this way BCP differs from other risk management because risk management transform identified risks to certainty (safety precautions) while continuity managers is *passive* in this sense – it deals with uncertainty without transforming it. The problem with this is that the human brain is not shaped to deal with uncertainties, it tries to transform as much as possible to certainty taking actions via the probability approach.[58] This also supports the idea of transforming BCP into a decision-supportive practice, actually supporting transformation of uncertainty.

What kind of material will give the balanced picture that best supports decision-making? Starting from the conflict between optimization and flexibility and the tendency to focus on optimization, Beck gives us a clue:

> "The increase in productivity goes hand in hand with the more and more subtle philosophy of division of labour. Risks however, assume a more comprehensive feature. They establish a direct and threatening relation between what is substantially, spatially and timely separated. They spill through this sieve of over-specialisation. They are what lie in between the specializations. In order to master risk one must possess overview and cooperate over all carefully established and cosseted borders."[59]

Beck's solution to manage risk is to make decisions about change in a wise way, based on overview. Managing risk is therefore a matter of delimiting and generating overview of our activities, and making decisions based on a contextual interpretation of this data. What is striking is that BCP generates such overview. Transforming BCP into decision-supportive practice therefore holds unforeseen promises. Firstly, transforming BCP into a decision-supportive process means to adopt the view on risk as being an opportunity and a threat simultaneously – the dualism of risk is acknowledged. Secondly, if only the decision-supportive data can be interpreted from an appropriate reference point, BCP can become the natural tool for a wise administration of our resources, aware as it is of both the necessity of optimization and the necessity of a certain degree of flexibility. Thereby our company maintains the strength to grasp opportunities that furthers our goals and simultaneously the strength to avoid imminent threats. Transforming BCP into a decision-supportive function therefore transforms BCP into a lucrative practice, increasing competitiveness for the company by ensuring well-administrated processes. If only the BCP data can be interpreted that is.

What is the best reference-point, the one that focuses company resources on constructive activities? What certain contextual interpretation are we looking for? Bill Sharon suggests that instead of worrying about all the things that might go wrong, we should worry about all the things that need to go right. There is a deeper rationality within this approach; Sharon also writes that "*while […] risk exists in nature, the categorization of it can not begin without a context. Context makes the interpretation of risk actionable*".[60] Strategy is the context that makes risk actionable according to Sharon - overview on our current activities can only be interpreted if put in the context of what we are trying to perform: *"[…] risk exists. It is neither good nor bad until it is understood in the context of the business objectives of an organization"*.[61] Starting from the problem of implementing risk management, for example due to problems of receiving sustained sponsorship from senior managers also charged with growing the

[58] Riskkollegiet, *Beslut under osäkerhet*, p. 3
[59] Beck, U., 1986: p. 97
[60] Sharon, B., *Operational risk management: the difference between RM and compliance*, http://www.continuitycentral.com/feature0243.htm, 2007-12-20
[61] Sharon, B., *Seeing the big picture, http://www.continuitycentral.com/feature0283.htm 2008-01-15*

enterprise, he concludes that risk needs to be understood across a continuum – from events potentially harmful to our business strategy, via uncertainties due to execution of the same strategy and finally, events that must be embraced to achieve our strategy.[62] Sharon also reminds us that "*…taking calculated risk is the driving force behind all successful business activities*".[63] Performing business activities is taking a risk itself and strategy defines how we should relate to all the uncertainty that follows from taking this risk. It is the systematic we deploy to deal with changing market conditions and production conditions in order to win in the long-term. The only true risk is therefore the risk that organization worries about other things than achieving our strategy – i.e. worrying about other things than what needs to go right.

4.1.5 Summary

How and why might participation fail in a BCP process? How to address the participatory problems with implementation of BCP? Below are presented some conclusions that underpin this theoretical framework:

- Historical studies emphasize the very obvious, that risk is a dualistic concept with both a positive outlook and a negative one.
    - To acknowledge this dualism measures to visualize risk in an objective fashion should be deployed, measures not judging upon current practice but instead paying respect to both positive effects and negative effects of current risk levels. Thereby decision-making is constructively enhanced – it becomes a matter of determining how much risk that is acceptable.
- Our perception of risk is not objective since it can be manipulated with a change of reference point.
    - People's perceptions of risk should be converged by means of adopting a common reference point. A common reference point means that people understand risk in a common way which furthers the goals of our organization.
- People are loss-aversive, not risk-aversive.
    - To acknowledge this fact we must accept that people understand and manage risk on a daily basis. People do not consider the large losses assumed by continuity managers as interesting since they are experienced in taking risk and consider these losses all too improbable.
- When continuity managers discuss threats that are hard to relate to and unlikely scenarios they risk loosing the attention of their listeners. However, these disruptions are within the scope of BCP.

[62] Sharon, B., *Seeing the big picture, http://www.continuitycentral.com/feature0283.htm 2008-01-15*
[63] Sharon, B., *Operational risk management: the difference between RM and compliance*, http://www.continuitycentral.com/feature0243.htm, 2007-12-20

- To receive sustained attention continuity managers must strive for an increased probability of a positive pay-off no matter what scenarios future brings along. If continuity managers wish to receive sustained sponsorship, uncertainty considering a *direct* pay-off from the planning must be reduced.

- Risk management is a matter of trade-off between system optimization and system flexibility.

    - In order to administrate our processes in a strategic way risk managers must generate data on current activities, visualizing current trade-off and thereby supporting decision-making.

Summarizing, managing risk is a matter of making strategic decisions. It is a matter of making decisions in accordance to what we are trying to perform. Our strategy makes data interpretable – visualizing opportunities, uncertainties and threats. The process of managing risk can thereby be described as a process consisting of 1) Generating overview of current activities, 2) Interpreting this data from the viewpoint of our strategy, thereby visualizing threats, uncertainties as well as opportunities and 3) Making decisions, transforming even threats to opportunities – opportunities of reaching our goals.

5. Empirical study

This chapter presents the data collected in interviews, data concerning how people on the Braås site perceives current BCP practice.

5.1 Case study: BCP participation on Braås Plant

This case study investigates how the current BCP practice is understood on one Volvo CE plant. The chapter gain its structure from the interview questionnaire. It summarizes data from ten separate interviews. Five of the interviews were with employees involved in the BCP process and five with managers not directly involved in the planning, but hopefully mediating sponsorship for the work to their subordinates. People that have been involved in the planning will be denoted 'respondents' and upper managers will be denoted 'managers'.

5.1.1 How the guidelines are understood

This first chapter gains it structure from the four guidelines of a BCP process, described under *2.1.2 – Description of current BCP practice at Volvo CE*.

- **Critical and non-critical activities should be defined**

  Everyone that could relate this to their field of work considered it important, rewarding and as an appropriate first step in a BCP process. One person emphasized its importance because it was a necessary prerequisite to work with improvements of current activities.

  However for some management fields, for example HR, facilities and to some extent IT, the task description did not match their field of work. It was considered not applicable because their task was rather to provide the right *conditions* to perform critical activities than actually *performing* them.

- **Interim activity for critical activities should be defined, if necessary in terms of alternative ways from normal business operations**

  This step was considered very useful by most respondents. One person suggested that it was important because it complements process of defining critical activities (understood as a "risk analysis") in the way it provides a "disaster plan".

  However, there were some remarks. One of the respondents asked questioned the definition of 'critical activity' and suggested that the possibility to define interim activities where dependant on what is considered to be a critical activity. Is a critical activity something that may stop production *or* something that is hard to define interim activities for? The respondent drew the following figure to illustrate:

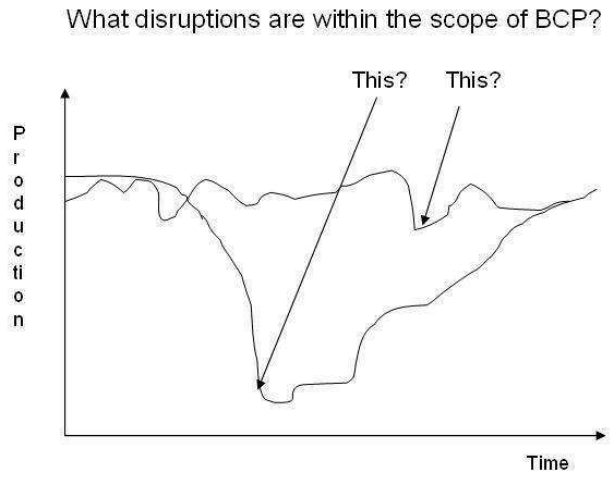

Figure 7 – Scope of BCP

Many activities are critical in the way they may temporarily halt production while others are critical in the way interim activities are hard to define – but what definition of 'critical' is adopted in a BCP? Critical activities performed by special equipment should of course be considered in a BCP but is this really the notion of a critical activity that a continuity manger wishes to communicate? The smaller disruption in figure seven above was not considered a BCP-matter by the respondent as he understood the guidelines.

Another respondent emphasized a need of communication between different departments when dealing with BCP questions, especially when critical activities were to be defined. In order to define critical applications for example, it takes knowledge about inter-department consequences of a disruptions.

- **Routines and procedures for re-establishment should be known**

  Reflections and consideration on this third step were more diverse than on the first two ones. One respondent considered it to be an appropriate step while another respondent considered it *"an extensive work that probably wouldn't prove useful if a disruption occurred anyway"*.

  A third one answered that it was very hard to define routines and that the procedure chosen probably is largely dependant on the actual scenario. The possibilities of defining a well-functioning procedure or routine was questioned since it might very well turn out to be an inadequate solution, it can possibly only serve to *"block our minds"* from seeing better solutions. Many respondents considered improvisation and problem-solving in real time possible and thought this would turn out more valuable than using a pre-determined routine.

- **Everything above should be documented in advance in an BC plan**

  A BCP of some sort were considered appropriate by all respondents, one even described the work as *"seeing the light"* and providing him with the

"professional equivalent to a life insurance". However, the same person also emphasized the necessity of keeping the plan á jour.

Some other reflections on its function and design were also brought forth. One reflection emphasized the necessity of a common view and a common understanding of the guidelines:

> "There is no use in walking if you do not know where you want to go. Some managers know their operations better than others but in order to penetrate the problem fully it is necessary that everyone approaches the problem in the same systematic way".

This respondent considered the guidelines very realistic but lacked goals and possibilities to measure goal fulfilment - to ensure good planning it takes preparation and evaluation. A checklist visualizing what grade of maturity that has been reached would be appropriate according to the respondent.

Another respondent argued that the name "BCP" was bad because it carried thoughts to a rather static document. A static document might, according to the respondent, even inhibit development of the operations since it was yet another small thing that had to be updated. Instead, the respondent preferred a living document that would keep a close watch on the performance variance:

> "A document consisting of a production flow broken down to a work-station level would lift step one and step two of the guidelines into the daily operations and continuously keep track on our most critical activities. Instead of demanding 100% back-up activities the BCP process should generate requirements of improved process quality. If this is to be done the flow of value within the different work-stations must be sketched and analysed – what is critical within each step of the process? This kind of work would complement and develop the FME–work (failure mode effect), by identification of critical operations."

- **General opinions on the guidelines**
  One respondent suggested that how well the continuity manager succeeds heavily depends on what part of the guidelines the focus is put during the work. For some departments, like the assembly for example, maybe interim activities are less needed than routines and procedures for re-establishment:

  > "Much of the material used in the assembly is common goods and not very hard to replace, the planning itself is therefore more important on fabrication were there is a lot unique equipment."

  The same respondent, a manager, understood if BCP was considered something *"the cat dragged in"*, because of the very broad work tasks that operational managers are charged with. Especially, the manager explained, because they are constantly being torn between the event-posed work and efforts for long-term improvements, where the long-term improvements often have to be put in second hand. The manager suggested that if it was hard to motivate for this kind of yearly effort then a drill should be initiated to test the BCP in sharp mode. On the question of whether or not this work was closely related to any other, the manger answered that the problems considered were specific to BCP and therefore important to pose.

As the key to success with current guidelines, another manager stressed the importance of raising the questions in the right forum:

> "To ensure participation it is absolutely necessary – and this can not be stressed enough – that there is continuous questioning and evaluation. It is also important to make sure that the agendas are fulfilled, in connection to all projects and process changes it is natural to require that a risk analysis [continuity analysis, ed. remark] is performed. […] It is also important to have standards to compare with, and external reviews to make sure that everything is correctly carried out."

This respondent suggested that the BCP question should be put on the agenda of the production manager: *"…this manager should feel responsibility for the development of a BCP and therefore, he should also be ready to set requirement for his subordinate operational managers"*. A resulting question was posed since the interviewer hadn't perceived this feeling of responsibility: what is most important for participation – the right organization or the right methodology? The respondent answered that: *"Organization is important in the way it motivates why we do what we do. At the same time methodology must be designed to fit every organization"*. Another manager was faced with the same question and answered:

> "Optimal would be if there is a big demand for the methodology, an understanding of why this work is important. Thereafter an organization can be established that supports the methodology. With an immature organization there is no understanding of why the work is important and that is why our first business must be with the question 'why' – we have to sell an interest for continuity questions. When the concept has been sold the proper methodology must be presented. I can feel that there are different degrees of insight about risk management within corporate management and operational management. Corporate management teams are often more keen on risk and have no problem to understand the necessity of risk management while it is hard to sell the importance of the work to operational managers. I do not want any side-organization however […] the work should fit with out hierarchical organization"

Extracting the utility of BCP and using it to motivate was considered central to this manger. Unfortunately, in the next sentence the respondent phrased that: *"there is currently not any good material that describes why this work should be performed"*.

If the guidelines were to be further developed in order to increase utility, it would be appropriate to integrate BCP with other projects. One manager described how the environmental work in business once started off as compliance to laws and regulations, i.e. with the aim of a certificate to put on the wall. Later it was more and more integrated with production development: *"…if it where to be done anyway, how could it be conducted to provide as much value for the company as possible? How should we apply this work for the best of our organization?"*. Lean production and process stability were examples of project areas that the respondent spontaneously thought could give BCP a free ride.

5.1.2 What kind of need there of a BCP

The answers on this question differed a lot. One respondent thought that the idea of a continuity plan was very good as long as it could be kept updated: *"This is my*

production insurance and therefore it is of no use unless it is á jour". A second respondent expressed a need of a BCP with certain modifications in the guidelines.

> "What would be good is to write down how problems have been solved before. A history of alternative ways of performing our operations and advantages and disadvantages of different solutions would be very useful, especially when the ones normally responsible of operations aren't working. This should be a routine, especially for critical activities. […] The documentation could be improved by using photographs. This would enhance the reading and understanding."

A third respondent expressed no need whatsoever of a BCP based on the current guidelines. Rather, the respondent saw a risk that this planning effort might give negative effects for process development because he considered the BCP as a very static document: *"A BCP is not interesting because it doesn't develop our production, rather, changes becomes something negative because it makes our BCP out of date"*. The interviewed proposed a change of focus for the guidelines:

> "The BCP work should have to do with the daily work. As it is arranged now, it puts unreasonable requirements that only inflicts on continuous improvements. Risk is not only a major catastrophe. If the rough falls in then only certain stations will be affected – it is better with a 'catastrophe plan' on this level. If the whole assembly hall is destroyed then for sure the disaster is so big that more or less all production should go down, and then continuity becomes a question of building a new better production site rather than restoring production. What is best for the BCP work to deal with is planning for smaller catastrophes on a more detailed level."

Instead of a BCP the respondent wanted to study continuity based on process flow diagrams or flow value chains but brought down to a work station level. The development of such diagrams could, according to the respondent, be combined with development of catastrophe plans on a detailed process level and would, at the same time, provide data for process improvements – thereby transforming BCP into a more yielding field of work. Some doubt was expressed whether or not this would be an appropriate solution for all processes: *"I am not sure that the other operational managers agree with me and of course the requirements must be realistic. For example the process flow diagram on work station level might be hard to develop for the department of material handling."*

A forth respondent, a human resources manager, did not think it was necessary to evolve a plan for continuity since: *"…it would take groups of people missing, like welders for example, if it was to affect production"*. This was considered an all too unlikely event and therefore not necessary to plan for.

A fifth respondent, a facility manager meant that his need of a BCP was very doubtful since he in his work only could provide the requirements for production.

> "On the machine level we can only provide requirements for production, not guarantee production itself. When talking about large disruptions I don't find it interesting to plan for those. If a site needs to be replaced it should be in the interest of the corporate management team and therefore they should have responsibility of planning for these kind of events. Besides, what is my plan worth in six months? In three years? It must be updated continuously if it is to be useful and the usefulness can't be guaranteed anyway. Somehow most things seem to be able to deal with. In case of larger disruptions I don't know if we even work at all? In case of a major power cut it is very probable that people not will be able to travel to work anyway so I don't think it possible to plan for such occasions. For smaller disruptions much can be done however, for example priority list and redundancy on the infrastructure but these kind of analysis are to some extent already done"

Another respondent, a manager, emphasized that even if nothing disastrous would happen BCP was an extremely important preparation and that the largest gains was not the plan but the reflection and analysis itself: *"it establishes a thought pattern that makes you think a little extra before making decisions"*. In stark contrast, another manager answered that the proactive planning was very important foremost to ensure a functioning process:

> "We need continuity management in the same way we need environmental management. Partly, business continuity planning is a cross-functional work that assures product quality – it runs through the work of the other management fields. Partly, we need to ask ourselves the question of how to deal with a disruption in our production in order to question the quality of our process – it is a work of its own."

However, the manager then stressed that: *"The disruptions discussed don't need to be big. Much of this work is being done already, though it is not documented. People manage small risks every day and it works well as long as these key-competences are present"*. Considering this opinion of a natural understanding for risk management, the manager naturally emphasized the need of selling a methodology to the organization:

> "…the classical problem with all risk management is that a number of disruptions are necessary before staffs are established to deal with these questions. Of course this is natural since the tempo is high and people have to keep their minds in the present; there is often no time to look forward. Therefore the concept must be marketed and sold on a low as well as high level in the organization. It is very important that the corporate management on Volvo CE consider it an important question. Frankly, I do not feel that Volvo CE considers it to be a question of high priority. It is also very important that the work effort could be put in relation to what events we actually faces – is the effort relevant for our current production situation? A model must be found that fits all organization maturity levels, we can not simply start with a program consisting of 200 measures for full implementation."

5.1.3 Investigating formal and informal utility of a continuity analysis

The question asked in this chapter was whether the respondent saw any use of a BCP *during normal production* – i.e. the question was investigating the utility of a business continuity analysis. One operational manager suggested that:

> "The continuity plan is good to have if for some reason, there is a short-term request of an increased production rate. […] The plan can also be used for volume planning, to ensure the volumes of future production.

But for this to be possible, the same respondent pointed out at as a necessary condition that the BCP document was á jour:

> "In both cases it is necessary that the plan is sharp. How to ensure this? Some sort of signal function is needed. Maybe the BCP could be part of the yearly agenda, possibly in the market-part or production-part of the budget process. Somehow it must be made a part of some process where things to be done is being checked. To maintain an updated plan it is also necessary to define the ownership, is it the CEO, is it the production manager or is it at business line level?"

On the following question, why this utility of continuity planning had not been noticed before, the respondent suggested the currently high production rate in our production system to be the answer: *"Maybe […] we haven't been enough pressed in our production system, now there is a higher shift-rate and that means less possibility to work overtime"*. Using the BCP to meet market expectations were also suggested by another operational manager:

> "The BCP should be used primarily to meet an increased demand on production from the market. Of course it can also be used to deal with disruptions but to a lesser extent since these are better dealt with in real time and based on information of the actual scenario."

One respondent suggested that if the BCP documented history and knowledge about the process, changes in the process, and alternatives for the process, the utility could be extended: *"…[it] could be used when flows are to be rearranged or when work stations are to be moved"*. This would make the document itself very important but this opinion was shared by few others. One manger emphasized that the main utility of the process was mind-opening effects: *"I sincerely hope that we do not have to use the plan, but it is important to consider these scenarios because it will make us better fit to make the right decisions, maybe even before something disastrous happens"*. Another manager similarly downplayed the role of the document: *"I view the decision-supportive information and the recommendations as the large gains from BCP, not the plan itself"*.

When faced with the question of a possible extension of the BCP scope, one manger answered that first and foremost continuity managers must be able to grade criticality of different business processes – i.e. synthesize information in order to create overview. A more constructive BCP were thought to require possibilities to keep track on availability. Keeping track on availability is a three step process, namely identification of application managers, establishment of goals for this management function and finally the design of appropriate measures for performance. All this steps were considered necessary if some sort of signal function displaying availability were to be developed.

5.1.4 What kind of support continuity mangers can provide

One respondent considered it important with consulting and coaching from continuity managers so that the continuity analysis is continuously conducted. The same feeling was expressed by another respondent: *"it would be good with an internal function that could coach through the planning and make sure that the BCP stays updated"*. This respondent considered continuity managers to be an appropriate *"help-engine"* function, furthering the questions at issue. However, the respondent also expressed confusion concerning the relation between BCP and other risk management:

> "…the BCP analysis is more thorough than the risk analyses used for maintenance for example, but at the same time the BCP analysis must be broken down to a risk analysis on a very detailed level. Maybe the organization needs to be clarified...?"

Another operational manager also expressed confusion concerning the continuity manager function. This respondent saw a possibility of transforming the business continuity practice. Instead of developing rather static plans, tools for continuity analysis could be used to work with continuous improvements of a process, thereby motivating the continuity analysis itself. This respondent lacked demand for continuous qualitative improvement of the production process, though the owner of this process, the production manager, not could be kept fully responsible for this.

More diverse opinions on organizational matters were also expressed. One respondent, a manger, was very firm on that continuity planning should be initiated by a central staff function – *"someone who feels that this work is the most important work I have to perform"*. The respondent considered it for the best if the BC work would be organized

as an external review. When a suggestion for an extension of the BCP scope, by arranging the gathered information in a summarizing way and make it a part of budget rounds for example, this manager was positive but yet again emphasized that this work should still be performed as an external review. Contrasting, another manager was of the complete opposite opinion:

> "My task, as I view it, is to be responsible for an audit while the methodology and structure for the work practice is to be provided by continuity managers. Hopefully this methodology will motivate production managers to perform this task for their respective process; they are the ones that should feel responsible to perform this work. […] In my utopia this is on the weekly agendas of different departments. But to establish a living document good selling argument, describing why the work should be performed, is needed – this is really about ensuring quality of the production activities – what we are supposed to perform in order to deliver our product. I have actually not found any good argumentation on why BCP should be performed. I think that there are no clear instructions or rules for how to perform the planning and it is not clear what is expected. It must be able to motivate both what to do and why it should be done."

Faced with figure seven above and the question of defining the scope of disruptions for BCP, this manager first explained that he thought Volvo CE already had *"an incredibly good BCM (business contingency management) work on the company and in our organization already. There is developed continuity thinking in small operations where people learn from their mistakes and risks they face"*. The manager considered one key to a successful implementation:

> "…to connect the BCP process with the daily work and establish a wider perspective on the continuity thinking described above, extend it to cover interactions that develop to larger disruptions. […] But I do not know when to start documentation for a BCP. This assessment can not be drawn in accordance to function. It is rather specific for each different process."

Another key was according to the respondent to be able to motivate all groups of employees, irrespective of organizational level, with a wider gain from the planning:

> "I can imagine that when BCP is presented the larger disruptions is displayed and of course the corporate management team consider it to be an important question. On the operational level (were the work is to be conducted) the understanding will probably be lesser however. That's why we have to try to bring the two entries to BCP closer to each other – we must support in both the small, everyday BCP business and the big, unlikely scenarios, where the big disruptions is a very small work in comparison. To be able to do this we must search for the continuity perspective in the operational work and adopt a BCP methodology structure that motivates why the work is important. We simply must close the loop, i.e. make the work constructive and rewarding. It can not only be a self purpose of continuity managers to perform this work, it can not only be in the gain of the insurance company. We need a wider gain, a wider return from the effort, but I can only support the method – the ownership is with production. […] Just like there is a connection between our sustainability work and quality work and the resulting end product, I think there is a connection between continuity management and the end resulting product. We need a result from the planning effort that favours our end product. […] To summarize everything is about the question 'why'. We need clear description of what we gain in return – what can we exchange in return for our planning effort?"

6. Case study analysis

Let's recall that the literature study established a theoretical framework investigating possible participatory problems with risk management. It also suggested how these problems should be addressed to ensure participation and sponsorship from organization. This theoretical framework will now be used to analyze the data collected in our case study. The aim of this analysis is to sketch possible paths for better implementations, paths that later will make it possible to identify key elements for a strategic implementation.

6.1 Reviewing current practice

The three main research questions will be discussed in this chapter, based on the data collected and the theoretical framework established in the literature study. This discussion will hopefully make visible possible paths for better implementation of BCP.

6.1.1 Participatory problems with current implementation

Operational managers have a natural place in a BCP process since they are owners of different steps in the process of production. Yet one manager expressed an understanding if they thought of the BCP work as something *"the cat dragged in*", since they are constantly being torn between operational, event-posed work and efforts for long-term improvements – there is simply not enough time to work with something that is neither of the both. Even long-term improvements often have to be put in second hand. Lack of time might be one problem with implementing BCP but such a problem would just reflect an inability ensure that enough resources are available for the planning.

Another manger suggests that senior managers do not realize what resources that are needed for the planning, because they think everyone easily understands the importance of BCP: "*Corporate management teams are often more keen on risk and have no problem to understand the necessity of risk management while it is hard to sell the importance of the work to operational managers"*. This reflection suggests a lack of a self-motivating methodology, instead the interest has to be "*sold*" by a "*…good material that describes why this work should be performed"*.

From the analysis above the motivational problems are either resources or marketing of the BCP concept. Even if the problem is resources there might be a marketing explanation however, illustrated in this quote of a manager:

> "…the tempo is high and people have to keep their minds in the present; there is often no time to look forward. Therefore the concept must be marketed and sold on a low as well as high level in the organization. It is very important that the corporate management on Volvo CE consider it an important question. Frankly, I do not feel that Volvo CE considers it to be a question of high priority. It is also very important that the work effort could be put in relation to what events we actually faces – is the effort relevant for our current production situation?"

The appropriate resource might not have been presented because these questions are considered a side-issue higher up in the organization. However, there is also a possibility that the corporate management team simply does not realize what resources it takes to sell the concept. Either way, a better marketed concept is needed to ensure participation.

However, judging from the scope of BCP (as defined by the guidelines) there might be considerable difficulties selling the BCP concept. According to prospect theory people are loss-aversive and unfortunately the guidelines seem to put focus on major losses. One operational manager understood the first and second step in a BCP process as a *"risk analysis"* and development of a *"disaster plan"*. Another respondent interpreted critical activity from the guidelines as possibly leading to a major disruption because of few available interim alternatives. A third respondent similarly expressed a malcontent with the scope of BCP and emphasized that "*Risk is not only a major catastrophe"*. This last respondent also thought that the BCP was a *"static document"*, possibly even restraining development of our process. This might be explained with the focus on risk as catastrophes which display a biased understanding of the concept, not paying respect at all to its dualistic nature.

There is more to this. A human resource manager did not think it necessary to evolve a plan for continuity since the scenarios necessary to make the planning useful were too improbable. Another respondent expressed distrust that even probable scenario can be planned for: "*In case of larger disruptions I don't know if we will work at all? For example, in case of a major power cut it is very probable that people not will be able to travel to work"*. A third respondent expressed the same distrust but from another viewpoint: *"…what is my plan worth in six months? In three years? It must be updated continuously if it is to be useful and the usefulness can't be guaranteed anyway"*. These opinions suggest that continuity managers are not only faced with the participatory problem because an assumed loss is central for practice of BCP. They rather reflect that people are not convinced that there is always a possibility to produce something useful. One respondent took this even further and expressed the fear that planning could *"block our minds"* from seeing better ways of facing a disruption when it realizes. Why to conduct a work if it does not necessarily produce anything at all?

Two main participatory problems have been identified in this chapter, partly there might be a lack of required resources to conduct the planning and partly the output might not be comparable with the invested effort. For both problems marketing might be the solution. This depends on what promises one consider the current methodology to hold – is it yielding enough if marketed in the best way?

6.1.2 An implementation that ensures participation

This chapter elaborates with the question of how to market the concept of BCP. Since we do not possess indefinite resources and can not expect to be given more resources, we must focus on the problem of marketing. Trying to exploit the utility of BCP as far as possible is therefore our aim in this chapter.

How to address the problem of usefulness discussed in the last chapter? Much of the discussion above concerned the problem of losing and the problem of relating to unlikely scenarios. It is a fact that losses and unlikely scenarios is within the scope of BCP. Therefore we must search for a way to motivate for the work anyway. One respondent suggested the following: "*Instead of demanding 100% back-up activities the BCP process should generate requirements of improved process quality"*. Instead of developing rather static plans, the respondent demanded a continuity analysis that could be used to work with continuous improvements of a process, thereby motivating the continuity analysis itself. A manager suggested the same possibility and concluded:

> "…to establish a living document, good selling argument describing why the work should be performed, is needed. This is really about ensuring quality of our production activities – what we are supposed to perform in order to deliver our product."

If the continuity analysis could be used for process development it would be better motivated. It would naturally solve the problem of marketing by producing a yielding output. It would also pay more respect to the dualism of risk. This might take a change of scope for BCP however. Why is this? Another respondent considered the guidelines very realistic but lacked goals and possibilities to measure goal fulfilment. Continuous reflection is necessary if a document should be kept á jour and the goals of a process fulfilled. But continuous reflection will hardly be reached unless there is a constant generation of data for analysis. And a constant generation of data will probably take focus away from planning for large losses. The planning must be more focused on describing and analysing current activities in detail. The scope of BCP must therefore change, if the output is to be more yielding.

Let us take a closer look on this necessary change. A blurry definition of critical activities has earlier been discussed. The smaller disruption in figure seven was not considered a BCP-matter by the respondent as he understood the guidelines. Of course, BCP can not with credibility uphold a possibility to erase all performance variance, but where to draw the line for the scope of BCP then? What is within the scope of BCP and what performance variability is within the scope of standard process optimization? Trade-off theory teaches us that risk management is a matter of deciding about how much risk that is acceptable. It is thereby accepting the dualism of risk. If BCP focuses on smaller disruptions it will involve a closer study of how current activities are performed. This will reduce focus on what might be lost in exchange for an improved definition of requirements for normal production. Generating this data in a BCP analysis gives a superior overview that could be used to suggest recommendations for process improvements. Thereby it transforms the BCP practice from a passive loss management practice to a practice actively developing our processes. This also means that the dualism of risk is accepted, and simultaneously also the *necessary* conflict between optimization and flexibility (it is necessary because conducting business activities we try to exploit uncertainty but since we know we can not control it, we also want free options if future is to be hard against us).

What are the advantages of choosing to address the participatory problems by broadening the scope? Firstly, a change of scope is also in line with what a manager stressed, namely that: *"The disruptions discussed don't need to be big. Much of this work is being done already, though it is not documented. People manage small risks every day and it works well as long as these key-competences are present"*. Secondly, if the BCP is transformed into a more directly useful document it is in line with theory which states that continuity managers must, in order to balance the loss management reality, strive for increased probabilities of a certain positive pay off – a guaranteed exchange for our effort.

Is there any alternative way to address the problem of usefulness discussed in the last chapter? It has earlier been stated that losses and unlikely scenarios is within the scope of BCP. If one way of relating to these participatory problems is a change of methodology, the alternative is to let methodology remain fixed. To succeed with such an implementation one manager stressed the importance of raising the questions in the

right forum: *"To ensure participation it is absolutely necessary – and this can not be stressed enough – that there is continuous questioning and evaluation"*.

How to be successful with such an implementation? We have seen that there is an obvious marketing problem. Letting methodology remain fixed is relying on that the current output holds enough value to convince people about the necessity of the work. One manager considered the largest gain from current practice being that *"it will establish a thought pattern that makes you think a little extra before making decisions"*. This is also a natural focus for a marketing effort. If the value of thinking in terms of continuity could be spread outside the group of continuity managers, then of course performing the planning should become a lesser problem. Therefore, education is an important measure if choosing this way of implementing BCP.

Considering both of the ways for implementation discussed above, another problem that must be resolved is the following. One manager suggested that how well the continuity manager succeeds heavily depend on what part of the guidelines the focus is put during the work. For some departments, like the assembly for example, alternative activities are less needed or less possible to identify than routines and procedures for re-establishment – what to do first if we loose work stations? Another manager suggested something similar:

> "I do not know when to start documentation. This assessment can not be drawn in accordance to function. It is rather specific for each different process."

This indicates that the current possibilities to perform BCP are somewhat dependant of the studied process, i.e. the methodology is not designed to fit every organization. Let us recall that two managers have suggested that such a methodology might lead to problems: *"Organization is important in the way it motivates why we do what we do. At the same time methodology must be designed to fit every organization"*. Another manager stated that:

> "Optimal would be if there is a big demand for the methodology, an understanding of why this work is important. Thereafter an organization can be established that supports the methodology"

A methodology will hardly be embraced if it is only partly applicable to our organization. Small adjustments of the methodology should be necessary even if one chooses to rely on the output of current practice for a successful marketing.

6.1.3 Actions transforming implementation

The core point in an analysis of what actions to take in order to resolve the problem of marketing is, as we have seen, the identification and refinement of the return from BCP:

> "Just like there is a connection between our sustainability work and quality work and the resulting end product, I think there is a connection between continuity management and the end product. We need a result from the planning effort that furthers our end product."

Two ways of bettering implementing BCP have been discussed above. One way is to invest resources into visualizing the gains from the planning, in order to motivate our organization for the effort. One manager suggested that if it was hard to motivate for this kind of yearly effort, then a drill should be initiated to test the BCP in sharp mode. This would automatically show the gains from keeping a BCP. The same manager

argued for a central staff function or expressed differently: "*someone who feels that this work is the most important work I have to perform"*.

The founding idea for this path of implementation is that even if nothing disastrous happens BCP is an important preparation and the largest gains is not the plan itself but the reflection and analysis: *"it will establish a thought pattern that makes you think a little extra before making decisions"*. Not everyone emphasizes the value of these thought patterns as the main gain however. Another manager stressed the possibilities of this proactive planning to ensure a functioning process:

> "We need continuity management in the same way we need environmental management. Partly, business continuity planning is a cross-functional work that assures product quality – it runs through the work of the other management fields. Partly, we need to ask ourselves the question of how to deal with a disruption in our production in order to question the quality of our process – it is a work of its own."

The alternative way is therefore the way that sustainability management has travelled, namely we must ask ourselves the question another manager phrased:

> "…if it where to be done anyway, how could it be conducted to provide as much value for the company as possible? How should we apply this work for the best of our organization?"

This is the way that tries to make the planning more directly rewarding and thereby enhancing everyday work for the people involved in the planning. Particularly, a focus could be put on the problem that operational mangers are constantly being torn between the event-posed work and efforts for long-term improvements. The first logical step then is to accept that risk is understood and managed by the organization already, in the everyday work. Instead of just managing uncertainty in a passive, financial way, a larger focus is put on smaller risk. This transforms BCP into an operational risk management practice and into a decision-making practice.

Deciding upon acceptable risk level is according to theory a trans-scientific question, ultimately meant for corporate management teams. However, the generation of BCP data to support decisions will give people involved in the BCP process a more active role in development of our processes – based on the data they can advocate certain improvements. Since continuity managers will get the best overall picture, they will also be given a key role formulating these recommendations. Thereby the continuity manager function is changed choosing this implementation path. However, the need of selling a concept to the organization remains:

> "We simply must close the loop, i.e. make the work constructive and rewarding. It can not only be a self purpose of continuity managers to perform this work, it can not only be in the gain of the insurance company. We need a wider gain, a wider return from the effort."

Methodology must motivate the value of such organizational change discussed above. This change must further the goals of other functions in our organization and, ultimately, further our end product.

6.2 Summary - two separate implementation paths

Two separate paths for better implementation have crystallized in the analysis above. One path promotes a strengthened central staff function or "*someone who feels that this*

work is the most important work I have to perform". The other path suggests a refinement of the methodology that better "*…will motivate operational managers to perform this task*". What are the other distinct features of these two paths? They are summarized in figure below:

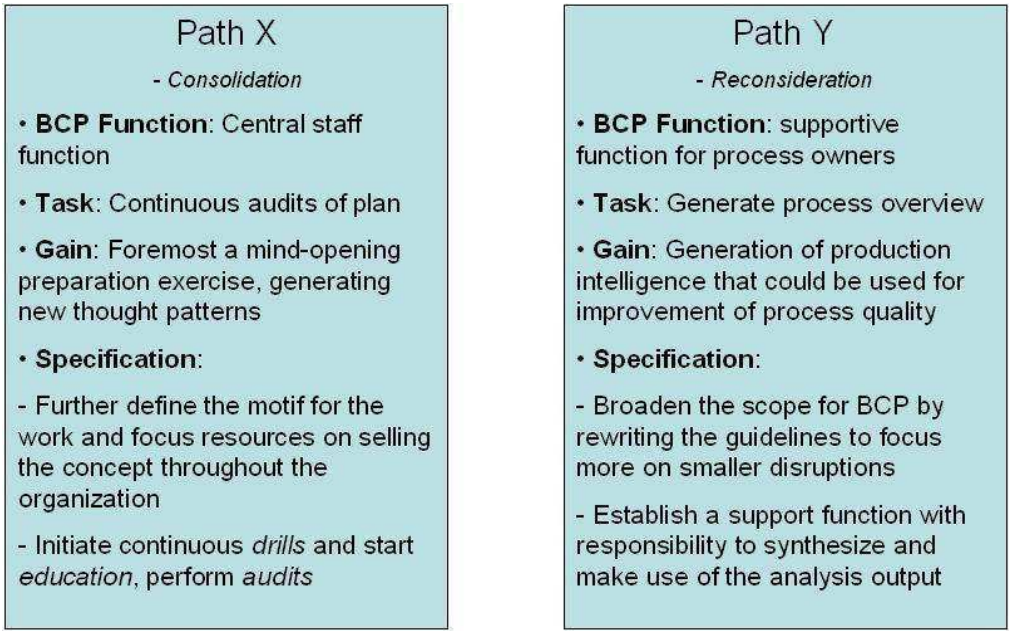

Figure 8 – Two separate paths for further implementation

The consolidating path simply involves strengthening the awareness of the gains from current practice by focusing resources on visualizing the gains from the concept and marketing these gains. A natural marketing strategy involves continuous audits, educations and drills. With these continuous educations, audits and drills the necessity of the work will be more and more apparent to people because they are forced to think in terms of business continuity. Also, a smaller rewriting of the guidelines should be necessary if the gain from the work is to be distinctly defined.

The reconsideration path is not complementary to the consolidation path because it involves a larger change in methodology, a broadening of the scope aimed at visualizing process risk on a detailed level. This transforms the plan from being foremost a crisis document to become a day-to-day document for operational decision-making – actuarial utility of the BCP is downplayed and operational utility emphasized. The reconsideration path also takes a concurrent integration of the BCP practice with the day-to-day practice of current organization. This integration could with advantage be implemented step-wise in a rational manner. Measures for visualizing process risk (to enhance decision-making) could be developed by continuity managers and these new methods for visualizing risk might call for a closer watch on the processes, thereby inducing organizational change.

Common for these different paths are that both demand a better definition of the gain from the planning, a definition of why the work should be conducted. The difference between them is the view on whether this gain could be motivated from current practice

or whether it takes reconsideration and broadening of the BCP scope to define such a motivating gain.

7. Discussion

BCP is a risk management practice. It is distinct however from other risk management in the way it assumes that a disruption will realize at some point in time. With this focus on upcoming disruptions BCP becomes a matter of managing upcoming loss. People manage these risks of loss on a daily basis. In fact, a closer consideration will reveal that "*…taking calculated risk is the driving force behind all successful business activities*"[64]. Getting rid of the business risk is therefore not desirable since it would necessarily end all our activities. The question is rather another one – how to *manage* business risks?

To manage risks they must be able to identify, therefore studies on risk perception might guide way. Firstly, these studies teach us that risk can only be understood in reference to what one is trying to perform, different risk appears whether the goal considered is surviving, eating, manufacturing or something else. Not all risks need to be *rational* however, some might actually stem from a lack of knowledge or a faulty perceptions of reality for example. Further, these studies teach us that not even risk expert can claim to perceive all risks. For this reasons, *cultural theory* advocates repudiation from an expert culture and efforts to establish resilience. Additionally, as *prospect theory* postulate, our notion of risk can be manipulated – our perception of a risk is a matter of reference point. Risk perceptions must be converged to further the goals of our organization. With these fundamental limitations on risk perception the question above should be specified by adding a few words. Rather than trying to manage risk, performing business activities is a question about trying to manage business risks *relatively well*.

7.1 Case study discussion

Two different paths for implementation crystallized during the case study analysis. These two paths are separate because they advocate different opinions on whether participation can be reached with current methodology or not. In this chapter these two paths will be specified and discussed.

7.1.1 Strengths and weaknesses – comparing paths

Wandering the consolidation path, methodology remains rather fixed. Choosing this path takes a conviction that it is possible, from current methodology, to develop and communicate a justification for the work that ensures participation. Hereby, convincing people becomes a matter of allocating resources and biasing the scope of BCP in a favourable way.

One of the founding perceptions of this path is the idea that if only the rest of our organization has the knowledge that the continuity manager possess, it would see the necessity of the work. Hereby, *education* becomes a natural measure to succeed since education transform people's way of thinking. Continuous *drills*, testing the BCP in sharp mode, also become an important measure for encouraging people to start thinking in terms of continuity. To summarize, only small adjustments in methodology is necessary since it is already considered to hold a convincing justification within.

[64] Sharon, B., *Operational risk management: the difference between RM and compliance*, http://www.continuitycentral.com/feature0243.htm, 2007-12-20

One disadvantage of choosing this path is that organizations current ability to think in terms of continuity is neglected. Since there is essentially nothing wrong with current methodology, at least not from a participatory point of view, the problem must lie with the employee's ways of thinking – i.e. it is an external problem easiest solved by marketing efforts, not an internal problem within BCP. It is hard to imagine that our organization possess no experience worth mentioning on the subject of business continuity. On the other hand, giving up these experiences might be considered a small sacrifice if the BCP practice can be structured according to the measures above.

Another disadvantage of the consolidation path is that the plan itself will remain a document of actuarial nature, hopefully only needed seldom. If the marketing fails, there is also an obvious risk that the organization of the work might give a reinforcing negative effect. As long as there is a certain function/department for the work of BCP there is always the possibility that people will view this function as charged with all responsibility, a disadvantageous opinion from participatory point of view. Both the low usefulness of the document and the possibly inhibiting organization must be balanced with a successful *marketing* if the implementation is to be improved. This marketing might be further complicated if there is in fact a lack of sponsorship from corporate management teams as the case study suggested.

If instead wandering the reconsideration path, methodology can not remain fixed. Choosing this path, there is no conviction that current methodology can provide the justification that ensures participation. New thought patterns aren't enough. Instead the methodology must be modified to produce a more direct gain – the planning must result in an output that is valuable even if no disruption occurs. For this reason the plan must be transformed from being an actuarial document to instead becoming a document for process administration. Choosing this path is taking a step away from viewing BCP as an actuarial practice.

One disadvantage choosing this path is that the large disruptions are paid less attention during planning. Initially they will therefore be less covered but this might change with further implementation. Nonetheless smaller disruptions and output variations is at focus. The advantage of this change of focus is the detailed process knowledge that can be generated. If this analysed data is synthesized, it might provide an overview of process vulnerability that could be used for an offensive administration of our process – an administration also holding changes necessary to improve process quality from a competitive point of view. The greatest gain from choosing this path is that risk becomes something actionable.

Ultimately, since risk has become something actionable that can be used in a 'constructive' way, it might outweigh the lower focus on large disruptions by providing a process that is well administrated from a risk perspective. At the same time the continuity analysis will provide possibilities for risk conscious optimization for example. Thereby risks is made conscious as something more than just threats, it is also possibilities. Data that provides overview on current activities gives a possibility both for optimization and introducing flexibility, thereby ensuring a well-administrated and competitive production process. Both types of changes also further our strategy in the way they are measures for maintaining persistence in relations to our customers. BCP becomes the tool for establishing resilience and thus continuity merges with resilience.

From a scientific point of view it can be interesting to note the drawbacks from a risk management practice that is proactive and passive simultaneously. This active-passive contradiction suggests that new concept must be developed by risk scientists to reach better management. Uncertainty can not be dealt with in a passive way. It must be transformed or rather, our point of reference from were we view uncertainty must vary by making decisions and taking actions. Choosing this reconsideration path, BCP is not longer a passive practice but an active one dealing with administration. It would be wise to clarify this by an organizational separation between the continuity management function and security functions dealing with personal safety, fire protection etc (more actuarial risk management). When measures to synthesize descriptive data about our process has been developed this process overview can be used to formulate recommendations for change. These three steps (describe — analyse – synthesize) are central for a new function. Continuity planning is, in the sense discussed above, operational risk management – not financial risk management. Further, this function can provide basic data for decision-making concerning business development, not only process development. Why? Since this function complements business intelligence functions with information about production capabilities.

The greatest disadvantage of the reconsideration path is probably the requirements for a successful implementation - it takes resources and a mutual understanding within our organization. A new function in organization must be shown to be in the interest of other functions. Perhaps the interest from other branches of organization, especially operational managers and manufacturing engineering, could be raised gradually if continuity managers present measures for a more and more yielding continuity analysis. Refining the continuity documentation to yield basic data for decision-making would do this. This kind of justification might be possible following the discussion below:

- *Operational managers* will be provided a supportive function (for long-term process development) with the overview and legitimate authority to put requirements on corporate management teams (for example concerning investment or volume planning). Also, projects for process development will be coordinated through one function bringing the process of change closer to the ones living closest to the change - operational managers and their subordinates. Additionally, descriptive data generated by this new function, such as *value flow diagrams* and detailed process descriptions, should eventually ease event-posed work for operational managers.

- *Manufacturing engineers* will be provided a gateway for all projects that should increase mutual understanding and thereby enhance implementation.

- *Process owners* will be provided an overview of process vulnerability and thereby given the chance to make wise, strategic decisions.

- *Corporate management teams* will be provided the same process overview for respective production sites and thereby given the chance to make wise, strategic decisions. These decisions might for example concern investments, volume planning and/or optimization – i.e. how to allocate and exploit company resources.

- The market side and especially *business intelligence* will be provided its natural counterpart within production. What risks should we grasp within production and what risks to avoid? Our long-term planning of company product portfolio and site production volumes might be strengthened when the production capabilities are known at an early stage of the planning. This makes our product and our process development more strategic and better supported.

This justification is, as earlier mentioned, only valid if a more yielding methodology can be developed. A very primitive example of such a yielding methodology is one that grades different parts of a process judging from possibilities to initiate interim activities and compiles this analysis to present an overview of vulnerability (from the perspective of interim possibilities).

Strength and weaknesses can be summarized as in figure below:

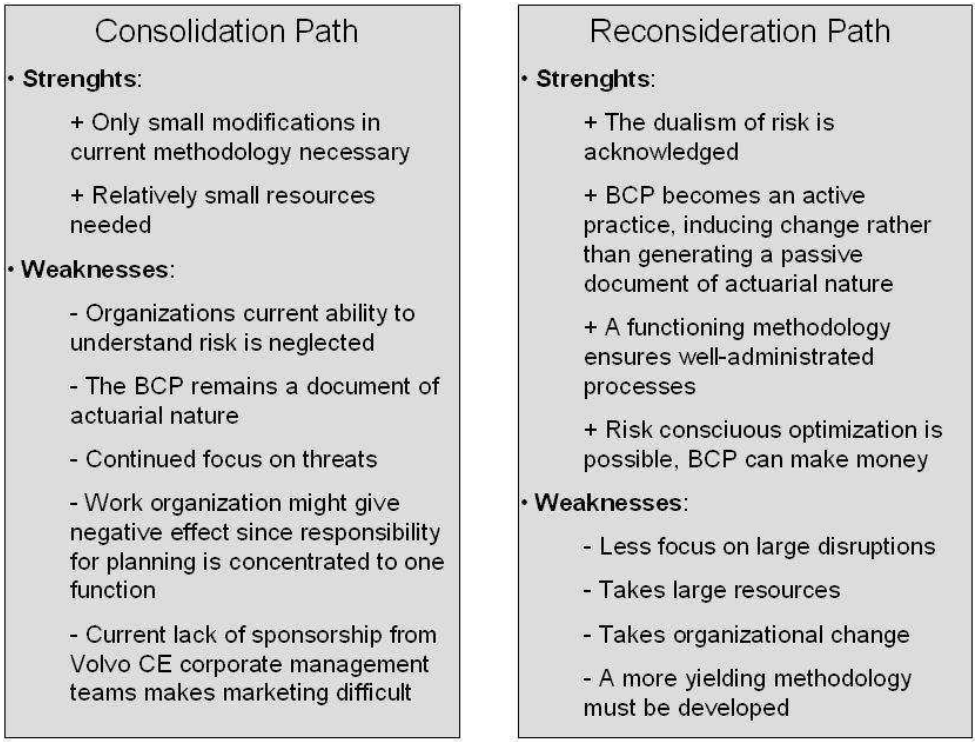

Figure 9 – Summary - Strengths and Weaknesses

Concluding, both of these paths for implementation are demanding but they should be realistic. The path one chooses should be highly dependant on how much one is prepared to change the scope of BCP.

7.1.2 Key elements for a strategic implementation

Specified and compared the two paths have given clues on key elements that should be considered to ensure a strategic implementation. This chapter will discuss these elements in order to structure the final recommendations.

The consolidation path suggests that the problem of implementing BCP is a marketing problem, this practice of BCP is essential but since it is new the concept must be sold throughout our organization. Education and drills are two simple measures to improve participation. Audits are of course also an effective tool to push for development. However, the success of all these three measures are, at least in a long-term perspective, dependant on what return the methodology holds and how well this return can be *marketed*. Since advocators of this path consider methodology to hold a motivating return, implementation is a matter of how to market BCP.

The reconsideration path rather suggests that the problem of implementing BCP is a methodological one. The solution described in this thesis is partly a modification of the BCP *process* and partly *organizational* change. Choosing this path it is assumed that these actions automatically will enhance a favourable marketing of BCP.

Summarizing, there can be said to be three key elements necessary to consider when implementing BCP, one business-related component connected to marketing, one process-related connected to methodology and one function-related connected to integration with organization. These three elements are described below:

- *Justification* – a convincing description of *what* goals that should be reached and *why*, the 'what' and 'why' is here interchangeable. This is more or less of a *business*-related component in the way our organization can be seen as "buying" a methodology. The "price" paid (invested time, effort, human resources etc) must of course be considered appropriate in comparison to the output, otherwise interest rates will fall and participation will fail. What is an appropriate price is connected partly to the actual return from applying the methodology and partly to what extent this return can be visualized and communicated – i.e. what promises the concept holds for successful marketing.

- *Methodology* – a description of *how* the goals are to be reached. This *process*-related component defines the usage of technology (templates for example) and is what the customer buys.

- *Organization* – a description of who is to do the work if the return is to be reached. This *function*-related component is important to consider in order to find out whether the return can be reached with current organization or if we need organizational change. The most suitable organization is the one where the people involved in the planning can exchange something for the effort, i.e. becomes rewarded for their work.

A business plan that interconnects these three fundamental constituents (marketing strategy – process description – work organization) in a natural way should produce a solid strategy for implementation. No matter what path chosen for the future practice of BCP, these elements remain to be at focus for a successful implementation.

7.1.3 Recommendations for Implementation of BCP

This chapter elaborates with the conclusions so far. It tries to make clear the possibilities held within both paths in order to reach recommendations. The

reconsideration path is of course at focus since it is the more radical one. Finally, the recommended strategy for implementation of BCP will be described.

Choosing the *reconsideration path* takes reconsideration. The word 'implementation' suggests that there is something fixed and settled that should be realized. To what extent may we then compromise with the traditional scope of BCP? Can we still call it implementation of BCP if the scope is changed? Well there is nothing in the word continuity that disqualifies dealing with smaller disruptions. Additionally, there is a possibility that dealing with smaller disruptions in a systematic way might prevent them from growing to become large one – in other words, to start out preventing small ones might help preventing large ones better than starting out to prevent large (even if this is what an insurance company is eager to do). Though there are no guarantees there should neither be any doubt concerning the legitimacy of calling Path Y 'implementation of BCP', although the scope has been changed.[65]

More doubt should be present considering that the reconsideration path breaks with the actuarial history of BCP. Fact is that this path does not allow the actuarial nature of BCP to flourish since it adopts the view on risk as something strategic and exploitable. Truth is that BCP as an operational risk management practice aims at making money for the company both through optimization (possibly increasing risk of disruptions) and building flexibility (possibly decreasing risk of disruptions). Insurance against discontinuity is about operational solutions and not financial ones. BCP is really a measure for taking the risk of manufacturing in a certain way, namely a conscious and more formalized way. Thereby continuity holds the promise of earning money. Of course, insurances are still important but our BCP should hardly any longer be one parameter for deciding insurance fees – controversial, yes.

The big gain from this is that dropping focus on large disruptions, people's notions of risks can be transformed from something paralyzing to something actionable, thereby resulting in an improved end product (gained money). A disconnection of BCP and the risk management department facilitates this. A new BCP function is thus to provide basic data and recommendations for decision-making concerning development of our processes, in respect to our system of production sites and system of production processes. Thereby it equips organization with the *production intelligence* (PI) function complementing already available business intelligence functions. Further, if these two functions are united and work together, our organization pays respect to two fundamental facts, 1) Our processes exist within a production system exposed to changing conditions which makes strategic allocation of company resources necessary. 2) Our production system exists on a market exposed to changing conditions which makes strategic administration of company resources necessary. The PI function can thereby be summarized as below:

- PI is the natural link between production and business departments, charged with formulating strategic recommendations concerning future business and preparing projects concerning process development, projects initiated by recommendations from business departments.

[65] BCP might be considered a bad choice of name however since 'planning' makes thoughts wander to a static document while the role of BCP, choosing this path, is connected to a continuity analysis and taking measures based on this analysis.

- PI keeps track on our production process from a qualitative perspective, charged with formulating strategic considerations concerning process development and putting recommendations towards business departments as well as corporate management teams.

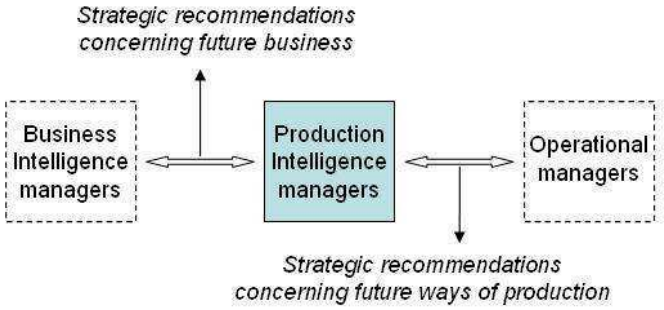

Figure 10 – The PI function

A PI function becomes the natural bridge between our production system and our market (the customers). Bringing market and production closer vouches for a strategic and wise administration of our processes – i.e. *business wellness*.

As discussed above, BCP is the natural tool for such a PI function. The connection between BCP and PI could be seen by visualizing how BCP furthers the goal of PI and how, simultaneously, PI furthers the goal of BCP. BCP aims at minimizing effects of disruptions. This requires clear and detailed *description* of our processes that can be *analysed* from the viewpoint of system flexibility. *Synthesizing* these analyses provides superior overview of our process. This overview holds the possibility to prioritize investments but it is of no use if it can not be interpreted. The BCP can be summarized in a figure:

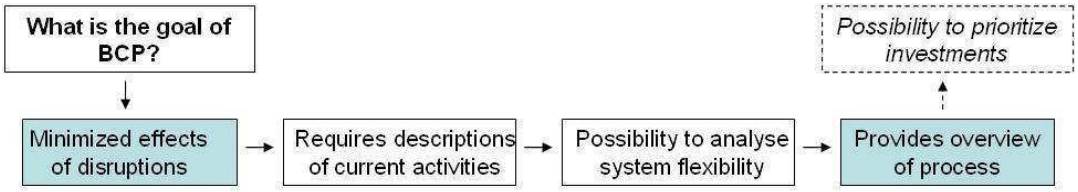

Figure 11 – The BCP process

A PI function is charged with enabling strategic decision-making concerning administration of our production – it is charged with providing recommendations on intelligent re-arrangements of production. This requires two things; firstly that process overview can be reached – using BCP will, as we have seen, assure this. Secondly, this data must be interpreted in a way that visualized all threats to avoid, all opportunities to grasp and all uncertainties to investigate further. Using strategy for this interpretation will visualize risk in such a way because strategy describes what we are trying to perform – it puts data in the natural context. Thereby threats, opportunities and uncertainties appear and become possible to relate to and act upon. In a long-term perspective, the result is a well-administrated process that will minimize effects of disruptions. But as we have seen the strategic administration is not possible without data

generating overview on system flexibility. The PI process can be summarized in a figure:

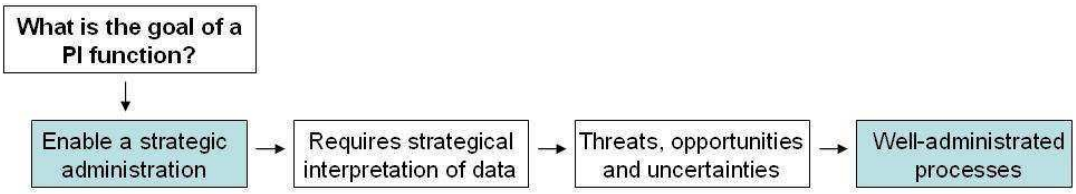

Figure 12 – The PI process

Summarizing, BCP lacks the strategic interpretation of data that minimizes effects of disruptions in a wise way. The PI process lacks data generating overview on system flexibility necessary for a strategic administration. However, putting these two processes together furthers the goals of both of them:

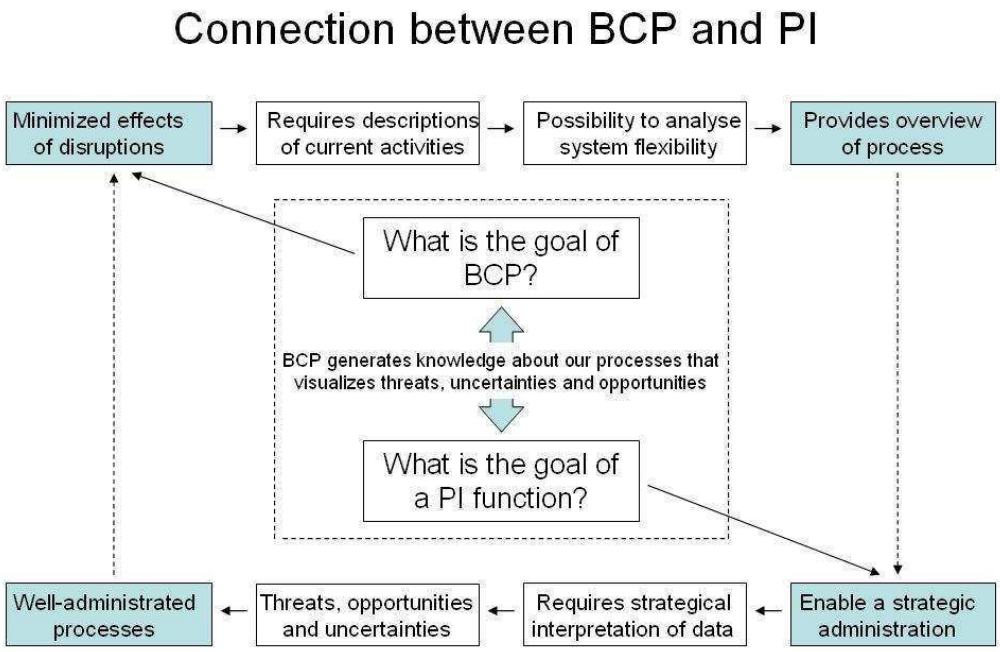

Figure 13 – A production intelligence process

If instead choosing the *consolidation path* the actuarial nature of BCP is maintained. The gains from BCP will then have to be visualized by means of educations, drills and audits. Continuity manager will have to walk a tightrope and be careful not to deter people with the losses that are assumed during planning. There is a possibility that eventually, due to the pressure from the continuity managers, the BCP practice will settle and that continuity will become a natural perspective when reviewing everyday activities and decisions. But this is also the only real gain from choosing this path – the plan itself will remain an actuarial document hopefully only used seldom. There is also legitimate reason to assume that risk will remain understood as something actuarial, threats that only can be insured against.

My conviction is that the *reconsideration path*, although it is tricky and requires approval and accommodation from our organization, holds the best promises of establishing an effective and progressive as well as proactively wise continuity practice. It is thereby, according to me, most fit to ensure a relatively good treatment of small and large disruption. My recommendation is therefore that the key elements of a strategic implementation are reviewed in detail. To succeed with implementation there should be a detailed and thought through business plan for the path one chooses, below is a draft of such a plan for the recommended path:

Figure 14 – Draft for BCP Business Plan

To succeed with implementation this business plan must be worked out thoroughly, it must be perfectly sharp and clear. *It is my recommendation that this becomes the main focus for the board of continuity managers, no matter what path one chooses.* However, to summarize the discussion above, there are numerous advantages if administrating our production system in accordance to the reconsideration path:

- A comparison of data describing current activities and the strategy description of what we are trying to perform will generate production intelligence that enables a sound administration of our processes.
- Continuously keeping track on current threats, uncertainties and opportunities will produce a natural gateway for change management projects and spread an understanding for these changes which enhances implementation.

- Administration will communicate an understanding of risk as not merely threats but also opportunities that should be embraced, and thereby establishes a corporate culture were changing conditions becomes opportunities to learn and improve.
- If a strategic production intelligence function charged with a risk conscious administration is established, business departments and production departments will be brought closer together which enables a more swift response to even the tiniest changes in market or production conditions.

Transforming BCP from a passive, actuarial practice into a decision-supportive, administration practice will not only resolve the problem of implementing BCP. It will simultaneously leverage corporate culture, establish a risk conscious and sound systematic for process administration and further company strategy. This will ensure well-administrated processes, establish resilience and support business wellness.

7.2 Concluding statements

The continuous progress of our economy puts heavy requirements on all companies to develop if to remain competitive. Optimization has become an important concept in this strive for growth, one that holds so many promises that the drawbacks are often left unnoticed. This study has showed that non-variable performance is not a desirable goal for a production system since it introduces vulnerability and thereby threatens our possibility to perform activities. Simultaneously, full flexibility is neither an option since it would necessarily end all activities. What kind of balance do we want then?

Resilience is a concept that continuously has appeared in this study. It is central to understand the recommendations put in this final chapter. Resilience refers to persistence in relations, ultimately persistence in the most important relation – the one between a company and its customer market. To reach persistence within this relation our production system must be optimized enough to compete under current market and production conditions but at the same time flexible enough to survive a sudden change in these conditions. Resilience is really the type of continuity that we should strive for.

In order to reach this balance we must close the gap between business managers and production managers, thereby making a sound and healthy development of our production system possible. Developing the right organization is not enough however, we must also search for a systematic for making wise, strategic decisions on what optimizations to conduct and what flexibility to introduce. Only if this is possible, well-administrated processes are ensured. This study has hopefully showed that BCP holds the promise of establishing such a practice.

If choosing the reconsideration path the BCP practice is transformed from being a passive, actuarial consideration to instead becoming an active, forward-looking practice. Therein lays the key to reach participation. It also means that our company embraces the view of risk as a question of worrying about everything that needs to go right – what risks that should be embraced as opportunities, what uncertainties that should be investigated further and finally, what risks that should be considered true threats and be avoided. Thereby the concept 'risk' reconnects to its *etymological* origin and BCP becomes an organizations gateway *to dare* success.

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Interviews

"Respondents":

Manufacturing Engineer 28/11

Operational manager – assembly 19/11

Operational manager – fabrication 22/11

Operational manager – material handling 28/11

Facility manager 29/11

"Managers":

IT manger 23/11

Production manager 30/11

TQM manager 26/11

BCP responsible 5/12

HR manager 29/11

Appendix 1 – Interview questionnaire **(In Swedish)**

Självklart kommer inga namn att nämnas så säg vad du tycker, ta chansen att kritisera!

Syftet med intervjun: från årlig insats till ett mer naturligt inslag i det vardagliga arbetet

Riktlinjer för kontinuitetsplanering:

- Kritiska och icke-kritiska produktionsaktiviteter ska definieras
- Alternativ för att ersätta kritiska produktionsaktiviteter ska definieras
- Rutiner och procedurer för att återställa normal produktion ska beskrivas
- Allt ska dokumenteras i en kontinuitetsplan

Frågor:

1. Möjliga problem:
   - Hur uppfattar du de här riktlinjerna? Punkt för punkt?

2. Värdet av BCP:
   - Har du behov av en kontinuitetsplan? Varför? Varför inte?
   - Vid normal produktion, ser du någon användning av en kontinuitetsplan då?

3. Utförandet:
   Behov och önskemål: Vad tycker du?
   - Vad ska kontinuitetsplanen användas till?
   - När ska den användas?
   - Vilket stöd från en continuity manager skulle du önska?

Appendix 2 – BCP Template **(In Swedish)**

Kontinuitetsmöjligheter - Detaljtillverkning					
Enhet:					
Ägare:					
1. Maskinersättning					
1.1 Omlagt maskinutnyttjande					
Maskin	Intern ersättare	Kravspecifikation	Ledtid	Kapacitet	Notering
1.2 Alternativ produktionsmetod					
Maskin	Metod/Leverantör	Kravspecifikation	Ledtid	Kapacitet	Notering/Kontaktuppgifter
1.3 Rekonstruktion av förlorad produktionsutrustning					
Maskin/Verktyg	Metod	Leverantör/Notering/kontaktuppgifter	Ledtid		
2. Maskingruppsersättning					
2.1 Extern produktionsmöjlighet					
Funktion	Leverantör	Kravspecifikation	Ledtid	Kapacitet	Notering/Kontaktuppgifter
3. Back-up för komplett artikel leverad ut från enheten till ytbehandlingen					
Artikel:					
Modell	Leverantör	Kapacitet %	Ledtid	Notering	