

# CHALMERS



## Uncovering the Mystery of Improvisation in Project Management

An Exploratory Research

*Master of Science Thesis in the Master's Programme International Project Management*

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Department of Civil and Environmental Engineering  
*Division of Construction Management*  
CHALMERS UNIVERSITY OF TECHNOLOGY  
NORTHUMBRIA UNIVERSITY  
Göteborg, Sweden 2012  
Master's Thesis 2012:37

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Examensarbete / Institutionen för bygg- och miljöteknik,  
Chalmers tekniska högskola 2012:37

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## **Acknowledgements**

First of all I would like to thank my supervisor, Petra Bosch, who has been there and guided me through some really tuff moments. A special thank goes also to Dr. Stephen Leybourne who has helped me to understand improvisation and in general provided guidance during the study. My next thanks goes to all the participants that found time and agreed upon being interviewed. Not only did they provide valuable information for the study, but they also shared information that could help me become a better project manager in the future, and for that I am thankful.

I would also like to thank all of my teachers, at Chalmers and at Northumbria, for preparing me for this study. My last, but not least, thanks goes to all my family and friends who have supported me, not only during this study, but through my whole educational lifetime.

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## **Preface**

Prior to finishing the dual award program between Chalmers University of Technology and Northumbria University, I started to think of dissertation ideas. The interest has always been around the behavioral aspects of project management and the softer sides of the project manager. At the same time I wished to contribute in some way to the project management world. I remembered reading in a book about the everyday project manager, also called the improvising project manager. I started to read up on the subject, where I noticed that it was relatively new and not all organizations were aware of what it really meant to improvise. This was the basis for choosing improvisation as my dissertation topic. I wanted to explore the phenomena of improvisation and since it was relatively new in research, then any findings could contribute to something.

Though being a broad area, some limitations had to be made. The focus ended up being on project managers from three different organizations in Sweden, conducting improvisation.

## **Abstract**

Looking back at the last two decades improvisation has been more and more acknowledged in organizations. Unfortunately improvisation is still a relatively new concept in research and not all organizations and project managers are familiar with the phenomena. Therefore the aim of this research is to explore and shed some light on improvisation in project management, looking at how it unfolds, under what circumstances and why.

This was done by first doing an excessive literature review on improvisation, in order to get a better grasp of the subject and identify the main elements. This was followed by a qualitative study, where seven project managers and one expert in the subject were interviewed. The participants all shared cases in which they felt that they experienced improvisation. These experiences were studied as cases, as part of case study research approach. The data was extracted, analyzed and the compared to the theory.

The main findings were that in fact improvisation was recognized by all participants, but they all improvised at different degrees. This depended much on the organization in which they were working. The more structured and routinized the organizations were, the lower was the uncertainty and the degree of improvisation. Besides the organization, another factor that plays a big role in the occurrence of improvisation is how important the project managers perceive the situation.

A set of elements were associated with the process improvisation; creativity, bricolage, intuition, adaption, innovation and learning. These can occur within the improvisational act, but they could also occur without the presence of improvisation, and vice versa. What seems to steer this is the degree of improvisation; the higher the degree of improvisation, the bigger the chances that all of these are included and at higher level. Risk perception was also an element identified and is concluded to have both positive and negative effects on conducting improvisation.

At the end the aim was to shed some light on the subject which the researcher believes that he has done. Hopefully this will open up a field for future research that can explore the area even further and explore even more areas associated with improvisation.

**Key Words:** improvisation, uncertainty, project management, creativity, intuition, bricolage, change management, organization structures

# **1 Introduction**

*In this section a rationale for the study is presented, together with the research questions that will be tried to answer, followed by a chapter outline.*

## **1.1 Background and Aim**

Everyday people are faced with the unexpected, with most of us not even knowing about it. This is traced all the way back to the beginning of communication. When two people communicate they can never be entirely sure how the other person is going to respond to what they just said or did. In that case when the other person does respond, one finds themselves in a situation where one has to act in the moment and come up with something 'new' to say that corresponds with the other person's response. This phenomenon is described by Molander (2000) as improvisation.

If we now look at organizations then the traditional view of doing in organizations has been plan then do, suggesting a strict and linear procedure. If something did not go as planned and people were forced to leave the plan, then this was seen as a dysfunction, in form of bad planning or poor management, (Quinn, 1980). Today's market environment is very flexible, open, problematic, uncertain and in general complex, where customers and clients change their minds about their needs and wants all the time, as a result from something way beyond organization control, (Eisenhardt, 1997). This kind of environment setting does not align with the traditional view on doing and instead organizations need to learn to adapt if they want to sustain competitive advantage and adaption per se is one of the components of improvisation. This need for adaption to the circumstances moves the focus in organizations away from processes, routines and structures and instead implies the need to focus on people.

According to Leybourne (2006) improvisation is an arising topic in association with organization knowledge management and many authors are trying to explore the benefits of it. It is mostly associated with the change management of project management, where it is defined as adapting to the changes that arise during projects, but were not planned for. In general project-based working practices are more widely used in used in organizations and on a universal level it is the most efficient way associated with change management, (Leybourne, 2006). The thing with projects is that they are not as predictable as may seem from the plans, where there is a design phase, implementation phase, etc., instead one of the main characteristics of describing a project is the word uncertainty, associating projects with going into the unknown. Going into the unknown implies the fact that the plans will always be to some degree incomplete, and project managers will find themselves in a position where they face the unexpected. In these situations they have the

option to re-plan, if they have time, or if they do not have time, then they improvise, (Leybourne, 2006).

Leybourne (2006) further states that there is no doubt that project managers improvise and sometimes this leads to positive and sometimes negative outcomes, depending on factors such as experience, environment, etc. The problem with this does not lie in the negative outcome, but rather the problem is associated with organizational learning and organizational memory. Chelariu, Johnston and Young (2002) follow up on this issue and talks about organizational learning and organizational memory. Chelariu Johnston and Young (2002) explain how improvisation does occur, but people do not admit doing it, due to the fact that they are then held accountable for the decision they make. In this way important information gets lost and nothing is learnt, e.g. an unexpected change comes up, the project manager improvises and deals with it, but doesn't record it, so whatever outcome is generated from the act of improvisation, is seen as part of the pre agreed upon plan.

Now although it is an arising topic and although project managers do improvise, (Leybourne, 2006), it is still a new topic and little is known and published on the phenomenon of improvisation. In turn organizations miss out on learning from it and project managers are afraid to improvise, even though it could open up for new opportunities. This study is exploratory and *the aim is to shed some light upon the topic by exploring the process of improvisation in project management.* Hopefully this will lead to better understanding of the phenomena and open up a field for future research.

## **1.2 Research Question**

With the background and aim of the study in mind, the following research question and sub-questions have been formulated:

**How does improvisation unfold, to what degree and under which circumstances as a process of Project Management, and what are its consequences for the Project Manager and the Organization?**

- How does improvisation unfold as a process and in particular dealing with the way project managers conduct this process?
- What is it that leads to improvisation? Under what circumstances does it occur?
- Which contextual factors play a role to achieve/support/impact improvisation? e.g. different backgrounds, experience, knowledge, organizational support.

### **1.3 Objectives**

- Do a literature review on the subject of Improvisation.
- Investigate the occurrence of Improvisation in organizations and project management, by interviewing project managers in Sweden.
- Investigate what it is that makes project managers improvise and how they conduct the process of improvisation.
- Investigate if there is any connection between the background of the project managers and the way they conduct the process of improvisation.
- Compare the literature with the results and discuss the findings.

### **1.4 Chapter Outline**

- In this first chapter (Introduction) the rationale for the study is presented, i.e. what the study is trying to achieve and what needs to be investigated in order to achieve that.
- In the second chapter (Theoretical Framework) the literature on improvisation is presented, providing the reader with the necessary knowledge to understand the results and analysis presented in chapters four and five.
- Chapter three (Research Methodology) describes what research methodology that was applied in this study, i.e. what kind of study is undertaken, the philosophy behind it, how the data was collected and analyzed, etc. Reliability, validity and ethical considerations are discussed as well.
- The fourth chapter (Results and analysis) presents all the results from the data collected and analysis is provided.
- In the fifth chapter (Discussion) the findings from chapter four are compared to the theory described in chapter two.
- The sixth chapter (Conclusion) reflects the findings back to the research question and conclusions are made.
- Chapter seven (Limitations) includes a discussion on some of the limitations associated with the study
- The eight chapter (Future Research Suggestions) includes some suggestions for future research.

## **2 Theoretical framework**

*The chapter tries to explain improvisation based on the literature and is linked with the research questions. First a brief history on where improvisation comes from is described and moving on to explaining what improvisation is. The chapter then explains under what circumstances improvisation occurs and ends in explaining the different concepts connected to the improvisational process of the individual. The aim of this chapter is to provide the reader with the base for understanding the results and findings in Chapter 4 and 5.*

### **2.1 Brief Background on Improvisation**

The complexity surrounding improvisation has its very roots in the definition of the term. Improvisation itself is nothing new and can be traced all the way back to the beginning of speech and communication, (Molander, 2000). Molander (2000) describes improvisation using the example of conversation, stating that all though you could to some degree predict how the other person will respond to what you have said, there will still be uncertainty associated with it and that person could respond or say something that you have not anticipated. In this case, in order to move the conversation further, you improvise and create something ‘new’ to say which responds to the situation. According to Molander (2000) this kind of responding is based on experience and knowledge, thereby, describing improvisation as *a new, correct and knowledgeable respond to a situation.*

Numerous of literature written on improvisation is generally associated with the world of jazz and theater, (e.g. Barret, 1998a; 1998b; Hatch, 1999; Crossan, 1998). According to these authors it is from jazz and theater that improvisation as we understand it today, is born. Further they all discuss how jazz and theater can be used as metaphors and applied to organizations and projects in which way they explain organizational improvisation. One example comes from improvisational theater, where a group of actors perform an improvised play in front of an audience, (Crossan, 1998). One actor starts the story with a sentence and the other actors continue from there. At one point of the performance the actors seem to lose the audiences’ attention, at which one actor changes the storyline completely and regains the attention. Crossan (1998) uses this to explain organizational strategy and improvisation. Just as the actors had to improvise and change the storyline to regain the audiences’ attention, so too can an organizations strategy move away from customer needs. In this case a project manager could improvise to align the strategy with customer needs.

In the early literature, organizational improvisation was considered a bad thing since it moved away from the traditional way of planning then doing, (Quinn, 1980). Improvisation was seen as an organizational dysfunction that resulted from something unexpected, or from bad planning to begin

with, (MacKenzie, 1986). This view on improvisation changed somewhat in the 90's and scholars started emphasizing the positive attributes that improvisation had to offer to organizations, (e.g. Eisenhardt, 1997; Lewin, 1998). In her article Eisenhardt (1997) talks about how markets are changing continuously and at a fast pace. For organizations to be able to compete in these kinds of markets they need to be flexible, adaptive and embrace fast and qualitative decision making, i.e. she mentions the need for improvisation.

## **2.2 What is Improvisation?**

Due to the broad number of occurrences, in a variation of literature contexts (e.g. arts, sports, management, psychology, etc.), defining a theoretical framework for improvisation has proven to be outermost difficult, (Cunha, Cunha and Kamoche, 1999). It is though possible to recognize some reoccurring factors in the different definitions.

In the field of music Solomon (1986) describes improvisation as *taking decisions which effect the composition of the music during its performance*, mentioning how discovery and invention of original music happens spontaneously. Spontaneity is also mentioned by Sharron (1983) where she talks about improvisation and how it is a creative process that *is both immediate and spontaneous*. In similar way Bjurwill (1993) describes improvisation in sports as *reading and reacting in parallel, or perspective in action*. Bjurwill (1993) describes improvisation as a dual-task process where you are thinking and putting thought into action at the same time.

As mentioned in section 2.1 improvisation got its acknowledgement in organizational context in the 90's. This is where scholars struggled with the problem of defining improvisation in organizational context. Just as spontaneity is mentioned in previously mentioned fields, so too is it mentioned in management. Crossan (1997) talks about improvisation in management as *intuition guiding action in a spontaneous way*, including the role of intuition and "gut-feel" in the equation. A great factor in the concept of improvisation is time which sets the ground for Moorman and Miner's (1998a; 1998b) definition of improvisation as *the degree to which composition and execution converge in time*. They argue that the more improvisational an act is, the narrower the gap between composing and performing, designing and producing or conceptualizing and implementing, as it is illustrated by *Figure 2.1*. Later Miner, Bassoff and Moorman (2001) described it as *the deliberate and substantive fusion of design and execution of a novel production*, adding a degree of outcome to the definition in form of something novel or different from what was planned for.

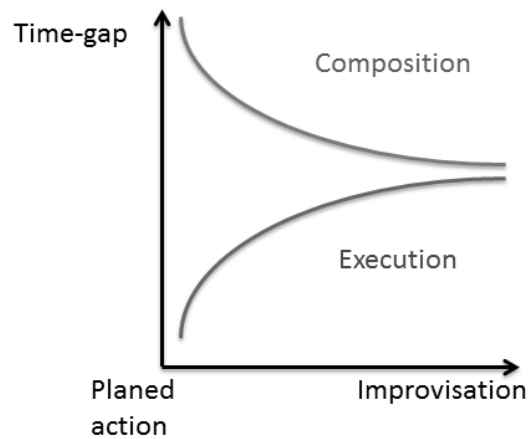


Figure 2.1; Convergence of composition and execution in time, (Moorman and Miner, 1998a; 1998b)

When talking about novel production one cannot disregard creativity. In improvisation Vera and Crossan (2004) describe creativity as *attempting to develop something new and useful to the situation, although it does not always achieve this*. To create something new and useful in an unplanned situation, one would have to get creative and use the resources at their disposal in that moment, a process described as bricolage by Baker, Miner and Eesler (2003). Creativity and bricolage, together with intuition, are mentioned as being correlates and components of improvisation by Leybourne (2002). Leybourne (2002) also mentions learning, adaption, and innovation as being processes of improvisation. The correlates and processes are described in more detail in *Section 2.6*.

Looking at these various definitions we can add it up and define improvisation as:

- An extemporaneous and spontaneous but deliberate process, meaning that it is not planned for but that it is processed with purpose. This also implies that one deals with matters as they come along and in that exact moment.
- A process where composition and execution converge in time, meaning, that one both plans what to do and actually does it at the same time.
- A process guided by intuition and where creativity defines the novelty of the outcome. One acts on its intuition, or ‘gut-feel’, and by using the available resources in a creative way one produces a novel outcome.

### 2.3 Different Types of Improvisation

*Although improvisation is mostly the result of an individual's actions, it is important to notice that it occurs at different levels in the organization, i.e. individual, collaborative and organizational,*



(Moorman and Miner, 1998b)(see Figure 2.2). In this section these three types/levels of improvisation will be explained together with the role that the individual plays on these three levels.

### **2.3.1 Individual**

Individual improvisation is the main focus of this study and it is defined as improvisation that results from the efforts from a single person (Moorman and Miner, 1998b). They argue that all forms of improvisation, on whatever level, rises from the individual improvising. Weick (1993) was one of the first to describe improvisation on individual level in his example with firefighters. In the example a group of firefighters were facing a crisis they did not expect. One group decided to follow the routines and rules they have acquired, but another group decided to follow one firefighter who had a ‘feeling’ that it would not end well if the routines were followed, so he followed that ‘feeling’ and improvised a different approach to the crisis. Unfortunately all the members of the group that followed routines lost their lives, while as for the other group some made it out alive. This example by Weick (1993) is a tragic one, but it does explain the improvisational process of the individual and the different concepts associated with it, e.g. intuition, adaption, bricolage, etc. (e.g. Cunha, Cunha and Kamoche, 1999; Moorman and Miner, 1998a; Leybourne, 2002).

### **2.3.2 Collective**

Improvisation is also described on a collective, or team level in organizations as *improvisation resulting from the combine effort of all the individuals*, (Moorman and Miner, 1998b). This means that each individual in a group contributes to a part of the solution in an improvisational situation, without truly understanding the whole system and what will come out of it, but they communicate, (Moorman and Miner, 1998b). Crossan (1998) gives a concrete example in improvisational theater with a group of actors, where one actor starts a story with a sentence, the next actor continues with another sentence and so on, which in the end results in a full story. Vera and Crossan (2005) add that in collective improvisation there are some factors that need to be considered, such as team dynamics and characteristics.

### **2.3.3 Organizational**

When it comes to organizational improvisation Moorman and Miner (1998b) apply the logic of collective improvisation on a higher scale, involving more people. They explain how, just as a team of five individuals could improvise a collective solution, so too can five departments through communication improvise, again with each department playing their own improvisational role. According to Vera and Crossan (2005) departments and the whole organization can in this case be seen as a macro-team. It is important to notice that there are some risks with organizational improvisation, (Cunha, Cunha and Kamoche, 1999). They mention some of these risks being overreliance on improvisation, letting it go amok and creating ‘emergent’ situation where there are

none. Cunha, Cunha and Kamoche (1999) also describe how the learning process is associated with risk if there are no post reflections on the outcomes, i.e. the improvised solution does not have to be the best one. More on the relationship between organizations and improvisation is described in *Section 2.4.3*.



*Figure 2.2; The relationship between individual, collective and organizational improvisation, (Moorman and Miner, 1998b)*

## **2.4 Triggering Improvisation**

*In this section it is explained under which circumstances improvisation arises and what triggers these circumstances, as explained in the theory on improvisation, (e.g. Cunha, Cunha and Kamoche, 1999; Moorman and Miner, 1998b).*

### **2.4.1 Time and Environment**

To be able to describe what it is that triggers improvisation, there are two elements that need to be considered; time and environment, both which are reflected in the definitions described in the previous sections. Time deals with the temporality of improvisation, where it is seen as a spontaneous process and where decisions and action need to be taken in the spur of the moment, (e.g. Crossan, 1997; Ciborra, 1999; Chelariu, Johnston and Young, 1999; Cunha, Cunha and Kamoche, 1999). The environmental element describes how the improviser reacts to the environment in the moment of improvisation (e.g. Baker, Miner and Eesley, 2003; Cunha, Cunha and Kamoche, 1999; Vera and Crossan, 2004; Leybourne and Sadler-Smith, 2006). This involves, among others, the process of adaption, reacting to the environmental stimuli (Leybourne and

Sadler-Smith, 2007) and the use of the resources available at ones disposal (Baker, Miner and Eesley, 2003).

#### **2.4.2 Uncertainty and Time Pressure**

Simply put, improvisation occurs in association with change. In many cases, change management in organizations is a process where the organization identifies the main steps of the change and then plans for implementing these changes in a specific period of time, something that is not particularly useful in today's turbulent, flexible, and uncertain organizational situations, (Orlikowski and Hofman, 1997). Uncertainty in general sets the stage for the unexpected and implies the fact that one cannot plan for everything, quoting Murphy's Law, "*If anything can go wrong, it will*". Therefore, encountering something unexpected and unplanned for is almost unavoidable and it is these factors that lead to improvisation (Cunha, Cunha and Kamoche, 1999; Leybourne and Sadler-Smith, 2006).

Miner, Bassoff and Moorman (2001) continue arguing that the occurrence of an unexpected situation is not completely enough to trigger improvisation; rather it has to be perceived as important and actionable by the person improvising. This is also associated with time pressure, i.e. the higher the time pressure on a certain situation in a project, the more important it is perceived and the need for improvising is higher. What happens in these unexpected situations, associated with both uncertainty and time pressure, is that there emerges a mismatch between what we planned for and what we actually perceive by the environment, (Cunha, Cunha and Kamoche, 1999).

#### **2.4.3 Factors and Triggers**

But what is it that triggers these unexpected, unplanned for and under time pressure events? Cunha, Cunha and Kamoche (1999) have identified a number of these triggers across the literature. Some of them are a result from the environment and some are the result of the individual himself. One of the simplest explanations is that it is the result of poor planning to begin with, i.e. planning has not provided all of the necessary details and tactics for implementation (Moorman and Miner, 1998b). The reason why this happens, according to Moorman and Miner (1998b), is that organizations or individuals may lack discipline and simply make up plans as they move along. Stacey (1996) talks about the role of complexity in the environment and how it leads to unexpected and emergent environmental states, impossible to predict. Another thing that has an influence on the occurrence of improvisation is the improvisers procedural memory, (Moorman and Miner, 1998a), described as the set of routines one possesses to cope with a certain task/situation. So if something occurs that the individual does not have routines for, then this situation is perceived as unexpected and requires

improvisation, i.e. the lower the procedural memory the bigger the chances for improvisation, (Cunha, Cunha and Kamoche, 1999).

Then there are some things that no one can predict in any way, which are simply referred to as luck and fortify (e.g. Cunha, Cunha and Kamoche, 1999; Crossan and Sorrenti, 1997; Weick, 1998). These arise in form of threats or opportunities depending on who is improvising and under which circumstances, meaning that the results could be either positive or negative, (Cunha, Cunha and Kamoche, 1999).

The above mentioned factors and triggers can be applied on both individual and organizational level. However, there are some triggers that steam on organizational level but affect the individual improviser as a result, based on the individuals perception of the environment, (Cunha, Cunha and Kamoche, 1999; Leybourne and Sadler-Smith, 2006). This has to do with situations where an organization tries to promote a new vision on its employees even though there has been no certain changes on the market (Crossan and Sorenti, 1997), or simply where organizations are trying to adapt to a turbulent market (Moorman and Miner, 1998b), both situations that could result in unexpected events and thereby the need to improvise. Leybourne and Sadler-Smith (2006) also mention how chances of improvisation occurring are even higher in organizations that promote experimental culture, e.g. tolerate mistakes, and in loosely structured situations meaning that, there shouldn't be strict controls and frameworks in how to deal with things but instead maybe focus on overall clear goals and short-term milestones, (Cunha, Cunha and Kamoche, 1999). Another important success factor for improvisation in organizations is the information flow between the environment and the organization and within the organization. These last mentioned triggers and factors are ways for the organization to support and assure successful improvisation.

## **2.5 Planning and Improvising**

*This section explains the relationship between planning and improvisation and how these two integrate. It is also explained how the degree of improvisation changes depending on the environment, the time horizon, degree of novelty, the degree of innovation, etc.*

### **2.5.1 The Relationship Between Planning and Improvisation**

Ciborra (1999) describes planned work as *work where every action is carried out according to a view of a future in which the actions are already accomplished*, i.e. some form of predicting and controlling the events and how they will unfold in the future. Ciborra (1999) describes this view of the future as being linear, where in order for one thing to happens one must do this and in order to do this one must do that, and continuing so. In reality though this is not the case and as we have

mentioned earlier there are situations where the unexpected can happen and where planning and executing converge in time, defined as improvisation, (Moorman and Miner, 1998a;1998b).

Ciborra (1999) continues arguing that although these two terms are very different and seen as opposites, they should not be considered as either or, but instead they should be complementary. Researchers have come to the conclusion that preliminary planning can have positive outcomes on a project, as there are clear instructions and guidelines on how to deal with certain things, but at the same time it can be a constraint when it comes to coping with change and uncertainty, (Crossan, 1999; Vera and Rodriguez-Lopez, 2007). It is in these situations that improvisation becomes a complement to planning, as it is the ‘reality’ of the everyday manager to cope with changes, (Tyrstrup, 2005, pp. 20-22). Vera and Crossan (2004) mention how due to its spontaneous and creative nature, improvisation is not necessarily tied to success, but at the same time neither is planning the future into smallest level of detail, strengthening the fact of a coexistence between planning and improvising even further.

### 2.5.2 Degrees of Improvisation

Depending on the environment, the time horizon, degree of novelty, the degree of innovation, etc. observers of improvisation have generally agreed upon three levels of improvisation (Moorman and Miner, 1998a). Moorman and Miner (1998a) describe these three levels based on how innovative the solution is and the degree of novelty, i.e. to what degree it defers from the pre-existing product or process (see *Figure 2.3*). The first level is defined by modest adjustments to the pre-existing product or process. The second level involves even stronger deviations and at the third level improvisation is at its extreme, where the solutions are completely new compared to the pre-existing product or process.

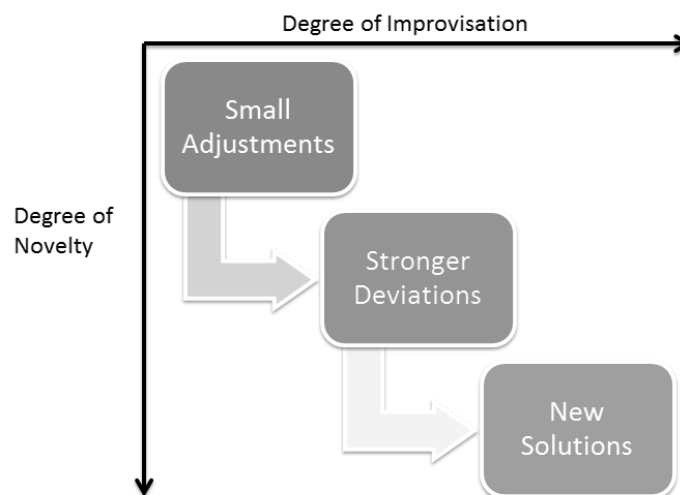


Figure 2.3; The degrees of improvisation depending on the novelty, as described by Moorman and Miner (1998a)

Crossan *et al* (2005) and Tyrstrup (2005, pp. 113-115) have another approach to describe the degree of improvisation, in which they instead use the level of time pressure and uncertainty that is associated with the situation, (see Figure 2.4). When the level of uncertainty and time pressure is low there is no need for improvisation and one follows the plan (*planning*). In cases where uncertainty is high but time pressure low (*discovery improvisation*), one has time to plan, but planning is unlikely to occur since there are too many interpretations of the environment, due to the high uncertainty. In these cases one acts first, i.e. improvises, and then reflects on the outcome and then acts again. In the case where time pressure is high and uncertainty low (*ornamented improvisation*), one has not time to plan, but due to the low uncertainty all that is necessary is structuring the response quickly. In the last scenario, where both uncertainty and time pressure is high (*full-scale improvisation*), one has no time to plan and the environment is unclear. These scenarios characterize crisis situations and rapidly changing environments.

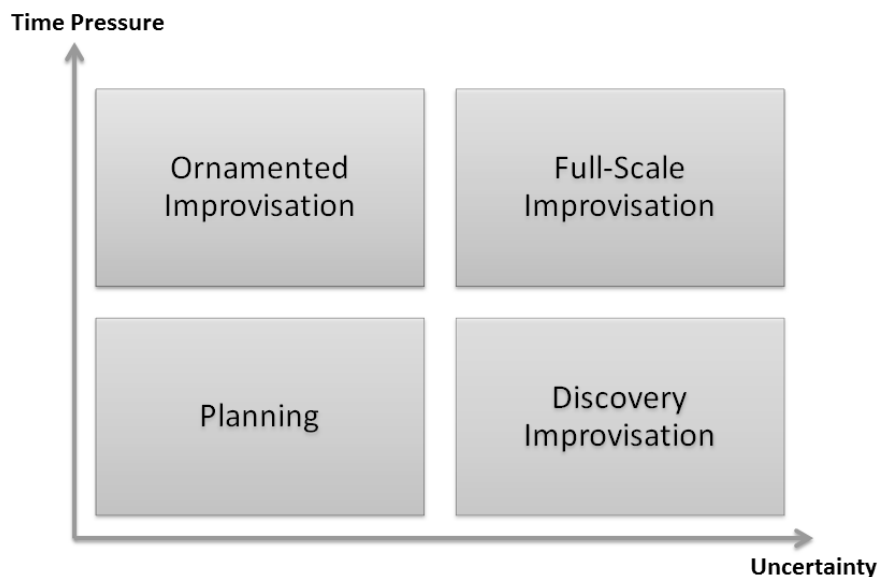


Figure 2.4; The different degrees of improvisation depending on uncertainty and time pressure, as described by Crossan *et al* (2005) and Tyrstrup (2005, pp. 113-115).

## 2.6 Improvisational Components, Processes and Risk Perception

As mentioned earlier, there are improvisational components and processes, (Leybourne, 2002)(see Figure 2.5). In this section these concepts are explained in more detail and how they relate to improvisation and each other.

## 2.6.1 Improvisational Components

### 2.6.1.1 Bricolage

Bricolage is defined as *making do by applying combinations of the resources at hand to new problems and opportunities*, (Baker and Nelson, 2005). This definition implies that there are resources at hand, not in use or not planned for that specific problem, but used in such way that they create new solutions. Cunha (2006) describes bricolage in a similar way where she defines it as *a skill to invent resources from available resources to solve unanticipated problems*. When Cunha (2006) mentions ‘unanticipated’ he implies the occurrence of change. He describes how in today’s changing environments one cannot wait for the right resources to be delivered to you, instead to gain competitive advantage; one must act with the resources at hand. Bricolage per se implies that the only limitation to the choice of solution is the resources available at ones hand, (Levi-Strauss, 1966). Further this statement indicates that bricolage involves some degree of creativity and innovation, (e.g. Cunha, Cunha and Kamoche, 1999; Cunha, 2006; Baker, Miner and Eesley, 2003).

When it comes to the resources used in bricolage, Cunha, Cunha and Kamoche (1999) have divided them in material, cognitive, affective and social. Material resources are resources that lie outside the individual and the organizational social system. These are usually financial resources, buildings, information systems, etc. Cognitive resources are associated with the individual’s mental models, which can be both tacit and explicit and can be acquired outside and inside the organization. These resources are associated with both intelligence and experience. Affective resources are explained as invoking a feeling of transcendence and emotional interconnectedness without prior interaction and self-disclosure, i.e. being able to ‘lock-in’ a certain emotional state when improvising. The social resources are explained as the social structures between the members performing improvisation. This has not only to do with the relationships between them, but also explicit and tacit rules and informal interaction.

As it sounds from the definition, bricolage could easily be mistaken for improvisation or as a synonym to improvisation, but it is important to know that these are two different but similar concepts, (Baker, Miner and Eesley, 2003). Bricolage does also, as improvisation, occur outside the plan, i.e. something that was not planned for happens. It is also true that bricolage does occur often under time-pressure and when there is no time to get the right resources, but at the same time bricolage can also be planned for, (Miner, Bassoff and Moorman, 2001). Bricolage could be accurately planned for and used in non-improvisational context, since it is possible to plan to do something with resources that will be available later at hand. Nevertheless, the more improvisational an act is, the bigger the chance of bricolage occurring, due to the higher time pressure and the individuals use of existing routines and knowledge as resources in improvisation,

(Miner, Bassoff and Moorman, 2001). At the same time if one is a good bricoleur then the chances for more valuable improvisation increase.

#### **2.6.1.2 Intuition**

Besides bricolage we have another construct essential in improvisation that deals with the knowledge and routines one possesses, (Leybourne and Sadler-Smith, 2006). This construct is called intuition and is described as *taking advantage of how our brains are designed to be able to think about things subconsciously and to bring those things to the forefront when needed*, (Burke and Miller, 1999). More specifically Burke and Miller (1999) define intuition as *cognitive conclusions based on the decision maker's previous experiences and emotional inputs*. By making use of these previously learned patterns, decisions can be made more rapidly based on an unconscious reasoning and associated with a 'gut feel', (Leybourne and Sadler-Smith, 2006). Although it gives the impression of a sixth sense, it is far from the truth. The explanation is that it is a non-conscious process, where the outcomes are known but the process is happening 'backstage', (Eletero, 2010). This process is available due to the expertise and prior learning of the individual, accompanied by affect, (Leybourne and Sadler-Smith, 2006; Burke and Miller, 1999). When it comes to experience, Leybourne and Sadler-Smith (2006) describe it as something gained under one's profession and closely associated with expertise in contrast to age.

To better understand intuition, one must think of the brain as divided in two systems when processing information, one analytical and one intuitive, (Eletero, 2010; Leybourne and Sadler-Smith, 2006)(see *Table 2.1*). The analytical system is affect free and operates at a conscious level, while as the intuitive is associated with affect and automatic, operating at a pre-conscious level, (Leybourne and Sadler-Smith, 2006). None of the systems is less good than the other, instead they work as a dual-processor, where the individual uses them to solve problems and make decision by analyzing or using intuition, depending on the situation, (Eletero, 2010).



Table 2.1; The relationship between the intuitive and analytical thinking styles, (Eletero, 2010)

The Two Minds MODEL	
Analytical Mind	Intuitive Mind
Narrow bandwidth (serial processor)	Broad bandwidth (parallel processor)
Controlled	Automatic processing
Step by step	Whole pattern recognition
Conscious	Non-Conscious
Talks in the language of words	Talks in the language of feelings
Fast formation	Slow formation
Slow operation	Fast operation

Another important thing to understand with intuition is the fact that it is based on previous knowledge and routines. This is associated with memory, where Moorman and Miner (1998a) distinguish a declarative and procedural memory. The declarative memory is associated with facts, events or propositions, while as procedural memory is associated with how things are done or things one can do. It is the procedural memory that involves skills and routines and in such way represents tacit knowledge. This insures that the action will be coherent and speedy, but at the same time low on novelty, (Moorman and Miner, 1998a). The declarative memory is more general since it involves knowing facts, e.g. while as procedural memory deals with the routine on riding a bike, declarative memory associates with the mechanisms and principals underlying riding a bike, which can be applied in other circumstances too (Moorman and Miner, 1998a). Therefore declarative memory insures a coherent action, a more novel outcome, but due to the process of going through and associating all facts, it is slower, (Moorman and Miner, 1998a). Given this information one can draw the conclusion that intuition is also associated with creativity, (Vera and Crossan, 2004).

Burke and Miller (1999) came to the conclusion that intuition is most likely to occur in complex situations under time pressure, loosely structure situation, but also situation with overwhelming information. Since it is hard to find a rational solution under time pressure and in loosely structure situation, one draws on intuition to make sense of what is happening and make quick decision. When it comes to overwhelming masses of information it can be hard to make sense of all of that

information and instead one draws upon intuition to cut through all that information and see the bigger picture. (Burke and Miller, 1999; Leybourne and Sadler-Smith, 2006).

When looking at the theory described above regarding intuition one can see a number of connections with improvisation and how intuition could be guiding the decision-making process in improvisation. However, although improvisation does involve some intuition, improvisation might also occur without intuition, e.g. in collective improvisation, (Moorman and Miner, 1998a; 1998b).

### **2.6.1.3 Creativity**

In the previous sections we have a couple of times touched upon one of improvisation's most important elements, i.e. creativity. A model has been described that illustrates how the degree of improvisation varies based on how creative the solution is, (Moorman and Miner, 1998a). It has also been shown how creativity is a part of both bricolage and intuition, in such a way that one can create more solutions with the resources at hand, and one uses creativity with intuition when the pre-existing routines and knowledge are used to solve problems not faced before. Though in this section more focus is on creativity itself and its direct association with improvisation.

Due to the circumstances in which improvisation occurs, (explained in *Section 2.4*), it is normally associated with a novel action, (e.g. Cunha, Cunha and Kamoche, 1999; Moorman and Miner, 1998a;1998b; Barrett, 1998a; Crossan and Sorrenti, 1997). It is the degree of novelty or deviation from standard practices that is one of the main parts associated with the definition of creativity, (Moorman and Miner, 1998a). Associating creativity with novelty implies the fact that low level of creativity may limit the player's ability to imagine a rich set of variations, constraining his or her performance to a limited set of embellishments, (Kamoche, Cunha and Cunha, 2003).

Creativity's connection to improvisation derives from first stage literature explaining improvisation and using metaphors from music and theater, (Cunha, Cunha and Kamoche, 1999). As explained earlier, the novelty of action in improvisation is dependent on the usage of the improviser's at hand available resources, i.e. material resources, knowledge, experience, etc. The higher the level of creativity, the more variations the improviser can come up with and the more novel the action becomes. Although improvisation implies creativity, it may be on a relatively low level, and creativity per se does not have to involve any improvisation at all, (Cunha, Cunha and Kamoche, 1999; Moorman and Miner, 1998a). Cunha, Cunha and Kamoche (1999) explain that an improvisational act may be relatively novel, where it has been done before, but not by that specific individual and/or in that specific situation. Also creativity may be perfectly planned for and delayed in order to use optimal resources for it. It can also be used in trial and error experiments. Both of these scenarios occur without the presence of improvisation, (Cunha, Cunha and Kamoche, 1999).

## 2.6.2 Improvisational Processes

### 2.6.2.1 Adaption

It was Charles Darwin who said that “*it is not the strongest or most intelligent species that will survive but the one that can best adapt to change*”. According to Campbell (1969) adaption is *the adjustment of a system to external conditions*. Kamoche, Cunha and Cunha (2003) explain this process even further comparing it to jazz. They explain how the process involves *reworking pre-composed material in relation to unanticipated ideas that emerge and are conceived in the course of the performance*. The explanation implies that there exists a template from which individuals deviate and adapt. In the interview with Dr. Stephen Leybourne (Leybourne, 2012), Dr. Leybourne describes the process as *adapting something that you have successfully used before, to fit a different setting of circumstances, but that have overlapping similarities*, e.g. if you have had similar problems in another project, although it was different, one can remember what they did since it is a part of one’s personal library. Leybourne (2012) also mentions that *it might not work exactly as before, but if you twitch it around and adapt it, you might get the 80% right there*. This personal library is associated with tacit knowledge and memory, (Moorman and Miner, 1998a), and is explained in more detail in *Section 2.6.1.2*.

Although the definition of adaption may resemble the one of improvisation, adaption is a much broader and more general construct than improvisation, (Moorman and Miner, 1998a). Both of the constructs involve changing the course of action, but in contrast to improvisation, adaption does not have to involve the issues with temporal order and can be perfectly planned for in advance, e.g. in form of contingency plans (Cunha, Cunha and Kamoche, 1999; Moorman and Miner, 1998a). Moorman and Miner (1998a) state the example of firefighters, where they could plan to adapt certain methods and actions, depending on the size of the fire. With this said, when the environment is highly turbulent or/and complex, due to the lack of time to respond effectively to an external threat, adaption becomes limited to being improvisational, (Cunha, Cunha and Kamoche, 1999).

### 2.6.2.2 Innovation

Innovation is *the process of deviating from existing practices or knowledge*, (Rogers, 1983). Dougherty (1996) builds on this definition and explain *how innovation means adopting any device, system, process, problem, program, product or service that is new to the organization*. The later part of Dougherty’s (1996) definition, implies that the process adapted, for example, does not have to be a new process in the world, but as long as it is new to the organization it is considered innovation, (Moorman and Miner, 1998a). This is associated with the degree of improvisation as illustrated by *Figure 2.3*. The need to achieve innovation is especially important in turbulent and

quickly changing market such as New Product Development, in which context innovation resembles improvisation, due to the little time to act, (Miner, Bassoff and Moorman, 2001).

If we follow the definition of innovation as a process deviating from existing processes and practices, (Rogers, 1983), we can conclude that improvisation per se involves a degree of innovation since improvisation involves the creation of action outside plans and routines, (Moorman and Miner, 1998b). These two concepts share together the search for novelty and usefulness, (Vera and Crossan, 2005). But, as with previous constructs related to improvisation, improvisation occurs when action and planning converge, (Moorman and Miner, 1998a;1998b). This does not have to be the case with innovation, since it can be planned for, (Cunha, Cunha and Kamoche, 1999; Moorman and Miner, 1998a;1998b). *Organizations could innovate a new way of distributing a product by gathering customer data, analyzing and planning a new channel*, i.e. the organization has innovated, but not improvised, (Moorman and Miner, 1998b). However, due to the turbulent and changing markets, e.g. New Product Development, improvisation has been used as an alternative for innovation, (Cunha, Cunha and Kamoche, 1999).

### 2.6.2.3 Learning

Weick and Westley (1996, p.456) write about learning as *something that happens when forgetting, concealing and silencing hide a new set of continuities and in their place create new categories, different meaning and more organization*. Another explanation is provided by Argote (1999) who describes learning as *experience that informs a systematic change in behavior or knowledge*. What these two definitions have in common is the fact that it results in change, (Miner, Bassoff and Moorman, 2001). The result of learning may be in form of refining or recombining former knowledge and routines, but it may also result in new knowledge, routines or even insight, (Miner, Bassoff and Moorman, 2001).

In their article Miner, Bassoff and Moorman (2001) mention a number of different forms of learning, e.g. experimental, trial-and-error and improvisational learning. Experimental learning is associated with planning. It involves planning experiments that will result in learning something new or to confirm something, e.g. in science, (Cunha, Cunha and Kamoche, 1999). This process is deliberate and variation in action is planned for to analyze and learn from the outcomes. Trial-and-error learning involves action taken 'on-line', where the outcomes of that action lead to a change in action or knowledge base, (Miner, Bassoff and Moorman, 2001). This process can also be planned for, since one can decide to observe regular actions according to plan and then revise future action and understanding as needed, (Miner, Bassoff and Moorman, 2001). Moorman and Miner (1998a) mention some other forms of learning that do not involve improvisation, e.g. *conducting research*

*and development to learn the properties of a key component, or to hire people from outside the organization.*

Improvisational learning is based on the experience generated in ‘real-time. This experience informs *the design of performance or production as it is executed*, (Miner, Bassoff and Moorman, 2001). The difference between improvisational learning and the other types of learning is that it is not planned for, but also that in improvisation one seeks no more variation than is needed, meaning that in contrast to the other learning forms, where the objective is to actually learn, in improvisation the main objective is to solve the current problem and learning may come as a part of that, (Cunha, Cunha and Kamoche, 1999; Miner, Bassoff and Moorman, 2001; Moorman and Miner, 1998a). However it is important to notice that both experimental and trial-and-error learning may be associated with some degree of improvisation, (Miner, Bassoff and Moorman, 2001). We have previously mentioned certain degrees of improvisation based on time pressure and uncertainty, (See *Section 2.5.2*). In one of the scenarios outlined it is mentioned how improvisation could occur as experimental or trial-and-error if uncertainty is high but time pressure low, i.e. one does something, assesses the outcome and then acts again depending on what is learnt from the previous outcome, (Moorman and Miner, 1998a).

Miner, Bassoff and Moorman (2001) talk about improvisation and its association with short-term and long-term learning. They suggest that *improvisation represents a form of real-time, short-term learning that may or may not influence other learning processes*. When it comes to long-term learning there is no significant connection since the main idea with improvisation is not to generate knowledge, but to solve the problem at hand, although some connections are associated with long-term learning and improvisation as a trial-and-error process. Even though improvisation may occur without any learning and learning may occur without any improvisation, in highly competitive markets, the rate to learn, which could be increased through improvisation, may be one of the key competencies, (Cunha, Cunha and Kamoche, 1999). However for this to be effective the organization would have to allow some degree of failure, since improvisation does not always generate positive outcomes, (Barrett, 1998a). Moorman and Miner (1998a) suggests that in order to generate more effective improvisational outcomes one would actually have to learn how to be a better improviser, which is fully possible.

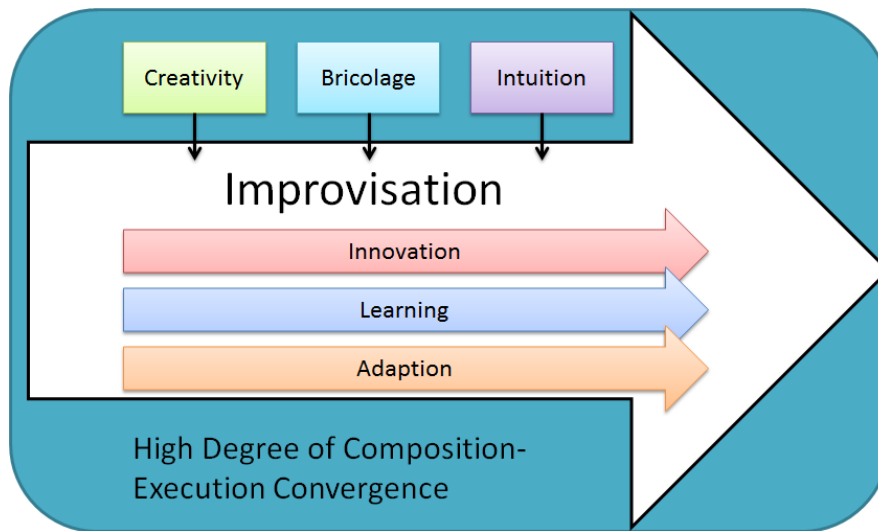


Figure 2.5; The relationship between Improvisation and its constructs when composition and execution converge in time.

### 2.6.3 Risk perception

Another important concept, although not mentioned in the literature so much, is the perception of risk. Leybourne (2002) does mention to some degree the meaning of risk perception in improvisation, as he talks about *the fear experienced when employees overstep a safe boundary into the unknown*, e.g. in projects, project managers will always have an eye on the downside and on the things that could go wrong, in such creating a line which they will not pass in fear of jeopardizing the project or gaining ‘penalty’, (Leybourne, 2002). He continues to talk about the political dimension, i.e. when people improvise they have nobody else to blame, which is not good for the organization as they do not get the full grasp of what happened and therefore do not learn properly. According to Leybourne (2002) organizations that are more supportive to improvisation could minimize the chances of this effect.

Sjöberg, Moen and Rundmo (2004) describe risk perception as *the subjective assessment of the probability of a specified type of accident happening and how concerned we are with the consequences*. The main process involves evaluating the probability and consequences of negative outcome, and then weighting that outcome against what there is to gain if we take on the action associated with the risk. Bohgard (2005, pp. 259-261) explain how different people could perceive the same risk in different ways. This has to do with the individual’s experience, values, motivators, etc. Especially interesting in this study is the role of experience since it relates to intuition mentioned earlier in *Section 2.6.1.2*.

### 3 Research Methodology

This chapter will describe all the practical details that are applied during this research. This includes the research philosophy, approach, strategy, design, how the data was collected, from which sources, how it was analyzed, etc. After reading this chapter, one should be able to understand how the research was conducted and why it was conducted in such way.

#### 3.1 Introduction

To be able to set the proper research philosophy, approach and strategy, one must consider the research question and the research objectives, since it is them that set the base for finding the right research methodology towards the study. The main aim of this research is to investigate and explore the phenomena of improvisation. In order to do so a research methodology description will be adapted similar to the one illustrated by Saunders', Lewis' and Thornhill's (2009, p. 108) 'Onion model', (see Figure 3.1). In the following sections, each layer (e.g. philosophy, approach, etc.) will be presented together with the application of choice for this study. In the end of the chapter the ethical considerations, reliability and validity will be addressed, explaining how these have been followed during the data collection process.

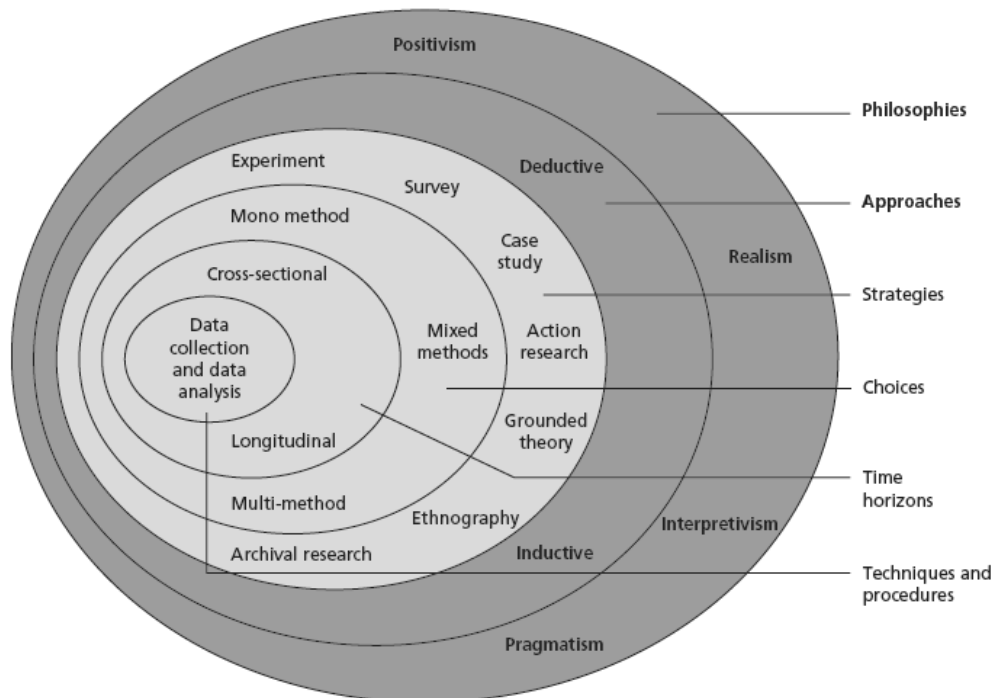


Figure 3.1: The research onion, (Saunders, Lewis and Thornhill, 2009, p. 108)

### **3.2 Research Philosophy**

Looking at the subject of study, improvisation, it is associated with peoples' behavior. The theory attached to it implies the same thing, e.g. use of creativity, intuition, innovation, etc. Looking at the research question the aim is to find out how the process unfolds and under what circumstances. It is also stated that the focus is on the individual. This means that it is not enough to see what happens, which is the view of realism, but instead the question of 'how' and most important 'why' must be addressed, i.e. finding out and understanding the meaning of the action, which is the associated with interpretivism, (Saunders, Lewis and Thornhill, 2009, p.114; Bryman, 2008, p. 16). The belief is also that it is not the organizations that constrain the individuals, but instead individuals form the organization, e.g. the project manager could, by improvising, change how things will turn out, at the same time as he departed from the pre conceived plan. This belief gives a subjectivism view on how the world works, (Bryman, 2008, p. 19; Saunders, Lewis and Thornhill, 2009, p. 111).

### **3.3 Research Approach**

The approach of the research considers the relationship between theory and research, i.e. if it is the theory that guides the research, or if the theory is a result of the research, (Bryman, 2008, p.6). As mentioned in both chapter 1 and 2, the phenomena of improvisation is relatively new to the context of organization and management and much of the literature available is associated with arts. The theory on improvisation in management is relatively new. When it comes to this research in particular, an exploratory research, and the philosophy adopted, the focus is on the individuality and that individuals react in different ways, and therefore it is not known what to expect from the data collected. In theory *when the study is exploratory or when there is little theory informing the researcher on what to expect*, (Frankfort-Nachimas and Nachimas, 2006, p. 337), it is seen as an inductive approach.

### **3.4 Research Design and Strategy**

According to the literature, the two most recognized research designs are qualitative and quantitative research, (Bryman, 2008, p.21-23; Creswell, 2009, p. 3-4)(see Table 3.1).The choice of what research design one is applying depends a lot on the philosophy of the researcher applied, (Creswell, 2009, p.3). The choice of philosophy and approach in this research aligns best with qualitative research, which is associated with exploring and understanding how individuals or groups refer to a social or human problem, (Creswell, 2009, p.4).

Besides selecting what kind of research design to follow, one must also select a type, or types of study within the design, also called strategies of inquiry. They are type of models or approaches to



qualitative and quantitative research that set directions and procedures, (Creswell, 2009, p.11). Looking at the research question and the objectives, the interest of the research is to understand the context and the process of improvisation. Saunders, Lewis and Thornhill (2009, p.146) state that the most appropriate strategy of inquiry would then be case study. Case study is associated with studying an individual, process or phenomena in relation to its 'real-life' context. In this strategy of inquiry a so called event is studied in depth and under a specific period of time, where data is collected, analyzed, and reported. This leads to a better understanding to why the instance happened in first place and what should be looked at more deeply, (Creswell, 2009, p.13; Saunders, Lewis and Thornhill, 2009, p. 146).

The focus is on improvisation as an individual process, where the goal is to find out as much as possible about it, especially since the theory on improvisation in organizations is relatively new. The case studied would be the individual improvising and the context within the individual is improvising, where the time constraint is associated with the beginning to end of the improvisational process. In the study, these cases are presented by the participants in form of shared experiences where they have encountered unexpected and unplanned for events, (see *Section 3.6.2*). Further Saunders, Lewis and Thornhill (2009, p.147) state that this theory is appropriate if you want to explore the existing theory, which is one of the objectives of the research; to compare the existing theory with reality. In this essence, data would have to be gathered from as many sources as possible, including both secondary and primary sources (explained in section 3.5). The problem with case studies lies in the fact that it requires a lot of data gathering from different sources, so if one would have insufficient information then this could lead to inappropriate results.

### **3.5 Data Collection**

As mentioned in *Section 3.4* the strategy of inquiry is case study. This means that the data collected will come from both primary and secondary sources. Primary data is data which is fresh and collected for the very first time, i.e. original data, (Kothari, 2004, pp.95-96). The primary sources included were in-depth interviews with project managers, where they were asked to share some scenarios/cases where they had to improvise (see *Section 3.6*). Unfortunately, due to the unexpected nature of improvisation, it was not possible to acquire primary data through observations.

The secondary data on the other hand, *are those which have already been collected by someone else and which have already been passed through the statistical process*, (Kothari, 2004, p.95). In this research it was mostly collected during the literature review, to get a clearer understanding of the subject of improvisation. Due to the fact that the theory on improvisation is relatively new, there was not much written on it in books, instead mainly published scientific journal articles were used

to grasp the surroundings, components and process of improvisation. The authors associated with the secondary sources can be seemed as credible since most of them had over ten years of experience in the study of improvisation. One issue may concern the date of the sources used, but the explanation for that is that most literature on improvisation is from the late 90's, especially regarding the process of improvisation. The secondary data sets the base for one of the objectives of the study, which is to understand how the theory on improvisation reflects itself in the 'real world'.

### **3.6 Interview and Sampling**

*This section describes how the interviews were conducted, how the samples were chosen, what kinds of questions were used and it explains why it was done in this way.*

#### **3.6.1 Interview**

As already mentioned, when the primary data was gathered, personal in depth interviews were the method of choice. The reason reflects itself in the aim and objectives of the study and the chosen philosophy. Improvisation is studied as an individual process, what leads to improvisation, how people improvise, etc. These are all questions that can be only answered by personally asking the individuals that improvise, especially since it is hard to capture improvisation in the moment, through observations. The focus lies in understanding the what, how and why of improvisation, which is also connected with the choice of case study inquiry.

One of the main reasons for choosing the interview method is because the flexibility, i.e. being able to rephrase and adapt questions in accordance to the interviewees' responses and understanding, (Kothari, 2004, p.98). In this particular research this has been out most helpful, since the participants were not so clear about the concept of improvisation. The questions were put it in terms that the participants understood, and if anything was unclear to the participants it was explained to them.

The type of interview used depends of level of formality and structure which, in turn, depends on what kind of information you want to find out, (Saunders, Lewis and Thornhill, 2009, p.320). In this research the purpose is to find out about the process of improvisation, illustrated by live examples or cases by the participants. Since it is an exploratory research, the aim is to find out as much information as possible, which has led to a more in-depth, semi-structured approach to interviewing, (Saunders, Lewis and Thornhill, 2009, p.320).

#### **3.6.2 Questions and Guideline**

The in-depth, semi-structured interviews adopted in the research, are formalized in such way that the questions and the order of the questions may vary from participant to participant, depending on

their response and understanding of the subject. Therefore it is important to be flexible and have the questions designed to work more as a guide, (Saunders, Lewis and Thornhill, 2009, p.320). It is this guide kind of approach to designing the questions that has been adapted in this research, (see *Table 3.1*).

*Table 3.1; The guideline used for the interviews.*

<b>1) A little bit about you? Background, experience in project management, etc.</b>
<b>2) Under your time as a project manager, have you ever gotten in a situation where something unexpected or unplanned for happened?</b>
2,a) Context of that situation? Time pressure? Uncertainty?
2,b) What led to that situation?
2,c) How did you act? Why?
2,d) What did you base your decisions on? Experience, etc.
2,e) Compared to the plan? Approach? Solution?
2,f) What resources were at your disposal?
2,g) What about the results? Positive, negative? Why?
<b>3) Any general thoughts on improvisation in project management?</b>

As one can see from *Table 3.1* there are not many questions, yet the aim of the interview is to last more than 30 min, meaning that the purpose of the questions is to engage in a discussion about the participants' live experience of improvisation. The first question is used to introduce the participant, since one of the research aims was to see if there are any differences in experience, age, sex, etc. The second question seeks to make the participant share a case where he/she had to improvise. The sub-categories to this question are guidelines associated with the concepts introduced in theory, e.g. bricolage, intuition, creativity, the nature of environment, etc. Though as one can see, the terms are slightly changed to make it easier for the participants to understand, e.g. instead of stating it as bricolage, it is explained as 'use of resources at hand'.

The procedure associated with question two can be done over and over again, depending on how many cases the participant presents. The aim is to be able to get at least two cases from each; one where improvisation was more successful and one where it was less, in order to see what the causes for that are. In general the outline and meaning of the questionnaire is to be able to answer when improvisation occurs, under what circumstance, how the process is conducted by the individuals, if there is any difference depending on background and the organizational context in which it is happening and how much these responses agree with the theory. The interviews were recorded and put in transcript in order to be able to go back to the data collected and analyze it thoroughly.

### 3.6.3 Sampling

The sample chosen for the interview was based on the purpose of the study. The aim is to investigate how project managers conduct the process of improvisation, therefore project managers were chosen for the study. A number of project managers were contacted across companies in Gothenburg, Sweden. The reason for choosing this area is because of the possibility of one-on-one interviews. Telephone interviews would have been possible too, but the researcher feels more comfortable and is more experienced with face-to-face interviews.

In the beginning there were ten managers, with varying levels of experience, who agreed upon an interview, but during the study, three of them dropped out, leaving seven project managers. This coincidence did create some concerns, since ten interviews to begin with, was a small sample considering the research, but in the end, due to the time constraint, the research had to move on. The information about who the participants are is limited to the relevance of the study and therefore no names are given, instead they are referred to as Participant A-G, (see *Table 3.2*). The participants presented a number of cases, but the most relevant were chosen, those that fit the case profile described earlier. In the end ten cases were studied and analyzed (see *Section 4.1*).

*Table 3.2; Information about the participants*

Participants	Gender	Project Related Experience
Participant A	Male	About 10 years
Participant B	Male	About 10 years
Participant C	Male	About 10 years
Participant D	Female	About 7 years
Participant E	Male	25+ years
Participant F	Male	12+ years
Participant G	Male	About 5 years

However, during the study, an expert in the field of improvisation was also contacted, Dr. Stephen Leybourne. Dr. Leybourne was the first person contacted due to his expertise in the area of improvisation. He is *internationally recognized as one of the world's leading authorities on improvised work in project management*, (Boston University, 2012). The information gathered from the interview with him was not only used as a base for understanding the subject, but it was also helpful when future interviews were conducted as he gave guidelines on how to explain improvisation to those not familiar with the phenomena. However, since the interview was mainly used as expertise input to clarify the subject, no concrete example of him using improvisation was provided.

### 3.7 Data Analysis

When all the data is collected, one goes through the data analysis process. In this research the process is adopted from (Creswell, 2009, pp. 183-189)(see *Figure 3.2*). Basically the first stages involve the gathering of data and putting it in transcript. The next step is to read through them and try to divide the information into segments or themes, implying a way of coding the data. In this research the main segments are the different scenarios, i.e. the cases that the participants shared in the interview.



Figure 3.2; The process of data analysis, as described by Creswell (2009, pp. 183-189)

These scenarios are then studied in accordance to the research question and objectives. This leads to another set of themes. This other set of themes is mainly based on the theory and is as follows:

- General Thoughts on Improvisation
  - recognition of improvisation
  - plan vs. improvisation
- Nature and Triggers of Improvisation
  - Uncertainty
  - Time Pressure
  - Importance Perception

- Organizational Structure
- Poor Planning
- Communication
- Bad Luck
- The Degree of Improvisation
- The Process of Improvisation
  - Intuition
  - Bricolage
  - Creativity
  - Innovation
  - Adaption
  - Learning
  - Risk Perception (this one was included after the interviews were done, since it came up a number of times during the interviews)

After that the data has been coded, presented and analyzed, it will be followed by a discussion. In the discussion the results will be compared and linked to the theory, a method known as *theoretical propositions*, (Yin, 2009, pp.127-159). One important question that will try to be answered is if the findings confirm past information in the literature or does it diverge from it. The discussion will also include any new findings on the aspects of improvisation, if such are acquired.

### **3.8 Reliability and Validity**

Reliability is identified as the *extent to which your data collection techniques or analysis procedures will yield consistent findings*, i.e. being able to repeat that same study again, (Saunders, Lewis and Thornhill, 2009, p.155). Due to the interview being constructed in a semi-structured way, with more open questions, the reliability of the research can be questioned. Although recording the interviews is shown to be useful when the data is later analyzed, minimizing the risk for bias. Another bias associated with reliability concerns the fact that the transcript was translated from Swedish to English, although the original recordings are available at disposal.

*Validity is concerned with whether the findings are really about what they appear to be about*, (Saunders, Lewis and Thornhill, 2009, p.156). One situation that could question validity in this research is the fact that improvisation, i.e. going away from plan, can be seen as something ‘bad’ by some organization, (Leybourne, 2002), which has maybe lead to the participants withholding information. Similar to this is the fact that the participants may not know the meaning of all the concepts associated with improvisation. However, to minimize the risk for this happening, the

questions were put in such matter that the participants understood them, and explained in such way that it seemed as an everyday process of project management when responding to something unexpected, e.g. instead of using terms such as bricolage, it was simply explained as using the resources at your disposal when something unplanned for occurs. In order to be sure that the information will be interpreted in the right way, the participants were asked to explain themselves, or elaborate on some issues and terms that were not clear to the researcher.

### **3.9 Ethical considerations**

In order to remain ethical considerations, the participants have been clearly informed of what the research is all about and what role they have in the research, i.e. it has been explained to the participants how the data gathered from them will be used, analyzed and presented. Further, all of the participants have been asked to sign a consent form, where they state that they agree upon a recorded interview and that they understand the research undertaken. With this in mind, the researcher was allowed to use full names of the participants, (see *Section 4.1*), and none information needed to be withhold. Nevertheless, conducting a qualitative research where interviews are involved comes with a responsibility and none of participants should come to any harm. Therefore, the information that may harm the participants will be withhold or censored.

## **4 Results and Analysis**

*In this chapter the results are presented and analyzed. The methodology behind it is explained in Section 3.7. The chapter starts off with a summary of the different cases. From these cases the different themes (see Section 3.7) will be recognized and presented.*

### **4.1 The Cases**

*This section includes the different cases that were studied. The cases are categorized with the different participants that have shared them.*

#### **4.1.1 Participant A's Cases**

In the first example (**Case A**) there is a problem in the definition of the project plan. They never properly agreed upon when the plans (lay outs) should be delivered which caused them a lot of problems during the project. One situation in particular was when they were supposed to produce a number of modulus until the next day, but the plans came really late. The line manager had already gone home and so were his workers supposed to. However, the trucks and the safety transportation, that were supposed to transport the modulus, were already booked. It usually takes a while before being able to book them again, so in order for these order costs not to be in vain and in order to prevent delays in time, the participant went to the workers and ordered overtime, without having the authority to do so. This resulted in the modulus being delivered in time, but there were consequences. The line manager was furious because the participant never checked with him first and the labor union got involved, because he, among other, did not think of any safety issues that could arise during overtime; after all, people were tired. Although everything ended well, the organization got shook up really bad.

In his second example (**Case B**) was taken from Volvo, which is bigger, more experienced and everything is well defined and instructed. The participant was responsible for the interior. The supplier had sent everything and it got there in time. The only problem was that the lights were not of the right material. However, it was too costly to stop the production, so they assembled it on the cars anyways and moved the car to a parking lot. Then they waited for the right lights to come and then reassembled it. Since Volvo was experienced with these situations, the only thing the participant needed to do was to talk to the right person and take a look at the contract, where it said that if these things happened, the supplier would stand for all the costs. So there were clear instructions on what to do, who should pay, and everything turned out well in the end.

#### **4.1.2 Participant B's Case**

In this example (**Case C**) there is a situation where they were working on a driver airbag-module. They were supposed to snap the steering wheel with a spring, but due to the spring, for diverse



reasons, being too long and the unpredictable movement in the constrained state, the spring detached. This was during a critical stage of the project, so they called in a task force which consisted of well experienced members of the organization. They had one member, among others, who was an old fox and sort of inventor and kept his calm in these situations. In the end the task force helped with solving the problem.

#### **4.1.3 Participant C's Cases**

Participant C's first example (**Case D**) regards a project where they had a strategic buyer who was responsible for setting up supply flows with a new supplier and to secure all of the material for the prototypes. Then one day when the participant asked him if all the material has been acquired he answers he explains how he did not know that it was his responsibility and that the material was not there. It was a critical situation because they had a deadline and they were close to production. What happened then was that the participant had the steering group bring in a new member who could acquire the material from the suppliers. At the same time they took some components from other locations in the world, of the same organization. Luckily the customers ordered a manageable amount so they could deliver with the components that they took and the new member was able to set up the supply chains properly.

The second example (**Case E**) involves the participant and two other project managers. They were doing similar project models that they did not think worked properly. So during the project they talked a lot with each other and changed the project process. After their projects were done and they had evaluated everything, the new process they had conducted was adopted as the new project model for that organization.

#### **4.1.4 Participant D's Cases**

In the first example (**Case F**) the participant explains how she was about to hold a workshop, with participants from different parts of the world. It was very quickly planned and information was sent to those who were attending. About half an hour before start of the workshop she reads a mail by one of the plant managers, who wrote that he did not like the plan at all and that it was very unprofessionally made. He sent this not only to her, but a copy to 15 other. The participant knew that his workers and some others would probably have a negative attitude from the start regarding the workshop set-up and she was right. So instead of going on with the originally planned PowerPoint slides, she engaged in a discussion with those who attended about what the meaning of the workshop was, what they expected from it, and so on. At the end they agreed upon the set-up and they even finished before time, so instead of sending them home, she engaged them in another discussion about the purchase strategy, i.e. to clarify that strategy for everyone. She felt that since

she already had 15 people from different parts of the world working on the project, she might just take advantage of the situation.

In another example (**Case G**), they were in a critical phase of a development project. It was essential that they came with results in time, because one days delay here would result in five weeks delay later in the project. What happened was that one of the resources had planned vacation during that period, which is not completely unusual. The problem was that his boss had allowed him that, but they did not check with the participant. Since she was pressured by the steering group to deliver this in time, she ordered the boss to simply deliver what her resource was supposed to, so she moved the pressure on him and he had to solve it.

#### **4.1.5 Participant E's Case**

The example (**Case H**), regarded some pressure equipment for measuring ground water types in deep waters. This equipment was sent to China and later when the participant arrived in China with boat, the first thing that happens is that these angry guys approached him holding the equipment that was apparently not working as it should. This could have been a construction error, or a handling error. Either way, the participant knew that there was no point in arguing and just said that he would fix it. He felt that it was a handling error, but did not want to rub that in the customer's face, so he just said that he would take care of it, in order to calm them down, which worked out pretty well. At the end it showed that it was mainly a handling error, but it was not worth losing a customer over.

#### **4.1.6 Participant F's Case**

In this example (**Case I**) the participant was a part-project manager for a track replacement project, where one ballast washing machine broke down unexpectedly. What the participant decided to do was to contact the framework contractors, since he knew that they possess the most required knowledge for these situations. Together they decided to order parts from Germany which delayed the project with one day, but they managed to take care of the problem. The participant decided to do so because he felt that communication with the contractors and the customers is most important. If they did not had informed these people it could have resulted in further delays and bad image for the company.

#### **4.1.7 Participant G's Case**

Participant G talks about one example (**Case J**) where he and his colleague were running an improvement project that would make it easier for them to present that they met the requirements. However as the project moved along they realized that there were no benefits in this at all and that they did not really get the results they were hoping for. So in order to save the money spent on

doing the project, they decided to abandon it, notwithstanding the fact that this project was ordered to be delivered.

## 4.2 General Thoughts on Improvisation and Planning

During the interview the participants have at some point shared general thoughts on improvisation which can be seen in *Table 4.1*.

*Table 4.1; Responses regarding improvisation and plans.*

	Recognition of Improvisation	Plan vs. Improvisation
Participant A	<i>"Situations where something unexpected and unplanned for happens, have occurred in all of my jobs."</i>	<i>"A lot depends on the structure and experience of the organization". "In unstructured organizations we plan the time duration of the phases, but not the phases in detail. For example we plan construction phase, but we don't even look at production until we are halfway through construction phase."</i>
Participant B	<i>"Yes, it happens all the time, you always stand before unexpected things in projects, where you have to come up with both short-term and long-term solutions." "Improvisation, as in taking decision without facts and on gut feel".</i>	<i>"If you take a decision based on intuition, you have to verify and test plan the outcomes. You have to look at risks associated and if that happens, what then"..."You have to have a plan B".</i>
Participant C	<i>"Yes, absolutely, unexpected things happen all the time. That is part of projects and at the same time that is what makes it fun and challenging".</i>	<i>"I am more as figuring out action as you move along". "You can have your plan but it never goes according to plan". "I have a more general plan, with big blocks".</i>
Participant D	<i>"I think I am a person that improvises quite a lot". "You can't be afraid of being creative and spontaneous, not coming with suggestions and thinking now I am angry, but I won't say anything"</i>	<i>"I am more planned and structured than pure improvisation, but I am not much for detailed plan, instead everyone should have an overlook plan that fits together with everyone else's plans".</i>
Participant E	<i>"Improvisation is part of the everyday project manager". "You have to be adaptive to unexpected events all the time".</i>	<i>"The big projects with lot of security involved are usually very strict and regulated". "It is the security issue that drives the project and there is no room for improvisation".</i>
Participant F	<i>"Improvisation in projects is in highest degree important. You can solve problems very quickly".</i>	<i>"In railway industry for example, when something unexpected happens, there is no going back to the usual; there are no structures or routines for these kinds of things".</i>
Participant G	<i>"To act in an improvised way is probably something you learn with the years...the more comfortable you are, the easier you have for taking more creative chances".</i>	<i>"Personally I think it's black and white; it is my fault or his fault, and I prefer having it rather regulated. There is enough information that needs to be communicated properly."</i>

As presented in *Table 4.1*, there is no mystery that improvisation indeed does occur. All of the participants have admitted to using at least some degree of improvisation, when facing unexpected and unplanned for events. Some of them even describe it as the everyday project manager, i.e. the one who faces unexpected situations and has to improvise. The difference is, as mentioned, the degree to which they improvise. Participant G for example was more comfortable with regulations and information on what needs to be done. Although he does not disregard improvisation, as he even states that it is something you get more comfortable with over the years. His alignment with

regulations could be due to the fact that he is less experienced in project related work than the other participants.

Another finding here is that many mentioned outlining a general plan and not a detailed plan. Something that was even confirmed with Dr. Leybourne who mentioned that, “*we don't plan projects from start to finish. We break projects into phases...we're going to have a reasonable idea of going through the planning process of where we're going with phase one...While we're doing that, we'll be thinking in broad brush terms about phase two, and as we move through phase one, we start to firm up on what we're going to do in phase two, as we will be removing some of the uncertainty and ambiguity*”. This kind of planning seems to be more aligned with figuring out action as we move along. In this essence, it is notable to mention that organizations seem to play a role when it comes to the planning. Big, experienced and well-structured organizations, where security is of big importance seem to leave less room for improvisation, since they usually have detailed plans to be followed and many in-case-of plans in place, i.e. contingency plans.

### **4.3 Nature and Triggers of Improvisation**

In this section the data regarding what it is that leads to improvisation. The data is presented in *Tables 4.2.1-4.2.3*, where the nature and the triggers are recognized from the cases presented by the participants. The first four rows are associated with the nature, while as the three latter ones correspond to the triggers of improvisation. Those boxes highlighted with red letters indicate high level of the corresponding nature. For better overview see *Appendix A*.

Table 4.2.1; Nature and triggers of improvisation, cases A-D

	Case A	Case B	Case C	Case D
<b>Uncertainty</b>	<i>"I didn't know what to do in the beginning, so I took a decision that could have cost someone their life, because of ignorance".</i>	<i>"It was nothing...easy...just accept the arrangements, inform the management". "There was a clear process on how to deal with this".</i>	<i>"In case something happens outside the project plan, a task force is called in".</i>	<i>"I didn't know what to do next. Not in the beginning".</i>
<b>Time Pressure</b>	<i>"It was very stressful. "There was a time pressure because the trucks had to wait".</i>	<i>"There was no time pressure".</i>	<i>"It was during a critical phase of the project"</i>	<i>"We had a deadline to follow".</i>
<b>Importance Perception</b>	<i>"I was responsible for delivering this on time and on cost, that's all I could think of".</i>	<i>"Volvo does this already for over 50-60 years and has had a number of these cases, so it wasn't a big deal".</i>	<i>"It's a pretty serious problem, when the whole point of the airbag is to save lives".</i>	<i>"It was critical; we weren't far from starting to produce these".</i>
<b>Organizational Structure and Routines</b>	<i>"I had to take all the decisions because nothing was defined, no structures".</i>	<i>"In Volvo it's easy to be a project manager; everything is defined for you, what to do in case this happens, that happens, and so on".</i>	<i>"In case of something happening, there was plan B".</i>	<i>"For me it was just to go to the steering group executive and tell him about it".</i>
<b>Poor Planning</b>	<i>"Something was poorly executed in the project plan". "We didn't define where the plans were supposed to arrive."</i>	---	---	---
<b>Communication</b>	---	---	---	<i>"...then one day, I come to him asked about the material and he answers: No I didn't do that, that wasn't my job".</i>
<b>Misfortune or Bad Luck</b>	---	<i>"The lamps that they sent us had the right dimensions, but the only problem was that they messed up and made it from the wrong material".</i>	<i>"...it is a very uncontrolled and unpredictable behavior ...so it detached".</i>	---

Table 4.2.2; Nature and triggers of improvisation, cases E-H

	Case E	Case F	Case G	Case H
<b>Uncertainty</b>	"We talked between each other and knew that these processes didn't work, and discussed solutions between us".	"I knew that those from that organization were going to be negative, and there was no point in going on with the PowerPoint slides". "I knew I had to listen to the thoughts in the room".	"I just had to forward that pressure on someone else, his boss".	"It could have been two things; the equipment is broken or poorly constructed, or a handling error".
<b>Time Pressure</b>	"If we've followed that process, we wouldn't be on time...".	"I got that message about 30 min before the workshop was about to start".	"It was very important that we reach a result in that period".	"I don't have time to go back from this".
<b>Importance Perception</b>	"...we wouldn't be on time and it would have cost more".	"If you have a bunch of people from different parts of the world, you want to have a positive atmosphere".	"I had pressure from the steering group to deliver this".	"I saw that they were irritated and they were the customers. It was important to get them from -10 to at least +0".
<b>Organizational Structure and Routines</b>	---	---	---	---
<b>Poor Planning</b>	"It had a process that didn't really fit".	"It was very fast planned".	---	---
<b>Communication</b>	---	"I got that message about 30 min before the workshop was about to start". "He had sent a copy to the other 15 participants".	"It was accepted by his boss, but not by me...they didn't check with me first".	---
<b>Misfortune or Bad Luck</b>	---	---	---	"It was mainly a handling error with the equipment".

Table 4.2.3; Nature and triggers of improvisation, cases I and J

	Case I	Case J
<b>Uncertainty</b>	"In these cases I sit down with the contractors and do the best out of the situation". "You are very well informed".	"The more we learnt and worked with it, the more we felt that this wasn't going to be good".
<b>Time Pressure</b>	"There was respectably on the time perspective".	"The big project is still going on, and maybe they would have still paid some people to do that"
<b>Importance Perception</b>	"If this isn't solved properly and you don't inform, then the organization gets a bad image."	"It felt that it wasn't worth spending time and money on something that wasn't going to give anything".
<b>Organizational Structure and Routines</b>	"It is very physically regulated, both when it comes to the working environment and the safety".	---
<b>Poor Planning</b>	---	---
<b>Communication</b>	---	---
<b>Misfortune or Bad Luck</b>	"We had a breakdown on a ballast washing machine".	"It just didn't feel as good as we hoped for".

Looking at the *Tables 4.2.1-4.2.3* one can see that there are no certain pattern on which of the triggers is most common. But what can be seen is that it is usually one of these. Bad luck could be common due to the fact that improvisation does occur unexpectedly and bad luck and misfortune is characterized by that precise thing. Poor planning seems also to be common in improvisational context since you plan for one thing, but if it is poorly planned then that thing probably will not happen as you planned for it, leading to an unplanned for event. In case A for example the plans keep coming late throughout the project, because it wasn't defined properly in the beginning. Communication and information sharing also seem extremely important. In these cases some situations were due to bad communication, but communication might as well be reflected in bad planning too. To add to this, all the participants did state that information sharing is everything and could easily lead to unwanted events, e.g. *"If you don't let everyone know what you did, then it might lead to even more problems"*, as explained by participant F. In general these three triggers were recognized by all the participants.

When it comes to the nature of the context within which improvisation occurs, what stands out the most seems to be the perception of importance. In these cases the participants were asked to explain a situation where they felt that they improvised and in all cases but one, these situations were perceived very important by the participants and they felt the need to act quickly. Now the importance per se is reflected a little by both time and cost, but also, as with case G, authority pressure. Uncertainty seem to play a role in perceiving it as important, since they lacked information, as with case A, where participant A did not know for sure what would happen next, but something simply needed to be done, since the trucks were waiting.

Now looking at all the cases one can see that uncertainty was low in most of the cases. One reason could be the fact that there were organizational structures and routines in place for these kinds of situations, as with cases B, C and D. Unfortunately information about the structure was not obtained for all of the cases. But if we look at those we have information about, where structures were not in place (case A), there was very high uncertainty. In the other cases where structures were in place, and if the managers found themselves in these unexpected situations, they just needed to talk to the right person, usually it was the steering group, or a task force was called in to solve the problem.

Some degree of time pressure was common in almost all the cases, which is associated a lot with the perceived importance of the situation. In most of the cases the situation was perceived important due to lack of time, which could lead to delays and delays could lead to further costs, as with case A.

Dr. Leybourne’s thoughts on this are associated with today’s turbulent market and the size of the project, where he states that “*projects are becoming larger and more complex*”. He explains how due to complexity a lot of things arise that one does not plan for, and since the situation is so complex, one finds themselves in an uncertain situation. In these cases many of the markets were more stable with some organizations being very experienced and prepared for many situations. This could be one of the reasons why uncertainty was low in most of the studied cases.

#### 4.4 Degree of Improvisation

In this section the degree to which the different participants have improvised in the different cases are identified and put in the degree scale/matrix, (see *Figure 4.1*), adopted by Crossan *et al* (2005)(see *Section 2.5.2*). The identification is based on the degree of uncertainty and time pressure perceived by the participants in the studied cases.

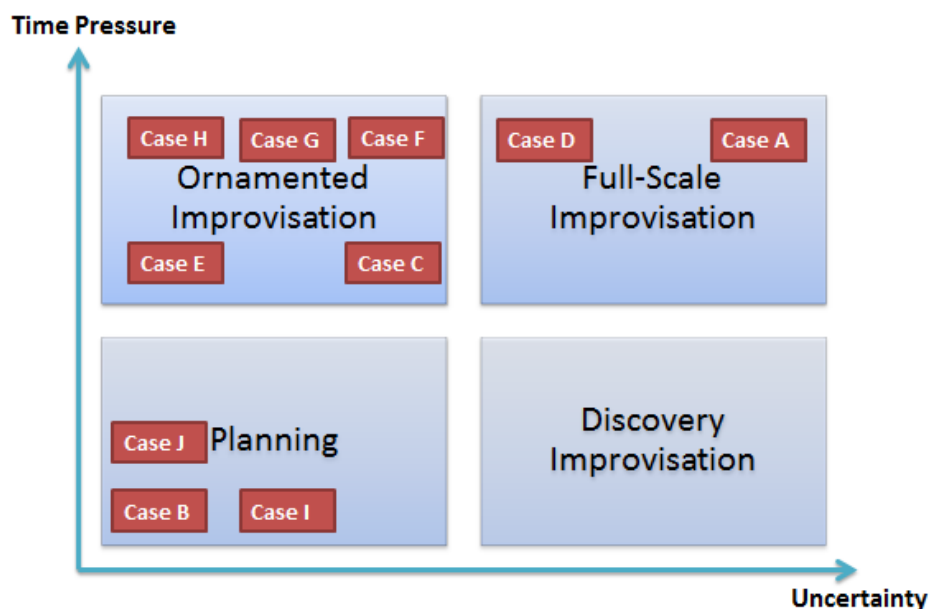


Figure 4.1; The degree of improvisation in the different cases

In those cases where uncertainty was low (C, E, F, G, H), all what the participants needed to do was to structure the response. They had to act quickly though since they were constrained by time. Usually these responses were based on a feeling or experience, (see *Section 4.5*).

In cases A and D the degree of improvisation can be seen as very high. Although in case D the organization was well structured, the participant was not sure what to do to begin with, but in the end he followed the routines and went to the steering group for guidance. The highest degree of improvisation was associated with case A. In this case there was no guidance, uncertainty and time pressure were high, and the participant did not know what to do. In the end he went with deciding overtime, without knowing what the consequences could be. The same participant gave another



example (case B), which was the complete opposite. Although the situation was something unexpected to the participant and he did mention that “*I was sweating when I heard it first*”, it pretty much solved itself. The organization was so experienced with this and it happened all the time, so they had routines to be followed for these situations. All he had to do was look at the contract and follow the procedures. He even mentions that the biggest difference between two cases was that the organizations were structured in completely different ways, “*In the first organization I had to take all the decisions because nothing was defined, no structures, while as in the other everything was defined, these situations are very common there*”. This really puts the emphasis on the role of the organization in improvisation. Perhaps that is one of the reasons why organizations should try to understand improvisation.

Cases I and J were similar to case B, but the situation was perceived more important, probably because in contrast to case B, these things were not common in the organization. Case J in general is a little different since the reason for why he decided to abandon the project was because he did not believe in it. There was no time pressure or uncertainty, but still the participant felt that it cost too much and was not achieving the results they hoped for.

#### **4.5 Process of Improvisation**

In this section the different concepts and processes of improvisation are extracted and analyzed from the different cases, (see *Table 4.3.1-4.3.3*). Some general thoughts on these concepts provided by the participants will also be presented. Looking at the tables some of the elements were not recognized in the cases and are therefore left as empty boxes. In cases where the element is presented with red letters indicates a higher degree of that element. For better overview see *Appendix B*.

Table 4.3.1; The elements of improvisation, cases A-D

	Case A	Case B	Case C	Case D
<b>Intuition</b>	<i>"I was never in a similar situation before, but I just felt that this was the only option."</i>	...	...	...
<b>Bricolage</b>	<i>"I used my power authority"... "I had the workers at my disposal and ordered them overtime".</i>	<i>"We didn't correct anything; just let it go... We only looked at the contract".</i>	<i>"If something is outside the project plan, a task force is called in, extra resources"</i>	<i>"My only option was to go to my bosses and ask for extra resources".</i>
<b>Creativity</b>	<i>"I don't see it as creativity, but you can play around with three things; the workers, the hours and the salary"</i>	<i>"There was no creativity, because everything was defined"</i>	<i>"We had one old guy that was kind of a fox, sort of an innovator."</i>	<i>"We found alternative ways to get some of the components, in the organization in another part of the world".</i>
<b>Innovation</b>	<i>"We have ordered overtime before, but it has always been approved by the line manager, except this time".</i>	...	<i>"We created a different solution, which resulted in another problem, we fixed that and it led to another and in the end we got a more complex solution"</i>	<i>see creativity</i>
<b>Adaption</b>	<i>"I have ordered overtime a number of times before"</i>	...	...	<i>"I contacted my bosses because I usually do so when something similar to this happens"</i>
<b>Learning</b>	<i>"The consequences revealed themselves more and more during the action".</i>	...	...	<i>"We couldn't use the old resource because we had lost trust towards him". "Always ask questions"</i>
<b>Risk Perception</b>	<i>"It was a relatively hasty decision, because I didn't do any consequence analysis"</i>	...	---	<i>"I told them what happened and that it could lead to these and those risks".</i>

Table 4.3.2; The elements of improvisation, cases E-H

	Case E	Case F	Case G	Case H
<b>Intuition</b>	<i>"We didn't believe in this process and felt that we had to do this and that to do something better"</i>	<i>"I chose an open discussion because I knew that you had to listen." "...It's a little bit like trusting your gut feel"</i>	---	<i>"To say that the customer is wrong, that never leads to any good".</i>
<b>Bricolage</b>	<i>"We talked between each other and shared information".</i>	<i>"I had to use them in the room". "...The leftover time was used to discuss the purchase strategy".</i>	---	---
<b>Creativity</b>	<i>"We improvised a little wild in order to reach the destination".</i>	<i>"I listened to the thoughts in the room and tried to turn them into something positive".</i>	<i>"I had to go to his boss and order him to do it instead".</i>	<i>"I didn't know what happened but i lied and told them to calm down and that I would fix everything"</i>
<b>Innovation</b>	<i>"...reconstructed the process". "It was a lot different, but the process was really bad to begin with".</i>	<i>"In the beginning there were 10 slides....I had to throw those and talk to them and explain isnetad"</i>	---	---
<b>Adaption</b>	---	<i>"Adaption is very important especially in the attitude". "I had to adapt a diplomatic and open attitude".</i>	---	<i>"You have to be little of a chameleon, flexible".</i>
<b>Learning</b>	<i>"After this they extracted us of information and made this process the standard process".</i>	<i>"It would have been good to check the setup with someone else before sending it out"</i>	---	---
<b>Risk Perception</b>	---	---	---	---

Table 4.3.3; The elements of improvisation, cases I and J

	Case I	Case J
<b>Intuition</b>	<i>"My instinct is always to contact those that have most information about these situations"</i>	<i>"In this case we just had a feeling, and it was easier because we were two".</i>
<b>Bricolage</b>	---	---
<b>Creativity</b>	<i>"You have to find parts that were far away"</i>	---
<b>Innovation</b>	<i>"It's hard to solve these breakdowns in other ways then you did before".</i>	---
<b>Adaption</b>	<i>"I worked 13 years in production, where you always had to inform the customer in these situations. That's the difference between me and the other I work with".</i>	---
<b>Learning</b>	---	<i>"The more we learned and worked with it the more we felt that it's not going to be good".</i>
<b>Risk Perception</b>	---	<i>"The risk we had, but that we perceived very low, was that we wouldn't have any job left"</i>

Before analyzing the data it is important to know that it was a qualitative study with lot of information, which means that much is up to the researcher and how he chooses to interpret the data and recognize the different elements.

The first that can be noticed here is that, although this study is more focused on looking at the individual conducting improvisation, it seemed that what happened in most of the cases was that it was the individual that faced an unexpected event, but the improvisational process usually ended up involving a collective or even the whole organization. Taking a look at case B for example there was not much individual improvisation, since the organization has had these situations before. But viewing the organization as whole facing this unexpected event, then the reason why it was able to solve the situation was, above all because it was an experienced organization that had faced many similar situations before, so in some way the organization improvised. In the same way in case E, the improvisational act was collective, where three individuals communicated and “*improvised a little wild in order to reach the destination*”, as explained by participant C. So in some of these cases it was individual, in some collective and in some organizational, even though the participant were asked to share a case where they themselves improvised. This implies the importance of the organizational role in improvisation, because it seems that individual improvisation is part of organizational improvisation.

Looking at the different elements, intuition seems to be well recognized when facing unexpected events, but more as “*a feeling*” or “*a gut feel*”, as explained by many of the participants. There were some situations where it was hard to recognize intuition, but in those cases there were well defined organizational structures, which could mean that instead of following gut feel, one just follows the organizational routines. In case G it was a little different. This case in general seems a little different since it was hard to recognize any of the elements. The participant had pressure from the steering group and all she could think of is just to push that pressure further on her resource’s boss. It was an improvisational act and maybe it was part of intuition, since she might have experienced these things before, but it is hard to say. In general there were positive thoughts on following your gut feel in unexpected situations and participant G even stated that “*you never take the wrong decision, but sometimes you just have insufficient information*”.

Bricolage, creativity and innovation went hand in hand in many cases. The reason for this might be that when the participants were creative, they were using the resources at hand in that moment. At the same time they created stuff new to them. These were the cases when the improvisational act was a little higher, as in case A. A stronger relationship seemed to be between creativity and

innovation, which is expected considering the fact that usually when someone is creative they create something, in most cases, new to them. In case I though, creativity was present in finding the resources, but not in actually solving the problem per se, since it can be only solved in one way. When it comes to the resources and bricolage, it was most cognitive resources that were used and resources such as authority power, as with case A for example. Innovation was less recognized in many cases, at least they felt that they were very innovative, and maybe again, this could be due to the organizational structures and routines. The general thought on creativity seemed to align with what participant B said, *“We talk about creativity associated with resources to generate alternative solutions, and then you use resources to evaluate those solutions, then when those resources are limited as in improvisation, it is intuition that has to take the final decision”*. Creativity was perceived as very important when improvising, and as explained by participant B, it also seemed to be connected with intuition.

Adaption also occurred in some of the cases. Some described it as being flexible and adapting to the situation, where participant E even said that *“You have to be little of a chameleon”*. In other cases it was more explained as adapting stuff you have used before and was close related to experience. In these cases intuition was also presence and again, the improvisational act was a bit higher; more uncertainty, time pressure and importance perception.

Learning was not mentioned by the participants in specific, but they did in some cases mention learning as after the improvisational act was over, e.g. case F, where participant D explains how she probably should have checked the setup with someone else first. In some cases though, it could be perceived as learning during the improvisational act, as with case A, *“The consequences revealed themselves more and more during the action”*, -participant A.

The risk perception element was something observed in during some of the interviews and investigated after hand. It seems that in some cases the participants actually were aware of the risks they took by going on with the improvisational act, but at the same time disregarded it as it was lower than the risk of not doing anything. In case A though, there was no time to do any consequence analysis, but the participant did mention that *“I always had it in the back of my mind, that something could go wrong, but I didn’t have time to look into it”*. At the same time risk perception actually could be a big hindrance to improvisation, where participant D explains that *“maybe if you’re a little bit inhibited, and have to think all the time before going forward, be careful, then maybe things won’t happen. You don’t dare to be spontaneous”*.

The overlook on all of the elements and cases seems to give the impression that any of these could happen in improvisation regardless of the other. A stronger connection seemed to be between

bricolage, creativity and innovation, and between adaption and intuition. What is important to notice though is the fact that these elements are there even when the improvisational act seemed to be lower, e.g. in cases I and J, where the act is recognized more as part of the plan (see *Figure 4.1*). However, looking at the cases and *Figure 4.1* it seems that the more improvisational the act the higher the degree of the different elements, for example in case A, where all of the elements are present and at a very high degree.

## 5 Discussion

Regarding the general thoughts on improvisation the participant perceived it as something positive and common in project management, which is also strengthened by the theory, where Tyrstrup (2005, pp. 20-22) described improvisation as being part of change and part of the everyday project manager. Dr. Leybourne explained that the results regarding improvisation in Sweden would be generally positive, because of the Swedish culture. This was further looked into and apparently Sweden scores a low 29 on Hofstede's cultural dimension of uncertainty avoidance, (Geert Hofstede, 2012) which means that deviances from norms is much more tolerated in Sweden. This could be one of the reasons why it is so accepted. Further our participants talked about planning as you go along, in contrast to what Ciborra (1999) described the traditional linear planning. Ciborra (1999) explained how managers should use the plan as a guideline, which is exactly how it seems to be in these cases, and how our participants seemed to see it. It seems that what the project manager does is to plan an overall plan and no details attached, which makes it much easier to cope with uncertainty. It seems that project managers are aware that they cannot control everything in projects and therefore leave some room to react to uncertainty. With time they get more information and firm up on things for the upcoming events, at which point they have removed some of that uncertainty.

Looking at the triggers to improvisation described by Cunha, Cunha and Kamoche (1999) they were all present in at least one of the cases. Regarding the nature of improvisation Miner, Bassoff and Moorman (2001) mentioned that it is uncertainty that sets the stage for unexpected events. They further mentioned how this was not enough and that it also had to be perceived as important. The findings show that this is true, since in all of the cases the participants perceived the situations as being very important and that they had to act. In fact even when there was no uncertainty or time pressure present, some of the participants felt that they were improvising since they were doing something unplanned for and important.

An interesting finding dealing with this is the role that the organization plays in these situations. Leybourne and Sadler-Smith (2006) mentioned that in experimental organizations and loosely structured organizations improvisation was much more common. Again, this fact was true in this research. The highest levels of improvisation occurred in case A, where there were no defined structures. In other cases where there were clear and defined routines and structures improvisation occurred, but at a much lower level. In most cases the participants just needed to turn themselves to the right people. The organizational structure seemed to remove a lot of the uncertainty associated with the events.

What is even more interesting is that some of the participants actually preferred having these structures and guidelines on what is whose and what needs to be done. Participant A for example gave two examples that resulted in two completely opposite levels of improvisation, and the interesting part is that he preferred the big and experienced organization, since he had much more knowledge of what to do next. Participant G mentioned the same thing. This could to some degree have to do with the experience they've had in project management, but at the same time it this could be due to the fact that the organizations in which they were working were explained as being very big and experienced.

This leads to the different types or levels of improvisation described by Moorman and Miner (1998b). As they explained it improvisation occurs on an organizational level as well as on individual. This had to do with organizational memory and learning. Maybe the event is perceived as something completely new to the individual, but if the organization has been around in the business long enough then they have probably encountered similar situations before, and if they were able to learn from those then they could easily adapt to new similar situations. All that the individual would have to do is just turn to the right people. This could also be the reason why more focus in the literature now days seem to be on organizational improvisation.

The different elements described in the literature were also present in most of the cases. In the theory it was mentioned that most of them could occur without improvisation being present and vice versa. This is also something that could be recognized in these cases, where in some situation creativity was present and in some not. However, the more improvisational the act was the more one could recognize all of them in that act. This could have to do with the fact that during full-scale improvisation, execution and composition converge, (Moorman and Miner, 1998a). At the same time uncertainty and time pressure are high, (Crossan *et al*, 2005). Now during such a situation one does not know what to do and has to act, which means one would have to create something new. One would have to act on intuition, because there is not enough information, and use the resources at hand, because there is no time to get extra resources. If we look at case A, this was exactly what happened. Participant A did not know what to do next but was adapting previous things that worked for him. He was being to some degree creative and acted simply on intuition. Simply put, in this case all of the elements were present and at high level, strengthening the theory that says: the higher the level of improvisation, the bigger the likelihood that it will involve the elements.

In general the theory and the findings aligned very well, including to have a general plan, the role of organizations in improvisation and how it can effect individual improvisation, the fact that the elements can occur with our without improvisation present and vice versa, depending on the degree



of improvisation, and other findings. Risk perception was something that was not much written about in the theory in regard to improvisation. Some of the participants saw it as positive and some as negative regarding improvisation. Having risk perception at place could keep improvisation at a more controlled level, since one is aware of the consequences, but at the same time it inhibits the spontaneous attribute of improvisation.

In the end, it is important to notice the role of organizations in improvisation. Just looking at this research, where the purpose was to look at the individual conducting the process, but ended up with finding out that the organization was involved at least in some way. The same person improvising at two different organizations resulted in two completely opposite levels of improvisation.

## 6 Conclusion

The main aim of the study was to explore the process of improvisation in project management. This was going to be done by looking at the following research and sub-research questions:

### **How does improvisation unfold, to what degree and under which circumstances as a process of Project Management, and what are its consequences for the Project Manager and the Organization?**

- How does improvisation unfold as a process and in particular dealing with the way project managers conduct this process?
- What is it that leads to improvisation? Under what circumstances does it occur?
- Which contextual factors play a role to achieve/support/impact improvisation? e.g. different backgrounds, experience, knowledge, organizational support.

First of all, improvisation does occur in project management and usually it goes hand in hand with the plan. The plan per se is a more general plan, where improvisation comes in when coping with unexpected events, something that was associated with the projects in general and something that project managers were well aware of.

It seems that improvisation will not happen unless it is perceived as important by those conducting it. Uncertainty and time pressure play a big role in this too, but improvisation could in some cases happen without the one or the other, meaning that it is the importance perception that plays the biggest role. Another important ingredient when improvisation is occurring was the organizational structures and routines. The higher the structure level and routines, the lower was the uncertainty. In the cases presented in this study many of the organizations were operating in stable markets with high security awareness, so they had strict routines for what needed to be done in 'unexpected' cases, which resulted in low uncertainty in those cases. In general this implies that organizations play a big role in the phenomena of improvisation. More loosely structures and a more experimental organizational culture would result in higher levels of improvisation. Regarding the triggers of improvisation, it varied between bad luck, bad communication and bad planning, something that was generally a problem in project environments.

The process of improvisation involved the elements of intuition, creativity, bricolage, which in some cases led to adaption, innovation and learning. What is important to notice is that this research was aiming to look at the individual improvising, but in many cases the individual was facing an unexpected event, but then it evolved into collective or organizational improvisation, again stating the importance of the organization and organizational support in improvisation. Regarding the

different elements, they are present during improvisation, but not all of them need to be. Each and one of them could occur without improvisation and vice versa. Instead it is more that the higher the degree of improvisation, the bigger the chances that all of them are included and at high levels.

The element of risk perception was something that caught interest during the interview, and understood as the risk people perceive in conducting the improvisational act. Apparently it was something both positive and negative. Positive in the way that it does not let improvisation go wild and instead makes the managers aware of the consequences associated with improvising. At the same time this process can in some cases take a little time and thereby hinder improvisation. Again, much depends on the degree of improvisation, since the higher the degree of improvisation, the more it overwhelmed the risk perceived.

Regarding the different contextual factors, it is experience and knowledge that were most important, since they are directly connected with the elements of the process, such as intuition and adaption. Age is related to experience, but it does not have to be so. One could be younger and have more experience in project management than someone older than him/her. Regarding the gender, not much can be said there because of the low number and gender variety of sample.

In general, improvisation does occur in today's project management, but at different degrees, much depending on the organization. It is important for organizations to realize that, since showing the right support could lead to faster and better results, but looking away might lead to improvisation going wild and uncontrolled, leading to disasters.

## **7 Limitations**

The main limitation of this study is the sample. The sample needed to be bigger and more variety between male and female project managers and maybe in other sectors too. This was difficult due to a time and word count limit. The more participants in qualitative research, the more time it takes to analyze and the more words it would probably result in. Another limitation considers the complexity of improvisation, as there are many elements involved, which are not only hard to understand, but also to explain. This has even lead to difficulties in extracting analyzing the data, as it is based on the researcher's knowledge and perceptions. Therefore it is hard to generalize the findings and conclusions on a broader population, but since there was lot of similarities between the findings and the available literature, one can give the findings some credibility.

## **8 Future Research**

The study was exploratory with the aim to shed some light on improvisation and open up for further research. This means that there are a number of future research suggestions. First of all one should look at a broader sample with more variety between females and males. Another suggestion is to look at organizations that operate in a more turbulent and changing market, such as maybe in New Product Development. Different sectors in the organization should also be compared. In this case the markets were relatively stable in many of the cases. Therefore in more turbulent market, as mentioned in the literature, there should be more change and more uncertainty, i.e. higher settings for improvisation. Another suggestion for future research is to take a quantitative approach towards the subject and to firm up on the findings here and what is written on improvisation in the literature. The organization is perceived as a very important part in improvising, which means that it would be another interesting research approach to take. In this study it was mainly focused on the project manager. Taking a more organizational approach towards improvisation could include interviewing people higher up at the hierarchy and looking at how organizations deal with improvisation. In general, as mentioned, it is an exploratory study and it should have opened up for a number of ideas for future research.

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## Appendix A

RED = High occurrence, BLUE = Low occurrence, --- = Did not appear

Case J	BLUE	BLUE	RED	---	---	---	RED
Case I	BLUE	BLUE	RED	BLUE	---	---	RED
Case H	BLUE	RED	RED	---	---	---	RED
Case G	BLUE	RED	RED	---	---	RED	---
Case F	BLUE	RED	RED	---	RED	RED	---
Case E	BLUE	RED	RED	---	RED	---	---
Case D	RED	RED	RED	BLUE	---	RED	---
Case C	BLUE	RED	RED	BLUE	---	---	RED
Case B	BLUE	BLUE	BLUE	BLUE	---	---	RED
Case A	RED	RED	RED	RED	RED	---	---
	Uncertainty	Time Pressure	Importance Perception	Organizational Structure and Routines	Poor Planning	Communication	Misfortune or Bad Luck

## Appendix B

RED = High occurrence, BLUE = Low occurrence, --- = Did not appear

Case J	RED	---	---	---	---	RED	RED
Case I	RED	---	RED	BLUE	RED	---	---
Case H	RED	---	RED	---	RED	---	---
Case G	---	---	RED	---	---	---	---
Case F	RED	RED	RED	RED	RED	RED	---
Case E	RED	RED	RED	RED	---	RED	---
Case D	---	---	RED	RED	RED	RED	RED
Case C	---	---	RED	RED	---	---	---
Case B	---	BLUE	BLUE	---	---	---	---
Case A	RED	RED	RED	RED	RED	RED	RED
	Intuition	Bricolage	Creativity	Innovation	Adaption	Learning	Risk Perception