Examining moderators for activity-based working and its consequences

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Undersökning av moderatorer för aktivitetsbaserat
arbetssätt och dess konsekvenser

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Abstract

How the layout and design of a workplace affects the productivity and profitability of an organisation is a well-researched phenomenon. There is an on-going trend among knowledge-heavy organisations to implement activity-based workplaces, were the employees lack fixed and assigned workstations. However, few empirical studies examining the consequences of activity-based working exist, and the result from the few that do exist are often contradictory. Wohlers and Hertel (2016) proposes a theoretical model for activity-based working. Using the term moderators, Wohler and Hertel attempts to explain the relationship between activity-based office features, conditions and outcomes. Based on Wohlers and Hertel's model, the purpose of this study is to investigate and describe the factors behind activity-based working and its outcomes.

This study was conducted as a case study at a Swedish service company. Through a total of eleven interviews and one survey, empirical data was gathered that provided supporting evidence for some of the moderators and contradictory indications for others. For instance, task variety and special office design features would indeed seem to affect the suitability of the concept and implementation directly. Meanwhile, we could not find any indications that older employees perceive the concept as more positive than young employees do. Instead, the younger employees reported higher levels of well-being and comfort, which could be traced back to a greater inclination to change workstation. This thesis also expands on Wohlers and Hertel’s model, suggesting that additional moderators and aspects, such as onsite leadership and the change process, are of great importance. Based on these insights, theoretical and practical implications as well as future research directions are discussed.

Key words
Activity-based working, Office design, New ways of working, Desk sharing, Employee satisfaction
Sammanfattning


Nyckelord
Aktivitetsbaserat arbetssätt, Kontorsdesign, Nya arbetssätt, Delade arbetsplatser, Medarbetartillfredsställelse
# Table of Contents

**Table of Figures** iii  
**Foreword** iv  
**Acknowledgements** iv  

## 1 Introduction 1  
1.1 Background 1  
1.2 Problem Statement 1  
1.3 Purpose 2  
1.4 Research Question 2  
1.5 Expected Contribution 3  
1.6 Delimitations 3  

## 2 Method 4  
2.1 Case study 4  
2.2 Context of the study 4  
2.3 Research process 4  
2.4 Pre-study 5  
2.5 Literature Review 5  
2.6 Interviews 6  
2.7 Survey 7  
2.8 Documents 9  
2.9 Analysis of the data 10  
2.10 Reliability and validity 11  
2.11 Ethics 11  
2.12 Generalisability 12  

## 3 Literature Review 13  
3.1 Knowledge work 13  
3.2 Office layouts 13  
3.3 Office design and value 15  
3.4 ABW and value 20  
3.5 Change management 27  

## 4 Results 30  
4.1 LF Maklarservice and ABW 30  
4.2 Interview results 31  
4.3 Survey results 37  

## 5 Analysis and Discussion 50
5.1 SQ1. What consequences does an introduction of activity-based working imply for the employees? 

5.2 SQ2. What are the mechanisms that moderate the different consequential outcomes?

5.3 Conclusions

5.4 Contribution

5.5 Generalisability

5.6 Future Research

References

Appendices

A Interview Guide (in Swedish)

B Survey (in Swedish)
Table of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Research process</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>The distribution of participants between the Stockholm and Malmö offices</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>The age distribution between the participants</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Average effects of workplace [Brill, Weidemann, &amp; Associates, 2001]</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>Time spent interacting in the workplace [Brill et al., 2001]</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>Time spent doing silent work in the workplace [Brill et al., 2001]</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Overview of the Activity-based Flexible Office Model (A-FO-M) [Wohlers &amp; Hertel, 2016]</td>
<td>21</td>
</tr>
<tr>
<td>8</td>
<td>The model of organizational change as a transition [Nadler, Tushman, &amp; Nadler, 1997]</td>
<td>28</td>
</tr>
<tr>
<td>9</td>
<td>Feeling of involvement during transition</td>
<td>38</td>
</tr>
<tr>
<td>10</td>
<td>Grading of the entire transition</td>
<td>38</td>
</tr>
<tr>
<td>11</td>
<td>Overall experience of the transition</td>
<td>39</td>
</tr>
<tr>
<td>12</td>
<td>The degree of the employees’ comfort with the technology</td>
<td>40</td>
</tr>
<tr>
<td>13</td>
<td>Where the employees work from</td>
<td>41</td>
</tr>
<tr>
<td>14</td>
<td>Where employees work in the office</td>
<td>42</td>
</tr>
<tr>
<td>15</td>
<td>The employees switching of workplace</td>
<td>43</td>
</tr>
<tr>
<td>16</td>
<td>Whether or not the employees felt switching workstation was problematic</td>
<td>43</td>
</tr>
<tr>
<td>17</td>
<td>Whether or not the employees felt distracted/disturbed by others at work</td>
<td>44</td>
</tr>
<tr>
<td>18</td>
<td>The perceived level of well-being and comfort</td>
<td>45</td>
</tr>
<tr>
<td>19</td>
<td>Relationship between well-being and disturbances</td>
<td>46</td>
</tr>
<tr>
<td>20</td>
<td>Relationship between well-being and participation during implementation</td>
<td>46</td>
</tr>
<tr>
<td>21</td>
<td>Relationship between well-being and experience of transition</td>
<td>47</td>
</tr>
<tr>
<td>22</td>
<td>The degree of the employees’ comfort with the technology (by age)</td>
<td>48</td>
</tr>
<tr>
<td>23</td>
<td>The perceived level of well-being and comfort (by age)</td>
<td>48</td>
</tr>
<tr>
<td>24</td>
<td>Whether or not the employees felt distracted/disturbed by others at work (by age)</td>
<td>49</td>
</tr>
</tbody>
</table>
Foreword

This thesis project was conducted during the spring semester 2017 at the department of Industrial Economics and Management at KTH Royal Institute of Technology in Stockholm, Sweden.

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Further, we want to express our deepest gratitude to our contact at Länsförsäkringar Mäklarservice, Perry Arvidsson, for your help and support during the whole study.

Finally we want to give a special thanks to our supervisor at KTH Royal Institute of Technology, Marianne Ekman Rising, for your guidance and support. Your knowledge has been invaluable for our process.
1 Introduction

1.1 Background

Today some of the employees of Länsförsäkringar Mäklarservice (LF Mäklarservice) might have started their day with a cup of coffee in the lounge discussing how to proceed with the new insurance procurement project. Afterwards some of the employees might have grabbed their computers and headed to silent workstations while others headed to a conference room for a skype-meeting with the Malmö office. This flexible switching of work locations is part of an on-going trend called activity-based working (ABW). The office concept of ABW is characterised by, instead of fixed workstations, having different working environments that match the requirements of different kinds of work activities.

So what is driving this trend? As an open office space can be used more efficiently than traditional office space, one apparent driving force is the increased rental prices, particularly in major cities (Van der Voordt 2004). One could also argue that we are heading into a new paradigm - the knowledge society. If the old raw resources were material and used to produce goods in factories, today’s resources come in the form of information, data and knowledge. As innovation becomes more and more important, competitive advantages are no longer solely determined by better machines and technology, but instead by the ability to think innovatively.

“To think alone is difficult - to think in teams is both effective and stimulating.”
- Boman, Molander, and Angmyr (2016)

Digitalisation and technology will continue to be important factors, but the increased emergence of knowledge work has caused companies and managers to question their traditional office principles.

1.2 Problem Statement

How the layout and design of a workplace affects the productivity and profitability of an organisation is a well-researched phenomenon (De Been & Beijer 2014; Gensler 2005; Haynes 2008) highlighted the financial impact of poorly designed offices, claiming that poorly designed offices could be costing British business up to 135 billion GBP every year. With the emergence of Google and other relatively young innovative companies, the aspect of office layout and its benefits, on both organisational and individual levels, has become a well-debated one.

ABW is one of these emerging working methods. Despite the implementation
of ABW being an international on-going trend, it remains quite untested in Sweden. Kairos Future, a consultant and analysis firm, shows how only 4% of Swedish office workers are working in an activity-based office environment (Boman et al. 2016). Furthermore, it would appear that only a few empirical studies, that examine the consequences of this new office type, are available. In addition to this, the findings of the few empirical studies are contradictory (Wohlers & Hertel 2016). For example, Appel-Meulenbroek, Groenen, and Janssen (2011) found that employees in a company that had adopted ABW perceived the approach to be damaging to their health and reported low levels of productivity and satisfaction. Another study by Meijer, Frings-Dresen, and Sluiter (2009) illustrated how ABW had a very limited or no effect on productivity in the short term but some positive effects on employee health in the long term. Wohlers and Hertel (2016) present a theoretical model explaining why and when working in an activity-based environment induces risks and benefits for individuals, teams and organisations. Wohlers and Hertel (2016) concludes their work by arguing that further research is needed to explore and examine the relationship between underlying mechanisms/moderators and their effect on well-being and attitudinal- and performance-related outcomes. In this study we will apply Wohlers and Hertel’s (2016) model and investigate the underlying mechanisms.

1.3 Purpose

The purpose of the study is to investigate and describe the factors behind activity-based working and its outcomes.

1.4 Research Question

To fulfill the purpose, we will attempt to answer the following research question:

RQ: Which underlying mechanisms are crucial to obtain benefits and counteract risks with activity-based working?

In order to answer our research question, two sub-questions have been defined:

- SQ1: What consequences does an introduction of activity-based working imply for the employees?
- SQ2: What are the mechanisms that moderate the different consequential outcomes?
1.5 Expected Contribution

By studying the relationship between ABW features and consequences, the thesis will describe in what ways ABW affect the employees, providing a decision basis for organisations that are looking to introduce the concept. The thesis will also serve as a complement to the existing collection of empirical studies on ABW. To our knowledge there are no studies in this area with the specific focus on Swedish companies, consequently this thesis will particularly complement the Swedish research on the phenomenon.

1.6 Delimitations

As the study is conducted as a case study in which the case is one Swedish service company, the thesis is delimited to only analyse the research questions from the perspective of this company. The largest group of people who are actually working according to the principles of ABW are the employees. Consequently, this study takes the perspective of these employees, rather than that of the people in managerial positions. This implies that the primary focus of the study will be placed on how risks and benefits occur by having employees work in line with ABW principles.
2 Method

The majority of research conducted in this study is based on data from interviews and surveys, where the data is in the form of individual interpretations. Rather than concrete digits and variables the data often present itself in the form of thoughts and opinions, resulting in an interpretivistic view. To achieve the purpose, the thesis takes an inductive and explorative approach, allowing the empiric data to determine the direction of the study. This is suitable for revealing underlying patterns and connecting and relating them to known theory. (Blomkvist & Hallin, 2014)

2.1 Case study

Since the purpose of the study is to describe the phenomenon of how ABW results in certain consequences and outcomes, the study is conducted as a descriptive, or illustrative, case study. A case study is suitable when the researchers are open to discovering new dimensions and is for this purpose commonly used in inductive studies. (Blomkvist & Hallin, 2014)

Case studies generate detailed empirical data where it is possible to capture reality’s complexity in a better way than with experiments or wide-range surveys (Blomkvist & Hallin, 2014). The case studied in this thesis is an actor in the Swedish insurance sector, LF Mäklarservice.

2.2 Context of the study

LF Mäklarservice is a very knowledge-heavy company, working closely with both intermediaries and colleagues. The management of the company has embraced the idea of ABW and at the date of writing the approach has, with the help of consultants and architects, been implemented in two out of their four offices, Stockholm and Malmö. The Stockholm office transitioned from an open office layout while the Malmö office made the transition from a cellular office. The employees’ reception of, as well as their attitudes towards, ABW has been varied and as the remaining two offices are about make the transition as well, the management is curious as to why the attitudes differ and how to proceed.

2.3 Research process

The research process was divided into three different stages, pre-study, empirical study and analysis. The study began with a pre-study, where the topics and context of the study were examined. The pre-study was followed by the
empirical study, where empirical data was collected through interviews and a survey. Finally, the empirical data was analysed and conclusions drawn during the analysis stage. The process is illustrated in figure 1.

![Research process diagram](image)

**Figure 1: Research process**

### 2.4 Pre-study

In order to get a better understanding of ABW and its effects a pre-study was conducted. The pre-study contained two parts: a literature review and a small study of the implementation at LF Mäklarservice. The literature review covered topics related to the study, e.g. office layouts and productivity. To get insights and a well-founded understanding of the implementation at LF Mäklarservice, four interviews with employees in different positions were conducted at the company. In order to get different views and thoughts from the employees, the interviews were conducted in an unstructured way. To complement the interviews, documents from the company concerning ABW and the implementation were also collected.

The pre-study resulted in a deeper understanding of the phenomenon, which allowed us to create informed interview guides for the later-on semi-structured interviews. This way we avoided the need for follow-up interviews as a result of too oblivious questions. The pre-study also functioned as a test-run, allowing us to ensure that the questions worked and resulted in relevant data.

### 2.5 Literature Review

In order to answer our research question a thorough literature review was required. The main sources of material were the databases KTH Primo and Google Scholar, where most articles and papers are available. Examples of journals that became relevant were:

- *Journal of Corporate Real Estate*
The keywords used during the search partly depended on the journal, but among others they included: “Activity-based”, “Office Innovation”, “Office Work”, “Office Awareness”, “Office Interaction” and “Knowledge Work”. As depicted in figure [1], even though a large part of the literature review was done during the pre-study it did run alongside the entire study.

2.6 Interviews

A large part of the primary empirical data came from interviews. Interviewing as a method is suitable when the purpose is to develop a deeper understanding for a phenomenon (Blomkvist & Hallin, 2014). In total, eleven interviews were conducted. As mentioned earlier, the study takes the perspective of the employees. However, one interview during the pre-study was done with an employee in a managerial position, the reasons behind this was to better understand the implementation process and the purpose and goals behind it. All of the interviewees were selected in consultation with our contact at the company. In the position of newly appointed acting CFO, our contact could offer us impartial insights and a diverse range of interviewees, allowing for a fair and just representation.

The initial four interviews that took place during the pre-study were of an unstructured nature. The reason for this was to enable a wider exploration of the situation and phenomenon as a whole. When the pre-study was done, and a deeper understanding of the phenomenon had been established, the remaining interviews could be conducted in a semi-structured way. To maintain consistency, an interview guide was created for the semi-structured interviews (see appendix A). As mentioned earlier, the guide was based on insights from the pre-study. The interview questions were aligned with the purpose and research questions and in order to understand the respondent’s perception and thoughts about the subject, the questions were of an open-ended character (Collis & Hussey, 2014). The reason for the choice of semi-structured interviews was that, despite that some of the questions and areas are predefined, this method still reserves the possibility to dive deeper into questions and subjects that are raised during the interview (Blomkvist & Hallin, 2014). The semi-structured interview also encourages the interviewees to discuss their individual experiences (Collis & Hussey, 2014).

As interviews were conducted with employees in both Stockholm and Malmö,
both face-to-face and telephone interviews were conducted. There are many similarities between the two types of interviews, for example the capability to correct misunderstandings. Advantages of telephone interviews is that they are much cheaper and quicker and have a possible reduction of bias due to interviewer characteristics on responses, while a face-to-face interview provides a possibility to perceive body language and expressions other than just voice (Robson 2011). The face-to-face interviews were conducted at the LF Mäklarservice office in Stockholm, while the telephone interviews were mainly conducted from a secluded area in one of the researcher’s home. Both the face-to-face and telephone interviews were recorded.

The semi-structured interviews were conducted with employees in non-managerial positions. During this stage, a total of seven interviews were conducted. Four of the respondents were female and three were male. The employees had different roles within the company, e.g. underwriters, controllers and sales support. As described by the interviewees themselves the different roles implies different level of variety in the work tasks. The interviewees were stationed in two offices, three in Stockholm and four in Malmö. The average age of the interviewees were 48, with the youngest being 30 and the most senior being 63. The respondent that had been with the company the longest had been there from the start in 2001 while the respondent that had been at LF Mäklarservice the shortest had been there for one year.

2.7 Survey

In addition to the interviews, primary empirical data also came from a survey. Surveys are suitable when it is of interest to find a general answer to a problem (Blomkvist & Hallin 2014). The purpose of the survey was to find quantitative data that would complement and support the more deep and qualitative data from the interviews. The survey was done digitally with Google Forms, a free online cloud-based survey application. The questions were multiple choice questions based on insights from the pre-study. Furthermore, to make sure that the participants would not misinterpret the questions and that the answers would remain relevant to the purpose and the research questions, the survey was designed with Blomkvist and Hallins (2014) guidelines in mind. The survey can be found in appendix B.

With the aid of the company contact the survey was distributed, per email, to employees in the two offices where the transition to ABW had been done. To ensure that as many people as possible would answer the survey the recipients were made aware that they were going to remain completely anonymous throughout the study and that their participation would make a difference. As
an additional encouragement, the recipients were also offered to take part of the results. In total the recipients were given three weeks to respond and a reminder was sent out one week before the closing date. In total, the survey was sent to 63 employees and a total of 49 responses were received, resulting in a response rate of about 78%. The response rate for the individual offices were the exact same. 18 of the recipients were based in Malmö, out of which 14 responded (78% response rate).

We consider the response rate of 78% to be relatively high. A non-response analysis was conducted and at least a couple of the recipients did no longer work at the company and at least one recipient had been absent from work due to parental leave. Considering the characteristics of the study it is possible that some recipients declined to participate due to not wanting to share what could be considered sensitive and highly personal data/opinions.

Out of the 49 participants, 7 stated that they had a managerial role at the company. Noteworthy is that all of the participants that had managerial roles also stated that they were based in Stockholm and had a very positive attitude towards ABW in its entirety. However, since this study takes the perspective of the employees rather than the managers, these entries were removed and were not taken into account in the illustrations in the result section. In addition to the managers, three other entries were removed since employees based in other offices than Stockholm and Malmö had given them. The distribution of the remaining 39 employees were 25 (64.1%) in Stockholm and 14 (35.9%) in Malmö, see figure 2. The ages of the participants are shown in figure 3. A rough estimate places the age average at around 50 and indicates a slightly higher age average in the Malmö office.
Figure 2: The distribution of participants between the Stockholm and Malmö offices

Figure 3: The age distribution between the participants

2.8 Documents

In addition to the primary data-sources, secondary data was collected in the form of documents. The collection of documents was done during the pre-study and the majority was centred on LF Mäklarservice’s own pre-study and their implementation. The documents included a project plan, an employee-survey,
summary of workshops, space planning etc. The purpose of the document collecting was to get a better understanding of ABW in the context, and from the view, of LF Mäklarservice.

The secondary data from the documents was used throughout the study. As mentioned earlier, the documents, along with the literature review and initial interviews, provided the basis for the design of both the interview guide and the survey.

2.9 Analysis of the data

Interviews

All of the interviews were recorded and transcribed. This way we could ensure that none of the information we received were forgotten or left out. After reading through all of the interviews we performed a thematic analysis, which is one of the most common ways to analyse data [Blomkvist & Hallin, 2014]. We organised the answers from all of the interviews into the different categories from the interview guide. When the information was divided into the different categories, we started reducing the data to get a clear view of the main points that the interviewees expressed. If some data did not appear relevant to a category it was moved to a more suitable category, or a new category was created. This process was done iteratively until we felt that the answers were correctly categorised and simple to read. The subsequent analysis was conducted on the population in its entirety, and as comparisons between the offices in Stockholm and Malmö.

Survey

To analyse the answers from the survey we exported all responses into a spreadsheet. To study the relevant population, we had to remove the managerial answers and others that did not belong to the population we were studying [Blomkvist & Hallin, 2014]. Next, we performed a univariate analysis where we used descriptive statistical methods, such as graphs and tables, on the different variables separately to see what conclusions could be drawn from the whole population. Thereafter we performed bivariate analysis by splitting the data into different categories, such as age or city, and repeated the previous process. This way, we could see differences from the population as a whole, but also differences between, for example, the offices and those who participated in the implementation and those who did not. For instance, we could measure differences in well-being between employees that were involved in the transition and those who were not.
2.10 Reliability and validity

Reliability refers to the accuracy and precision of the measurements and to what level the study can be repeatable by other researchers (Collis & Hussey, 2014). Due to the nature of interpretivist studies, with qualitative data in form of opinions and thoughts, we recognise that it is unlikely that another researcher would receive the exact same results. Similarly, unstructured and semi-structured interviews do not result in definitive answers that are accurate and precise. To at least keep some level of reliability, all interviews were recorded and transcribed to ensure that no information was missed. All interviews were also conducted with two interviewers, allowing one to focus entirely on leading and steering the interview while the other one takes notes. However, with the previously mentioned aspects in mind, we acknowledge that the reliability of our study is rather low. However, when it comes to qualitative descriptive case studies, the reliability is often of little importance (Collis & Hussey, 2014).

Instead it is the validity that is more relevant. Validity refers to the extent of which the result of a study accurately describes the phenomenon the researchers set out to study (Collis & Hussey, 2014). In order for the interviews and the survey to have high validity the questions were designed with the research questions in mind. We also made sure that all interviewees were relevant to the study and that the survey entries from outside the defined population were removed. Furthermore, since interviewees have a risk of reducing the validity if they do not understand the questions, we made sure the questions were easy to understand and if a respondent seemed uncertain we asked if the interviewee understood the question. Similarly, the questions in the survey were designed in a way that was easy to understand. To increase and confirm the validity of our results even more, we used multiple sources of information and a triangulation approach. For instance, the insights from the interviews were validated by combining and comparing them with the more quantitative data from the survey.

2.11 Ethics

During the study, the four ethical codes of the Swedish Research Council were followed. By always informing the interviewees about the means of the study and that their participation were voluntary, we followed the Information code. All participants signed a consent form and were told that they could refuse to answer a question, or end the interview, whenever they wanted, thereby following the Consent code. Making all interviewees anonymous and not connecting any names with the information in the report made sure that the Confidentiality
code was upheld. The fourth code “Good use” was fulfilled by not using the information gathered in this study for any other use.

2.12 Generalisability

Considering the nature of the case study it is difficult to talk about statistical generalisability. Instead analytical generalisability becomes relevant. In order to corroborate general findings we will describe our case in detail and later also discuss how findings from this thesis can be transferable to other cases in the analysis. [Blomkvist & Hallin 2014]
3 Literature Review

3.1 Knowledge work

The term “knowledge work” was coined by Peter Drucker in *Landmarks of Tomorrow* [1959]. Drucker used the term to describe and contrast work that primarily occur because of mental processes, from that of physical labour. Typical knowledge work tasks include planning, presenting, analysing, interpreting and developing products and services where the raw materials are information and knowledge.

Knowledge work is both highly cognitive and highly social. Knowledge workers require time alone to think and reflect on ideas and solutions. However, most of these ideas must be processed further in order for them to become valuable for the organisation, and in order to be processed and developed they must become available to others. Consequently, knowledge work also requires interaction and teamwork. Knowledge-heavy organisations must therefore balance the need for privacy and concentration with the need for interaction, which in literature has proved challenging (Bodin Danielsson & Bodin 2008; Heerwagen, Kampschroer, Powell, & Loftness 2004).

3.2 Office layouts

**Cellular offices**

The cellular room office is a traditional cell office where the employees either have individual rooms or share a room with a few colleagues. Each room has four walls and a door, which the employees can choose to keep open or closed. To complement the individual/shared rooms there are additional enclosed meeting rooms available for shared use. Some other shared facilities are often provided, e.g. a pantry or a printer area.

**Open offices**

In open offices employees still have their own fixed and assigned workspace. However, the boundaries of the individual workspaces do not extend to the ceiling. This allows for more people to be located in a smaller space, which in turn allows for direct savings in expenses related to real estate. Another reason managers have been looking at open offices with lucrative eyes has been the illusion of a more innovative and “open” organisation. Open offices have however been shown to have opposite effect and impede the open communication necessary to organisational openness. Brill et al. [2001] point to the misconception that
open organisations are about physical openness rather than removing the barriers that limit the flow of ideas and collaborations. They continue, and show how an open office actually interferes with good communication rather than support it.

Brill et al. (2001) also show how open offices are destructive to productivity. Their findings illustrate how the more open the workspace is, the more distracted people are by others. The importance of distraction-free work will be discussed later in this section.

Activity-based offices

Activity-based working is an approach that is part of the bigger trend of adopting a more open office layout. An ABW approach does however imply a lot more than just an open physical layout. As the name suggests, in ABW it is the activity that decides the physical environment of the work. Activity-based offices are open-office environments that merge a variety of additional open, half-open and enclosed working locations. Consequently, the employees of an activity-based office lack fixed and assigned workstations. The lack of assigned workstations implies that the employees are expected to be independent and take responsibility for when, where and how the work is done in the best way possible.

When introducing flexible use of workstations, extra attention is often placed on archives and digital tools. ABW is dependent on technologies that enable active choosing of work environment, such as large screens, docking stations and Skype equipment. Without the proper technology and digital solutions, the act of carrying around and organising papers and folders become an obstacle, preventing employees from switching work environment when they otherwise would have. Generally, the concept also assumes that a large part of an employee’s work takes place outside of the office. Consequently, the office space can be used more efficiently which in turn results in reduced operating costs (Van der Voordt, 2004).

In addition to direct savings in expenses related to the size of the office space, organisations and firms implement ABW in order to respond to emerging work requirements. These requirements are often caused by an increased emergence of knowledge work, which is solved by providing space for both concentrated work and opportunities for communication and collaboration (Bodin Danielsson and Bodin, 2008; Heerwagen et al., 2004). Another reason behind implementations of ABW is the desire to become more attractive in the eyes of the employees, both retaining and attracting new young talent (Van der Voordt, 2004). Another advantage with ABW is that organisations can react to organ-
isational changes more easily. For instance, the office space does not have to change when an employee leaves or enters the organisation, or when the team’s composition changes (Davis, Leach, & Clegg, 2011). However, research has also illustrated a number of disadvantages with open office types. For example, Kim and De Dear (2013) has shown how open offices often imply an increased frequency of uncontrolled interactions, which often result in an overall reduced efficiency. Studies have also shown how some implementations have resulted in the opposite effect, where employees have reported lower levels of productivity and satisfaction (Appel-Meulenbroek et al., 2011).

Wohlers and Hertel (2016) describe risks and benefits behind ABW and flexible working on an individual, a team and an organisational level. On an organisational level, the openness of the office enables communication and interaction among colleagues. The negative effects of open offices, such as noise and interruptions, may be countered by the employee’s ability of deciding where to work, choosing from several activity-related locations. However, non-assigned workstations imply a limited ability to demonstrate psychological ownership within the office, which in turn affects well-being and job satisfaction negatively at the individual level. Similarly, low levels of territoriality may negatively affect team identification, information sharing and trust within teams, resulting in low team satisfaction and performance.

3.3 Office design and value

Dwelling deeper into office principles and value, we have already mentioned how office design can lower operating costs while supporting knowledge workers. Van Ree (2002) has attempted to summarise the debate about the impact of office design on organisational performance, by stating that there are two different main approaches to contribute to organisational performance:

1. Achieving greater efficiency by reducing the occupancy costs by reducing the amount of space per employee.

2. Achieving greater effectiveness by improving the productivity of the employees by providing a comfortable and satisfying working environment.

As we have seen with open offices, a focus on only reducing space is often not sustainable. Haynes (2007a) emphasises the link between work processes, work environment and increased office productivity and argues that a relatively small investment in office space, which encourages employee productivity, outweighs significant reductions in real estate costs.

Between 1994 and 2000 Brill et al. (2001) conducted a big piece of research on workplace design involving 13,000 office employees. Their findings on average
effects of the workplace are illustrated below in figure 4.

Figure 4: Average effects of workplace (Brill et al., 2001)

Brill et al. (2001) illustrate that the workplace’s strongest effects are on job satisfaction and the ability to recruit and retain talent. Even though the effect on individual and team productivity and performance is less, it is still significant. Job satisfaction, individual performance and team performance have been shown in literature to often go hand in hand (Van der Voordt, 2004; Roelofsen, 2002). Among other things, job satisfaction is related to motivation, and motivation is a crucially significant factor regarding the employee’s performance (Roelofsen, 2002).

Job satisfaction

Job satisfaction, in some literature referred to as employee satisfaction, refers to the degree of which the working environment suits the needs and wishes of the employees. Several aspects can influence the level of perceived satisfaction:

- The work itself (complexity, required knowledge, skills etc.).
- The social working environment (colleagues, management style, salary etc.).
- The physical working environment (workplace, lighting, air quality etc.). (Van der Voordt, 2004)

In addition to these work and work-related aspects, other aspects such as the employee’s private life can also affect the perceived job satisfaction. When
evaluating changes in job satisfaction resulting from new office initiatives it becomes important to distinguish and separate influences from other external factors.

The effects of ABW and similar flexible office concepts on job satisfaction have been shown to be contradictory. There are numerous examples in literature where the majority of people are positive towards the new concept, but there are also cases where the majority of employees would prefer to revert the changes. (Van der Voordt (2004); Wohlers and Hertel (2016))

Productivity

The dictionary definition of “productivity” is the state of producing rewards or results. In scientific literature productivity is used to describe the relationship between input and output. Input includes all company resources e.g. number of employees, capital, technology etc. and outputs are the products, the quality of the products and by extension the net profit and market share. There are three ways to increase productivity:

- Increase output with the same input (improved effectiveness).
- Achieve the same output with less input (improved efficiency).
- Achieve a relatively stronger rate of increase in output compared with the increase in input (a combination of improved effectiveness and improved efficiency). (Van der Voordt, 2004)

Measuring productivity in a knowledge-producing organisation is difficult. Van der Voordt’s (2004) review of literature on real estate, facility management, business administration and environmental psychology concludes that productivity in these practices are measured in five main ways:

- Actual labour productivity: e.g. the number of cases and policies handled per employee and unit of time.
- Perceived productivity: e.g. by asking people to rate how the environment supports their productivity.
- Amount of time spent: e.g. the amount of time saved using new technology or amount of time lost due to organising work, by continuously having to log on and by having to clear desks on a more regular basis.
- Absenteeism: e.g. the number of people that leave work too early, take long breaks or are absent due to illness.
- Indirect indications: e.g. to which extent people can concentrate properly and communicate with others.
Brill et al. (2001)’s analysis continues and illustrates the ten most important workplace qualities that have been shown to affect both job satisfaction and productivity. These are shown below, ranked in order.

1. Ability to do distraction-free solo work
2. Support for impromptu interactions (both in one’s workspace and elsewhere)
3. Support for meetings and undistracted group work
4. Workspace comfort, ergonomics and enough space for work tools
5. Workspace supports side-by-side work and “dropping in to chat”
6. Located near or can easily find co-workers
7. Workplace has good places for breaks
8. Access to needed technology
9. Quality lighting and access to daylight
10. Temperature control and air quality

Brill et al. (2001) are not the only ones emphasising the importance of distraction-free work and interaction support. Haynes (2007b) identified distraction as the component to be having the most negative impact on perceived productivity and interaction to be having the most positive impact on perceived productivity. Interactions and distractions are part of the behavioural environment and Haynes (2007b) continues with his reasoning and argues that it is the behavioural environment rather than the physical environment (office layout and comfort) that has the greatest direct effect on productivity. However, as we have seen, the physical environment has an indirect effect on productivity as it can support the behavioural environment, by for example enabling interactions.

**Importance of interactions**

Noise-producing verbal interaction with other people, whether it be on telephone, video calls, face-to-face, one-on-one, in larger groups or just chatting, is the second largest work mode office workers engage in. While being second to quiet work, interactions, both formal and informal, are absolutely critical for business success and highly valued by employees (Heerwagen et al., 2004). Brill et al. (2001) illustrate how this remains consistent, no matter the job position. On average people spend a quarter of their time interacting with others in and around their own workspace, see figure[5]. This means that the employees’ own workplaces are the source of most noise production.
Interactions are not only necessary as a means of exchanging knowledge, but it is also the way most people learn. Learning is imperative in a rapidly changing business climate, where new challenges and customer needs emerge every day. For this purpose, Brill et al. (2001) found that informal impromptu interactions are far more valuable and important than formal learning.

**Distraction-free work**

Reading, writing, editing, calculating, analysing and thinking. The list is long of work that requires an absolute focus. On average, doing quiet work is undoubtedly the activity that people engage in the most during their working hours. Brill et al. (2001) report that, for all job types, at least half the time is spent doing quiet work, see figure 6.

As we have seen earlier, the level of distraction depends heavily on office type, where more open office layouts are associated with a higher level of distraction (Brill et al., 2001). Undoubtedly, the distraction aspect and the interaction aspect are linked, as one employee’s interaction is another’s distraction (Haynes & Price, 2004). Noise is both necessary for the business as a productivity and satisfaction enhancer, but at the same time distracting and a diminisher. There is a clear conflict between the two, and finding the right balance constitutes a big challenge for managers.
3.4 ABW and value

In order to optimally support knowledge workers, managers need to balance privacy and communication to allow workers to quietly focus on complex work while simultaneously providing them with opportunities for interaction (Davenport (2005); Brill et al. (2001)). ABW is a means to respond to these emerging requirements. There are however few empirical studies of ABW and its effect on job satisfaction and productivity, and among those who exist the findings are contradictory (Wohlers & Hertel, 2016). By focusing on the specific working conditions of ABW, and comparing them with working conditions of other office types, e.g. cellular offices and open offices, Wohlers and Hertel (2016) have presented a theoretical model that explains how flexible office principles impact employees at work. While relying on well-established theories from work and organisational psychology, Wohlers and Hertel (2016) use task-related, person-related and organisation-related moderators to map out the relationships between ABW, working conditions and consequences.

Figure 6 illustrates Wohlers and Hertel’s (2016) model on the effects and consequences of ABW in both short-term and long-term on three levels: individual, team and organisational.
Figure 7: Overview of the Activity-based Flexible Office Model (A-FO-M)
(Wohlers & Hertel 2016)
Features

The defining features of flexible office principles and ABW are:

- Open-plan layout of main work environment
- Open and enclosed activity-related working locations
- Desk sharing
- Information and communication technology

These features are fundamental as the model assumes that the defining features of ABW have an integral impact on working conditions of employees and by extension both the short-term and long-term consequences.

Working conditions and consequences

Territoriality

In this context territoriality is defined as behavioural expressions of feelings of ownership towards social or physical objects (Brown, Lawrence, & Robinson, 2005). Employees demonstrate their feelings of ownership by establishing physical and social boundaries by personalising the office environments (Brown, 2009). Expression of territorial feelings has not only been found to positively affect well-being and attitudes of employees but also the relationships between employees (Brown et al., 2005).

When it comes to ABW, two features limit the capacity of which employees can express ownership: non-assigned desks and the absence of individual private rooms. This means that employees cannot personalise and mark their boundaries as they can in other office types. Consequently, employees in flexible offices experience lower levels of territoriality than employees in other offices, which has negative effects on well-being and job satisfaction on the individual level. However, employees in ABW offices tend to adopt new ways of expressing their territoriality and personalities, such as using the same workstation every day or using personal markers, e.g. bringing and putting picture of one’s family on the desk every day. Wohlers and Hertel (2016) propose that employees working in ABW offices over time develop new ways of expressing territoriality, lowering the initial negative effect on well-being and job satisfaction.

At the team level, territoriality plays a critical role for group identification, group cohesion and intra-group information sharing. Group identification has been linked to job satisfaction, high motivation as well as to attitudes that are critical for team effectiveness (Kane, Argoteb, & Levinec, 2005). In office environments with assigned workstations such as cellular offices there are visible boundaries and markers that aid in defining group membership, which
consequently promote group identification. For example, in an open office the workstations can be arranged to assure proximity to team partners. However, in ABW offices, where all visible boundaries are removed and teams are not necessarily located together, achieving intra-team identification (i.e. relationship between team partners) becomes more difficult. While ABW boundaries result in lower levels of team satisfaction and team performance for the intra-team, it has a positive effect on the inter-team processes (i.e. processes affecting the relationship between colleagues of different teams and departments). The lack of visible boundaries and co-location to colleagues from other departments implies that employees in ABW offices are more likely to engage in conversation with members from other teams. To summarise, features such as desk sharing and open/closed activity based workstations does not necessarily imply a complete loss of identification. Instead they imply a shift in identification focus where employees move from being members of a team to being members of an organisation.

**Autonomy**

In the context of office principles and design, autonomy at the workplace refers to the employees’ control of time and place of work as well as how the work is executed. Autonomy has been found to have a positive effect on well-being (Deci & Ryan, 2008), job satisfaction (Ilardi, Leone, Kasser, & Ryan, 1993), work motivation (Gagné, Senecal, & Koestner, 1997) and job performance (Baard, Deci, & Ryan, 2004). Shared desks, digitally stored information and communication technology gives ABW employees a high level of flexibility to decide themselves when and where they would like to work. The activity-related workstations allow for flexibility and personal choice even within the office building. Consequently, employees in an ABW office experience higher levels of autonomy compared to employees in other office types.

**Privacy**

Privacy can be broken down into “architectural privacy” and “psychological privacy”, where the former influences the latter (Sundstrom, Burt, & Kamp, 1980). In an office environment, architectural privacy is determined by physical features that lead to the seclusion of employees, e.g. walls or panels. Architectural privacy helps employees control their visual exposure to others, control their accessibility to others and limit acoustic disturbances, which all contribute to the experience of high psychological privacy (Sundstrom et al., 1980). The importance of distraction-free work has been discussed at depth in previous segments in this report as well as how low level of control of noise, interruptions, disturbances and exposure are affecting employees’ well-being, job satisfaction, motivation and job performance negatively (Brill et al., 2001; Kim and De Dear, 2013; Sundstrom et al., 1980). Naturally, the highest level of privacy is asso-
associated with cellular offices and open offices are associated with the lowest levels of privacy, due to the reduction of walls and enclosures. Although ABW offices share some defining features with open offices (e.g. an open-plan layout of main work environment) the feature that differentiates ABW offices from open offices in this respect are the activity-related working locations. Wohlers and Hertel (2016) theorise that the employees’ use of workstations according to the needs of the task (e.g. using quiet space when doing work requiring an undisturbed focus) moderates and decreases the negative effects on well-being, job satisfaction, motivation and job performance.

Proximity & Visibility

Physical proximity refers to the distance between colleagues in the office environment. In addition to the effects on team processes discussed under territoriality, proximity and visibility have a significant impact on communication frequency among colleagues as it increases the availability and likelihood of impromptu interactions (Peponis et al., 2007). Office types with fixed assigned workstations (i.e. cellular and open offices) often have the workstations arranged so that team members always are within close proximity. In cellular offices team members often share rooms or occupy the rooms next to each other, while team members in open offices are often placed in clusters. Another advantage with open offices in this respect is the increased visibility. However, similarly to how the territoriality in ABW offices is affected by features such as shared desks, team members can be spread out all over the office building (and because of autonomy, outside of the office as well). Consequently, unplanned impromptu communication within the team suffers, while the mix of colleagues from different teams encourages interaction with non-team members. Therefore, similarly to how the territoriality affects inter-team and intra-team processes, these ABW features can have a negative effect on communication, information sharing and trust within the team but a positive effect on communication, information sharing and trust between non-team members. Considering this and the fact that interactions remain one of the most important workplace qualities, maintaining the communication within teams is an important challenge for managers to keep in mind.

Moderators

Wohlers and Hertel (2016) use the term moderators for the factors they expect to represent the relationships between ABW features and working conditions as well as the relationships between working conditions and employees’ well-being, attitudes and behaviours. Wohlers and Hertel (2016) make it very clear that their description of them are not exhaustive and that more research into the moderators are required. They divide the moderators into three sub-groups:
task-related, person-related and organisation-related moderators.

Task-related moderators

Wohlers and Hertel (2016) refer to this group of moderators as the characteristics of the work tasks. For example, it is reasonable to assume that the variety of the task moderates the effect of ABW features, working conditions and work-related consequences. In theory, a medium level of task variety is optimal for employees working in ABW environments. A medium level of task variety implies that employees can take advantage of and make use of different workstations without having to switch workstation too often, making it too big of an effort and time consuming. In contrast, employees working with low or no task variety does not have to switch workstation and consequently cannot take advantage of the flexibility. Since these employees does not have their own workstations and have to look for a similar workstation every day, a low task variety can render ABW stressful rather than beneficial. They have to deal with the negative effects of reduced territoriality while having less or no benefit from the aspects that come of switching workstation, which in turn affects the end consequences (i.e. job satisfaction, well-being and performance) (Wohlers & Hertel 2016).

Another task-related moderator is task interdependence, the degree of which colleagues and team members depend on each other in their work (Wageman 2001). High task interdependence implies a need for regular coordination, information sharing and cooperation. As we have seen, ABW can affect communication within teams negatively, which would in theory mean that highly interdependent teams would suffer from ABW in this respect. On the other hand it is plausible that high task interdependence may encourage information sharing and thus help managers and teams overcome the negative effects of proximity and visibility restraints (Hertel, Konradt, & Orlikowski 2004).

Person-related moderators

Another group of moderators are the individual characteristics of the employees. The first person-related moderator that Wohlers and Hertel (2016) mention is personality. Out of the five personality traits Costa Jr and McCrae (1992) use to describe personalities, extraversion and agreeableness would seem to be most relevant to employees’ experiences of ABW. Extroverts are (in contrast to introverts) more sociable, gregarious, assertive, communicative, and active. They have also been shown to be more comfortable and pleasant in social situations, as they feel energised by interacting with people (McCrae & Costa Jr 2008). As ABW offers opportunities for proximity and visibility to ease interaction and communication, it is likely that extroverts would feel more comfortable in the office environment than introverts would. It is also possible that introverts will try to shield themselves from interactions by sitting themselves in
silent working locations or at home. This means that they will not make use of and take advantage of the different working locations nor benefit from the communication opportunities. Agreeableness refers to being tolerant, friendly, courteous, flexible and cooperative. People with a high level of agreeableness prefer cooperation rather than conflict (McCrae & Costa Jr, 2008). In ABW offices, where work often takes place in an open environment, it could sometimes be useful to occasionally be less tolerant, courteous and selfless to prevent disturbances from others. Seddigh (2015) investigated agreeableness and whether or not it might moderate the relationship between office types and distraction and job satisfaction. Employees with higher levels of agreeableness did indeed report higher levels of distraction and job satisfaction (compared to less agreeable employees). Seddigh (2015) concluded that more agreeable employees are less likely to communicate their needs to others, resulting in more exposure to negative stimuli.

Age is another person-related moderator that might affect how employees perceive and react towards the ABW specific working conditions, and in turn the consequences. Although many organisations implement ABW in order to attract young talent (Van der Voordt, 2004), research has shown how older employees handle the ABW features and the working conditions better than young people. Older employees tend to possess higher self-regulation skills (Thielgen, Krumm, & Hertel, 2014) and use more active coping strategies (Hertel, Rauschenbach, Thielgen, & Krumm, 2015). Since the openness of the work environment can become stressful and require employees to be active with their coping strategies and self-regulation it is possible that older employees are better suited than younger employees for an ABW office. Another aspect in which older employees might have an advantage over young employees is the high level of autonomy. Hertel and Zacher (2016) show how older workers, due to experience and occupational skills, particularly value high autonomy and see it as a benefit rather than a burden.

The employees’ individual need for routine seeking is another person-related moderator. Need for routine seeking, i.e. how the individual consolidates routines into their life (their professional life in particular) is based on the assumption that individuals differ to the degree of which they prefer stimulation, newness and giving up old habits (Oreg, 2003). As the ABW principles imply changing both routines and habits daily, it is reasonable to expect that employees with lower levels of need for routine seeking are more likely to prefer and succeed in an ABW setting.

Organisation-related moderators

Lastly, the relationships between ABW features, working conditions and employees’ well-being, attitudes and behaviours may also be explained by organ-
These moderators include organisational culture, leadership and special office design features. Organisational culture refers to the values and norms that are shared by all members of an organisation (Schein, 1990). Considering the defining features of an ABW office, such as openness and removal of physical barriers, it is reasonable to assume it would suit certain organisational cultures better than others. For instance, a bureaucratic culture that is characterised by hierarchy, placing a high value on authority thinking and heavily compartmentalised work would in theory be ill suited for ABW. Meanwhile, a supportive culture that values teamwork and collaboration would for the same reasons have the potential to benefit from ABW principles.

Another organisational moderator (Wohlers and Hertel, 2016) considers leadership. Bodin Danielsson, Wulff, and Westerlund (2013) illustrates how different leadership styles work in different office types. When it comes to ABW, the balance between the supervisors’ and the managers’ trust and control over the employees is in theory a critical factor for how the employees react to and act in the environment. Wohlers and Hertel (2016) expect the managers’ trust in employees to be critical for employees’ choice of workstation and satisfaction at work. The managers have to rely on their employees to do a good job and cannot control them like they may have been used to doing previously. If managers fail to do this and instead restrict their employees’ autonomy, the positive effects from it would be lost.

Special office design features refer to features such as the size of the office, desk sharing ratio and the balance between different types of activity-based workstations. These are features that vary between different ABW offices and are tailored for the individual organisation. For instance, the balance between different workstations and desk sharing ratio has a decisive impact on whether or not an employee can find a suitable workstation. If an employee cannot find a suitable workstation they are more likely to feel distracted and less satisfied. Another example is the use of technical devices and how it can be used to counter and moderate known negative aspects. For instance, Wohlers and Hertel (2016) suggest that the use of an office GPS would allow team members to keep track of and find each other and thus facilitate the communication within the team, countering the assumed negative impact of ABW on intra-teams.

3.5 Change management

As an implementation and introduction of an ABW office implies significant changes to both the organisation and the employees, the topic of change management becomes relevant. Moran and Brightman (2000) define change management as “the process of continually renewing an organization’s direction,
structure, and capabilities to serve the ever-changing needs of external and internal customers”. The change process moves from a current state to a future state, where the current state has to be changed in order to meet the vision of the future state. Nadler et al. (1997) suggest that the shift between these states transpires via a transition state, see figure 8. In the transition state the organisation goes through an implementation of desired changes. It is during this phase that many of the problems, associated with change processes, occur and therefore is essential to manage.

Figure 8: The model of organizational change as a transition (Nadler et al., 1997)

A lot of research exists on the topic of managing change. John P. Kotter is a professor of the Harvard Business School and is well known for his contribution to the field and topic of change management. Kotter developed a model to explain why companies fail or not in their process of implementing change (Kotter, 1996). The model is based on his observation of one hundred companies (of different sizes) and their strategy of change, including large companies such as Ford and General Motors. In addition to explaining the steps, Kotter emphasizes the importance of management being patient throughout the change process and not to skip any stages. The model consists of eight steps:

- **Create a sense of urgency**: establishing and creating a sense of urgency helps others see the need for change and the importance of action.

- **Build a guiding coalition**: as a manager cannot change an organisation alone it is necessary to form a coalition with other people and to be united in leading the change.

- **Create a vision and strategy**: in order to mobilize and unite people in a company, leaders and managers must first define a vision and a description of the future.

- **Communicate the vision**: in order to be acted upon, the vision has to be communicated to the employees.

- **Empower employees** by removing obstacles and allowing them to act on the vision.
• *Create short-term wins:* to encourage employees and to preserve the mobilization it is essential to obtain visible results.

• *Consolidate the change.*

• *Institutionalise the change:* anchor the change and articulate the correlations between new behaviours and organisational success, making them strong enough to replace old habits.

A common theme throughout Kotter’s eight steps is the communication between managers/leaders and employees. When employees are involved in the change effort they are more likely to accept the change than resist it, consequently participation from employees becomes very important.  

Gustavsen, Hofmaier, Philips, and Wikman (1996) argues that enabling broad participation is a central requirement in an organisation under change. Thanks to well-established traditions of cooperation, participation and workplace democracy, especially in Scandinavia, it is not only impossible but also undesirable to mobilize employees without also allowing them to take an active part in the process of change. In their research they show how active involvement of all major groups of the organisation is a vital aspect for successful changes. They continue to particularly stress the importance of that those who the change directly concerns are given both room and incentives to participate. (Gustavsen et al., 1996)
4 Results

4.1 LF Mäklarservice and ABW

In 2015, LF Stockholm and LF Skåne made the decision to move to new premises. LF Mäklarservice, a subsidiary, who up to that point had worked on the same premises as the local LF company, had to decide whether or not they were going relocate as well. The Malmö office decided to do so while Stockholm chose to stay in their current premises, with reduced floor space. The idea of introducing an ABW concept came after the decision to stay in the smaller area. The management had received suggestions and heard about ABW and thought it to be suiting and interesting to their business. The managers performed study visits on a number of different companies in Stockholm who were working with ABW at the time, which allowed them the chance to ask questions about the concept, benefits and their concerns. The management of LF Mäklarservice thought the idea felt great. An employee in a managerial position expressed the perception like this: “Now we are going to do something nice and neat with our premises, we believe in this”.

The management was convinced that ABW fit LF Mäklarservice’s core values and a few goals with the transition were defined. For instance, LF Mäklarservice perceived ABW as a means to become a more attractive employer, create a more unified and joint LF Mäklarservice, to increase efficiency and allow employees a bigger flexibility in the thinned out lines between work and leisure. The ABW-project was named “VNA”, or “Vårt Nya Arbetsliv”, roughly translated into “Our New Working Life”. LF Mäklarservice wanted the name to reflect that the transition was not only about physical changes in the environment, but the whole working life.

All employees in both Stockholm and Malmö were given the opportunity to go on study visits at nearby companies working according to ABW principles. Eventually, a consultant firm specialised in ABW was contacted and hired to aid in the transition. The consultant conducted workshops, surveys and interviews with employees and managers. From the data gathered, an architect could then continue and started drawing sketches for the concept. As mentioned, the office in Stockholm stayed in their location, which meant that the rebuilding of the office had to be performed around the daily work. In Malmö, the new location was supposed to be adapted for ABW before the move. Unfortunately, this was not the case. Instead, the employees in Malmö had to work in LF Skåne’s part of the new premises while the ABW office was finished. Both offices were completed in autumn 2016.
4.2 Interview results

The interview questions were gathered and categorised under different themes: the implementation process, digitalisation and technology use, use of office space, communication and teams, distractions and silent work and job satisfaction.

The implementation process

Before the transition to ABW took place, most of the interviewees, particularly the ones in Stockholm, felt that they had received sufficient information about the changes. The information covered both what was going to happen to the office space and the reasons behind the change. However, a few interviewees expressed concerns with how much information that was given and how late it was presented to them. One interviewee said “I think we got fairly little information about the reasons for the change […] It was already decided when we found out, and the architects were already involved”, which was backed up by a colleague describing it as “I got a feeling it was presented to us as a finished idea”. Both of these interviewees worked at the office in Malmö. One interviewee tried to describe some of the problems with “I think it is pretty hard to understand, as an employee, how it is going to be. You can get blue prints and information but it can be pretty hard to take in what it will actually mean for oneself”.

Almost all of the interviewees from the smaller Malmö office agreed that the whole ABW idea was planned and launched from the head office in Stockholm, and that they had little or no possibility to influence it in any way. Several interviewees criticised the survey that they received early on in the project, which was a major part of the decision basis for the actual office design. The interviewees argued that the survey was misguided and that the context was not explained sufficiently, “If there had been more information about the purpose of the study, I think they would have gotten more suitable answers”, one interviewee stated, while another said “I feel that they have not really understood what we asked for”. The interviewees in Stockholm were somewhat more positive and felt that there at least was a possibility to be involved in the introduction, even though the degree of involvement could be questionable. A Stockholm based interviewee explained it as, “We got to participate and influence. Exactly how much and to what mandate I cannot really say. […] If it was just details, like the colour on the tableware, or if it was the whole way of working, I cannot really answer”.

The new way of working demanded quite a bit of changes in the office layout. The office in Stockholm was remade while ordinary work transpired next to it,
which resulted in some disturbances for the employees working nearby. One employee described it as “a small construction site that was moved around the premises for a few months”. In Malmö, the employees were supposed to move into newly built offices but unfortunately encountered problems, as it was not designed for the new ABW at all. They had to work in a different part of the office for a few months before the new office was finished. Clearly, both offices had a rocky start with the new concept of work, which one interviewee in Malmö described, “because it was such a tricky situation when we had to move another time, we did not get a good start. Some [employees] chose to work from home, which became very comfortable. So now I have a colleague that only comes to the office when our manager is here”. Despite all of this, most of the interviewees agreed that the work was not excessively affected during that time, although the construction work could sometimes be very loud. One employee commended the construction workers and said “they were very respectful of our business, so they were very quiet and adapted to the fact that we have an important business to attend to”, while another employee pointed out that “it is the same if you are renovating at home, so what can you do about it”.

To conclude, most employees felt that they received sufficient information before the transition to ABW, with some concerns raised over the timing of the presentation. Regarding the employees’ participation in the transition there is a clear difference between the two offices, where the employees in the Malmö office felt a lot less involved than the employees in Stockholm were. According to the interviews, the on-going construction work did not have a major impact on the daily work.

**Digitalisation and technology use**

Since digitalisation and technology is a key aspect of ABW, it also became a focal point during interviews. Although many of the interviewees did not consider themselves very technologically mature, everyone said that the technology worked great and that it was a big step forward compared to earlier. Most of the interviewees considered themselves to be relatively knowledgeable with the specific technology that they were using, but clarified that there were some aspects that could be improved. One interviewee described it as “I have gone through the technology as a superuser and seen what is in there, and it is fantastic, but I do not think we can utilise it fully”. The term “superuser” was introduced in the beginning of the implementation, as all employees were asked if they wanted to become one. Superusers received more education in the different technologies and software, and are supposed to support colleagues when they need help. In Stockholm, only four or five persons took that opportunity, which the cited interviewee thought to be very low. Furthermore, we asked all
interviewees how they acquired the knowledge on the different technologies they were using, and received as many different answers as there were interviewees. Commonly, it seemed to be a various mix of both education, self-learning and help from colleagues. Two of the interviewees pointed out that to really learn it is important that one dares to try the technology, rather than backing away when one is unsure or when something goes wrong. Another important aspect was how much paper and binders the employees used, as having a lot of material in paper form requires the employee to be at the workplace to conduct work, which in turn would stand in the way of the core principles of ABW. All interviewees expressed that they were fully digital, arguing that they almost did not use any paper or binders at all and instead had almost all the material they needed in their computers. “I am working from home today and I am looking at what I brought home... I was in Stockholm yesterday and have three documents here, which is all I need in order to work”, one interviewee described it, while another said “I belong to those who sometimes print documents, because I like to read from paper and use markers. […] The bundle [of documents] I work with right now is not bigger than what fits in the portfolio with the computer”. A concern was raised by a few of the interviewees about some of their colleagues not using the technology nearly as much as they could, and some still used a lot of binders and papers, resulting in them barely working by the concept of ABW at all.

Overall the employees of LF Mäklarservice have embraced the new technology very well and the employees have to a high degree transitioned to a digital way of work, even though there seems to be room for improvements in some regards.

Use of office space

How the employees use the office space and the different areas within it is another important element of ABW. During the interviews, almost all interviewees expressed that they had favourite spots or specific areas where they sat most times. A few of them only changed workstations within that particular area, while others moved between a couple of different areas. Most of the interviewees explained that they always sat on the same spot for the whole day, simply because their work tasks consisted of mainly one type of activity. One interviewee explained “Most often you sit with the same work tasks the whole day. Sometimes you have smaller meetings, but afterwards you go back to that same spot”. Only two of the interviewees expressed a need to change workstation multiple times a day. The interviewees that described their tasks as more varied tended to be among the employees who switched workplace more often.

One problem that came up early on was that the intended silent area did not
work in either Stockholm or Malmö. This aspect was confirmed by all of the interviewees. However, the reasons behind it seemed to differ between Stockholm and Malmö. In Malmö, one group of employees always sat in the silent area, even though they continuously discussed work with each other loudly. In Stockholm the disturbances in the silent area just seemed to occur by negligence, for example someone taking a phone call and not remembering to move away from the silent area. One interviewee expressed his/her frustration as “It is like when you book a seat in the silent compartment on the train, then you expect it to be silent, right? If it is not, at least I become really annoyed”.

Several interviewees criticised the initial survey about the perceived work areas, and argued it was to blame for the less than optimal distribution of workstations between the areas. Why this problem had not been addressed was explained during the pre-study by the interviewee in a managerial position. The management did not want to control or steer the employees, and thus limit their autonomy. However, the same interviewee stated that there is an on-going discussion on how to improve the silent areas. This is part of an on-going working group called “VNA 2.0” which is a managerial initiative to address issues and highlight that which has been working great so far. The management wanted to emphasise that the workplace is not perfected, but is a continuous work in progress.

The key takeaways were that the employees do not seem to utilise the possibility to switch workplace fully. It is unclear if this is because of the low level of task variety, the fact that some areas do not function as they are supposed to or if it is a combination of both. In addition to this, multiple concerns were raised over the initial survey about perceived work areas.

**Communication and teams**

The interviewees agreed that the openness and non-assigned workstations had a mixed effect on communication. Within the own department/group almost all of the interviewees argued that ABW and VNA had an overall negative effect on the communication and team spirit. Due to the non-assigned workstations the employees felt it was difficult to keep track of their colleagues. They argued that there is no definitive way of knowing whether one’s colleagues are working from home or just in another area within the office. Some of the interviewees continued and argued that the opportunity to work from home and non-assigned workstations are damaging to the team spirit. One interviewee expressed it like this: “There is no concrete obstacle preventing the group from working together. Even if they are working from home we have Skype. Instead, what you lose is the team spirit.” The interviewee continues, “some of my colleagues has taken it [the opportunity to work from home] very ad notam and never are in the office
The interviewees also expressed deeper concerns in regards to the loss of feeling of belonging to a team. “It is partly because of this [the feeling of belonging to a team] I have chosen to work the way I do. Otherwise I could be self-employed, sit at home and be happy. I have chosen to work in a larger organisation with many co-workers because I want the team spirit and to work alongside others.” A fourth interviewee, from a different team, took the opportunity to commend her/his manager for doing a good work maintaining and ensuring the team spirit by organising joint activities.

All interviewees did however agree on that the same features that had a negative effect on communication within the team are fostering better communication between different teams and departments. They explained that the non-assigned workstations and openness meant that they sometimes got seated in proximity to colleagues from other departments, something that never happened before the transition to the new offices. They all found this to be refreshing and one interviewee expressed it as “having been given additional co-workers”. Another interviewee said that before VNA, when the different departments were located separately, all anyone said to people from other departments were “Hello” in the morning and “Goodbye” in the afternoon. He/she continued and argued that today people chat and have coffee with people from other departments all the time. Two of the interviewees were somewhat more sceptical and showed some constraint as they argued that the communication with people from other departments primarily is of the informal kind and they therefore questioned the professional and work-related benefits. One argued that, in practice, it seldom happens that people from one department actively choose to sit with people from another department. He/she continued and said: “It feels weird to actively choose not to sit with one’s closest colleagues as it becomes a statement.”

All the interviewees, particularly the ones in Malmö, did however express a belief that VNA and ABW have resulted in a more aligned and united LF Mäklarservice.

To conclude the communication aspect, there is a distinct difference from before the transition, according to the interviewees. The communication and visibility within the teams has been affected negatively, while communication with other teams has seen a positive improvement.

**Distractions and silent work**

There is a clear and distinct difference on the perceived level of distractions and disturbances between the two offices. The interviewees based in Stockholm
agreed that the disturbances are lower than before the implementation. One of respondents puts it this way: “Today I am much more mobile, if I feel distracted or disturbed by someone being very loud I am free to move to a silent room”. He/she continues, “then we also have chat rooms and non-bookable rooms, which many people use for talking”.

In Malmö however, most of the interviewees perceived the level of disturbances and distractions to be higher than before. Two interviewees expressed frustration, one argued that “If I am seated in the area that allows for communication and discussions I expect the noise level to be higher. However, if I am seated in the silent area and people are talking loudly I get frustrated and distracted”. The other interviewees agreed with this and all expressed concerns regarding the meant-to-be silent area.

Job satisfaction and personal opinions

The interviewees differ in their personal opinions regarding VNA and ABW. Three of the interviewees were very positive towards the concept, while the remaining were more split and expressed more sceptical opinions. Generally the interviewees based in Stockholm were more positive about the concept than the interviewees based in Malmö. There are however positive themes that interviewees from both offices raised. These were mainly the increased flexibility and autonomy, the increased communication between departments, the new technology and the nice aesthetics of the offices. Interviewees from both offices explained how they feel more mobile than before, and thanks to new technology they can now bring their work with them and just as easily work from other offices or from home. One interviewee illustrated his/her positivism with an example, “[…] if I need to be home at a specific hour, or if I am bringing my child to the doctor it is very convenient not having to drive back and forth to the office, instead I can work from home until it is time to leave. You do not have to waste time unnecessarily. Even if your child is ill you can still work from home. That freedom is worth a lot, both for the organisation and myself”.

The negative aspects that came up during the interviews were the distraction/disturbance levels and how the cohesion and communication within the departments had suffered. Almost all of the interviewees questioned the use of the silent area and argued that the area is far from silent, and at times the noise levels are higher there than any other place. Although this seems to be the case in both offices, the interviewees in Malmö were more vocal in their concerns about the lack of silent workstations. One interviewee explained how people choose to work from home because they are unsure whether or not they actually would be able to concentrate in the office. Two of the interviewees also questioned the suitability between the ABW principles and their own work
tasks. They argued that their work tasks are very uniform and stationary, and consequently they felt they had little or no use of the different workstations.

Another aspect the interviewees in Malmö brought up was the lack of onsite leadership. There are no stationed managers in Malmö, and one of the respondent explained that her closest manager usually visits the office once a week but that it sometimes could be weeks between visits. A couple of the interviewees in Malmö expanded on this arguing that onsite leadership might have made the transition easier and provided guidance. One interviewee said “ [...] if there had been managers stationed in Malmö, being here more or less all the time, they could have guided and reminded us about how to work in this environment.”

Altogether the opinions of the new concept is very mixed. Clearly, the silent areas in both offices have not functioned as expected, especially according to the Malmö interviewees. A few other negative aspects that were brought up were that the concept did not support the work tasks of some interviewees, and that the Malmö office lacked onsite leadership for support and guiding. However, the majority of the interviewees were positive to the increased autonomy and flexibility in work, particularly the respondents from the Stockholm office.

4.3 Survey results

Implementation

From our pre-study, differences in how employees from the two different offices had experienced the transition became apparent. Consequently the first big section in the survey regarded the implementation of VNA and the new ABW principles.

The first question in this section concerned the level of which the employees felt involved in the actual transition and implementation. There is a clear difference in how employees in the two different offices felt involved during the transition. In Malmö, only just over half (57 %) of the respondents answered that they in some way felt they were involved in the changes, meanwhile the same number for Stockholm was 80 %, see figure 9. Some of the employees, particularly employees based in Malmö, left very critical comments on this question arguing that the changes happened as “a complete exclusion of the employees” and a transition to something “that does not suit the business at all”.

37
To complement this the respondents were asked about their overall experience of the transition and to grade the transition on a scale from one to five, with one being the lowest grade. The average grade was 3.36. Notable, there is a significant difference between the average grades, given by those who stated that they were involved during the transition and those who did not. Employees who felt involved gave the entire transition an average of 3.82 while those that did not graded the transition 2.18, see figure 10.

Figure 10: Grading of the entire transition
As suspected, there was also a distinct difference between the results from employees in Stockholm and employees in Malmö. More than half the employees in Malmö (57%) had a bad experience and graded the transition either one or two. In Stockholm however, the results were the opposite with 68% of the employees grading the transition either four or five, see figure 11.

In the optional comment section, one respondent described the implementation process as “very messy” and arguing that “a lot of time was taken from my work”. A few other respondents pointed out that the reconstruction period ran longer than expected, for example saying “it took a longer time to rebuild than planned”. While this might be a reason for some of the employees’ negative experiences, some other respondents used the comment section to commend the management of the transition. For example, an employee from Stockholm said “the management created work groups with different responsibilities before the launch”.

![Experience of transition](image)

Figure 11: Overall experience of the transition

To sum this up, we see that participation during the transition was higher in Stockholm than Malmö, and that those who were involved rated the transition higher than those who were not. Consequently, this would seem to be one explanation for the differences seen in regards to the overall experience of the transition between the two offices.

**Work routines**

The next big part of the survey concerned the respondent’s current work rou-
This section was included because it regarded aspects and features that are central to the practical use of ABW principles and by extension its outcomes. The section included aspects such as how and where employees spend time working, how comfortable they are with technology and whether or not they felt distracted in the offices.

As we have seen, technology is a central aspect when it comes to ABW. Employees need technology that supports and enables them in an ABW office environment. Out of all 39 respondents, only 1 person did not feel comfortable with any of the technology that were available, see figure 12. Notable, this employee also answered that he/she was not at all involved in the implementation and graded it ‘1’. This employee also expressed that the switching of workstation was tenacious and expressed his/her perceived level of well-being/comfort to be very low. 10 respondents answered that they were comfortable with some of the technology, 25 answered that they were comfortable with most of the technology and 3 answered that they were comfortable with all the technology. As seen in figure 12 there is no significant difference between the different offices in regards to being comfortable with technology.

![Bar chart](image)

**Figure 12: The degree of the employees’ comfort with the technology**

The employees were also asked about their direct work routines. As seen in figure 13, an average of almost three quarters of work is conducted at the office (74 %). Meanwhile, 5 % of work is conducted at other LF-offices, which leaves work from other places than the LF offices around 21 %. In the office, a majority of work was conducted in the open space areas, where talking was allowed. Only
an average of 16% of work was conducted in the silent area, while 12% was managed in the conference rooms and/or Skype rooms, see figure 14. Similarly to the interviews, many respondents used the comment section to express concerns in regards to the silent area not being silent. A respondent argued, “We do not have any silent working stations. The plan was to have some. If you want it to be quiet you have to shut yourself away inside a conference or Skype room”.

Figure 13: Where the employees work from
A big part of ABW is the active choosing of, and switching between, different workstations that suit different activities and tasks. 29 out of 39 (74%) of the respondents answered that they always sit in the same workplace, or only switched workstation between different days, see figure 15. One respondent described it as “I do switch place, but I have ‘my own’ spot throughout the day.” he/she continues “I take my phone and/or computer and go to another room to talk on the phone or work silent for a while, but the default spot I have until I leave for the day”. Similarly to the comfortability with the technology, there is no significant difference between the different offices concerning the switching of workplace.
The employees were also asked whether or not they experienced the switching of workplace to be problematic. Contrary to the previous questions, the differences between the two offices in regards to this question were major, where 79% of the Malmö respondents said that it is at least somewhat problematic, while this number in Stockholm was 28%, see figure 16.

Figure 15: The employees switching of workplace

Figure 16: Whether or not the employees felt switching workstation was problematic
As we have established in the previous chapter, one of the most important factors regarding office productivity is the ability to do distraction-free solo work. Consequently, the employees were asked about disturbances and distractions from colleagues. In Malmö as many as 72% of employees stated that they felt distracted by others. 29% even stated that they felt that the disturbances were major. The results from Stockholm are less extreme but still significant in regards to this aspect, see figure 17.

Figure 17: Whether or not the employees felt distracted/disturbed by others at work

One respondent confirmed the interviewees view on the silent area and wrote, “The reason I am disturbed is because of the silent area not being silent”. A respondent in Malmö said that the noise could be dampened by installing better office silencers, while a respondent in Stockholm said, “I am less disturbed nowadays than when we had fixed spots”.

To summarise, the vast majority of the respondents answered that they are comfortable with most or all technology. Similar to the interview results, concerns were raised regarding the silent areas not functioning properly. Almost three quarters of the respondents answered that they rarely switch workplace. A possible explanation could be that it is problematic to change workplace, which is what the majority of the respondents from Malmö thought. However, almost three quarters of respondents from Stockholm did not find it problematic to switch workplace at all. Lastly, according to the respondents there is a significant distraction level, especially in Malmö.
Well-being and comfort

Since one of the most important effects of the workplace is the employees’ job satisfaction ([Brill et al. 2001](#)), the participants were asked to grade their perceived well-being and comfort level in the workplace. The results show a significant difference between the offices. On a scale from one to five, 84% of the respondents from Stockholm graded their job satisfaction and well-being as either four or five while only 4% graded it one or two. In Malmö however, only 43% graded the well-being and comfort four or five while 36% graded it one or two, see figure [18](#).

![The rate of well-being/comfort at work today](image)

**Figure 18:** The perceived level of well-being and comfort

There are some correlations between reported level of well-being/comfort and disturbance, see figure [19](#). Similarly, correlations can be seen between reported levels of well-being/comfort and aspects concerning the implementation. There exists a link between both involvement during the transition and how the transition was experienced and perceived well-being and comfort, see figures [20](#) and [21](#).

In addition to these correlations, there also exists a relationship between well-being/comfort and the tendency to switch workstation. Those that stated that they switched workstation daily graded the well-being/comfort 4.30 while the once who seldom switch workplace graded the well-being/comfort 3.59.
Figure 19: Relationship between well-being and disturbances

Figure 20: Relationship between well-being and participation during implementation
Clearly there seems to be a difference in the well-being between the offices. One explanation seems to be the distraction level. There is also an apparent difference in the experience of the transition and the participation during it, between those who rated their well-being high or low. As mentioned earlier, more people in Stockholm felt involved in the transition than in Malmö, which could explain these differences.

**Significance of age**

As stated earlier, a rough estimate of the age of the respondents results in around 50. We have identified a few differences in regards to age. As opposed to what one might think, there is almost no significant difference in regards to comfortability with technology, see figure 22. However, when ages are put in relation to the reported level of well-being and comfort a pattern becomes visible. The younger the employee the higher level of well-being was reported. On average, the age group -34 graded their well-being/comfort 4.67, the age group 35-44 graded theirs 4.22, the age group 45-54 graded theirs 3.88 and finally the age group 54- graded theirs 3.00, see figure 23. We also found a correlation between age and the level of which the employees felt distracted by others, see figure 24. In addition to this, the young employees were in general more inclined to switch workstation and also perceived the process of switching to be less problematic than their older colleagues.
Figure 22: The degree of the employees’ comfort with the technology (by age)

Figure 23: The perceived level of well-being and comfort (by age)
Figure 24: Whether or not the employees felt distracted/disturbed by others at work (by age)
5 Analysis and Discussion

The analysis will be based on the research question and its sub-questions. Together the sub-questions will be used to answer the main research question, which in turn will result in achieving the purpose of the study. Under 5.1 SQ1 the consequences of ABW will be discussed while the moderating mechanisms will be discussed under 5.2 SQ2. The findings from these sections will be summarised and used to answer the main research question under the third section, conclusion.

In this section we will also discuss contribution, generalisability and future research.

5.1 SQ1. What consequences does an introduction of activity-based working imply for the employees?

The effects of ABW will be discussed in relation to four working conditions. These conditions are territoriality, autonomy, privacy as well as proximity and visibility. These conditions are part of Wohlers and Hertel’s model, see figure 7, and were chosen because together they are the most commonly studied topics in office design (Wohlers & Hertel, 2016). We will discuss the effects of the work condition on individual, intra-team and inter-team levels.

Territoriality

As mentioned earlier, territoriality is defined as behavioural expressions of feelings of ownership towards social or physical objects (Brown et al., 2005). Expressing ownership by physical and social boundaries has been found to positively affect employees’ well-being, attitudes and relationships to each other (Brown et al., 2005).

ABW has a negative effect on territoriality, because of the fact that the employees do not have specific workstations but instead share them with each other. This often affects the individual’s well-being and job satisfaction in a negative way (Wohlers & Hertel, 2016). Wohlers and Hertel (2016) suggest that over time individuals develop new ways of expressing territoriality in ABW offices, which lowers the negative impact of the territoriality loss. We found that most employees at LF Mäklarservice did not consider the loss of individual dedicated workplaces a direct problem. However, some concerns were raised regarding how suitable ABW was for their work and that the start-up time was much longer with ABW than before. Many of the employees stated that their work was mainly conducted at the same spot, in front of their computer, and that they did not require the ability to move around. These negative effects were mainly
derived from the Malmö office. One respondent in the survey expressed his/her concerns: “To feel secure, comfortable and motivated to give 110 %, I would need to have my own workplace.” At the time of this study, the ABW concept had only been in place for half a year at LF Mäklarservice. Consequently, it was difficult to see if new ways of expressing territoriality had been established. However, some employees stated that they almost always are working at the same workstation, which is one way to cope with the new way of work (Wöhlers & Hertel 2016).

Besides the effects on the individual, territoriality also has a significant effect on the intra-team level. As discussed earlier in the report, low levels of territoriality may negatively affect team identification. It can also affect information sharing and trust within teams, which result in low team satisfaction and performance. Several interviewees mentioned this, and added that it is difficult to find your team colleagues when they do not have specific workplaces. One interviewee mentioned that the employees often chose workstations close to other team members, “In some way it is also natural [dividing into groups], you get quick information from your colleagues about things”, which is a good example of a new way of expressing territoriality, which improves the intra-team performance.

**Autonomy**

As mentioned earlier, autonomy, in this context, primarily refers to the employees’ control of time, place and execution of work. Autonomy plays a huge role in ABW since the level of it is considerably higher than in other office types. A higher level of autonomy has been reported to have a positive effect on wellbeing (Deci & Ryan 2008), job satisfaction (Ilardi et al. 1993), work motivation (Gagné et al. 1997) and job performance (Baard et al. 2004).

During our study, autonomy was a recurring topic that was valued greatly by the employees. One employee described it: “I feel very mobile and free when I work like this, because it really feels like you have a freedom from your employer. To choose where you feel it fits best.” As mentioned earlier, this was confirmed by another employee that really appreciated the possibility to work from home, saying: “If I need to be home at a specific hour, or if I am bringing my child to the doctor it is very convenient not having to drive back and forth to the office, instead I can work from home until it is time to leave. You do not have to waste time unnecessarily. Even if your child is ill you can still work from home. That freedom is worth a lot, both for the organisation and myself”.

In this study we have also identified a risk with high levels of autonomy. Because of the new opportunity to work from home, there are some employees that rarely
show up at work at all. We have seen how this can have a negative effect on both the intra-team and inter-team levels, as it impacts the communication and team spirit. As mentioned earlier, one employee said: “Some of my colleagues has taken it [the opportunity to work from home] very ad notam and never are in the office anymore.” The interviewee continued, “It is partly because of this [the feeling of belonging in a team] I have chosen to work the way I do. Otherwise I could be self-employed and sit at home and be happy. I have chosen to work in a larger organisation with many co-workers because I want team spirit and to work alongside others.” If this risk is a direct consequence of increased autonomy or connected to other issues with ABW is unknown. For instance, we found data indicating that some employees choose to work from home because they cannot focus at work. It is also possible that some employees are choosing to work from home as a means to protest the new ABW principles.

In summary, autonomy has had a very positive effect on the individual level. However, there exists a dilemma in regards to whether or not the employees should have complete freedom or if some effort should be made to steer the employees, so that the negative effects on intra-team and inter-team levels is limited.

Privacy

Privacy consists of both architectural privacy and psychological privacy. Architectural privacy, meaning the physical boundaries in the office, is much lower in open office spaces compared to cellular offices. As mentioned earlier, architectural privacy helps employees control their visual exposure and their accessibility to others while also limiting acoustic disturbances. These are aspects that all contribute to the experience of high psychological privacy (Sundstrom et al., 1980). In theory ABW is supposed to improve privacy compared to regular open office layouts, by for example creating silent areas to keep distractions at a minimum.

As discussed earlier in this report, distraction-free work is very important. On the individual level, low level of control of noise, interruptions, disturbances and exposure has been found to affect employees’ well-being, job satisfaction, motivation and job performance negatively (Kim & De Dear 2013; Sundstrom et al. 1980).

In our study, we found that the level of privacy was perceived very differently between the two offices. In Stockholm, that had an open office layout before the transition, most employees considered ABW to be an improvement. “Today I think we are more mobile. If I am distracted by someone, or if someone is being loud, I can move to a silent room”. In Malmö however, the transition from
cellular offices to ABW would appear to have had a mostly negative effect on privacy, as the employees experience less control of noise and distractions. “At times when I need real silence, I go into a [small] room. But it feels pointless, then I work better from home where I have better air and environment [...] I do not do work tasks where I analyse or need peace and quiet when I am at work.”

The lack of suitable workstations is a serious problem (De Been & Beijer, 2014; Haynes, 2008; Van der Voordt, 2004) and particularly the noise-issue regarding the silent areas comes to mind.

We also noted differences between the office regarding the control of the visual and acoustic exposure to others. This is not surprising, as it is quite different transitioning from cellular offices then from an open office layout. In Stockholm, one employee described how he/she actively worked with both visual and acoustic exposure: “I often use the [smaller] rooms when I have telephone meetings etc., then I just go into a room to talk. [...] I do not choose workplaces where the screens are facing towards the whole room [...] it is about the integrity of what I work with.” This is a great example of how ABW can improve the privacy quality, compared to regular open offices.

### Proximity & visibility

Proximity in the office environment refers to the physical distance between colleagues. This has, in addition to the intra- and inter-team effects under territoriality, significant impact on the communication frequency between colleagues. In both cellular offices and open offices, members of different teams are often arranged close to each other, to support intra-team communication.

ABW can have a considerable impact on proximity and visibility, as team members can be spread out all over the office building, and at times even outside the office. This has a negative effect on intra-team communication and information sharing (Wohlers & Hertel, 2016). However, at the same time it has a positive effect on the inter-team communication and relations, as members of different teams are more likely to interact and end up sitting next to each other.

During our research, almost all of the interviewees confirmed this. When asked about communication between colleagues, most interviewees mentioned that they had less communication within their own team than before, but instead gained a lot in the inter-team communication. One employee in Stockholm said, “It is very rewarding to meet new people. I can see that people have become more open to other colleagues since when we did this [transitioning to ABW]”.

In Malmö, similar comments were made: “More contact with other colleagues, and maybe a bit less contact with those who work with the same tasks.” with a colleague confirming this, “The communication with those [who work from
home] is less frequent, mostly mail and Skype. In my own team, it has affected the communication negatively. But it has also had a positive effect since I have gained new colleagues”.

Considering that the ABW concept only has been in place for six months and that people tend to find new ways to adapt and express themselves (Wohlers & Hertel, 2016), it is possible that some of the negative effects of territoriality, privacy as well as proximity and visibility will be limited over time. Tendencies of this has already been seen in both Malmö and Stockholm.

5.2 SQ2. What are the mechanisms that moderate the different consequential outcomes?

In Wohlers and Hertel’s (2016) theoretical model (figure 5), the term moderators is introduced to describe the factors that are expected to represent the relationships between ABW features and working conditions as well as the relationships between working conditions and different outcomes and consequences. Wohlers and Hertel (2016) propose that task-related, person-related and organisation-related moderators might qualify the expected mechanisms that provoke positive and negative effects of ABW by moderating the likelihood that employees take advantage of different activity-supporting workstations and by ensuring communication between teams. The authors make it very clear that the model they are proposing is purely theoretical and they call for field studies demonstrating the assumed relationships. We will in this analysis attempt to apply the model and use their assumed moderators on our empirical data to demonstrate how ABW induces risks and benefits.

Task-related moderators

Task variety

Wohlers and Hertel (2016) proposes that in theory a medium level of task variety is optimal, since it would imply that employees can take advantage of different workstations without having to switch workstations too often, making it too big of an effort and time consuming. In general, the respondents in this study described their work as stationary and the variety of their tasks as low. However, those who stated that their tasks were more varied than most their colleagues’ also felt more inclined to switch and make use of different workstations. Furthermore, these interviewees were more positive towards the concept in general. This aspect is strengthened from the survey, in which we could tell that respondent who switched workstation daily graded the well-being and comfort 4.30 (on a scale from 1-5) while the respondents who almost never switched or only
switched in between days graded their well-being and comfort 3.59.

Task interdependence

The employees in LF Mäklarservice expressed a low task interdependence. Generally, the employees are not directly dependent on each other, instead they use their teams to ask for advice and discuss specific work-related aspects. Wohlers and Hertel (2016) suggest that task interdependence may encourage information sharing and thus help teams overcome the negative effects of proximity and visibility restraints. In this case study we could not find any direct evidence supporting this claim. However some tendencies of the phenomenon could be seen. For reasons primarily related to convenience, employees belonging to the same team tended to create clusters around the office making communication easier and enabling discussions. The respondents did however stress that due to seating limitations there was no guarantee that this could be the case all the time. An interviewee explained it like this: “If you are lucky and are placed together with the people you are working with its fantastic. However, if you are not, you might end up having to go look for them [his/her colleagues].”

Person-related moderators

Personalities and individual needs

As ABW offers opportunities for proximity and visibility to ease interaction and communication, Wohlers and Hertel (2016) argue it is likely that extroverts would feel more comfortable in the office environment than introverts would. From our study we are unable to prove or disprove this suggestion. Considering that the interaction with the respondents in this study was done with interviews and a survey, the study does not go into the depth of analysing and determining the respondents’ personalities. As the most face-to-face contact we had with an employee was one semi-structured interview it would be unfair and questionable to assume personality traits. That being said, with the brief conversations we had with the interviewees some interesting aspects in regards to what different employees prioritise arose. Some interviewees really emphasised the positive aspects of increased flexibility and how the loss of communication in regards to the intra-team did not really matter. Meanwhile, another interviewee expressed much deeper concerns regarding the communication loss. The interviewee continued and argued that the feeling of belonging to a team was a big part of why he/she had decided to work in a large organisation with many co-workers. As mentioned, the interviewee said “It is partly because of this [the feeling of belonging in a team] I have chosen to work the way I do. Otherwise I could be self-employed and sit at home and be happy. I have chosen to work in a larger organisation with many co-workers because I want team spirit and to
work alongside others.”

Whether or not this relates to introversion, extroversion and/or individual needs, there is no doubt that people value different aspects differently and consequently this plays a part in both how the employees experience the concept and the end result on their well-being and comfort.

Age

A third person-related moderator that Wohlers and Hertel (2016) suspect might affect the introduction of an ABW office is age. Since older employees have been shown to possess higher self-regulation skills (Thielgen et al., 2014), make use of more active coping strategies (Hertel et al., 2015) and value autonomy more than young employees (Hertel & Zacher, 2016), it would be reasonable to assume that they would also report a higher level of well-being than their younger colleagues. In this study the average age of the interviewees were 48 and a rough estimate of the age of the survey respondents results in an average of around 50, resulting in a relatively old workforce. We did find correlations between the age of the employees and their reported level of well-being. However, our findings are contradictory to what Wohlers and Hertel (2016) suggest. As depicted in figure 23, the younger employees are the ones reporting the higher levels of well-being, rather than the old. During the interviews one of the younger employees did express concerns in regards to the older colleagues and their abilities to adapt to the new technology. However, we could not see any significant differences in regards to this aspect, as seen in figure 22. Instead the difference can be traced back to whether or not the employees felt distracted/disturbed at work. Generally, the young employees stated that they were less distracted than their older colleagues, see figure 24. The younger employees also considered the process of switching workstation to be less problematic and were more inclined to switch workplace more often. This is not only contradictory to Wohlers and Hertel (2016) assumptions but also to what Thielgen et al. (2014) has shown, where older employees tend to possess higher self-regulation skills. However, for our specific case we cannot find sufficient evidence to disprove Wohlers and Hertel’s theory. It is fully possible that other factors are outperforming the effects of the age-related moderators, including the self-regulation skills.

Organisation-related moderators

Culture

The culture at LF Mäklarservice is described similarly to Wallach’s (1983) conceptualisation of a supportive culture. The supportive culture values teamwork, collaboration and provides a friendly, trustful and helpful atmosphere. Based on the defining features of an ABW office Wohlers and Hertel (2016) argues
that it is reasonable to assume that the concept would suit supportive cultures better than for example bureaucratic cultures. However, since this study was conducted as a case study on a single organisation no comparisons with other organisation and cultures could be made and consequently no conclusions can be drawn in regards to this moderator.

**Special office design features**

Special office design features refers to features that vary between different ABW offices and are tailored for the individual organisation, such as desk sharing ratio and balance between different types of activity-based workstations. [Wohlers and Hertel (2016)] suggest that this is an important factor, this is in line with the findings of previous research that emphasises the importance of an environment that suits the work activities and processes ([De Been & Beijer, 2014]; [Haynes, 2008]; [Van der Voordt, 2004]). Particularly, the importance of an ability to do distraction-free work has been discussed in more detail earlier in the report and from both the interviews and the survey it became clear how employees from both offices often felt disturbed and distracted at work. During both the interviews and the survey concerns were raised regarding the supposed silent area. The respondent argued that the area was in fact not silent at all, and at times even louder than other areas within the office. This is clearly a problem and many respondents brought up how the reason behind them not being able to focus is that they cannot find a suitable place at work. An interviewee explained how some employees who know their workday will require focusing and silence chooses to work from home, since they know they will not be able to find a suitable place at work. From the interviews we also saw how employees that are choosing to stay at home, more than they would normally need, also had consequences on their colleagues’ well-being and the communication within the team. The one interview with an employee in a managerial position also revealed how the management did not want to force the employees to be in the office, as the opportunity to work from home had to be there as part of increased autonomy. This brings us to the next moderator, leadership.

**Leadership**

[Wohlers and Hertel (2016)] believe that the balance between the supervisors’ and the managers’ trust and control over their employees can be a critical factor for how the employees act in the environment. Generally, an introduction of ABW requires the managers to rely on their employees more than earlier and avoid restricting their autonomy. All interviewees explained how their managers and supervisors always, even from before the introduction of ABW, have trusted the employees completely to do their work. The respondents also expressed an appreciation of how the introduction of ABW has allowed them additional autonomy with opportunities to work from home and other places. In this respect
the leadership of LF Mäklarservice would, as Wöhlers and Hertel (2016) suggest, have a positive effect on the experiences and well-being of the employees. However, by comparing the two offices we have discovered another implication of the leadership of LF Mäklarservice: the importance of onsite leadership. As we were told during the interviews, and as seen in the survey, no managers are based in Malmö and they only visit the Malmö office every so often. While interviewees in Stockholm explained how the managers actively moved around in the environment, the interviewees based in Malmö expressed concerns. They argued that onsite leadership might have made the transition easier and provided well needed guidance. E.g. “[…] if there had been managers stationed in Malmö, being here more or less all the time, they could have guided and reminded us about how to work in this environment”. In addition to this, all respondent with managerial positions did in the survey state that they were very positive and engaged in ABW, grading their well-being and comfort five, on a scale from one to five. Consequently it is plausible that having positive managers actively moving around in the office would provide guidance while also encouraging employees and serving as a reminder of how to use the environment. Since there is no practical difference between the work tasks nor the workstations between the Stockholm and Malmö office, we suspect the leadership aspect might be one of the factors behind the massive difference that can be seen in regards to the perceived difficulty of switching workstations, see figure 16.

Office type before transition

Another big difference between the offices that we believe has affected the perceived difficulty of switching workstations but also the difference in the perceived disturbances and in turn the overall well-being and comfort is what the office type was before the transition. Before the transition to ABW the employees in Stockholm worked in an open office while the employees in Malmö worked in individual cellular offices. Although not explicitly expressed as a moderator, Wöhlers and Hertel (2016) briefly discuss the implications of previous office types. They suggest that since employees working in open offices are dealing with low levels of privacy and their related effects, switching to an ABW office might give the employees the feeling of regaining privacy by providing means and resources for coping with noise and interruptions. In contrast, employees switching from cellular offices have to cope with territoriality loss and a new openness of the working environment, which might influence their attitudes and behaviours negatively. As there are no major practical differences regarding neither the employees nor the work tasks between the offices, this case study is a prime illustration of the implications of this mechanism. The results from our case study are fully consistent with what Wöhlers and Hertel (2016) propose, where employees from Stockholm are expressing an appreciation of the increased autonomy and flexibility while employees from Malmö are more concerned with
aspects regarding their loss of territoriality and difficulty to cope with openness and distractions. Furthermore, it is also evident that these differences are impacting the overall attitude and perception of the concept, with the employees in Malmö being more negative and sceptical towards the concept.

Implementation

One aspect that became apparent from our study that Wohlers and Hertel did not consider was the actual implementation. [Gustavsen et al., 1996] illustrated how vital active involvement of all major groups of the organisation really is and that those that it concerns are given room and incentives to participate. Results from both our interviews and survey indicate that the implementation process and how it is experienced indeed plays a large part in how the concept is received and utilised by the employees. Respondents who felt involved in the implementation process were more positive towards the concept in general and graded both the implementation and their well-being higher than their colleagues who did not feel involved. Particularly the employees from Malmö felt excluded and that the managers in Stockholm already had decided how the concept should be implemented. The misconception and misuse of the silent area can also be traced back to the implementation and the work leading up to it. The allocation of space was based on an initial survey that were distributed to all employees where the respondents, among other things, were asked to estimate how much time they spend doing individual work where they did not want to be disturbed and individual work where they did not mind brief interruptions. However, the employees were not fully aware that these answers were going to be used for allocation of space in the ABW office in the form of silent areas. Nor did they take in account that working in silent areas meant that they had to be silent themselves. What the employees seemed to have meant was work where they needed to be able to focus and not being disturbed by others, while still being reserved the possibility to talk and take phone calls themselves. The result of these silent areas is as we have seen, and mentioned many times, areas that are not silent at all. In practice the offices only have a very limited amount of smaller rooms that actually are silent and consequently only few workstations that actually support the work tasks of the employees. The importance of an office environment that suits the activities and work process of the employees in an ABW office has been illustrated on numerous occasions and cannot be understated ([De Been & Beijer, 2014] [Van der Voordt, 2004]). We argue that with better communication and a higher degree of employee participation and engagement during the early stages, issues like this could have been avoided.

As discussed earlier, the transition from cellular offices to an ABW office implies
extensive changes to the employees. We believe and suggest that use of change management tools, e.g. Kotter’s 8-step model for leading change, can be of significant help to managers in their efforts to encourage and support their employees during the transition. Particularly tools that enables participation and engagement from the employees, such as the initial steps of Kotter’s model: creating a sense of urgency, building a guiding coalition and forming shared strategic visions and initiatives. [Kotter 1996]

Another part of the implementation that seemed to have affected some the employees was the actual construction of the physical workplace. During our study, we saw that issues during this phase sometimes lingered with the employees, and affected their perception of the concept even after the construction was finished. It often depended on external factors that really did not have anything to do with ABW. For example, the construction work in Stockholm went on side by side with ordinary work, while the office in Malmö moved to a new office that had not been constructed the way it was planned, which delayed the final move into the offices. One employee said that “It affected work very much”, while another one stated that “It surprised me that it [the construction process] took such a long time”. We believe and suggest that consideration of, and reduction of, the negative effect from external factors, such as construction and moving, will result in less negative attitude towards the new concept.

5.3 Conclusions

To conclude the analysis, we will combine SQ1 and SQ2 to answer our main research question:

“Which underlying mechanisms are crucial to obtain benefits and counteract risks with activity-based working?”

A transition to an ABW office implies a number of consequences on individual, intra-team and inter-team levels. The main difference with ABW offices, as opposed to open and cellular offices, is the lack of territoriality. In cellular and open offices, employees have assigned workstations and members from the same team or group are often placed in close proximity of each other. However, in ABW offices no workstations are assigned and team members are often spread out throughout the office. Not only does this result in consequences for the individual level, due to territoriality loss, but also on the intra-team level, due to proximity and visibility changes. This does, as we have seen in our study and in accordance to [Wohlers and Hertel 2016], affect the individual employee’s well-being, job satisfaction and motivation negatively. However, Wohlers and Hertel continue their reasoning and argue that people, over time, find new ways of expressing territoriality, of which smaller tendencies can be seen in our study,
for instance a tendency for team members to form clusters. We believe and expect this to develop further as ABW, at the date of writing, only has been implemented fully for half a year at LF Mäklarservice. Furthermore, we have identified a risk with unregulated autonomy where some employees are, for the vast majority of time, actively choosing to work from home. We have seen how this has a negative effect on both the intra-team and inter-team level. Another aspect is privacy, both previous research and our own research indicate that the perceived level of privacy in ABW offices differs depending on the employee’s previous office setting. In regards to privacy, ABW can be both an improvement and a deterioration. We have seen how ABW results in a lower privacy setting than cellular offices, and also ways of how the negative effects could be limited if it is managed in an appropriate way, for instance revising the silent area. Meanwhile, there are positive effects on privacy associated with transitioning from open offices, due to aspects such as an employee’s ability to move away from noisy colleagues.

Contrary to ABW’s negative effects of proximity and visibility on the intra-team level, it has a similar positive effect on the inter-team level. Instead of only team members working with each other, our study supports Wohlers and Hertel’s (2016) proposition that the sense of unity within the entire company is improved. Perhaps the most significant positive effect of ABW, as indicated by our study, is the increased autonomy. This has been associated with positive effects on the individual-level, particularly concerning well-being, job satisfaction and motivation.

To identify what mechanisms that generate these consequences, we have examined the moderators in Wohlers and Hertel’s (2016) model. In our study, we have found more evidence and indications for some of the moderators than others. We have seen indications that the degree of both task variety and task interdependence are relevant to how suitable ABW is for an organisation. Task variety seems to be directly linked to the employees’ perception and comfort in an ABW office while smaller tendencies could be seen in regards to task interdependence. Similarly, some evidence was found suggesting that Wohlers and Hertel’s (2016) suggested person-related moderators are of importance. However, to what extent and precisely which moderator this relates to remains unclear. Wohlers and Hertel (2016) also suggest that older workers in theory would be more appreciative of and positive towards ABW. They argue that since older workers generally possess higher self-regulation skills, as shown by Thielgen et al. (2014), they would in theory deal with the change to ABW better than their younger colleagues. However, during our study we found opposing evidence, illustrating how the older employees seems to have a more negative perception of ABW and the transition.
Wohlers and Hertel (2016) argue that organisational culture might be an important aspect, but as our study was conducted as a case study on a single company we decided not to investigate this. The moderators that we found to have the strongest impact were three other organisational-related moderators: special office design features, leadership and office type before transition. We found, in line with what the literature suggests (De Been & Beijer, 2014; Haynes, 2008; Van der Voordt, 2004), that it is very important that the office environment is designed in a way that it supports the work tasks and activities of the specific organisation. In regards to leadership, in addition to the suggested aspect of leadership style (Wohlers & Hertel, 2016), we also found that onsite leadership seemed to have a determining effect on how ABW was received by the employees. Although not explicitly expressed by Wohlers and Hertel (2016) as a moderator, the office type before the transitions would from our research also seem to have a big impact on the reception of ABW. We found major differences in well-being between the employees in the Stockholm office, which previously had an open office, and those in the Malmö office, whom transitioned from cellular offices.

Besides these moderators, one aspect that we found to have a major impact on the reception of the concept was the actual implementation. Particularly, we found that the information sharing and participation of the employees was very important to their later perceived well-being and comfort. As a means to manage this aspect, we recommend the use of change management theory and tools. Additionally, we also found that external factors during the implementation, such as construction work, sometimes lingered with the employees and affected their perception of the concept long after the actual implementation was finished.

5.4 Contribution

Theoretical contribution

Despite office layout and ABW being frequently debated topics, we could only find a finite number of empirical studies that examine the consequences of ABW. As the concept remains rather untested in Sweden, there is a particular lack of Swedish empirical studies. Not only does this thesis serve as a complement to both these collections, but also as a field study demonstrating the presumed moderators and relationships in Wohlers and Hertel’s (2016) model. This thesis provides supporting evidence for some of the moderators and contradictory indications for others. This thesis also expands on Wohlers and Hertel’s model, suggesting that additional moderators and aspects, such as onsite leadership and the change process, are of great importance.
Practical contribution

By performing a case study on a company that recently adopted and transitioned to ABW, we have gathered valuable insights about both the transition process as well as the resulting work processes. Organisations already working according to ABW principles as well as organisations looking to introduce the concept can use the information in this report to better understand the processes and improve on their own implementations.

For instance, Wohlers and Hertel (2016) suggest that one of the most important issues seems to be that employees need to learn to switch their workstations whenever needed. As has been seen in our study, the employees who are more inclined to switch workstation are happier with the ABW principles. Similar to what Appel-Meulenbroek et al. (2011) showed, where the employees did not switch workstations as often as the task required them to, it would seem that very few employees in our study actually do take advantage of different workstations. The choice of workplace seem to be mostly determined by personal preferences, such as sitting close to specific colleagues or in their favourite spot, rather than task requirements. Managers need to train and show employees how to choose the appropriate workstation without restricting their autonomy too much, as that would counteract a very beneficial aspects of ABW. For instance, our study would indicate that onsite leadership has a determining effect in this aspect.

Another issue managers need to consider is the negative aspects concerning the intra-team. As Wohlers and Hertel (2016) suggest, we have shown how loss of territoriality as well as proximity and visibility have negative consequences on communication and unity for the intra-team. To counteract this, managers might want to plan and ensure regular meetings and activities for their teams. In this study, we have seen tendencies of this from some managers in particular teams. Not only did the employees in those teams express appreciation of it, but they were also quick to commend their managers for it.

A third and final issue the managers might want to consider is the actual implementation and transition into ABW offices. We have numerous times stressed the apparent importance of employee participation and involvement throughout the implementation and change process. Not only has a high degree of participation in our study been found to correlate with an overall more positive attitude towards ABW and perceived well-being, but previous research on the topic has shown how active involvement of all major groups of the organisation is vital for successful changes (Gustavsen et al., 1996). Gustavsen et al. (1996) continues and stresses the importance of broad participation and that those who the change directly concerns are given room and incentives to participate. We believe this to be particularly important when the transition implies major
changes to the routines of the employees, such as a transition from cellular offices (as illustrated with the Malmö office). By actively engaging and involving the employees during the transition, employees might be more positive towards the changes. Furthermore, misunderstandings, such as the meant-to-be silent areas, could be avoided.

5.5 Generalisability

It is difficult to achieve a high degree of statistical generalisability in a qualitative study such as this and consequently we acknowledge the low statistical generalisability of our research. Instead we will discuss generalisability in terms of analytical generalisability. Since our study was done on a knowledge-heavy organisation with high amounts of cognitive and social work tasks we argue that the results from our study are transferable to other knowledge-heavy organisations. Especially considering that the effects and consequences of ABW presented and illustrated in this report are in line with previous research on the topic (De Been & Beijer, 2014; Haynes, 2008; Van der Voort, 2004; Wohlers & Hertel, 2016). However, we want to emphasise that our results are based on a case study on a single company, albeit two different offices, and that more research is required.

5.6 Future Research

A big part of our study and analysis was based on Wohlers and Hertel’s (2016) model of effects and consequences of ABW. In this study we have attempted to illustrate the effects of some moderators, providing evidence for and against their relationship to different outcomes and consequences. As mentioned in the section above, it is difficult to draw general conclusions from only one case study, thus we call for more empirical research and case studies on the moderators suggested by Wohlers and Hertel (2016). In addition to the moderators provided by Wohlers and Hertel (2016), we also emphasised the importance of onsite leadership and the implication of previous office type. We also pointed to the implementation process as an important factor. Therefore, we also suggest more research into the significance these moderators and the importance of the implementation process and its effect on how ABW as a concept is received by employees. For instance, we suggest looking at how change management principles can be used as a tool to help managing the transition and thus ease the transition for the employees.

Another suggestion for future research is to examine how employees adapt to ABW principles over time. In line with what Wohlers and Hertel (2016) suggest,
we did find tendencies of this phenomenon. For instance, employees forming clusters to combat negative consequences associated with loss of proximity and visibility.

Another suggestion for future research is to examine whether or not companies actively can work with these moderators to ensure benefits while counteracting risks in the best possible way.
References


Wöhlers, C., & Hertel, G. (2016, July). Choosing where to work at work -
Appendices

A Interview Guide (in Swedish)

Grundinfo
- Vem är du och vad har du för roll på LF Mäklarservice?
- Vad är din bild av VNA? Hur skulle du beskriva det?

Implementationen
- Information
  - Upplever du att du fick tillräckligt mycket “kött på benen” inför?
  - Förstod du vad det skulle innebära och/eller varför man gjorde förändringen?
- Delaktighet
  - Kände du “din röst” hörd?
- Byggnation
  - Påverkades du utav de fysiska miljöförändringarna?

Arbetssättet
- Digitalisering och teknikanvändning
  - Känner du dig bekväm med all teknik som finns tillgänglig?
    - Skype, datorer, programvara osv.
    - Hur har du lärt dig?
    - Erbjöds det utbildningar?
  - Använder du fortfarande mycket papper?
- Val av arbetsyta
  - Vilka olika typer av arbetsytor har ni på kontoret?
  - Vart sitter du mest?
    - Vad beror det på?
  - Brukar du byta arbetsyta ofta?
  - Upplever du att du får och kan bestämma själv hur och var du jobbar?
• Mottagande av konceptet
  – Vad är din personliga inställning till VNA?
  – Upplever du att andra tycker som du och/eller står bakom idén?
    ∗ Medarbetare och chefer?
  – Syns chefer och ansvariga på arbetsplatsen?

• Kommunikation
  – Upplever du ökad kommunikation mellan medarbetare?
    ∗ Mot chefer?
  – Har det påverkat gemenskapen inom din egen avdelning/grupp?
  – Har det påverkat gemenskapen med andra avdelningar/grupper?

• Störningsmoment
  – Störs du av andra?
  – är det bättre eller sämre mot tidigare?

• Skillnader
  – Mer frihet? Större förtroende?
  – Kommentarer och uppfattningar av besökare
B  Survey (in Swedish)

Allmän information

1. Vilket kontor tillhör du?
   Stockholm / Malmö / Annat:

2. Vilken åldersgrupp tillhör du?
   - 34 / 35 - 44 / 45 - 54 / 55 -

3. Har du någon form av chefsroll på företaget?
   Ja / Nej

Platsfördelning

4. Under en vanlig vecka, ungefär hur mycket tid arbetar du...
   ...
   ...
   ...
   ...
   0% / 10% / 20% / 30% / 40% / 50% / 60% / 70% / 80% / 90% / 100%

5. När du befinner dig på kontoret, ungefär hur mycket tid spenderar du...
   ...
   ...
   ...
   ...
   0% / 10% / 20% / 30% / 40% / 50% / 60% / 70% / 80% / 90% / 100%

   Eventuell kommentar:

Implementering

6. Upplevde du dig delaktig i implementationen/övergången till det nya kontoret/arbetssättet?
   Nej, inte alls / Ja, något / Ja, mycket

7. Hur upplevde du att övergången till det nya kontoret/arbetssättet gick?
8. Ungefär hur ofta byter du plats på kontoret?
   Flera gånger per dag / Enstaka gång per dag / Byter endast mellan olika dagar
   / Sitter nästan alltid på samma plats

9. Upplever du det problematiskt/omständigt att växla arbetsplats?
   Nej, inte alls / Ja, något / Ja, mycket

10. Känner du dig bekväm med den teknik som finns tillgänglig?
    Nej, inte alls / Ja, med en del / Ja, med det mesta / Ja, med allt

11. Upplever du att du störs av andra på kontoret?
    Nej, inte alls / Ja, något / Ja, mycket

12. Hur trivs du på kontoret idag?
    [Dåligt] 1 / 2 / 3 / 4 / 5 [Bra]

    Eventuell kommentar: