Designing a Digital Meeting Place for B2B Sales Interactions

Joel Ottosson

DEPARTMENT OF DESIGN SCIENCES
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Joel Ottosson

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Supervisor: Joakim Eriksson, LTH
Co-supervisor: Andreas Helgegren, GetAccept
Examiner: Kirsten Rassmus-Gröhn, LTH

Abstract

Business to business (B2B) sales constitutes a big part of today's sold goods and services. These sales processes are getting more complex and involve more people than before. B2B sales are also more and more taking place online.

Throughout this thesis the author has researched the nature of a typical B2B sales process in an attempt to find sales activities that could be gathered in a common space online and thereby simplify the complex sales processes. The goal of this space was to serve as a digital meeting place for all things related to a specific deal.

Based on the research, a prototype of the digital meeting place was created. The prototype was developed during two iterations. Each of the iterations was followed by a usability test to evaluate the prototype. The final prototype was implemented as a web application with the JavaScript framework Vue.js and tested by five sales persons with a background in B2B sales. This prototype received high system usability scale (SUS) scores from all but one of the test participants, indicating that they were overall satisfied with the application. Further, all of the test participants successfully completed all of the test tasks used to evaluate the HiFi prototype. Most importantly, they were all convinced that the application would simplify their sales processes.

The sales persons that tested the HiFi prototype also requested additional features. This included, among other things, integration to services like Google Calendar, a more advanced document viewer and a way to keep private notes in this digital meeting place. These features would require further investigation and were not covered in the thesis. With this in mind, it could still be concluded that it is possible to simplify the B2B sales process by gathering sales activities in a common space.

Keywords: B2B, sales process, digital meeting place, usability testing, web application, interaction design

Sammanfattning

Business to Business (B2B) försäljning står för en stor del av dagens sålda varor och tjänster. Dessa säljprocesser blir alltmer komplexa och involverar fler personer än tidigare. B2B försäljningen har också börjat ske mer online.

Genom den här avhandlingen så har författaren undersökt hur en typisk B2B säljprocess går till i ett försök att hitta säljaktiviteter som kan samlas på en gemensam plats online och därigenom förenkla de alltmer komplexa säljprocesserna. Målet med denna plats var att den skulle fungera som en mötesplats för allt som var relaterat till en specifik affär.

Baserat på efterforskningarna så skapades en prototyp av den digitala mötesplatsen. Prototypen utvecklades under två stycken iterationer. Var och en av iterationerna följdes av ett användbarhetstest för att utvärdera prototypen. Den slutgiltiga prototypen implementerades som en webbapplikation med JavaScript-ramverket Vue.js och testades av fem stycken säljare med backgrund inom B2B försäljning. Denna prototyp fick höga system usability scale (SUS) poäng från alla utom en av test deltagarna, vilket överlag indikerar att de var nöjda med applikationen. Alla testdeltagare slutförde samtliga testuppgifter som användes för att utvärdera den slutgiltiga prototypen. Det viktigaste som framkom från testet var att samtliga deltagare ansåg att applikationen kunde förenkla deras säljprocesser.

Säljarna som testade den slutgiltiga prototypen efterfrågade också ytterligare funktionalitet. Exempel på detta var integration till tjänster likt Google Kalender, en mer avancerad dokumentvisare samt ett sätt att kunna hantera privata anteckningar i den digitala mötesplatsen. Denna funktionalitet skulle behöva mer undersökning och täcktes inte av denna avhandling. Men med detta i åtanke, så kan slutsatsen fortfarande dras att det är möjligt att förenkla B2B säljprocessen genom att samla säljaktiviteter på en gemensam plats.

Nyckelord: B2B, säljprocess, digital mötesplats, användbarhetstestning, webbapplikation, interaktionsdesign

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Malmö, January 2020
Joel Ottosson

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Chapter 1

Introduction

1.1 Background

Business to business (B2B) sales stands for a big part of today's sold goods and services. In 2014 in the US, the B2B retail accounted for about half of the country's gross domestic product. B2B sales are more and more starting to take place online and by 2020 the B2B eCommerce market is expected to be worth twice as much as the business to consumer (B2C) eCommerce market in the US [1].

At the same time, the B2B sales process involves more people and decision makers than before [2]. All with different pieces of information which adds up to a more complex sales process. In a survey by Gartner 77% of B2B buyers said that their last purchase was very difficult or complex [3]. This is something that GetAccept wants to change.

1.2 GetAccept AB

GetAccept is a company that was founded in 2015 and accepted to the start-up accelerator program Y Combinator [4]. GetAccept provides a sales platform for other companies to help them manage their contracts. This includes tracking sent documents, as well as, electronically signing them. The goal with their platform is to simplify the work for sales teams [4]. Since the company's start in 2015, they have grown to 100 employees and were listed as the 4th fastest growing software as a service (SaaS) company in the world 2019 [5]. GetAccept is now looking for next step. Namely to simplify the lives of all people involved in a B2B sales process by creating a common meeting place for all things related to an ongoing deal.

1.3 Purpose and Research Questions

This master thesis has investigated the different stages of a B2B sales process and looked at how they could be integrated in a common space. This space is hereafter referred to as a Dealspace. The Dealspace should be interactive and serve as a meeting place for all things related to an ongoing deal, including

electronically signing documents. It's important that the Dealspace is based on the activities carried out by the intended user, i.e. all persons involved in a certain sales process. Furthermore, the Dealspace should be designed with the users at its center. The goal of the Dealspace is to simplify the sales process for the involved persons. The following research questions were formulated to guide the investigation and development of the Dealspace:

- What activities constitutes a sales process?
- Can some parts of the sales process be simplified by bringing them in to a common space and how can that be measured?

1.4 Scope

In order to limit the scope of the thesis, it was decided that the Dealspace should be developed as web application primarily for a desktop browser. The motivation behind this was that GetAccept's primary platform was the web and desktop. Another limitation that was made was to not focus on the details of electronic signing and tracking of contracts since those are features that GetAccept already offers today.

1.5 Master Thesis Process

The work of this master thesis was divided into four phases. An illustration of the relation between these phases can be found in figure 1.1.

The goal of the first phase was to gain a deeper understanding of the research questions and establishing requirements. This required information search and gathering of data. These activities informed each other and were repeated in an iterative fashion. This phase is described in chapter 3.

The established requirements then worked as the basis for the LoFi prototyping. The LoFi utilized paper sketching and prototyping. The LoFi prototype was evaluated through an exploratory test. The test findings were analysed and improvements were suggested. The LoFi prototyping is presented in chapter 4.

The findings from the LoFi prototyping then informed the HiFi prototyping during which a front end web application was developed. The application was evaluated through an assessment test. The findings were analyzed and can be found in chapter 5.

Finally, the findings from the project as a whole were discussed and conclusions were drawn in chapter 6 and 7.

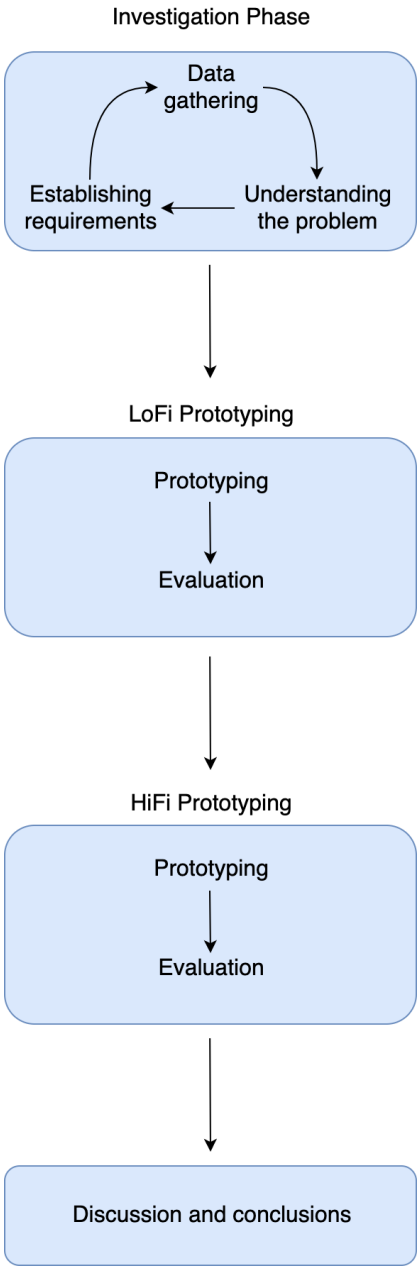

Figure 1.1: The different phases of this master thesis.

Chapter 2

Theoretical Background

This chapter contains the theoretical background on which this thesis was based. Initially, the design process and its activities are described along with the methods used in the different activities. This is followed by a section regarding the principles of design which were applied during prototyping.

2.1 The Design Process

Interaction design is defined as *designing interactive products to support the way people communicate and interact in their everyday and working lives* [6]. This means that the user experience (UX), all aspects of the user's interaction with a product, like how they feel when they use it, is essential to interaction design [7]. If a product has a user, then it also has a user experience. An important note pointed out in [6] is that *one cannot design a user experience, only design for a user experience*. It's not possible to design the feelings a user will have when using a product but there are many aspects that can be considered when designing a product to evoke a satisfying user experience. One very important aspect is the usability. The term usability refers to how easily a user can use a service or product to achieve what he or she expects to achieve without any obstacles. For a product or service to be usable, it should be useful, efficient, effective, satisfying, learnable and accessible [8, pp. 2-5]. Usefulness refers to what extent a product enables a user to accomplish their goals. Efficiency concerns how quickly the user's goal can be accurately achieved. Effectiveness is to what degree the product behaves in the way the user expect it to. Learnability refers to how easy the product is to learn. Satisfaction is the user's opinions and feelings about the product. Accessibility looks at what makes a product usable for persons in a special context or with disabilities [8, pp. 2-5].

The involvement of users and their needs throughout the development of a product or service can help increase the usability and the user experience. Involving users during the design and development process can be a valuable asset and provide information regarding the characteristics of the users, the tasks the users face and their environment. These aspects are also referred to as the *context of use* and is part of the approach called human-centered design (HCD) [9, pp. 5-6]. The human-centered approach is an important part of the process of interaction design and can summarized in three key principles [10]:

1. Early focus on users and tasks. Meaning that the context of use is a driving force in the development.

2. Empirical measurement. This means that reactions and performances of intended users are observed and measured during testing at different stages of the development process.

3. Iterative design. Problems that are observed during testing are fixed and then more testing are carried out to see the effects of the fixes. The process of designing, evaluating and then redesigning based on the evaluation should be repeated and is called iterative design.

Interaction design focuses mainly on the process, how to design something, and promotes the use of different techniques and methods. To help create the conditions for a good user experience, the process of interaction design can be divided into four basic activities:

1. Establishing requirements

2. Designing alternatives

3. Prototyping

4. Evaluating

These activities are meant to be performed in an iterative fashion, informing each other and be repeated [6, pp. 9-16].

2.2 Problem Investigation

To be able to design something with the users at the center, it's essential that we know who the target users are and their context of use. The goal of the problem investigation is to understand and gain as much knowledge as possible about the users. Based on the gained knowledge, a set of requirements can be established. The requirement will then work as a basis to start designing. It's important to establish the requirements early on and get them right since the cost of making changes later in the process can be very high [6, pp. 353-354].

Data gathering is a common way of gaining knowledge about the users and can take many forms. It's also preferable that different data gathering methods are used in order to get a broader perspective. Studying documentation and research can be a good source of information regarding understanding the steps involved in an activity [6, p. 366].

2.2.1 Interviews

Interviews are a form of data gathering that are good for exploring issues and can have varying degrees of structure. The different degrees of structure refer to how much control the interviewer has over the conversation by following a set of questions determined before the actual interview. The most suitable approach to interviewing depends on the goal. Unstructured interviews have a more exploratory nature and usually goes deeper on a particular topic. Structured interviews, on the other hand, consists of short and precise questions where the

possible answers often are known beforehand. The two ends of the spectrum can also be combined into semi-structured interviews with features from both of them [6, pp. 228-229].

2.2.2 Scenarios and Personas

Once data have been gathered about the users, there are techniques to help understand the users tasks and goals. One user-centered approach is scenarios. Scenarios are a way of describing the users activities and tasks in a story with a focus on what the users are trying to achieve rather than their interaction with technology. This allows for exploration of the context of use, possible constraints and requirements. Scenarios can be used both for explaining a current workflow of a service but also for envisioning how a future service should work. Since storytelling is a natural way of communicating, scenarios can easily be related to by stakeholders [6, pp. 374-376].

Personas can work as a complement to scenarios in order to bring the users in the scenarios to life and serve as a target group. Personas are not the real users but instead a representation of them during the design process. A persona is a description of a pretend user. They are usually not made up but rather discovered during problem investigation. They are then assigned personal details and a name [11, pp. 123-124].

2.2.3 Requirements

Requirements can be expressed in many ways and on many different levels. According to tradition, a requirement should state *what the system should do without specifying how* [12, p. 24]. For product development a two-step requirements approach has proven to be efficient. The two step should consist of domain-level and design-level requirements. Domain-level requirements are a fast approach that focuses on describing the users tasks. Task descriptions are one method that creates domain-level requirements. This method expresses user task in structured text and states what the user and the product should accomplish together. Due to the nature of task descriptions they are easy to verify [12, p. 92]. The domain-level approach creates a first set of requirements that the design-level requirements then can be built upon. The design-level requirements are established by creating and evaluating prototypes of the product. During prototyping and evaluation, new requirements may occur or old ones may need to be updated. Requirements management can be seen as an iterative process [12, pp. 31-36].

2.3 Prototyping

Creating prototypes is a good way of exploring design ideas. It also provides a mean for interaction by stakeholders and users. A prototype can take many forms. Depending on the detail and invested time, prototypes can be divided into Low-Fidelity (LoFi) and High-Fidelity (HiFi) prototypes. LoFi prototypes are simple prototypes that are far from the final product. LoFi prototypes are fast and cheap to develop and are used for exploration of ideas. They are suitable early in the development process. HiFi prototypes, on the other hand, are much

closer to to the final product. They are higly detailed and often contain the majority of the functionality expected by the final product. This also means that HiFi prototypes require much more resources and time to be developed than LoFi prototypes [6, pp. 390-396][13, pp. 11-13].

2.3.1 Paper prototyping

Paper prototyping is a common way of creating LoFi prototypes since they don't impose many design constraints [14, p. 50]. The materials used to create paper prototypes can usually be found in most office supply stores and typically consists of paper, markers, pens and tape. Testing of paper prototypes can uncover, among other things, issues with work flow, functionality and screen layout [14, pp. 272-275]. It's even suggested that testing of paper prototypes might reveal as many issues as the real thing [14, pp. 53, 285-318]. However, paper prototypes are not perfect. They can have problems with revealing issues regarding interaction. An example of this is small changes in a user interface, like a shopping cart on an e-commerce web site. The shopping cart shows the total number of items and updates it once the user add something new. With a paper prototype the test supervisor might lean over and stick a new piece of paper to the prototype, but in the practice the change in the interface is much more subtle [14, pp. 277-281].

2.4 Evaluation

Evaluation is a key component in the design process and necessary in order to improve a design. It also checks if a design is appropriate for the intended users. Evaluation can focus on different things and different stages of the design process. This thesis will primarily utilize usability testing. Usability testing can be seen as a process where observations are made of test participants and their performance when carrying out tasks [6, pp. 433-434].

2.4.1 Exploratory Test

An exploratory test is usually held in the beginning of the development process when a product still is being designed. Although, the usage model of the product should be defined. The main goal with an exploratory test is to investigate high-level aspects of a preliminary design concept early on. One way of doing this is to develop a prototype that represents the basic layout and functionality of the product. The prototype doesn't need to represent the entirety of the intended functionality, only enough to address the focus of the test. During an exploratory test it's common with a high level of interaction between the test participant and test moderator and it can almost be seen as a collaboration between the two. The emphasise lies on understanding the user's thought process. The exploratory test is quite informal in its nature. The kind of early research that the exploratory test provides is important since design decisions that are made at this point will be the basis for all work that will follow [8, pp. 29-31][15, pp. 45-46].

2.4.2 Assessment Test

An assessment test is one of the most common types of usability tests that are conducted. This test is straightforward to perform and usually takes places midway through the development cycle after the high-level design has been established. The goal of an assessment test is to investigate how effectively a concept has been implemented. This usually means that the test participants are asked to perform realistic tasks while any problems they have with performing them are observed. The purpose is to uncover usability deficiencies. During an assessment test there's less interaction with the test moderator compared to an exploratory test and the focus lies on user behavior rather than the user's thought process. Another difference compared to an exploratory test is that quantitative measures are collected [8, p. 35][15, pp. 46-47].

2.4.3 System Usability Scale

The System Usability Scale (SUS) is a simple usability scale that consists of ten statements. The statements are designed to capture the respondents agreement or disagreement graded on a five point Likert scale. Further, the statements cover a range of different usability aspects. The SUS is a quantitative measure and results in a score on the overall usability of the system being tested. The score is ranging from 0 to 100 and is calculated based on a predefined algorithm [16]. Data have shown that a score of 70 or higher is acceptable and usually indicates a good system in terms of usability [17, pp. 114-123].

2.5 Design Principles

When we interact with things around us, it's important that we understand what we can do. What are the possible sets of actions? We need to discover what we can do. *Discoverability* is just that and is the outcome from applying six fundamental design principles: *feedback, conceptual models, affordances, signifiers, mappings* and *constraints* [18, p. 10].

Feedback is a way of communicating to the user that a system has registered an action and are acting on it. Even straightforward actions, like picking up a pencil from a table, requires feedback. The human nervous system provides several feedback mechanisms to aid us. We can locate the pencils position through visual feedback, feel the pencil thanks to touch sensitivity and pick it up with help from the proprioceptive system that oversees limb and muscle movements. Timing of the feedback is of utmost importance. It must be provided right away and even a very small delay can be of throwing. But correct timing of the feedback isn't enough, it must also be informative. We need to know what happened and not only that something happened. Bad feedback can in many cases be even worse than having no feedback at all since it can be irritating, provoke anxiety and be distracting. To much feedback is not ideal either and can cause irritation. Feedback should also be prioritized so that an emergency easily can capture the users attention while less important information is mediated in a less intrusive way. Feedback is an essential part of an interaction and should be planned and executed in an appropriate way [18, pp. 23-25].

Conceptual models tries to give the users an explanation of how things work and relate to each other. They often provide a simplified explanation of a more complex system so that the users can gain understanding and create their own mental model of it. For example pictures stored in a cloud service may appear as they exist on your own device while they in fact are stored on one or several remote servers. You might have organized the pictures in different folders, but inside the server there are actually no real folders. The users are presented with a simplified model of how the pictures are stored and displayed. Conceptual models often come from the perceived structure of a system, which in turn is based around affordances, signifiers, mappings and constraints [18, pp. 25-30].

Affordance refers to what a user can do with something, what it is for. This might lead one to believe that affordance is a property, which it is not. Instead, affordance is a relationship between the capabilities of a user and the properties of an object. This means that an object might have different affordances for different users, since the users may have different capabilities. For an affordance to be effective, it needs to be perceived by the user. It needs to signal its existence. The signaling property of an affordance is referred to as a signifier [18, pp. 10-13].

Signifiers communicate to the users where actions are possible as opposed to affordances that tells what actions are possible. A signifier is a perceivable indicator, like a sound or visual mark, that gives the users a hint on how something should be used. If the signifier can't be detected by the user, then it has not fulfilled its purpose [18, pp. 13-19].

Mappings refers to the relation between the items of two entities. In designs, mappings are often used to show the correspondence between the layout of the controls and the things being controlled. A powerful trick that leads to instant understanding of how a control works, is utilizing natural mappings. This means taking advantage of spatial analogies. An example of this is the arrow keys on a keyboard. The arrow keys are arranged in the same way as their function. The key that signals right is physically located to right. The key that signals down is physically located at the bottom, and so on [18, pp. 20-23].

Constraints are a way of limiting the possible actions that the user can carry out. The goal is to make it easy for the user to interpret what actions are possible by, for example, disabling the ones that are not available [18, p. 73].

Chapter 3

Investigation Phase

This chapter describes the B2B sales process and its phases. Two scenarios with personas were created and analysed to get a closer look at the interactions between people in a typical sales process. Lastly, a set of requirements for the application are presented.

3.1 Literature study

The initial step of the thesis work was to explore and understand how the B2B sales process work. What phases it includes and their purpose. In order to gain the required knowledge, sales literature and research papers regarding B2B sales was studied. The literature and research papers were found by searching for key words, like B2B, sales process, sales activities and similar, in the databases accessible through Lund University. The abstracts of the search results were then read to determine which ones were relevant. The findings from the readings are presented in section 3.2 that describes the different phases of a sales process.

3.2 B2B Sales Process

The sales process has traditionally consisted of the same steps for a long period of time[19]. Selling as a profession and the tools used in sales processes on the other hand has changed through the course of the 20th century [20, 21]. The steps involved in the typical sales process are commonly referred to as the seven steps of selling [19]. These seven steps are widely acknowledged in sales literature and are sometimes broken down into more detailed steps [22][23, p. 228][24, p. 151]. Due to the evolution of the sales process during the 20th century and the beginning of the 21st century an effort to update the seven steps has been made [22]. The evolved selling process is more customer oriented and focuses on building and maintaining relationships, unlike the more traditional process that was more company oriented. Another difference in the evolved process is that the seven steps don't necessarily need to happen sequentially nor do they have to occur in all sales calls. The evolved seven steps are described below and illustrated in figure 3.1.

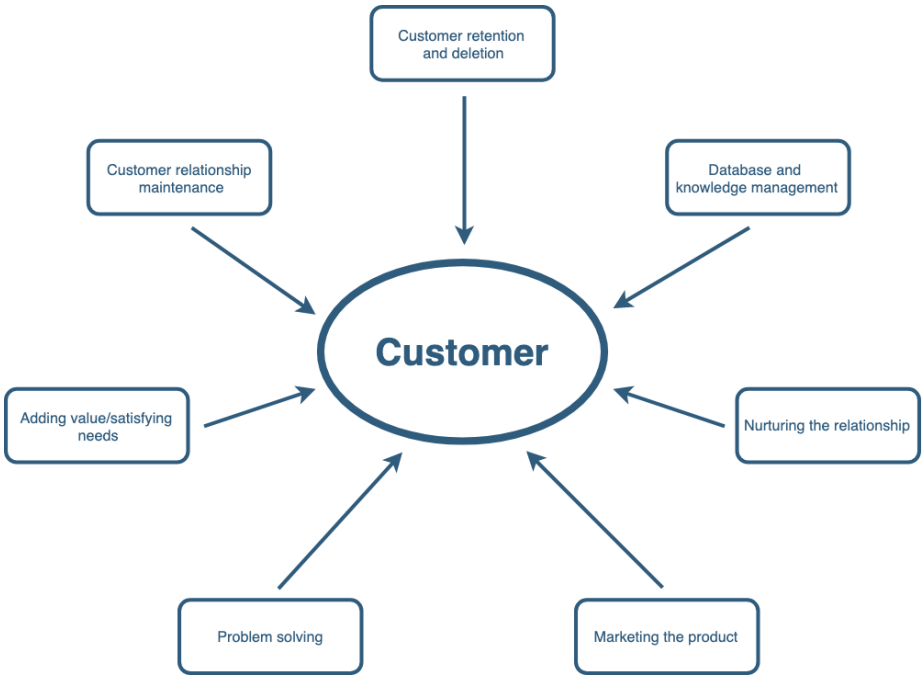

Figure 3.1: The evolved customer oriented selling process.

1. **Customer retention and deletion** (trad. prospecting). In modern business organizations it's common that resources are spent on existing profitable and high potential customers rather than prospecting new ones, provided that they already have an established customer base. In the more traditional prospecting step, the salespeople focused more on searching for new and potential customers. It was common that this steep took the majority of their time. This is the opposite of the evolved step, where costs and benefits of an acquisition is carefully weighted against one another before a decision is made. It's also not uncommon that businesses find that they actually lose money on small customers which can lead to outsourcing or deletion [22, pp. 18-19].

2. **Database and knowledge management** (trad. preapproach) This step is about gathering information about the customer. That includes identifying their potential needs, reviewing previous contact and get familiar with the customer. Thanks to the evolution of technology, this step has been simplified a lot. Salespeople today have access to more information about customers than ever before and it's common that a customer relationship management (CRM) system is used. The information can even be used to anticipate future needs of the customer [22, pp. 15-16, 19].

3. **Nurturing the relationship** (trad. approach) Today the focus lies on nurturing a long-term relationship rather than closing the next deal, which is a shift in focus if we look historically. Traditionally, this step has been about the first contact with customer and how to best open a dialogue. If it's a new customer this is still true today, but the in the best case a

relationship should already have been built during previous contact with the customer [22, pp. 19-20].

4. **Marketing the product** (trad. presentation) This is traditionally where a salesperson would make a presentation in person to the customer. Usually one-on-one. Today it's common that the presentation is a team effort and that it takes place over several meetings that involves different people. The presentations have become more about marketing the product or service rather than only selling it [22, p. 20].

5. **Problem solving** (trad. overcoming objections) The customer is usually not ready to close deal directly after the product or service has been marketed to them. The reason for this might lie in dislike for the product, the price, lack of information or that they are reluctant to make a decision. Instead of the salespeople only trying to overcome the objections and sell the product anyways, they now focus on trying to solve the customers problems. The salesperson acts more like a consultant to the customer that are trying to identify problems and propose effective solutions. This might mean that the product originally proposed no longer is suitable and that modifications needs to be done. The aim of this step doesn't have to be to get a close immediately but rather enhance the relationship with the customer by providing solutions [22, p. 20].

6. **Adding value/satisfying need** (trad. close) In modern sales organizations it's important to go beyond the short-term closing and focus on the mutual goals of both parties in the long run. This will probably still include a traditional closed deal, but the overall goal is to create value and satisfy needs that hopefully will create customer loyalty and future business [22, pp. 17, 20-21].

7. **Customer relationship maintenance** (trad. follow-up) The goal of this step hasn't changed much over time but the way it's carried out has become more effective due to advancements in technology. Traditionally, this might have meant sending a letter while it today is an email. The aim is to keep in touch with the customer to make sure that they are happy with the product or service and maintain a relationship for the future [22, p. 21].

3.3 Scenarios and Personas

Two scenarios together with simple personas were created in order to gain a deeper understanding of the actual interactions between people during different stages of the sales process. The scenarios and personas were based on four sources. The theoretical background regarding the seven steps of selling described in section 3.2 served as the basic building block. Secondly, an unstructured interview with a salesperson at GetAccept was held to better understand what an actual sales workflow can look like. Reading of GetAccept's onboarding material regarding their sales process was also helpful to understand the key players in the sales process. Finally, the shadowing of 13 salespeople laid out in a doctoral thesis that studied B2B sales interactions was studied to get

examples of what a typical day as a salesperson could look like [25, pp. 90-111]. The salespersons that were shadowed were active in the packing business.

3.3.1 Personas Scenario One

Scenario one involves two companies and their employees. In this section an introduction to the two companies will be given. The employees (personas) will also be presented.

Company A is a software as a service (SaaS) company and runs a service for event and ticketing management. Their software is sold as a subscription to other companies to be used as it is or to be integrated in their services. Company A uses a customer relationship management (CRM) system to track all interactions of their salespeople with customers. In the CRM system they keep track of the progress of a deal including information about meetings that have been held and that are planned in the future. It's the responsibility of each salesperson included in a deal to update the CRM system after they've had an interaction with a customer. The CRM information is available to all employees involved in a certain deal. Company A also uses a service to electronically sign all contracts with its customers. For internal communication company A uses the messaging platform Slack. The employees at company A are presented in table 3.1.

Company B is a SaaS company that provides a digital all-in-one marketing platform. Integration with third-party services is an important part of their platform. The employees at company B are presented in table 3.2.

3.3.2 Scenario One

Anna has been contacted through LinkedIn by a Ben, working at company B. Ben is interested in the service that company A provides and thinks that his company might benefit from using it. Anna books an initial telephone meeting with Ben to determine if it's worth going forward with.

After the meeting Anna is very pleased, she thinks that company B is a good match for their services. Anna also got contact information to Beatrice, the sales director at company B. Anna sends an email with a meeting summary to Ben and thanks for his time. She then sends an invitation by email to Beatrice for an in-depth demo with her colleague Alex.

While Alex prepares for the demo with Beatrice he reviews the summary from the earlier meeting between Anna and Ben to gain a better understanding of company B. Alex performs the demo through a video conference. The demo goes well and Beatrice likes the service. Beatrice wants another meeting together with the head of development, Bruce, in her company to assess what it would require for them to integrate it into their own service. Alex schedules a new meeting and sends the invitation by email to Beatrice and Bruce. Alex sends an email with a summary to Beatrice of their meeting.

In order to be able to provide answers for technical questions, Alex invites a developer, Adam, from company A to the next video conference. Alex and Adam performs a technical presentation of their service at the next meeting and Adam answers Bruce's questions. Bruce is not entirely happy and has one technical requirement he wants fixed before the deal can go any further. Adam says he will look into Bruce's demand and get back to him. Adam sends

Table 3.1: Employees at company A

Name	Description
Anna	Anna works as a sales development representative (SDR) at company A. Anna's job includes qualifying potential customers that contact her company through different channels. Anna is 24 years old and graduated last year. She has worked at company A since her graduation.
Alex	Alex works as an account executive (AE) and is responsible for identifying and solving qualified customers problems, demoing the company's services and closing deals. Alex is in his early thirties and has held the role as an account executive for three years now.
Adam	Adam works as a full-stack developer at company A. He has worked there for over four years and came direct from the university prior to his employment at company A. Adam has knowledge about all the technical aspects of company A's service.
Andrew	Andrew is the sales director at company A. He has a lot of experience of the sales business and is in charge of the sales efforts. Andrew turns 47 next summer.
Alice	Alice works as a customer success manager (CSM) at company A. Alice is responsible for onboarding of new customers. Her role also includes maintaining a relationship with the customer, solve any problems they may have with the service and keep them satisfied.

over technical documentation by email and schedules a new video meeting with Bruce.

Adam comes to the conclusion that they can meet the technical requirement set by Bruce and presents this at their next meeting. Bruce is satisfied. Adam tells Alex the good news and Alex draws a contract and calls Beatrice to tell her about his proposal. The contract itself is sent by company A's e-signing service. Beatrice responds that her CEO, Bella, needs to be informed and sign the deal. A new meeting is scheduled with Alex, Beatrice and Bella. During the video conference Alex needs to do a recap of his earlier demo for Bella. Bella has looked through Alex's proposal and wants a lower price given the size of their user base. This demand is something Alex needs to discuss with his sales director Andrew and he therefore needs to get back to Bella later on.

Andrew accepts Bella's demand and Alex sends a new revised contract to Bella and calls her to tell her the news. Bella compares the revised contract with the original and then signs it. Alex now schedules an onboarding session with his colleague Alice that works as a customer success manager. Alice will also be the one that keeps contact with company B and help them with potential problems regarding company A's service. Company B's CEO has decided that Ben (the person who initially contacted company A) and Bruce (the head of

Table 3.2: Employees at company B

Name	Description
Ben	Ben is an employee at company B. He likes to explore new trends and services in the amazing digital world we live in.
Beatrice	Beatrice is the sales director at Company B and is responsible for all sales efforts, including launching new services and integrations. Beatrice is one of the co-founders of company B and has been at the company almost ten years. Beatrice is very energetic and people were quite impressed by her when she was one of the founders even though she had just graduated.
Bruce	Bruce works as the head of development at company B. He is in charge of the development of the company's software. Bruce likes to keep up with latest trends in the tech and thinks it's a necessity in his field. Bruce plans to retire in a couple of years since he is nearing sixty.
Bella	Bella is the chief executive officer (CEO) at company B. She is in charge of the managing the companies day-to-day operations. Any decision regarding new integrations needs to be run by her.

development) will join the onboarding session and communicate what is taught to the rest of the company. The onboarding session is done in person at company B's office.

A year later company B has decided they want to upgrade their subscription plan with company A. They therefore contact Alice, with whom they have kept ongoing communication throughout the year. Alice is happy to help and draws up a new contract and sends it over for signing.

3.3.3 Personas Scenario Two

Scenario two involves two companies and their employees. In this section an introduction to the two companies will be given. The employees (personas) will also be presented.

Packington is a company in the paper and packaging business. They provide custom made packages for other company's products. The company's internal communication is based around emails and phone calls. Emails are also used for meeting scheduling. The employees at Packington are presented in table 3.3.

Table 3.3: Employees at Packington

Name	Description
Chris	Chris works as a key account manager (KAM) for Packington and is responsible for a couple of its most important customers. Chris has a lot of experience and has been dealing with customers in the packaging business for over two decades. Chris likes to have meetings in person so that he can see reactions when he hands over samples. One of his newly assigned clients is the company Foodster.
Emilia	Emilia works as packaging designer at Packington and is in charge of a design team consisting of five people. Emilia is not new to the packaging business and has been working for Packington nearly 15 years. Her team of designers have varying degree of experience but none of them are totally new in the business.
Carlos	Carlos is part of the production department at Packington and works mainly with testing samples created by the design teams. Carlos is turning 42 next year and has worked with product testing at many different companies.

Foodster is a fast-moving consumer goods (FMCG) company that manufactures different chocolate products. Foodster have done business with Packington before but they currently don't have an active contract. The employees at Foodster is presented in table 3.4.

Table 3.4: Employees at Foodster

Name	Description
Sara	Sara works as product manager at Foodster and leads the division that is responsible for the company's chocolate beverages. She is 54 years old and not particularly tech savvy. Her division is currently working on a new product. The team in charge of that product consists of Sven, Brandon, Ryan, Megan and Laurel. This team along with Sara is referred to as Foodsters stakeholders for the product.
Sven	Sven is representing the production department. The production department manufactures the chocolate beverages. Sven is 38 years old and has been working in the production department at Foodster for five years.
Brandon	Brandon comes from the assembly department. The assembly department is responsible for packing the beverages. Brandon has been in the assembly business for a long time and is retiring next year.
Ryan	Ryan works with product development. He is the one that has been leading the research team that has developed the new taste of the beverage. This project is Ryan's first as the leader of the research team.
Megan	Megan is part of the purchasing department. Her responsibility lies in purchasing the ingredients and materials needed for the production and assembly departments. Megan has been working with purchasing for ten years, but only the last two has been at Foodster.
Laurel	Laurel is representing the marketing team. Her goal is to make the consumers fall in love with the new chocolate beverage through various marketing campaigns. Laurel graduated from the university four years ago and has been working at Foodster ever since.

3.3.4 Scenario Two

Chris has been contacted by Foodster because they are interested in paper displays for their new chocolate beverages. The paper displays will be used in grocery stores to present the new product to consumers.

Chris drives to Foodster to have the first meeting with Foodsters stakeholders. The drive to Foodster is about an hour. During the meeting the stakeholders present their requirements and initial ideas for Chris and he can based on this make a preliminary suggestion. Chris' goal is to come up with a solution to Foodster's problem. After the meeting is done, Chris drives back to Packington's office. During the drive he makes a phone call to Emilia to give her a short briefing about the meeting. When Chris gets back to the office, he

writes a report about the meeting. The report states Foodsters ideas and the suggestions made by Chris in detail. The report is then sent to Emilia and her design team before Chris meets with them to discuss its content. The meeting is held in person.

Emilia and her design team holds a brainstorming session based on the information provided by Chris after the meeting. They then starts working on the first samples. Once they have produced a sample, it needs to be tested. Emilia emails Chris about their progress and schedules a time for testing with Carlos. About two weeks have now passed since the first meeting with Foodster.

Chris emails the stakeholders at Foodster to book a meeting to present the samples. He also schedules a meeting with Emilia to collect and go through their samples. This meeting takes place a couple of days before he is visiting Foodster.

Later that same week Chris drives to Foodster to show them the display samples. When he arrives, he gets informed that Laurel, unfortunately, couldn't make it to the meeting. Chris presents the PowerPoint he has prepared together with the physical display samples. After the presentation the group gets to take a closer at the samples and they get a chance to express their opinions. The group is very vocal and Chris gets a lot of feedback.

After the meeting Chris emails his PowerPoint to Laurel so that she also can stay up to date. On the drive back he makes a phone call to Emilia to share some of his impressions and feedback from the meeting. When he gets back to the office, he checks his calendar and schedules a meeting with Emilia to go through the feedback he received on the display samples in detail. This meeting takes place the next week and only involves Chris and Emilia. Emilia is then responsible for communicating the feedback to her design team.

The next day Emilia emails Chris to tell that he can expect the revised display samples to be ready the following week. Chris, therefore, contacts the stakeholders at Foodster through email and schedules a meeting the same week that the new samples will be ready.

Time passes and it's time for the meeting with the revised samples. This time Sara, Sven and Ryan are absent. The meeting is held based on the same premises as the last meeting. In person with a presentation followed by discussion. This time the stakeholders that are present are happier with the display samples. They want to go forward with the deal and start negotiating terms and pricing, as long as the persons missing from the meeting don't have any objections. After the meeting Chris emails his presentation to the persons that were absent.

On Chris' drive back to Packington's office he makes a phone call to Emilia to tell her about the happy faces during the presentation of the revised display samples. Back at the office Chris starts preparing the contract for the deal while he waits for Sara, Sven and Ryan to get back to him.

The following day Chris receives an email from Sara. She says that the reason she and a couple of her colleagues were absent from the meeting yesterday was that they had run into some problems with the new chocolate beverages. Sara says that this means they have to do some alterations in their internal manufacturing and that the launch will be delayed. For that reason Foodster don't want to go further with the deal with Packington until they have solved their problem. Chris replies and asks if they can schedule a meeting further ahead. Chris gets a reply with a scheduled meeting three months from now.

Three months pass and Chris drives to Foodster for the meeting. All the

stakeholders from Foodster participate in the meeting. They inform Chris about some changes that have been made which result in some slightly changed requirements for the product display. Chris reckons that they need to do some alterations to the displays, but nothing major.

Chris drives back to Packington and calls Emilia to book a meeting to go through the needed alterations to the displays. The meeting takes place later that same day. Emilia in her turn informs her design team with what needs to be done. Emilia also emails Carlos to schedule testing. The display alterations are fixed and tested by Carlos within a week.

Chris holds a new meeting with the stakeholders at Foodster the week after with the new displays. He also presents a contract for the deal. Chris gets the answer that they will go through his proposal and get back to him the following week. All the stakeholders receive a copy of the contract in PDF form via email.

The next week Chris receives a phone call from Sara. She wants to change the phrasings on some of the terms in the contract. Chris says that he will look into it and get back tomorrow. Sara also sends an email after the phone call with comments in the contract PDF of what she wants changed. Chris reviews her comments and determines he can accept some of them but not all. He calls her the next day to negotiate and manage to get her to agree to only some of her original demands. They also schedule a meeting the next week where they can physically sign the contract at Foodster's office.

After the contract is signed, Chris continues to keep contact with the stakeholders at Foodster to follow-up and try solve any potential problems they may have with Packingtons paper displays.

3.4 Analysis of scenarios

The two scenarios were carefully analysed in order to identify potential points in the sales workflow that could be problematic or in need of simplification. These points will lay the foundation for the Dealspace functionality. The analysis was done by reading the scenarios thoroughly and noting how the interaction between the involved persons was carried out. The scenarios were first analyzed individually and then the conclusions were summarized in section 3.4.3.

3.4.1 Analysis Scenario One

The first scenario describes two technologically advanced companies. Company A provides a digital service and are also using a CRM system and a service for digital signing. Company B also operates in the SaaS business. The details of how it manages its internal communication and sales process is not outlined in the scenario.

The sales process between the two companies involves multiple people in both organisations. To get an overview of which people that communicated with each other, the scenario was broken down and illustrated visually. The visual representation can be seen in figure 3.2. The figure only shows the communication between people in the different companies and not internal communication. In the figure, the communication is shown sequentially from the the beginning of the scenario till the end. The communication method is also shown in the

figure and it can be seen that the following communications methods are used: LinkedIn, phone calls, emails, video conferencing and e-signing service.

My experience is that conversations that are held on different communication mediums becomes harder to keep track of. I believe this to be same in scenario one, where not only different mediums are used, but also many different people are involved in the different conversations. From the scenario it can be seen that a total of nine people are involved in some way throughout the sales process.

To manage the information flow regarding a particular deal within the company, company A uses a CRM system. The CRM system requires a lot of manual input from the salespeople and provides logs of all interactions regarding a certain deal in the same place. However, the CRM system doesn't help to keep track of the actual communication with the people at company B, even tough the salespeople at company A are manually entering summaries of held meetings.

In the scenario it's not specified how company B manages it's internal communication regarding an ongoing buying process. The use of a CRM system would probably not help much since it focuses on the sellers relation with the customer, which is the opposite of company B's position in this deal. A way for the two companies to mutually keep track of information flow, i.e. what meetings has been held and what have been decided during them would benefit them both. This would also limit the number of times that information would have to be repeated when new people are involved in the sales process, like when Beatrice, the CEO, was brought in at the end of the deal.

Negotiation and changes in the contract only occurred once in the scenario. The work of going through the contract to ensure what has been changed might therefore be limited. In another scenario however, it might be different and revision of the contract and other important documents might occur several times. In that case, it would be helpful with a tool to easily spot the changes in each revision.

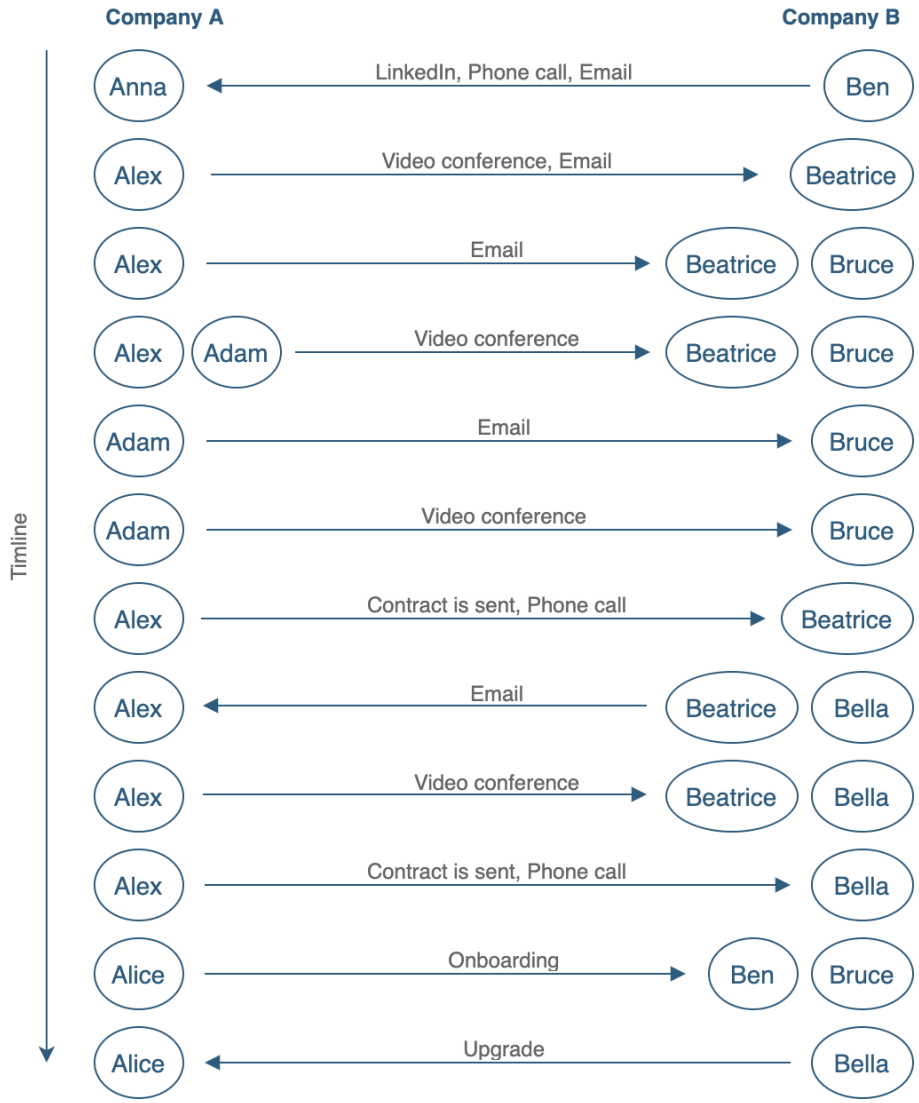

Figure 3.2: Illustration of the communication between people in the two companies in scenario one. Communication within the companies is not shown. The arrows points from the initiator of the communication.

3.4.2 Analysis Scenario Two

Scenario two follows the sales process of two more traditional companies. One FMCG company and one company in the package business. The two companies also use more traditional communication methods compared to the companies in scenario one. Namely physical meetings, emails and phone calls. In total there are nine people involved in the sales process.

The communications between the companies were broken down and illustrated visually in the same way as for scenario one. This illustration can be found in figure 3.3. The communication in the scenario is exclusively between

Chris at Packington and the different stakeholders at Foodster. All stakeholders are not present during all meetings and Chris sends emails to keep everybody up to date. A place to store and have presentation material easy accessible for all parties, would be beneficial and ease the workload on Chris.

Since Packington don't use any particular system for its internal communication, a break down was done of this as well. The breakdown of the internal communication can be found in figure 3.4. From the figure it can be seen that Packington relies phone calls, physical meetings and email. The internal communication regarding the sales process in scenario two mainly takes place between Chris and Emilia. This also means that it becomes easier to keep track of decision that has been made since they almost only have to inform each other.

The time from the first meeting till closed deal in scenario two is about 4-5 months with a three month pause in the middle. After the pause in negotiations, the involved people might have forgotten some of the decisions that were made prior to the pause. Even though requirements had changed after the pause in the scenario, they didn't have that start with the displays from scratch. Although 4-5 months can be seen as a long time, a deal can sometimes go on for over a year without a close [25, p. 175].

Packington don't use any service for signing its contracts digitally. Instead, they send them as PDF:s and signs them in person. Contract revisions are also handled manually. This is an area that could be improved with a service for digital signing and contract revision control.

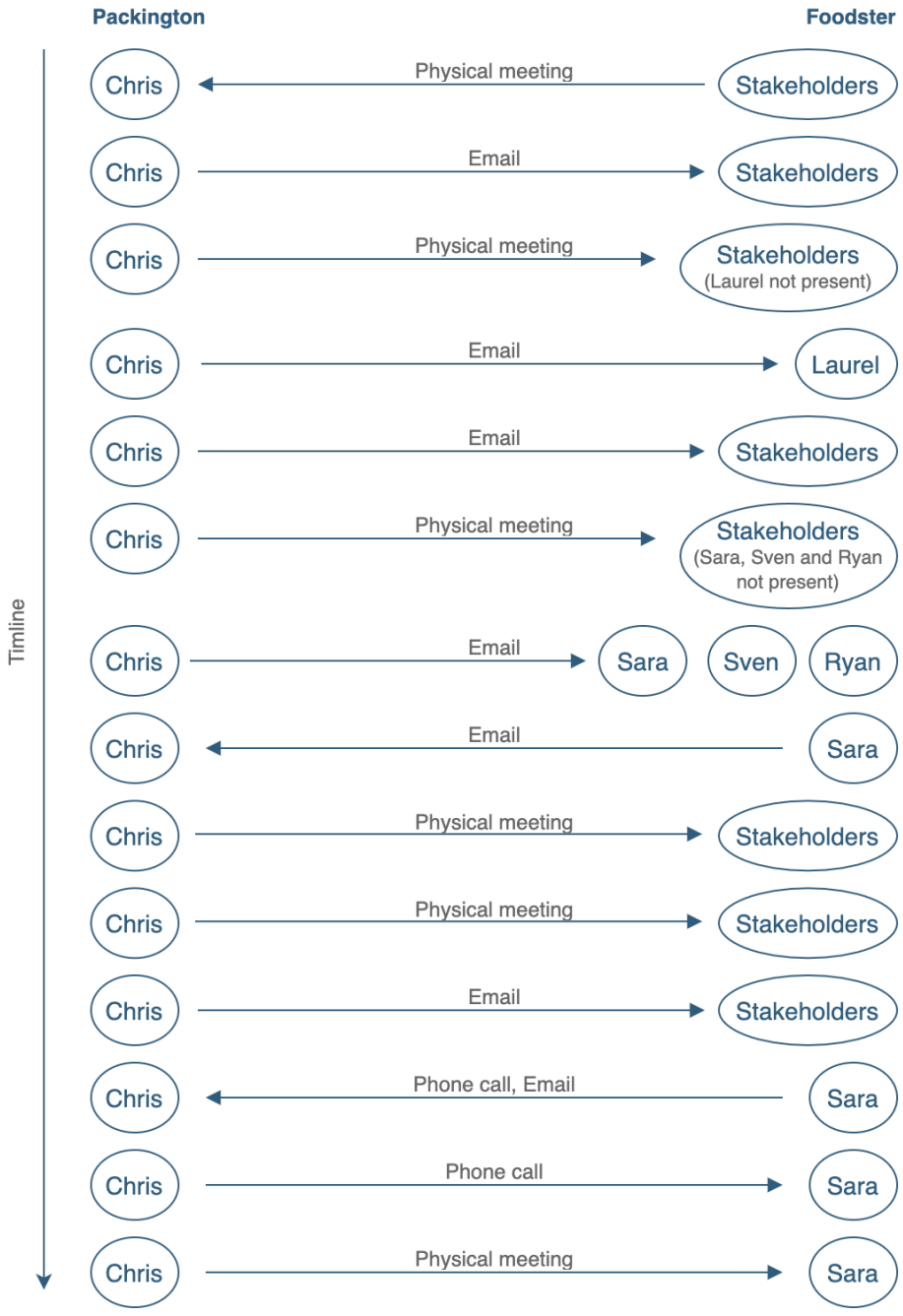

Figure 3.3: Illustration of the communication between people in the two companies in scenario two. Communication within the companies is not shown. The arrows points from the initiator of the communication.

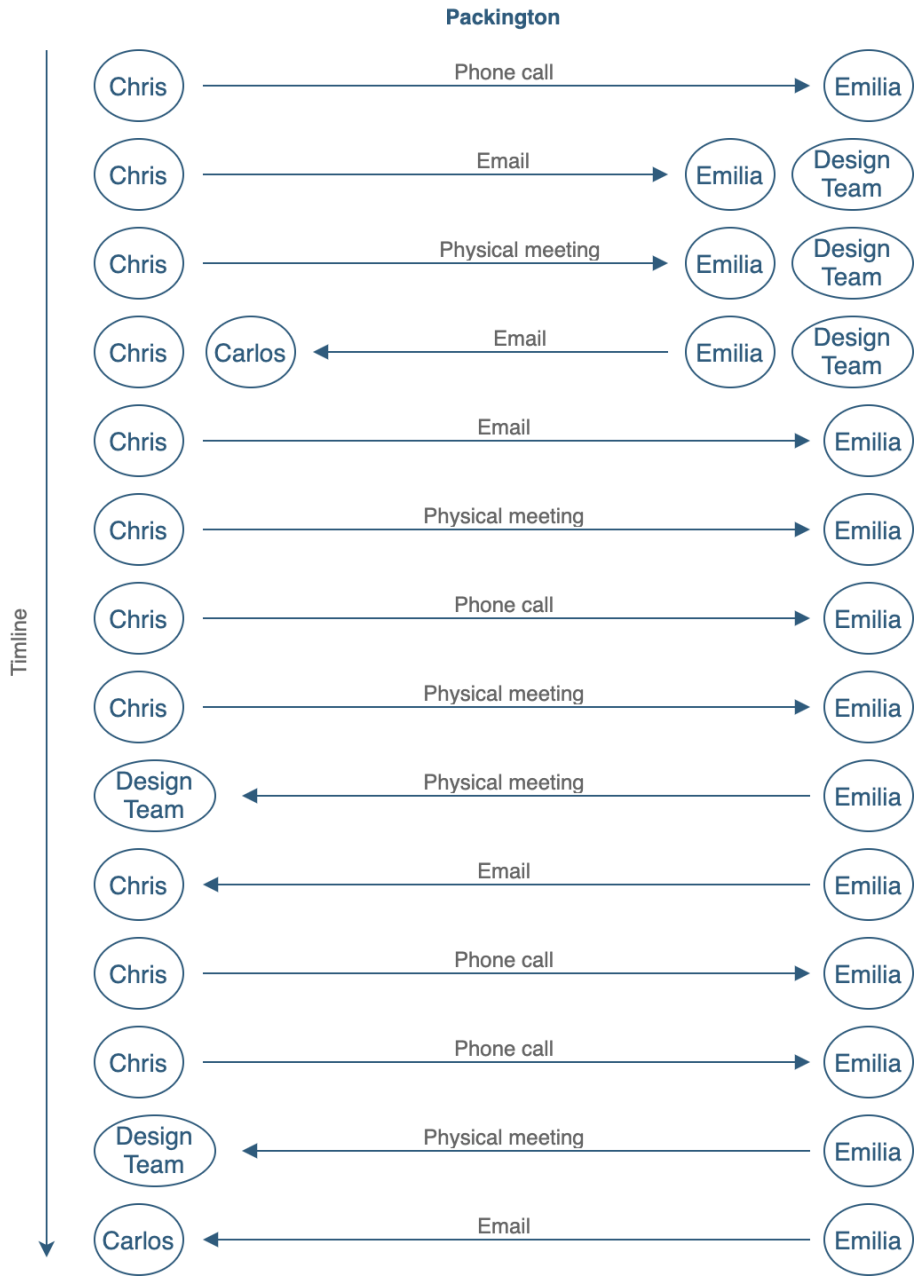

Figure 3.4: Illustration of the internal communication in Packington. The arrows points from the initiator of the communication.

3.4.3 Analysis Conclusion

In both of the scenarios there are a total of nine people involved throughout the sales process. This is above the average according to an article from Harvard Business Review [2]. The article states that an average of 6.8 people in 2017 was involved in B2B sales process and that the number had increased since previous

years. Another article by Gartner claims that a complex B2B sales process can include six to ten decision makers [3]. More involved people in the sales process also means that there are more people to keep up to date with what meetings that have been held and what have been decided. More involved people could potentially mean a more complex process and cause misunderstandings if the information flow between people isn't handled properly. Providing a structured mean of communication between groups of people as well as between individuals is therefore of importance for the Dealspace.

Knowing who the intended users are is an important part of the HCD process. In both of the scenarios there are people involved with different age, education and technical skills. The Dealspace should therefore not be designed in a way that requires any particular knowledge from its users. Although, the most frequent user of the Dealspace would probably be a sales person. Which is why they were considered to be the primary user group.

In both of the scenarios people got involved in the sales process at different stages. It would therefore be natural if people could get invited to the Dealspace once they are part of a deal.

Material from meetings like PowerPoint-presentations should also be accessible in the Dealspace for everyone's convenience. History of conversations and material in the Dealspace should be accessible during a deal's lifetime, which in some cases can be over a year. Scheduling of meetings also proved to be a frequent action in both of the scenarios. Supporting this in the Dealspace therefore feels natural. Negotiating the contract and signing it is often a milestone in a sales process. Manually comparing different versions of a contract during negotiations can be a tedious task. The Dealspace should handle revision of contracts as well as signing them.

With this analysis in mind, the Dealspace would cover approximately step four to seven of the seven steps of selling described in section 3.2. From when the communication has been established and product or service is presented to the closing of the deal and even potential follow-up near in time to the closing. Which means that the Dealspace would span over a big part of the whole sales process.

3.5 Requirements

In order to get a better starting point for prototyping, domain-level requirements in the form of task descriptions were formulated. The tasks were partly based on the conclusions from the analysis of the scenarios and partly from GetAccept's vision of the application. A semi-structured interview was held with the head of product at GetAccept to get a better understanding of their goals. The topics that were discussed during the interview can be found in appendix A.

Some limitations that were stated in section 1.4 were also included in the requirements. The list of established requirements can be found below.

- **R1:** The Dealspace shall be developed as a web application.
- **R2:** The Dealspace shall primarily be run on a desktop web browser.
- **R3:** The Dealspace shall support the user tasks described in table 3.5 - 3.9.

Table 3.5: Task 1 - written communication

Task 1	**Written communication**
Purpose:	A person should be able to communicate via text to other members of the Dealspace.
Precondition:	None
Sub-tasks:	Show a list of available people.
Variants:	- Direct communication to another person - Communication to a group of people

Table 3.6: Task 2 - manage files

Task 2	**Manage files**
Purpose:	People should be able to upload, delete and add new versions of files (e.g presentation material).
Precondition:	- Only owners of a file can upload an update - Only owners of a file can delete it
Sub-tasks:	- Upload a new file - Upload new version of a file - Keep version history of files and show changes between different versions - Delete a file
Variants:	A file can be marked as signable (e.g contracts). Only assigned people may sign the file.

Table 3.7: Task 3 - Scheduling

Task 3	**Scheduling**
Purpose:	People should be able to schedule meetings with other members of the Dealspace.
Precondition:	None
Sub-tasks:	None
Variants:	None

Table 3.8: Task 4 - links

Task 4	**Links**
Purpose:	People should be able to add links to online content and services.
Precondition:	None
Sub-tasks:	- Add link to content (e.g articles, videos) - Add link to service (e.g video conferencing)
Variants:	None

Table 3.9: Task 5 - Manage members

Task 5	**Manage members**
Purpose:	People should be able to see who are members of the Dealspace as well as inviting new members
Precondition:	None
Sub-tasks:	- View current members of the Dealspace - Invite a new person to the Dealspace
Variants:	None

Chapter 4

LoFi Prototyping

This chapter describes the activities carried out during the LoFi prototyping. First, a paper prototype was created based on the previously established requirements. An exploratory test was also performed in order to test and evaluate the prototype.

4.1 Prototyping

The prototyping phase began with paper sketching. The sketching served as a way to explore how the Dealspace could be designed with the established requirements in mind.

Buxton describes sketching as a suitable method during early exploration of a design. He characterizes as sketch, among other things, as being quick to make, inexpensive and minimal in detail [26, pp. 111, 139]. Buxton writes that *sketches and prototypes are both instantiations of the design concept* but that they differ in purpose. He means that sketches are centered to the beginning of the design process while prototypes come in to play later. There's no clear line when a sketch becomes a prototype but he makes the distinction that the investment in a prototype is larger than in a sketch. A prototype is also more refined and is usually where the usability testing takes place [26, pp. 138-139].

The sketching was turned into one paper prototype. The creation of the paper prototype made used of the the concrete tips provided by Snyder [14, pp. 69-95]. The prototype revolved around two tabs, a messaging tab and a tab with a feed. The purpose of the messaging tab was to give the users the possibility to send a message to individual persons or a subset of the Dealspace members. This creates a space for discussion of things that are not yet ready to be shared with all Dealspace members. The messaging tab had a sidebar with existing conversations and button for creating a new conversation. The rest of the messaging tab consisted of a view of the actual messages from the conversation that the user had chosen. For a chosen conversation the user could reply by text, video or voice message. A picture of the messaging tab can be seen in figure 4.1.

The intention of the feed was to provide a place for the user to create posts that could be seen and interacted with by other members of the Dealspace. The feed showed the posts as a timeline. The posts could consist of only text or

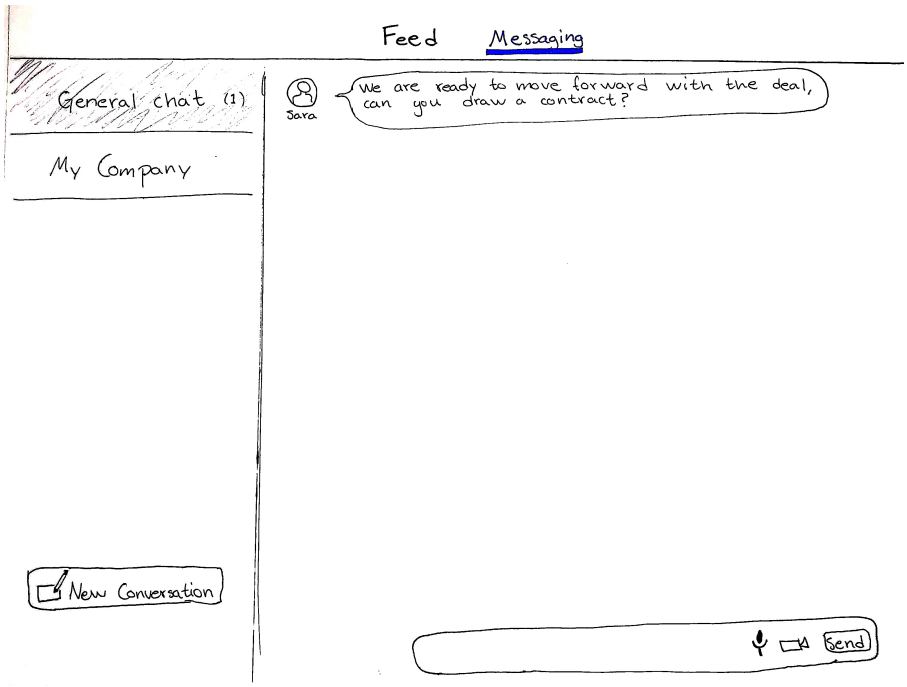

Figure 4.1: Prototype of the messaging tab.

text in combination with a file (like a presentation or a contract), an invitation to a meeting or a link to online content or a service. The creation of a post was done through an input box centered at the bottom of the feed. The input box contained a field for a title and a body text. At the bottom of the input box, several buttons were located. The buttons provided the functionality to add a meeting, a file or a link. When any of these were clicked the application presented a modal window to the user with the appropriate functionality. How this looked when the user clicked the meeting button can be seen in figure 4.2.

Finally, the input box also contained the button for actually creating the post. Once a post was created, it became a card in the feed. Each card had specific action buttons depending on what the post consisted of. On a meeting post the action buttons were *View attendees* and *Invite* while on a post containing a file they were *Update file* and *View file*. When the user clicked any of the actions buttons the application showed them a modal window with content corresponding to the clicked button. If for example *View file* were clicked a preview of the file were shown. From this modal window the user were provided with new options like looking at the changes between different versions of a file. The changes between the versions were color coded to make it easy for the user to spot the differences. A picture of this modal window can be found in figure 4.3.

In the top right corner of each post in the feed a three dotted menu icon was located. This menu provided the user with options to edit or delete the clicked post. It was possible for members of the Dealspace to add and view comments on all cards. A picture of how the feed could look can be found in figure 4.4.

The main goal with the paper prototype was to create something that users

Figure 4.2: Prototype of create meeting.

could interact with in order to evaluate if the feed and the messaging tab were a suitable concept given the requirements. Details in the user interface that were not considered to impact the testing of the concept and the workflow in the prototype were omitted. One example of this was the create meeting modal where there were no field for filling in the location of the meeting.

4.2 Exploratory Test

In order to evaluate the paper prototype, an exploratory test was performed. The purpose of the test was to investigate how easily a user could understand and navigate the prototype while performing tasks representative for a sales workflow. The aim was also to uncover any difficulties in performing these tasks or changes needed to support them.

The test was conducted with two participants. They both worked as IT-consultants and had a background at the faculty of engineering at Lund University. They also had prior knowledge about interaction design and the think aloud methodology. The think aloud methodology is simple and can provide many insights during usability testing. During the test the participants are asked to *verbalizing their thoughts as they move through the user interface* [27]. The think aloud method is effective since it lets you know what the user thinks of a design and you can hear when they interpret things differently than yourself. Which typically can be seen as a redesign recommendation.

Before the test started, the test participants were asked to read and sign an

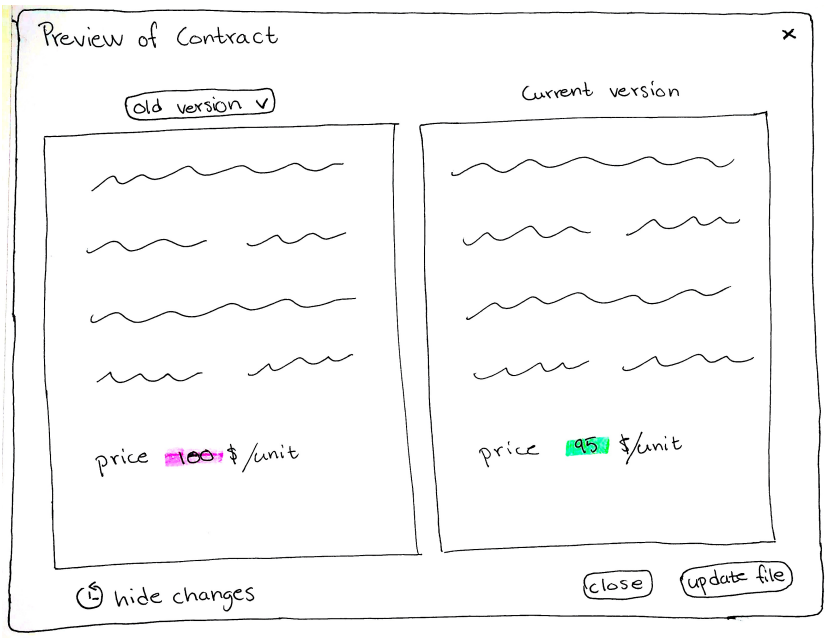

Figure 4.3: Prototype of comparing different versions of a document. The changes between the documents are highlighted in different colors.

informed consent that allowed for audio recording during the test sessions. The informed consent can be seen in appendix C. Larger test groups correlates with more insights, but the correlation is tiny. For low-overhead projects it can even be optimal with only two participants, as in this test [28].

The test was divided in two main parts. In the first part the test participant received a short background of the application and were then asked to perform a number of task scenarios. The background information were deliberately kept short to gain insight in what kind information a user needs to understand the purpose of the Dealspace. While performing the tasks, the test participants were asked to think aloud.

The second part of the test consisted of interview questions about the test participant's experiences during the tasks that had been performed. The full test plan of the exploratory test can be found in appendix B.

4.2.1 Observations

Observations were made of the test participants while they performed the task scenarios. Overall, the participants didn't run into too many problems. They both managed to complete the tasks with almost no help from the test leader at all. They did however have some concerns about how things worked and thoughts about the interface as they navigated through it.

The first task was about creating and posting a meeting. One of the test persons first thought about if the meeting description should be entered in the input box before the meeting button was clicked or if there would be a separate input field once the button was clicked. After clicking the button and seeing

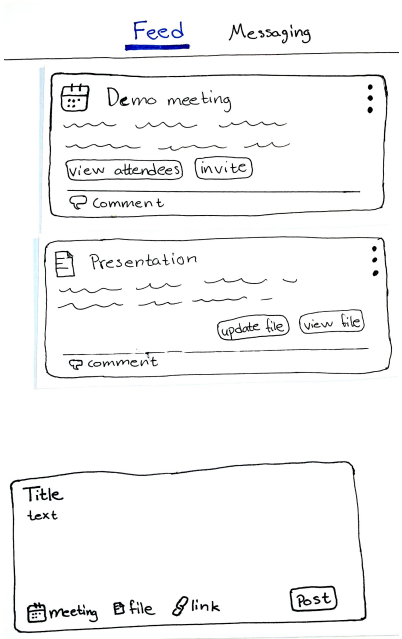

Figure 4.4: Prototype of the Feed tab with two posts.

that there were no specific field in the meeting modal, the test person filled out the input box. For a second after clicking the *Create* button in the meeting modal, the same test person were wondering if the meeting had been posted in the feed, but it became clear that it hadn't once the changed appearance of the meeting button was spotted. This feedback was appreciated by both of the test persons (See figure 4.5).

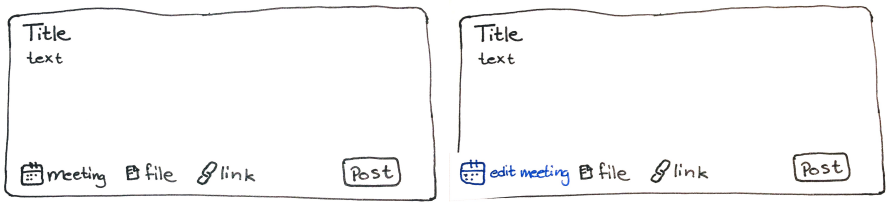

Figure 4.5: Picture of before (left) and after (right) a meeting has been created but not posted.

After creating the first post in the feed, one of the test persons were thinking about whether the card in the feed was a log over past events or if it was dynamic and should be interacted with. This test person quite quickly came to the conclusion that the card in the feed should be interacted with based on the buttons that were seen, in this case *View attendees* and *Invite*.

When the test persons were asked to add a comment on a meeting post in the feed, they considered different ways of doing that before they settled with the *Comment* button on the post. One of the test persons was uncertain if the person who had declined the meeting would be able to see the comment

and therefore thought about sending a direct message to this person instead. The other test participant thought about creating an entirely new post with the comment.

When prompted to upload the presentation from the previously mentioned meeting, one of test persons wanted to click on the three dotted menu on the meeting post and upload the presentation from there. The person expected to find the same alternatives as in the input box for creating a post.

When the participants were told that they had received a message they both said that they wanted a notification in the form of a colored dot or number on the messaging tab.

During the task of uploading a contract that only could be signed by a certain person, both test persons were thinking about sending the contract in a message directly to the signer. The reason for this, they said, were that they felt uncertain of who could see the posts in the feed and thought it might be too public for posting a contract and discussing its content. Although, they both settled with posting it in the feed.

None of the test participants had any problem with uploading an updated version of a document that replaced the old one. They both liked the possibility to see changes between versions of a document and liked the way this was presented with color coding of the changes.

4.2.2 Interviews

During the interview questions that followed the task scenarios, the test participants got the chance to discuss and express their experiences. The questions can be found in appendix B.1.7.

Both of the participants expressed that they thought the user interface was easy to understand and use. They said that they didn't experience any difficulty understanding what different buttons did or how they could navigate between the different windows.

Both test persons also said they did miss a way to know who had access to the feed and who could see the posts that they made. Since they were handling sensitive information, like a contract, in the task scenarios they thought this was important. One of the test persons was uncertain if the feed were only for one certain deal or for all ongoing deals. This person suggested that a short onboarding would be helpful to aid the user in understanding the purpose of the feed and who had access to it. The other person suggested that it could be shown during the creation of a post who could see it once it was posted. But it should not be possible for the user to exclude people from seeing a post since it would become hard to keep track of had access to different material in the feed.

One of the participants said that it was unclear that the feed represented a timeline of the posts and wanted a better indication of this. A suggestion to address this was adding timestamps to the posts. The same test person also started to think about how the revision of documents should work if the feed was a timeline. The test person argued that if the old post was updated it would break the timeline concept and if only a new post was created someone might look at the old post and not realise that there's an updated version. The test participant came to the conclusion that the best way to do it was to grey out the old post and mark it as outdated and refer to the new post.

Other features and wishes that were mentioned during the interviews were some possibility to filter and search in the feed to help deal with the large number of posts that may occur during a lengthy sales process. The possibility to pin certain post to the top or to a separate space was also discussed to give the user a quick overview of what posts are important and relevant at a given time. The option to see who had viewed a document was mentioned as a desirable feature. Access to the Dealspace member's contact information for making phone calls was also discussed, since one of the participants didn't think that phone integration should be a part of the application, but that phone calls are an important part of a sales process.

All in all, the test participants thought that the feed and messaging tab were a good way to view and interact with the kind of information they handled during the task scenarios.

4.3 Analysis and Improvements

Based on the observations and interviews from the exploratory test, it was clear that the concept of the feed and messaging tab had potential. Although the LoFi implementation of the concept as a paper prototype showed some flaws and areas with potential to improve.

The biggest problem, in my opinion, that were highlighted during the tests was the users confusion regarding who had access and could see the posts in the feed. The idea of the Dealspace being a meeting place only for the persons involved in a specific deal was not communicated well enough. The background information that the test participants received about the purpose of the application was kept short. This is one factor that probably contributed the most to their confusion. From the tests, it can be concluded that the users needed more information than what they got from the background information and what was communicated by the user interface. A way to combat this problem, as suggested by one of the test persons, was to introduce a short onboarding screen that should be shown to the first time a user enters the Dealspace. This onboarding screen should explain the purpose of the feed and that only members of the Dealspace can see its content. Further, a method to easily view a list of the members as well as invite new members should be introduced. This should also include information like the members phone number. This was actually a part of the established requirements but overlooked when creating the paper prototype, see table 3.9.

Other improvements that should be made to the feed is the clarification of its function as a timeline of events. I believed the suggestion from one of the interviews to add time stamps to the posts was a good way to clarify this. The topic of how an updated filed should be handled, that arose during one of the interviews, I found to be very interesting. The test participants proposed an idea of creating a new post for updated files while greying out the old with a reference to the updated one was an appealing way of handling it in my opinion. It's important that it's clear to the user which posts that are outdated and which posts that has replaced them.

Even though the prototype used during the tests only contained a couple of posts, the test persons managed to imagine potential problems with the feed concept if it was scaled to include a large number of posts. To cope with this

scenario, they both requested a way to filter and distinguish the important and relevant posts at a given moment. For me, this was a given improvement for the next iteration of the prototype.

Chapter 5

HiFi Prototyping

This chapter describes the activities carried out during the HiFi prototyping. First, a front end prototype was created based on the evaluation of the LoFi prototype. An assessment test was also performed in order to test and evaluate the improved prototype.

5.1 Prototyping

The HiFi prototype was created as a front end web application. The implementation of the front end made use of web technologies such as HTML5, CSS and TypeScript [29, 30, 31]. Further, the JavaScript framework Vue.js was used together with the component library Ant Design to speed up the development process [32, 33].

The HiFi prototype was based on the evaluation of the LoFi prototype and the suggested improvements to it. The need for communicating the purpose of the Dealspace to the user was addressed by adding a short onboarding. The onboarding was provided in a modal that was shown as an overlay over the application. The onboarding modal consisted of three slides and was shown to the user the first time he or she entered the Dealspace. The three slides informed the user about how the feed represented a timeline of the interactions between the companies involved in the sales process. Further, it covered who could access the information and tips on how to manage large numbers of posts by filtering the feed and marking posts as important. Screenshots from the onboarding modal can be found in figure 5.1.

The ability to filter the feed and mark posts as important were also new additions to the HiFi prototype. The motivation behind this was that the test persons in the exploratory test of the LoFi prototype requested a way of managing a large number of posts. The filter functionality was located in the top right of the Dealspace and gave the user the possibility to search in the title and description of a post, select post authors and select post types. The goal of the filter was to help the user navigate the feed if he or she had an idea of what they were looking for, like who made the post or that it contains a document. A screenshot of the filter can be seen in figure 5.2.

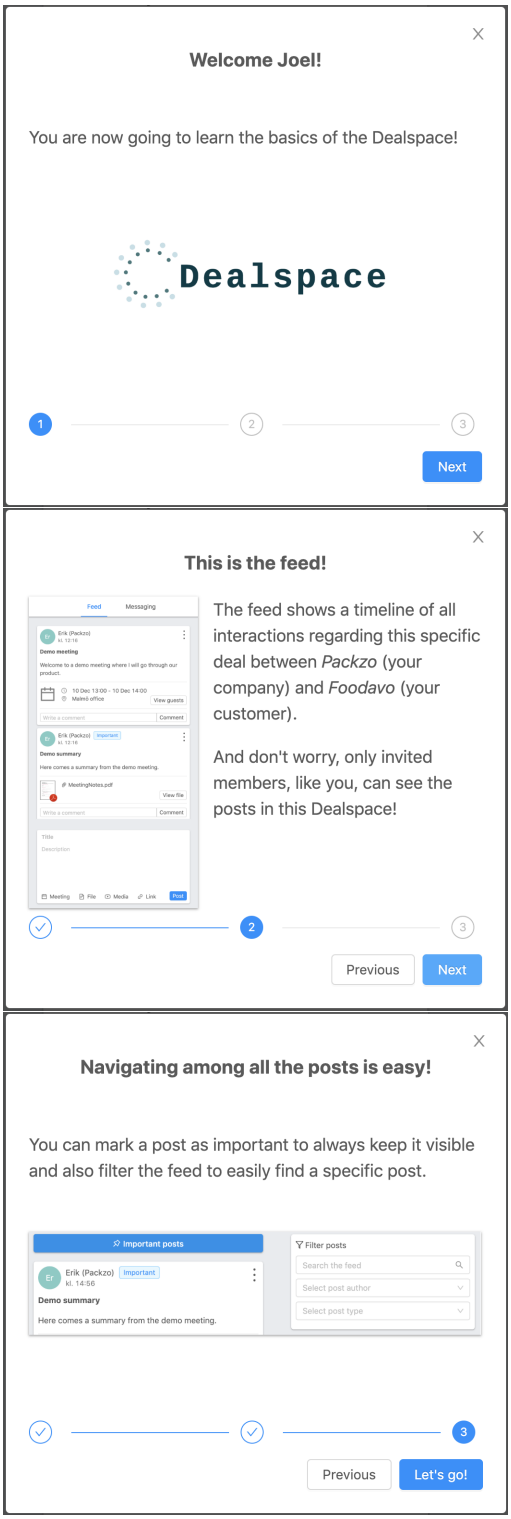

Figure 5.1: Screenshots from the onboarding modal and its three slides in the HiFi prototype.

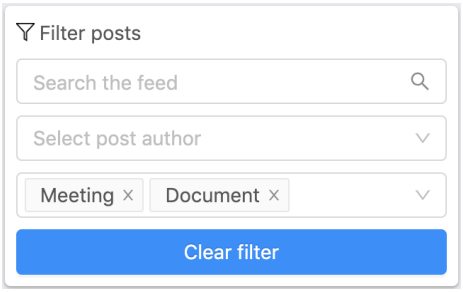

Figure 5.2: Screenshot of the filter with the selection to only show posts that contains a meeting or a document.

The possibility to mark a post as important was meant to easily give the user an overview of what information is important at a given moment. Posts that were marked as important showed up in a separate column but also remained in the regular feed so as not to affect the timeline concept. To mark a post as important, the user should click the three dotted menu on the post and click *Mark as important*. The post would then be marked with a label and also show up in the separate column. To unmark the post as important, the user should follow a similar process. A screenshot of the important posts column can be seen in figure 5.3.

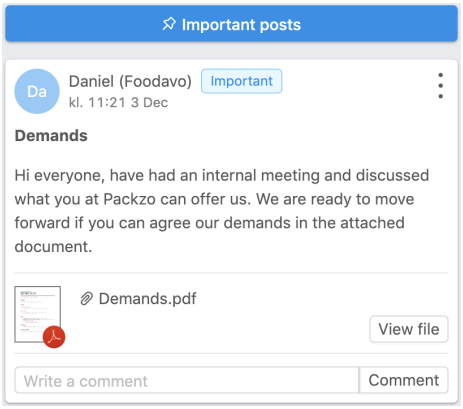

Figure 5.3: Screenshot of the important posts column containing one post.

From the evaluation of the LoFi prototype, it was clear that the feed needed to better convey that it displayed the posts as a timeline. This was dealt with by informing the user that the feed acted as timeline during the onboarding but also by adding timestamps to the posts. The idea of the timestamps was to help the user to build a conceptual model of how the posts were ordered in the feed. The timestamp of when a post was created could of course also be important to the user beyond just providing clues of how the posts were ordered.

In the case of an updated post, I choose to stick with the idea provided by one of the test participants in the exploratory test. If the user wanted to update a for example a contract, they could click the update button on the post and then select the updated version of the contract. This would result in the now old post being marked with a yellow label stating that it was outdated and the

background of the post being greyed out. How this looked in the prototype can be seen in figure 5.4.

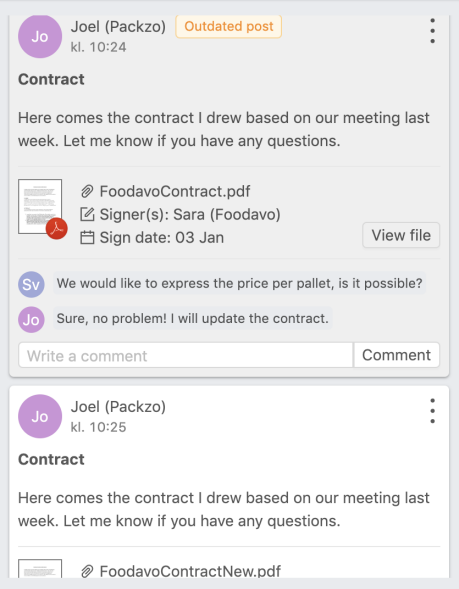

Figure 5.4: Screenshot of an outdated post and the corresponding updated one.

The requirement regarding managing members (see table 3.9) of the Dealspace that was neglected during the LoFi prototyping was implemented in the HiFi prototype. In the top right corner above the filter, a members button was located. Once it was pressed, a popover was revealed showing the members of the Dealspace and their contact information. Located at the bottom of the popover was a button to invite a new member. The popover is shown in figure 5.5.

An overview of how the different parts of the HiFi prototype were located in relation to each other, can be seen in figure 5.6.

Since the HiFi prototype were more refined and functional than the LoFi prototype, the design principles described in section 2.5 were better applied. Feedback was for example provided in the event of an required input field being empty. In that case the user would receive message in a snackbar at the top of the page informing the user about what was missing. Across the HiFi prototype all user actions was followed by some kind of visual feedback to confirm that the application had registered the user's action. Signifiers in the form of highlighted icons and labels on hover were commonly used throughout the prototype on clickable areas and buttons. Options in the interface that were not available were greyed out and the cursor showed the *not-available* icon which served as constraints.

The icons used in the prototype were chosen to be familiar to the user from past experience of graphical user interfaces. An example of this was the three dotted menu icon that is used in Google's material design [34] and Apple's human interface guidelines [35]. Despite that some icons are strongly associated with a certain action, like the previously mentioned three dotted menu, there are no standard for most icons and they can have different meaning in different

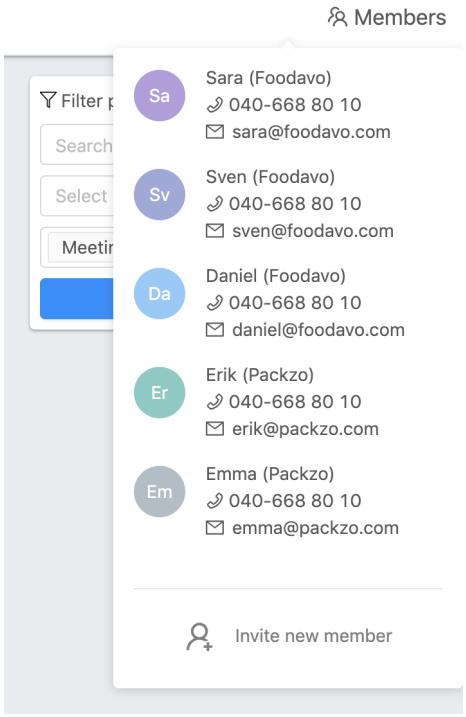

Figure 5.5: Screenshot of the popover showing the members of the Dealspace.

applications [36]. Text labels should be used alongside icons because of this ambiguity. This was also the standard case in the HiFi prototype. However, there were some places where a text label wouldn't fit and in that case a tooltip was used instead.

Due to the time restriction of this thesis, all functionality of the Dealspace was not implemented. The possibility to add media and links to the posts were for instance not implemented. The media button was the result of the file button in the LoFi prototype being split up into a separate document and media button to better indicate what kind of files the user could upload. The workflow of the media and link features were intended to be similar to add meeting and add document that were working in the prototype. Potential problems that would be found in the assessment test (see section 5.2) in these two features would therefore also likely be present in add media and links. The add media and links functionality were therefore not prioritized when creating the HiFi prototype. One part of the Dealspace that the test participants of the LoFi prototype were pretty pleased with was the messaging tab. The GUI of the messaging tab itself was also not groundbreaking but instead followed a similar design to other messaging applications that the user probably already felt familiar with. Based on this and the time restriction of the project, the messaging tab was not implemented in the HiFi prototype.

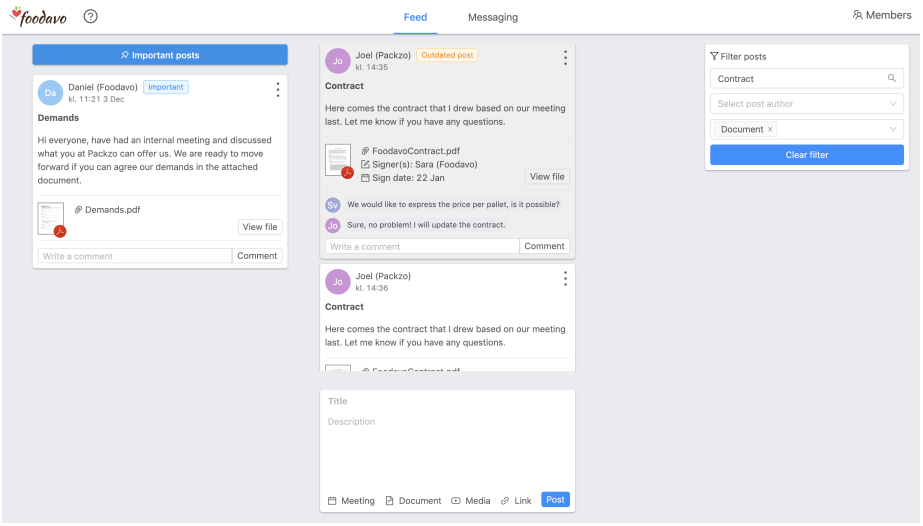

Figure 5.6: An overview of the Dealspace.

5.2 Assessment Test

In order to evaluate the HiFi prototype an assessment test, as described in section 2.4.2, was conducted. The following research questions were formulated to serve as the basis for the test:

1. Can the participant access the Dealspace and complete the onboarding?
2. How easily can the participant navigate the feed and find specific posts?
3. How easily can the participant create, post and find out who is going to a meeting?
4. How easily can the participant find out who has access and grant access to the Dealspace?
5. How easily can the participant post a signable document in the feed?
6. How easily can the participant find comments on posts and make its own comments?
7. How easily can the participant update an existing document and find the changes between the documents?
8. Is the participant overall satisfied with the application?
9. Does the participant consider the Dealspace to support tasks that are common during a typical B2B sales process?
10. Does the participant think that an application like the Dealspace would be useful or simplify a typical B2B sales process?

The test sessions took place at GetAccept's office in Malmö. To create the same conditions for all participants, the test sessions were held in the same conference room and all information about the test was read from a script. The test was performed individually and each test session consisted of the following steps:

1. Sign informed consent
2. Fill out the pre-test questionnaire
3. Receive information about the test tasks and perform them
4. Fill out post-test questionnaire
5. Answer post-test interview questions

Before the test session the participant received an informed consent with information about the test and their consent to the collected data begin used in this report. When a participant arrived to the test session, he or she was asked to sign the informed consent. The full informed consent can be found in appendix E. Once the document was signed, the participant filled out the pre-test questionnaire. This questionnaire gathered information about the test participant such as age, educational background and experience from B2B sales. The gathered information about the test participants is presented in section 5.2.1.

The pre-test questionnaire was followed by the test scenario. First, the participant was given a short background about his or her role in the test scenario. The background was this: *You work as an account executive at the company Packzo.* The test scenario then started with the participant receiving an email from his or her colleague. In the email the participant was told that her or she was going to take over the negotiations with the company Foodavo in an ongoing sales process. The email also carried an invitation link to the Dealspace. The email in its entirety can be seen in figure 5.7. The participant was asked to perform the following tasks in the Dealspace:

1. Access the Dealspace and complete the onboarding
2. Find and read a specific post in the feed
3. Create, post and view attendees of a meeting
4. Find Dealspace members and invite a new member
5. Post a signable document to the feed
6. Read and reply to a comment
7. Update an existing document and view the changes

When the test tasks were completed, the participant filled out the post-test questionnaire. The questionnaire consisted of the System Usability Scale plus some more application specific statements. All of the statements were graded on a five point Likert scale where five indicated strongly agree and one indicated strongly disagree. Lastly, an interview was held where the participant's thoughts and impressions about the tasks and the Dealspace were noted. A more detailed test description can be found in the HiFi test plan in appendix D.

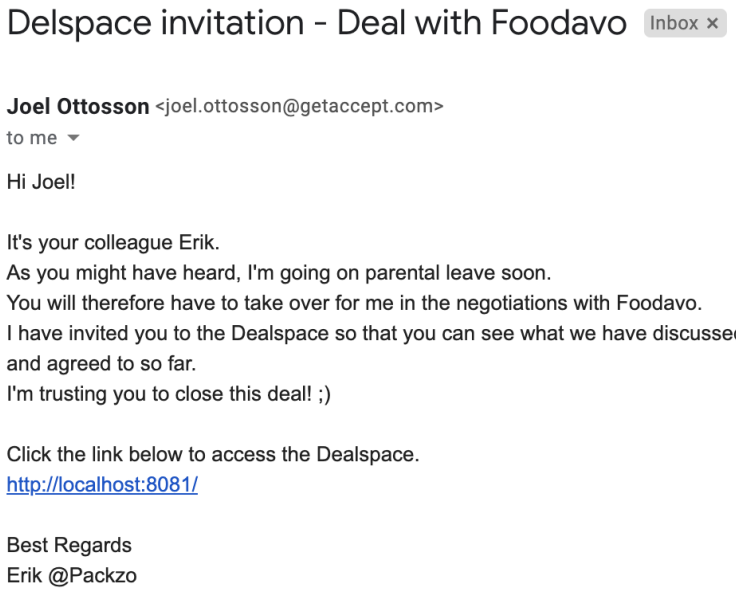

Figure 5.7: The invitation email to the Dealspace received by the test participants.

5.2.1 Test Participants

The participants characteristics that are presented in this section were gathered in the pre-test questionnaire. The assessment test was held with five participants. All test participants were males in the age span 26 to 28. The educational background between the participants was quite similar and all except for one had an educational specialization within sales. The highest completed educational degree among the test participants was quite varied can be seen in the pie chart in figure 5.8.

All of the test participants had prior experience from B2B sales process. Their involvement in sales processes included roles such as business development representative, sales development representative, account manager and account executive.

5.2.2 Test Results

This section presents the results from the test task, post-test questionnaire and the post-test interviews. The results are categorized as answers to the research questions stated in section 5.2.

Can the participant access the Dealspace and complete the onboarding?

All of the test participants accessed the Dealspace and completed the onboarding with ease and without any problems. However, it should be noted that one of the participants didn't really read through the onboarding slides but rather clicked through them. The same participant also took a lot more time, compared

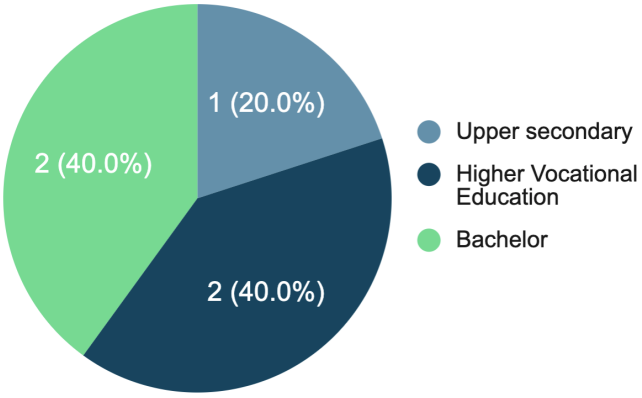

Figure 5.8: The highest completed educational degree among the five test participants.

to the others, to read through the invitation email before clicking the link to the Dealspace. The rest of the participants where more homogeneous in time consumption. The participants completion of the task *Access the Dealspace and complete the onboarding* and time consumed is presented in table 5.1.

During the post-test questionnaire the participants were asked if they felt that the onboarding provided helpful information about the application. Four out of five participants graded the question with a four and one participant gave it a three. This result indicates that the participants overall thought the onboarding was helpful. The participants were also asked if they would have liked more or other information than the one provided by the onboarding. The answers to this question were a bit more divided than to the last one and more located at the center of the scale indicating a more neutral response. The responses to these two questions are presented in figure 5.9.

Table 5.1: Success rate and time consumption for the task *Access the Dealspace and complete the onboarding*.

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	45 s	90 s	50 s	43 s	45 s

How easily can the participant navigate the feed and find specific posts?

When the participants had accessed and completed the onboarding, they were asked to find a specific post in the feed. One participant stood out and took a lot more time than the others to find the specific post. The participant in question spent the majority of that time by clicking and reading attached documents to other posts before seeking out the requested post. The participants used different methods to find the specific post. Some of them scrolled the feed while others used the filter to search for the title of the post. The completion and time consumed for this task can be found in table 5.2.

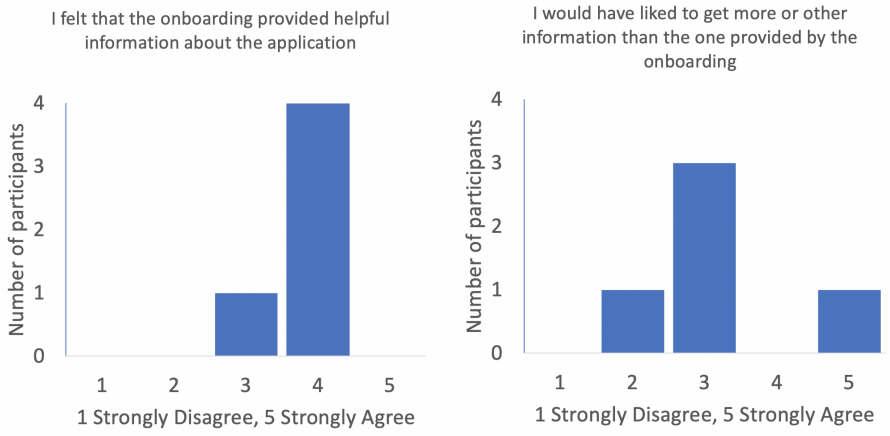

Figure 5.9: Post-test questionnaire questions related to the onboarding.

In the post-test questionnaire the participants were asked if they felt that the feed as a timeline was a good way of displaying past events in the sales process. They were also asked if they thought it was easy to navigate and find specific posts in the feed. Figure 5.10 shows that the participants tended to agree quite strongly with both of these statements.

Table 5.2: Success rate and time consumption for the task *Find and read a specific post in the feed.*

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	12 s	180 s	28 s	13 s	23 s

How easily can the participant create, post and find out who is going to a meeting?

The participants were asked to create a meeting, post it and view the guest list to see who was attending. Some of the participants had to look around a bit before finding the meeting button while others found it immediately. None of the participants had any problems with filling out the information in the meeting modal that was shown when the meeting button was pressed. When the meeting details were filled out the participants pressed the add button and the modal was closed. This is when some of the participants got confused. They thought that they were done and that the meeting had been created in the feed, yet the meeting was nowhere to be found. After clicking around in the filter and scrolling in the feed these participants realised that the meeting only had been saved to the post they were creating and not posted to the feed.

One of the participants, in particular, also had trouble finding the input field for the title of the post. The title was a required field and the user was prompted by the application to fill it out if he or she tried to post a post without it. The participant that had trouble with this eventually found it without any clues from the test leader.

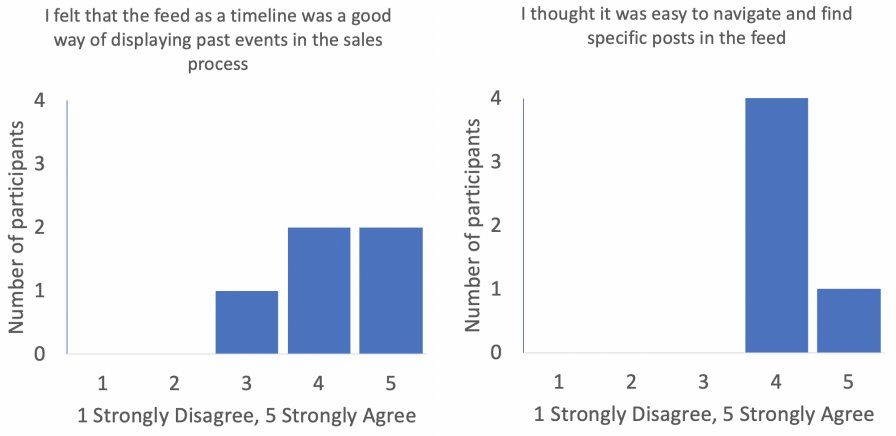

Figure 5.10: Post-test questionnaire questions related to the timeline.

Table 5.3: Success rate and time consumption for the task *Create, post and view attendees of a meeting.*

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	237 s	163 s	171 s	83 s	192 s

The task success and time consumed for it can be seen in table 5.3.

How easily can the participant find out who has access and grant access to the Dealspace?

Two of the test participants didn't find the members button straight away. These participants instead went looking in the feed to see how it had looked when they themselves got added as members, but they didn't find anything. They also looked for a way to invite a member through a new post before seeing the members button. The remaining three participants found the members button immediately. None of the participants had any problems with the task once they had located the members button. Completion and time data are presented in table 5.4.

Table 5.4: Success rate and time consumption for the task *Find Dealspace members and invite a new member.*

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	118 s	120 s	42 s	44 s	43 s

How easily can the participant post a signable document in the feed?

None of the test participants had any problems with posting a signable document to the feed. It was clear that they had learned the workflow of creating a post from when they created a meeting earlier in the test. This time they didn't

have any of the problems they had the first time they created a post. The time consumed for this task (see table 5.5) was also significantly reduced compared to the task where the participants created a meeting (see table 5.3).

Table 5.5: Success rate and time consumption for the task *Post a signable document to the feed.*

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	44 s	84 s	66 s	45 s	107 s

How easily can the participant find comments on posts and make its own comments?

All the participants could find and answer to the comment on the signable contract they had posted in an earlier task with ease. The participants completion of the task *Read and reply to a comment* and time consumed is presented in table 5.6.

Table 5.6: Success rate and time consumption for the task *Read and reply to a comment.*

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	30 s	37 s	18 s	23 s	34 s

How easily can the participant update an existing document and find the changes between the documents?

None of the participants had any problems with updating the old document. They all mentioned that they liked that an updated document resulted in a new post. However, one of the participants had trouble with finding the changes between the two versions of the document. This participant tried to manually compare the documents by reading and going back and forth between them. At this point, the participant received a clue and was told to see if he from the updated document alone could find the changes somehow. With this nudge in the right direction the participant found the view changes button which the other test participants had found instantly. One of the participants also mentioned that he thought that the update file button was a bit to prominent when viewing the updated file. This made him uncertain if the update actually had been applied or if he needed to press it again. Although, he pretty quickly drew the conclusion that it had been updated, which it had. The time consumed for this task by the participants can be seen table 5.7.

Is the participant overall satisfied with the application?

The SUS score was used as a measure of the users satisfaction. The SUS scores that were calculated from the post-test questionnaire for each participant is presented in the graph in figure 5.11. From the graph it can be seen that all but one participant got a score above the threshold of 70 and thus seemed to be satisfied with the application.

Table 5.7: Success rate and time consumption for the task *Update an existing document and view the changes.*

Participant	1	2	3	4	5
Task success	Yes	Yes	Yes	Yes	Yes
Time	36 s	206 s	24 s	37 s	25 s

During the post-test interview all of the participants seemed to be in agreement on that they thought that the application looked nice and that the interface felt smooth. However, one participant said that he thought it was a bit hard to get oriented in the feed and find where the sales process started. This was the same person whose SUS score was below 70 and also didn't really read the onboarding slides. Some of the participants also had some more specific things they expressed they liked both during the test and in the interview. In particular they all liked the color coded changes between different versions of a document. They thought this provided an easy way to see what had been changed. Someone said that they liked the ability to comment on posts directly to discuss its content. Further, it was mentioned by a couple of test participants that they liked the idea and thought the application provided a good overview over the sales process.

A couple of the participants mentioned that they thought the Dealspace had some similarities to a CRM system, which internally keeps track of a deals progress. They said that the CRM systems usually are messy with a lot of information and hard to digest, while the Dealspace was more lightweight and fluent.

Does the participant consider the Dealspace to support tasks that are common during a typical B2B sales process?

The test participants all thought that the application supported the fundamental activities in a typical sales process. It was mentioned from multiple participants that emails and phone calls are very prominent in a typical sales process in their experience. The application did provide written communication that could replace emailing but one of the participants thought that some users might be reluctant to give up on emails and handle the communication regarding a deal in the Dealspace instead. Further, the participants had different opinions regarding if and how phone calls should be incorporated in the Dealspace. One thought that it would be convenient to have call logs in the application similar to how it works in CRM systems. The majority of the participants thought that call logs had no place in the Dealspace since it would only bring complexity and that important things that arose during a phone call could be entered as a regular post in the application.

During the interviews the participants were asked if they thought or knew if a the typical B2B sales process were different in other industries. To this they replied that the basic activities are the same but that it can differ in length and number if people involved. In a shorter sales process with few people involved they said that phone calls usually are more common. It was also mentioned that some companies have a long sales process before a signed contract while others have the majority of the process after. This means that a signed contract doesn't necessarily mark the end of a sales process and that the process could

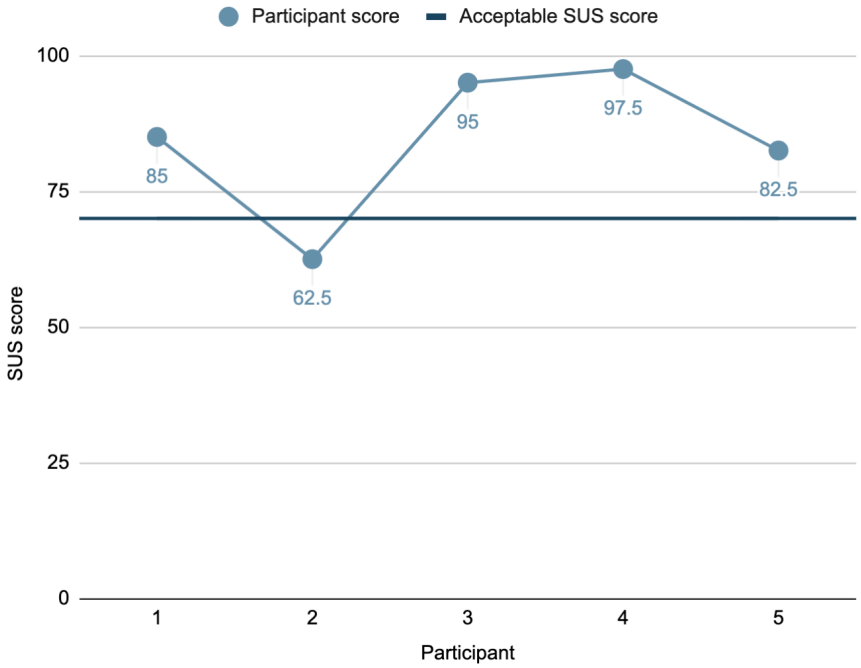

Figure 5.11: The SUS score for each of the five test participants. Scores above the horizontal line at 70 are acceptable and usually indicates a good application.

continue to live on in the Dealspace even after that which one of the participants said he liked.

Does the participant think that an application like the Dealspace would be useful or simplify a typical B2B sales process?

On this question the answers were unanimous. All test participants believed that an application like the one that they had tested would be useful and simplify sales process's. Some more specific comments were that it would be helpful to compress the workflow since it today involves many different services. An application like the Dealspace would simplify this and make it more accessible. Another one said that it felt natural to join in the middle of the sales process and thought it would be useful especially for customer success managers that joins the process at the end and can then see all past decisions. Some of the participants thought the Dealspace would be particularly suitable for long sales processes. One of the participants thought that an application like Dealspace not only would be helpful for B2B sales but also for business to consumer (B2C) sales. He mentioned the insurance industry as an example of this.

One participant stated a drawback with gathering and storing information about past events from a negotiating standpoint as a seller. He said that it might not always be desirable to let the potential customer go back and look at old pricing suggestions since it might undermine the sellers negotiating power if the prices go up further down the line. The example scenario was that negotiations are started with a potential customer, the deal then goes "dark" and nothing happens for a up to year. The negotiations are then started fresh and as a seller

you want to limit the potential customer's ability to go back and demand the old pricing. The participant therefore suggested that as creator of the Dealspace one should be able to set the lifetime or close it if needed.

Feature requests from the participants

Even though the participants overall seemed to be pleased with the Dealspace they did have some requests of additional features as well as changes to some of the existing ones. One of the participants compared the feed with how feeds usually works in other applications like social media and CRM systems where the latest event is displayed at the top of the feed. In comparison the Dealspace's timeline was reversed. The participant meant that because of this it took a bit longer to orient yourself in the feed.

Integration to other services was requested by multiple participants. Example of services was Google Calendar or similar so that booked meetings also could be visible in the users preferred calendar. Further, integration to a CRM system was suggested so as was when the lifecycle of the Dealspace (one sales process) was over the data could be exported to the CRM for future reference.

One of the participants thought that the post should be given more space since notes in a real sales process tend to be longer than the ones in the test scenario.

A more advanced document viewer was something that was requested so that comments could be seen alongside the open document as well as signer and sign date if applicable. Further, the possibility to link comments to specific parts of the document was suggested.

Many of the participants requested a way to keep private notes in the Dealspace only accessible to oneself or within the company.

When it came to inviting a new member, it was mentioned that it would be good if you could attach a message to the invitation to make it more personal and welcoming. It was also suggested that an invitation of a new member should result in a new post in the feed so that other users could see it.

The participants overall said that they liked that an updated document resulted in a new post. However, one participant mentioned that it would be convenient if the old comments carried over to the new post as well. This way it would be easier to follow discussions regarding a specific document and the reason way changes were made. This person said that this was a problem he experienced in his document workflow today.

Lastly, it was suggested by multiple participants that an actual timeline should be located next to the feed that spanned over the Dealspace's life cycle and showed some indication of when in time posts had been made. They said that this would help them get oriented in the feed and provide an overview. Further, they said that it would be especially useful in long sales process's since you then easily could identify periods where the sale had gone "dark" with no progress.

5.2.3 Analysis and Improvements

Given a success rate of 100% across all of the test tasks for all participants and high SUS scores from all but one of the participants, one could conclude that the HiFi prototype did perform well. The success rate of 100% with only one clue to one of the participants indicates that the application was *effective*. Further,

the high SUS scores suggest that the participants thought the application was *useful*. However, it should be noted that since only five persons participated in the test, the SUS scores carry no statistical significance.

The factor that I think contributed to the one SUS score below 70 is that this participant didn't really read the onboarding which resulted in difficulty carrying out some of the test tasks and problem with grasping the purpose of the Dealspace. I believe this affected the participant's experience negatively and made him less satisfied with the application, thus explaining a lower SUS score. With this theory in mind, the question is why the participant clicked through the onboarding slides so quickly and if there are any changes that can be made to make participants more likely to read the onboarding. One thing that I noted during this participant's test session was that he took significantly longer than the others to read through the invitation email that preceded the onboarding. I got the feeling that the email being written in English might be the cause (not the participant's native language). When the participant then got to the onboarding, he was tired of reading and was eager to get started. Hence the quick click through of the onboarding slides. A simple way to address this would be to offer the Dealspace in the participant's native language.

The variety of test persons was not as diverse as I would have liked. Most notably, only men in the age span 26 to 28 participated. This is a very small group of the potential user base. A larger and more diverse test group could potentially uncover other usability problems than the ones that were found. The main cause for the small and not very diverse test group lay in the test taking place the week before Christmas. This meant that most sales people were very busy and didn't have time to participate in the usability test. Although, the time consumption increases for every additional test participant while the number of insights quickly diminishes at the same time. Five participants in a usability study have actually been found to be the sweet spot when it comes to benefit-cost ratio for qualitative studies and is referred to as discount usability engineering [28]. To obtain statistically significant measures however, one needs larger test groups.

A note regarding the time consumed for the different test tasks. During the test the participants were free to formulate the descriptions of their posts. This led to some of the participants putting more effort in their formulations, thus taking more time, while other settled with shorter ones. This fact makes it a bit more difficult to compare the times head on. Although, I think the time consumed for writing was marginal compared to time consumed due to usability problems like finding a button. The time consumption can thus still be seen as a measure of *efficiency*. Since I have no data on how long time the tasks typically takes with the standalone applications used today, it's hard to evaluate if the times are good or bad.

Lastly, the participants requested some changes and new features described at the end of section 5.2.2. I believed all of them were relevant and that they should be investigated and tested further in the next iteration of the application. This is not covered due to the duration of this thesis.

5.3 Fulfilment of Requirements

The HiFi prototype was also evaluated compared to the earlier established task descriptions in section 3.5 table 3.5 - 3.9. How well the prototype fulfilled the task descriptions can be seen in table 5.8 below. In this table it can be seen that some of the task descriptions are not met. This is due to the corresponding features not being implemented, as mentioned in section 5.1 about the HiFi prototype.

Table 5.8: Fulfilment of task descriptions

Task description	**Fulfilled**
Task 1 - Written communication	Partly - possible to communicate through posts and comments but the messaging tab was not implemented
Task 2 - Manage files	Yes
Task 3 - Scheduling	Yes
Task 4 - Links	No - not implemented
Task 5 - Manage members	Yes

Chapter 6

Discussion

This chapter presents some final thoughts about the project. The research questions formulated in the beginning of the thesis are revisited and their fulfilment discussed. Further, the design process is evaluated and improvements suggested. Lastly, ethical aspects regarding the application is considered and areas for further investigation is proposed.

6.1 Fulfilment of Research Questions

What activities constitutes a sales process?

This question was the first one to be addressed and was mainly covered during the investigation phase in chapter 3. Since I had no prior knowledge about the steps or activities involved an a typical B2B sales process, I needed to research the subject. During the investigation phase the research was mainly done through a literature study from which I learned how the sales process work in theory. An unstructured interview with an actual salesperson was also held to help understand the workflow and typical activities that are carried out. The research about the typical sales activities found in the investigation phase were also later revisited in the assessment test and confirmed by the participants who all worked as salespersons. With this in mind I would like to say that this research objective was fulfilled.

Can some parts of the sales process be simplified by bringing them in to a common space and how can that be measured?

During the thesis, a concept that gathers the different sales activities that were found to be important, has been investigated. The concept was first visualized with sketches and a paper prototype. This prototype was evaluated by two participants with knowledge about interaction design. The evaluation focused more on the usability rather than on how realistic the sales activities were. That's also why I choose test participants with knowledge about interaction design rather than sales persons.

In the next iteration where the improved concept was implemented as a web application, the evaluation was done exclusively with sales persons. It was through this evaluation that I sought to determine if the created application

could simplify a typical sales process. During the post-test interviews all test participants responded that the application both supported common sales activities and that presenting them in a common space would simplify the sales process. This research objective was thereby measured by the subjective opinions from the five sales people that participated in the assessment test. This leads to the question if there is a way to get an objective measure and definitely determine if an application like the Dealspace could simplify the sales process. If the prototype had been developed further, this could be achieved through a comparison test where the same sales activities are performed in both the traditional way and in the Dealspace. Time consumption should be measured and the participants preferred way of doing the tasks noted. Ideally the test tasks would be performed as faithful to reality as possible. However, as learned from the scenarios in chapter 3, the time spans in a real sales process can be long and thus making it harder to perform a test representative of reality. Although, I believe that the opinions from test participants with knowledge and experience from the sales business would be sufficient to determine if the application simplifies the sales process.

6.2 Evaluation of the Design Process

The thesis work was divided into four different phases and started with the problem investigation. Investigating and learning more about the sales process and its activities was also one of the research objectives. As mentioned earlier, this research was mainly done through a literature study but also included an unstructured interview with a sales person. Further, I did study GetAccept's onboarding material regarding their sales process. Although, in retrospect I think it would have been good to shift the focus a bit more to how the sales workflow looks like in different industries and what activities these salespeople do every day. A way to achieve this could have been through interviews to get a broader view on different sales activities beyond what I learned from the SaaS business through GetAccept and packaging business through the doctoral thesis referenced earlier. This would also probably result in more up to date information about the actual sales interactions since the found literature were a couple of years old and the tools used for example communication changes pretty rapidly due technological advancements. Although, it's not certain that any differences in the sales activities would have been found.

The information from the investigations were then used to create scenarios and personas. These were analyzed and used to specify the requirements together with input from the head of product at GetAccept. The fact that I did have clearly formulated requirements made the work with creating the prototypes easier as well as evaluating them.

During the LoFi prototyping sketches were made which led to one concept that was explored and tested. The evaluation of the concept showed that it had potential. If this concept hadn't showed any potential I might have been forced to go back and explore other concepts. Which is why it would have been good to test out more than one concept from the beginning. At this stage it would therefore be suitable with some kind of brainstorming or focus group to explore more ideas. Since this thesis has been conducted by one person, this would also be a good place to invite other persons to partake and discuss the generated

ideas from different points of view.

The evaluated concept from the LoFi prototyping with improvements was then implemented as a web application during the HiFi prototyping. This prototype was evaluated through an assessment test with sales people. This means that the application was evaluated against the target group, which I think is very important and brings validity to the test results. Although, as mentioned earlier, the test group could have been more diverse which probably would impact the test results. Nonetheless, all five of the sellers that tested the application thought that it would be helpful and simplify the sales process.

6.3 Ethical Aspects

An application like the one developed through out this thesis would have to comply with the General Data Protections Regulation (GDPR) upon market launch [37]. The reason for this is that the application handles personal data about its users like phone numbers, full names and emails. There are mainly three aspects of the regulation that are of importance for this kind of application: consent, right to data access and right to be forgotten.

First, for the application to be allowed to handle personal data, the person in question must give his or her consent. A common way of handling this is through the terms of service for the application. Given that some of the feature requests were integration to third-party services, the users would also have to give consent to them. If a company stores any personal data about its users, the users have the right to access and view that information. They also have the right to demand that the company deletes that data, known as the right to be forgotten.

6.4 Future Investigation

For the next iteration of the application, the feature requests from the participants should be investigated. Further, this thesis did not cover the details of the electronic signing and tracking of documents since this is something GetAccept does today. For the Dealspace to be ready for launch this should be incorporated as well. It could also be investigated how the Dealspace could capture the customer earlier in the process, at the prospecting step. This could potentially be done through a chat bot on the selling company's website where the potential customer asks questions about their product. Those messages could then carry over to a new Dealspace and the deal evolves from there.

Chapter 7

Conclusion

In this thesis I have achieved the research objective of gaining knowledge and deeper understanding of the sales process. With help from this knowledge, I have identified activities in the sales workflow that could benefit from being gathered in common meeting place online and thereby simplify the sales process.

A concept of the meeting place that supported these activities was created. The concept was evaluated through a usability test with two participants with knowledge in interaction design. The concept was overall well received from the test participants who thought it had potential. However, some improvements were suggested, like a short user onboarding, possibility to highlight important posts and filter options to easier navigate the feed.

This led to the development of an improved HiFi prototype, implemented as a web application. This prototype was tested by five sales persons, the primary user group. The HiFi prototype received high SUS scores from all but one of the test participants, indicating that they were overall satisfied with the application. Further, all of the test participants successfully completed all of the test tasks used to evaluate the HiFi prototype. Most importantly, they were all convinced that the application would simplify their sales processes. From this I concluded that I had achieved the main goal of the thesis, namely to determine if the sales process could be simplified by gathering sales activities in a common space. The answer was that it could and the prototype showed one way of achieving it.

Even though the final prototype, based on the test results, could be deemed successful there were still additional features requested by the sales persons. This included, among other things, integration to services like GoogleCalendar, a more advanced document viewer and a way to keep private notes. These features should be investigated further. Another iteration of the prototype would therefore be suitable before moving to the final product.

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Appendix A

Semi-structured Interview

- Vad skulle du säga är målet med Dealspace?
- Vilka tänker du kommer vara de viktigaste funktionerna?
- Kommer all användare att ha tillgång till samma funktioner? Skiljer det sig mellan säljare och kund?
- Vad skulle du säga kommer särskilja Dealspace mot ett CRM system?
- Hur resonerar du kring säkerheten när det gäller åtkomst av Dealspace?

Appendix B

LoFi Test Plan

B.1 Test Plan

This is a script used for testing of the paper prototype created from the established requirements for the Dealspace.

B.1.1 Objective

The purpose of the tests are to evaluate the following points.

- Does the interface supports task that are performed during a typical sales workflow?
- How well does the interface communicate the intended workflow?
- Are the posts and the feed a suitable way to communicate and present typical information flow in a sales process?
- How easily and successfully can a user navigate within and between screens?
- Does anything need to be changed in the intended workflow or interface to support the task performed during a typical sales process?

B.1.2 Selection of participants

The desired test participants are participants with prior experience within interaction design and interaction with paper prototypes. Preferably they would also be familiar with the think aloud methodology.

B.1.3 Equipment

The test participants will have access to a paper prototype of the Dealspace and a printout of the tasks to be performed.

B.1.4 Execution

The tests will be performed individually by the participants and will be led by one test leader. The test session will consist of the following steps:

1. The test participant arrives to the test session.
2. Before the tests start the participant will have to sign an informed consent that allows for audio recording during the test. The participant is also informed that he or she is testing a prototype during early stages of the development process.
3. The test leader will read the background information from section B.1.5 to the participant.
4. The test leader will ask the participant to try to carry out the task scenarios described in section B.1.6. During the tasks the participant will be encouraged to think aloud.
5. After the tasks has been performed the participant will be asked the questions found in section B.1.7.

B.1.5 Background Information

You work as a seller at company that manufactures custom made packaging. You are responsible for an ongoing deal with another company. For you communication with the other company you use a digital application that serves as a meeting place for all things related to the ongoing deal. The application can be found on the device in front of you.

B.1.6 Task Scenarios

1. Create and post an invitation to a demo meeting with all representatives from the company Foodavo.
2. The invited representatives has responded to you invitation. Find out who can't make it.
3. Add a comment to your meeting saying that you will upload the presentation once the meeting has been held so that the people who couldn't attend can see it.
4. The meeting has been held and you are now going to upload the presentation.
5. You have received a message from the sales director, Sara, at Foodavo. View the message.
6. You are now going to upload a contract that only only Sara can sign.
7. Sara leaves a comment on the contract. View the comment.
8. You should now update the old contract according to Sara's comment.
9. You want to make sure that you made the correct changes. You therefore decide to look at the version history of the file.

B.1.7 Post Test Questions

- How did you experience the tasks that you carried out? Were they easy or hard to perform?
- To what extent were you able to identify with the role as a sales person?
- Did the tasks feel like tasks that you think a sales person would carry out?
- Did you understand the difference in purpose between a post in the feed and a message in the messaging tab?
- Did you think that the posts in the feed were a suitable way of communicating and presenting the information that you handled during the tasks?
- Would you want the information to be presented another way?
- Do you think that the feed would be suitable for a large number of posts and a long time span? Would anything have to be changed to support this?
- Were there anything that you felt were confusing? In the application or in the tasks?
- Were there anything that you felt were missing in the application?
- Did you feel you were missing any information to be able to use the application?

Appendix C

Informed Consent LoFi

Informed Consent

The purpose of this study, that is part of a master thesis, is to investigate how a digital meeting place for business to business sales interactions could be designed. As a participant in this study you will test a prototype during early stages of the development process.

During the test you will receive information regarding a scenario. Based on this scenario you will receive a set of tasks to perform. The tasks will be followed by questions about the tasks you performed.

The participation in this test is voluntary and you can choose to withdraw from the test at any point. If you choose to withdraw you don't have to state any reason why. If you would like to withdraw, contact Joel Ottosson (contact information found below).

Sound will be recorded during the test and observations will be noted. The data collected from the test will be anonymized and may be used in presentations, publications and other academic contexts. The recorded sound will only be stored and used during the duration of the master thesis and accessed by the researcher.

By signing this document, I affirm that I have received and agreed to the information stated above.

_____
Name

_____
Signature

_____
Date and Place

For further questions regarding the study, send an email to Joel Ottosson via joel.ottosson@getaccept.com

Appendix D

HiFi Test Plan

D.1 Test Plan

This is a test plan for testing the HiFi prototype created in this master thesis. The test is a usability test that will assess how well users can perform different tasks.

D.1.1 Purpose

The purpose of the tests are to evaluate the implemented HiFi prototype of the Dealspace to uncover usability problems that needs to be fixed before moving to the final product.

D.1.2 Research questions

1. Can the participant access the Dealspace and complete the onboarding?
2. How easily can the participant navigate the feed and find specific posts?
3. How easily can the participant create, post and find out who is going to a meeting?
4. How easily can the participant find out who has access and grant access to the Dealspace?
5. How easily can the participant post a signable document in the feed?
6. How easily can the participant find comments on posts and make its own comments?
7. How easily can the participant update an existing document and find the changes between the documents?
8. Is the participant overall satisfied with the application?
9. Does the participant consider the Dealspace to support tasks that are common during a typical B2B sales process?
10. Does the participant think that an application like the Dealspace would be useful or simplify a typical B2B sales process?

D.1.3 Data Collection

Table D.1: Data to be collected for the research questions

Question	Objective/ Quantitative	Objective/ Qualitative	Subjective/ Quantitative	Subjective/ Qualitative
1	Completion of task	Comments from participant	Post-test questionnaire	
2	Completion of task	Comments from participant	Post-test questionnaire	
3	Completion of task	Comments from participant		
4	Completion of task	Comments from participant		
5	Completion of task	Comments from participant		
6	Completion of task	Comments from participant		
7	Completion of task	Comments from participant		Post-test interview
8			Post-test questionnaire	Post-test interview
9				Post-test interview
10				Post-test interview

D.1.4 Tasks

Table D.2: Test tasks

Task	Sub-tasks	Success criteria	Maximum time

Access the Dealspace and complete the onboarding	1. Click the invite link in the invitation email 2. Read and click through the onboarding slides 3. Close the onboarding modal	Closed onboarding modal	
Find and read a specific post in the feed	Alternative 1 1. Scroll the feed until the post with the correct title is visible Alternative 2 1. Select the type of the post among the filter options 2. Scroll in the filtered feed until the post with the correct title is visible	Finding the correct post	
Create, post and view attendees of a meeting	1. Find the input box and enter title and description 2. Click the meeting button and fill out the meeting details 3. Add the meeting to the post 4. Post the meeting to the feed via the post button 5. Click the view guests button on the post to see who is going	View of who is going to the meeting	

Find Dealspace members and invite new member	1. Click the members button 2. Locate and click the button to invite new member 3. Fill out the form and click invite	New member invited	
Post a signable document to the feed	1. Find the input box and enter title and description 2. Click the document button and upload a document 3. Turn the switch to make the document signable and fill out the required details 4. Add the document to the post 5. Post the meeting to the feed via the post button	Signable document posted	
Read and reply to comment	1. Receive notification and find the post with the comment 2. Find input field and write a reply	Posted reply to a comment	
Update an existing document and view the changes	1. Locate the document to be updated in the feed 2. Click the update button and select the updated document 3. Click to view the updated document 4. Click the view changes button	View of the changes between the old and the new version	

D.1.5 Execution

The test will performed individually by the participants and will be lead by one test leader. The test session will consist of the following steps:

1. The test participant arrives to the test session.
2. Before the test starts the participant will have to sign an informed consent.
3. The participant fills out the pre-test questionnaire.
4. The participant is informed about the tasks and performs them.
5. The participant fills out the post-test questionnaire and the post-test interview is held.

D.1.6 Selection of Participants

The desired test participants are persons with experience within B2B sales processes. Preferably the participants will have different experiences from B2B sales. Other diversifying factors like age, education and gender will also be taken into account but will not be the deciding factors. The participants will be selected within GetAccept.

D.1.7 Equipment

During the test the participants will have access to the HiFi prototype of the Dealspace. The prototype will be running in the Google Chrome web browser on a MacBook Pro 13".

D.1.8 Background information

The following information was given to the test participant before performing the test tasks: *You work as an account executive at the company Packzo.*

D.2 Pre-test Questionnaire

1. Age (free text)
2. Gender (male, female, other)
3. Highest completed degree (elementary, upper secondary, bachelor, master, Ph.D., other)
4. Educational specialisation (free text)
5. Have you been involved in a B2B sales process? If yes, in what way(s)? (free text)

D.3 Post-test Questionnaire (SUS)

The post-test questionnaire consists of the SUS questionnaire together with some additional statements that will be graded on a five point Likert scale.

D.3.1 SUS Questionnaire

1. I think that I would like to use this application frequently
2. I found the application unnecessarily complex
3. I thought the application was easy to use
4. I think that I would need the support of a technical person to be able to use this application
5. I found various functions in this application were well integrated
6. I thought there was too much inconsistency in this application
7. I would imagine that most people would learn to use this application very quickly
8. I found the application very cumbersome to use
9. I felt very confident using the application
10. I needed to learn a lot of things before I could get going with this application

D.3.2 Additional Statements

1. I felt that the onboarding provided helpful information about the application
2. I would have liked to get more or other information than the one provided by the onboarding
3. I felt that the feed as a timeline was a good way of displaying past events in the sales process
4. I thought it was easy to navigate and find specific posts in the feed

D.4 Post-test interview questions

1. Do you have any spontaneous impressions of the application and the tasks that you carried out?
2. How did it feel to join in the middle of an ongoing sales process?
3. Were there anything you didn't understand or felt were confusing in the GUI?
4. What did you think about the way the feed behaved when updated the contract? (It created a new post)
5. Do you think that the tasks that you carried out are representative of a typical sales process?
6. Were there anything that you felt were missing from the Dealspace that are common in a typical B2B sales process?

7. Do you think that the activities that are carried out during a sales process differ between different industries?
8. Do you think an application, like the Dealspace, that tries to gather all or most of the sales activities in a common space would be helpful?
9. Do think such an application would simplify the sales process?
10. Do you think there are any drawbacks with an application that tries to gather all or most of the sales activities in a common space?

Appendix E

Informed Consent HiFi

Informed Consent

The purpose of this study, that is part of a master thesis, is to investigate how a digital meeting place for business to business sales interactions could be designed. As a participant in this study you will test a prototype (web application) with limited functionality.

During the test session you will first receive a short survey with demographic questions. You will then take part in a sales scenario where you will interact with the prototype and carry out a set of tasks. The tasks will be followed by a survey and interview questions about the tasks you performed and your impressions of the prototype.

The participation in this study is voluntary and you can choose to withdraw from the study at any point. If you choose to withdraw you don't have to state any reason why. If you would like to withdraw, contact Joel Ottosson (contact information found below).

The computer screen and audio will be recorded during the study and observations will be noted. The data collected from the study will be anonymized and may be used in presentations, publications and other academic contexts. The recorded sound will only be stored and used during the duration of the master thesis and accessed by the researcher.

By signing this document, I affirm that I have received and agreed to the information stated above.

_____

Name

_____

Signature

_____

Date and Place

For further questions regarding the study, send an email to Joel Ottosson via joel.ottosson@getaccept.com